STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

December 17, 2007

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

ATTENTION: Mr. David Baker
NCDOT Coordinator

SUBJECT: **Nationwide Permit 13 and 33 Application** for the replacement of Bridge No. 130 over the Broad River on NC 9 in Buncombe County. Division 13, Federal Aid Project No. BRSTP-0009(1), State Project No. 8.1845601, WBS Element 33399.1.1, TIP No. B-4032.

Dear Sir:

Please see the enclosed Pre-Construction Notification (PCN), permit drawings and design plans for the above referenced project. A Categorical Exclusion was completed for this project in April 2006 and distributed shortly thereafter. The North Carolina Department of Transportation (NCDOT) proposes to replace the 33.5-foot, one-span Bridge No. 130 with a new single-span 95-foot bridge over the Broad River. The current bridge will be replaced at the existing location and a temporary bridge used as the detour will be constructed 54 feet downstream. Traffic will be maintained on a temporary structure during construction. There will be 91 linear feet of permanent stream impacts from the use of riprap for bank stabilization and there will be temporary stream impacts to the Broad River due to girder assembly of the proposed bridge totaling < 0.01 acre. There are no jurisdictional wetlands located within the project area.

IMPACTS TO WATERS OF THE UNITED STATES

General Description:
The single water resource impacted for project B-4032 is the Broad River. The Broad River is located in the Broad River Basin (Division of Water Quality (DWQ) subbasin 03-08-01) and is approximately 20 feet wide and 2 feet deep within the project area. The DWQ Index number for this section of the Broad River is 9-(1) and the Hydrological Cataloguing Unit is 03050105. The DWQ classifies the Broad River as "C Tr". Within the project area, the Broad River is not listed as

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-715-1334
FAX: 919-715-5501

WEBSITE: WWW.NCDOT.ORG

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

a 303(d) water and there are no 303(d) waters within a mile downstream. No High Quality Waters (HQW), Water Supplies (WS-I or WSII), or Outstanding Resource Waters (ORW) occur within the project study area. The Broad River is not designated as a North Carolina Natural and Scenic River or a National Wild and Scenic River.

Permanent Impacts:
There will be 91 linear feet of permanent stream impacts to the Broad River resulting from bank stabilization with riprap. Affected areas include the outlet end of a new ditch and where a portion of wing wall will be removed to allow for drainage via a special cut ditch.

Temporary Impacts:
There will be temporary stream impacts to the Broad River due to girder assembly of the proposed bridge totaling < 0.01 acre.

Utility Impacts:
There will be no jurisdictional impacts due to water or sewer or with the relocation of the power line.

Schedule:
The project schedule calls for a June 17, 2008 LET date and a review date of **April 29, 2008**. The date of availability for construction is on June 29, 2008.

Bridge Demolition
The existing bridge's superstructure consists of reinforced concrete girders with asphalt wearing surface and reinforced concrete railing. The substructure consists of reinforced concrete abutments. It should be possible for the superstructure and substructure elements to be removed without any resulting fill into the Broad River during demolition and removal. If fill reaches the water the maximum resulting temporary fill associated with the removal of the bridge is approximately 51.7 cubic yards. All guidelines for bridge demolition and removal will be followed in addition to Best Management Practices (BMPs) for the Protection of Surface Waters and BMPs for Bridge Demolition and Removal.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of November 05, 2007, the United States Fish and Wildlife Service (USFWS) lists thirteen federally protected species for Buncombe County (Table 1). The biological conclusion for all thirteen listed species is "No Effect" due to lack of habitat. Therefore, it can be determined that this project will have no effect on any threatened or endangered species.

Table 1. Federally Protected Species for Buncombe County

Common Name	Scientific Name	Status	Habitat Yes/No	Biological Conclusion
Appalachian elktoe	*Alasmidonta raveneliana*	E	No	No Effect
Bog turtle	*Clemmys muhlenbergii*	T(S/A)	No	N/A
Bunched arrowhead	*Sagittaria fasciculata*	E	No	No Effect
Carolina northern flying squirrel	*Glaucomys sabrinus coloratus*	E	No	No Effect
Eastern cougar	*Puma concolor couguar*	E	No	No Effect
Gray bat	*Myotis grisescens*	E	No	No Effect
Mountain sweet pitcher plant	*Sarracenia rubra ssp. jonesii*	E	No	No Effect
Oyster mussel	*Epioblasma capsaeformis*	E	No	No Effect
Rock gnome lichen	*Gymnoderma lineare*	E	No	No Effect
Spotfin chub	*Erimonax monachus*	T	No	No Effect
Spreading avens	*Geum radiatum*	E	No	No Effect
Tan riffleshell	*Epioblasma florentina walkeri*	E	No	No Effect
Virginia spiraea	*Spiraea virginiana*	T	No	No Effect

AVOIDANCE, MINIMIZATION AND MITIGATION

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

- Traffic will be maintained on a temporary detour downstream during construction allowing for replacement of the bridge at the existing location.

- Opening floodplain therefore allowing better hydrologic connectivity due to new bridge that is 95 ft. long.

- Moratorium: there will be an in-stream and 25-foot buffer work moratorium from January 1 to April 15 to protect Rainbow trout.

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

Mitigation:
NCDOT proposes no mitigation for the 91 linear feet of permanent impacts to the Broad River. These impacts are from bank stabilization, which will not have an adverse effect or result in loss of waters of the United States. There are no High Qulaity Waters or Outstanding Resources Waters on the project site.

REGULATORY APPROVALS

Section 404 Permit:
It is anticipated that the temporary impacts to the Broad River will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33. NCDOT will make use of a Nationwide Permit 13 for 91 feet of impacts relating to bank stabilization.

Section 401 Permit:
We anticipate 401 General Certification numbers 3689 and 3688 will apply to this project. All General Conditions of the General Certification will be adhered to, therefore we are not requesting concurrence from the DWQ. We are submitting 2 copies of this permit application for your records.

This project is located in a trout county, therefore comments from the North Carolina Wildlife Resources Commission (NCWRC) will be required prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers and the NCDOT within 30 calendar days of receipt of this application.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jennifer Harrod at jwharrod@dot.state.nc.us or (919) 715-7241.

Sincerely,

for E. R. Lusk

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

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

W/o attachment (see website for attachments)

Dr. David Chang, P.E., Hydraulics
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. J.J. Swain, P.E., Division Engineer
Mr. Roger Bryan, 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
Mr. Joseph Miller, P.E., PDEA Project Planning 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: Nationwide 23 and 33

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

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

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

II. Applicant Information

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

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

III. Project Information

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

1. Name of project: Bridge No. 130 on NC 9 over the Broad River

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4032

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

4. Location
   County: Buncombe Nearest Town: Bat Cave, NC
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): I-40 West; to NC 9 S; Arrive at B-4032

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): 35'30'44.96 °N 82'16'7.02 °W

6. Property size (acres): N/A

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

8. River Basin: Broad River
   (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: Residential, Maintained Disturbed, Montane Oak-Hickory Forest

10. Describe the overall project in detail, including the type of equipment to be used: Bridge No. 130 will be replaced with a single-span bridge that is 85 feet long.

11. Explain the purpose of the proposed work: NCDOT Bridge Maintenance Unit records indicate Bridge No. 130 has a sufficiency rating of 47.5 out of a possible 100 for a new structure. The bridge is considered structurally deficient and functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

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 91 linear feet of permanent stream impacts from the use of riprap for bank stabilization and there will be temporary stream impacts to the Broad River due to girder assembly of the proposed bridge totaling < 0.01 acre.

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)
No Wetlands					
Total Wetland Impact (acres)					

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

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

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	Broad River	Permanent	Perennial	20'	27	<0.01
2	Broad River	Permanent	Perennial	20'	23	<0.01
2	Broad River	Permanent	Perennial	20'	26	<0.01
2	Broad River	Permanent	Perennial	20'	15	<0.01
Total Stream Impact (by length and acreage)					91	<0.04

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

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
Total Open Water Impact (acres)				0

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

Stream Impact (acres):	<0.04 (perm.)
Wetland Impact (acres):	0
Open Water Impact (acres):	0

Total Impact to Waters of the U.S. (acres)	<0.02 (perm)
Total Stream Impact (linear feet):	91

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. The current bridge will be replaced at the existing location and a temporary bridge used as the detour will be constructed 54 feet downstream. Traffic will be maintained on a temporary structure during construction. NCDOT Best Management Practices will be implemented during all phases of construction and demolition.

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. NCDOT proposes no mitigation for the 91 linear feet of permanent impacts to the Broad River. These impacts are from bank stabilization, which will not have an adverse effect or result in loss of waters of the United States.

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

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

IX. Environmental Documentation (required by DWQ)

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

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

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

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

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

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

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

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

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

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

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level._____
All stormwater from this bridge replacement project shall be directed to special cut ditches which will allow for storm water treatment before discharging into the Broad River.

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:
This project is limited to a bridge replacement. No indirect or cumulative impacts are anticipated

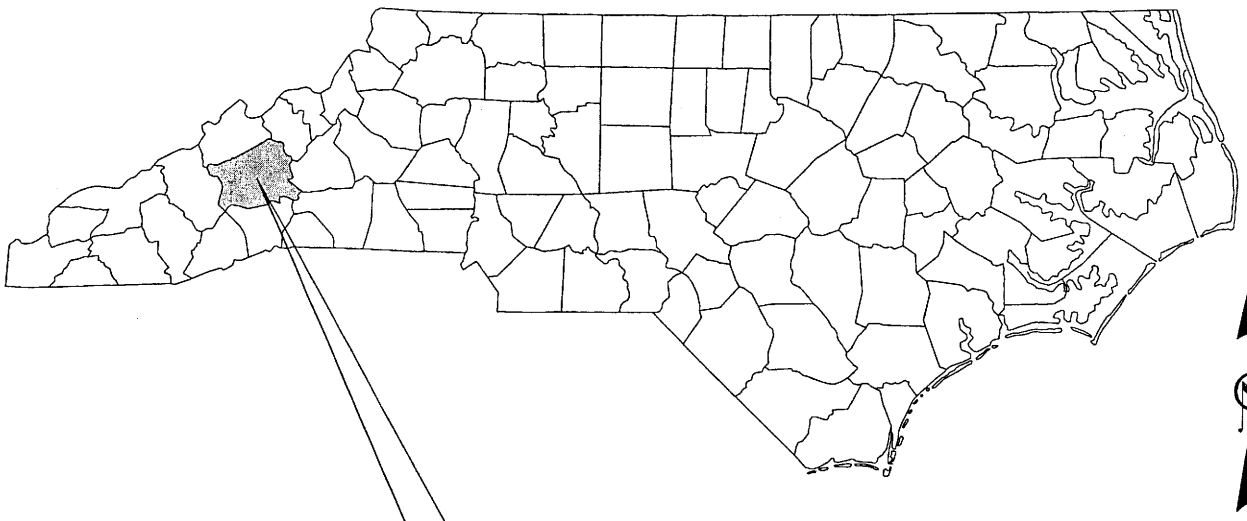
XV. Other Circumstances (Optional):

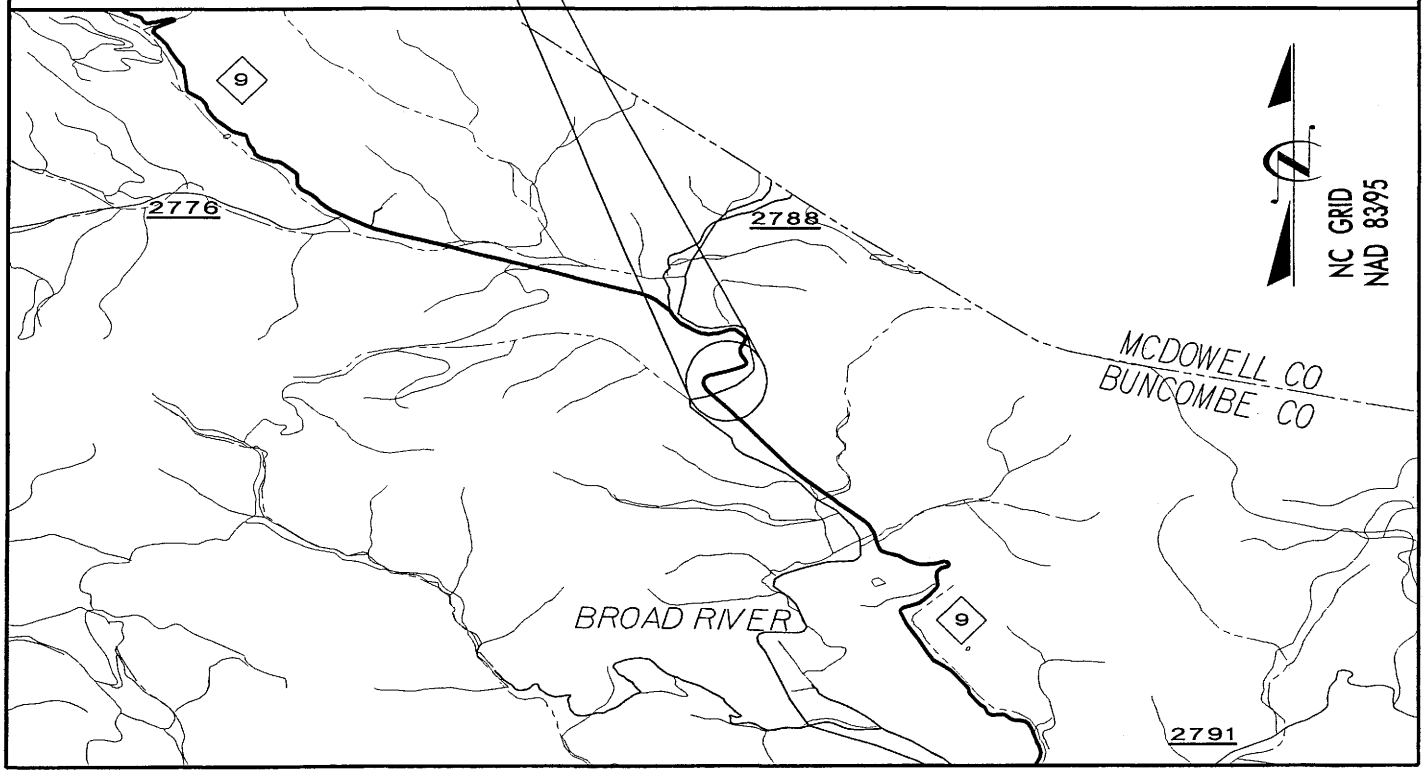
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g.,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

E. L. Lusk 12-17-07

Applicant/Agent's Signature **Date**
(Agent's signature is valid only if an authorization letter from the applicant is provided.)

NORTH CAROLINA





WETLAND PERMIT DRAWING
VICINITY MAP
B–4032

DIVISION OF HIGHWAYS
BUNCOMBE COUNTY
PROJECT: 33399.1.1 (B–4032)

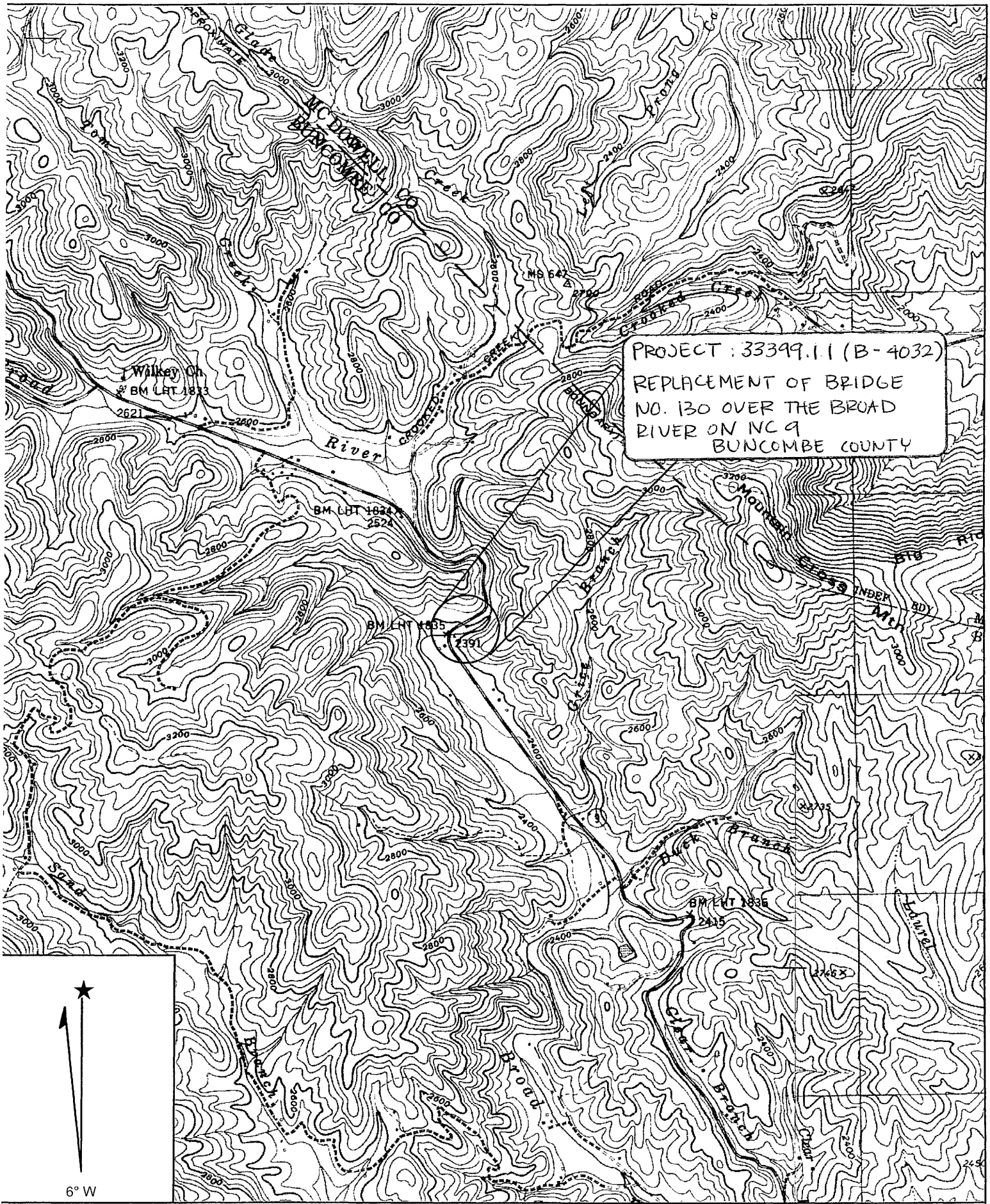
REPLACEMENT OF BRIDGE NO.130
OVER THE BROAD RIVER
ON NC 9

8/16/2007

R:\01036\B\Permits\V8_Wetland vicinity map.dgn

8/16/2007

Permit Drawing
Sheet 1 of 8



Name: BLACK MT
Date: 8/16/2006
Scale: 1 inch equals 2000 feet

Location: 035° 33' 28.8" N 082° 16' 01.0" W
Caption: Project: 33399.1.1 (B-4032)
Replacement of Bridge No. 130 Over the Broad River on NC 9
Sheet 2

Permit Drawing
Sheet 2 of

OWNER'S NAME	ADDRESS
(1) Dunson, B. A. (HEIRS)	6620 Holt Road Nashville, TN 3711-6906
(2) Keith, Michael A. & Martha Jane	7199 42nd Dr. N. Rivera Beach, FL 33404-4805
(3) Lavender, Eula Mae M.	1930 NC Highway 9 Black Mountain, NC 28711-9606

PROPERTY OWNER NAME AND ADDRESS

DIVISION OF HIGHWAYS
BUNCOMBE COUNTY
PROJECT: 33399.1.1 (B-4032)

REPLACEMENT OF BRIDGE NO.130 OVER THE BROAD RIVER ON NC 9

8/17/2007

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8/17/2007

Permit Drawing
Sheet 3 of 8

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
1	-L- 19+68 (LT)	Rip Rap Embankment						<0.01		27		
2	-DET- 19+74 (RT)	Rip Rap Embankment						<0.01		23		
2	-DET- 19+81 (LT)	Rip Rap Embankment						<0.01		26		
2	-DET- 19+92 (RT)	Rip Rap Embankment						<0.01		15		
TOTALS:								0.01		91		

NOTE: TEMPORARY PILES TO BE UTILIZED TO SUPPORT PLACEMENT OF THE GIRDERS ON THE PROPOSED BRIDGE.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
Buncombe
~~HAYWOOD~~ COUNTY
PROJECT: 33399.1.1 (B-4032)

9/12/2007

ATN Revised 3/31/05

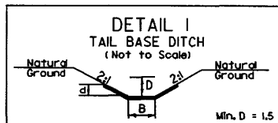
Permit Drawing Sheet 4 of 8

PROJECT REFERENCE NO.	SHEET NO.
B-4032	2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

RIGHT-OF-WAY REV.
CONST. REV.

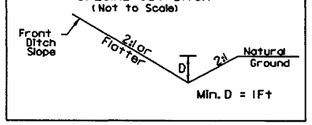
DETAIL 1
TAIL BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft
Max. d = 1.0 Ft
B = 1.5 Ft
Type of Liner= Class 'B' Rip-Rap

-L- STA 16+58 (LT)

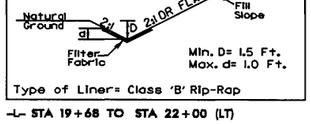
DETAIL 2
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1Ft

-L- STA 17+58 TO STA 18+20 (RT)

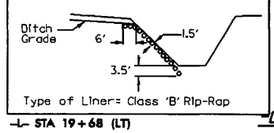
DETAIL 3
LATERAL "V" DITCH
(Not to Scale)



Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
Type of Liner= Class 'B' Rip-Rap

-L- STA 19+68 TO STA 22+00 (LT)

DETAIL 4
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

-L- STA 19+68 (LT)

-DET-

PI Sta 15+05.30	PI Sta 17+55.57
Δ = 14° 56' 51.2" (LT)	Δ = 46° 11' 28.4" (RT)
D = 12° 43' 56.6"	D = 12° 43' 56.6"
L = 117.40'	L = 362.78'
T = 59.03'	T = 191.90'
R = 450.00'	R = 450.00'
SE = 0.02	SE = 0.05
RO = SEE PLAN	RO = 75°
PI Sta 21+24.02	PI Sta 23+12.72
Δ = 89° 18' 01.3" (RT)	Δ = 18° 48' 52.4" (LT)
D = 28° 38' 52.4"	D = 12° 43' 56.6"
L = 311.72'	L = 147.77'
T = 197.57'	T = 74.56'
R = 200.00'	R = 450.00'
SE = 0.06	SE = 0.02
RO = 90°	RO = SEE PLAN

-DET- PCC Sta. 19+26.45

-DET- PRC Sta. 15+63.66

-DET- PC Sta. 14+46.27

-DET- POT Sta.14+24.00
BEGIN CONSTRUCTION

-DET- POT Sta. 13+00.00 =
-L- POT Sta. 13+00.00

-DET- PRC Sta. 22+38.17

-DET- PT Sta. 23+85.94 =
-L- POT Sta. 23+01.69

-DET- POT Sta. 23+93.00 =
-L- POT Sta. 23+08.76
END CONSTRUCTION

-DET- POT Sta. 25+34.00

SEE DETAIL 2
CLASS 'B' RIP RAP
EST 7 TON
EST 21 SY FF
EST DDE = 6 CY
S = 1.00%

RIP RAP AT EMBANKMENT
SEE DETAIL 4
CLASS 'B' RIP RAP
EST 4 TONS
EST 9 SY FF

SPECIAL 'V' DITCH
SEE DETAIL 3
CLASS 'B' RIP RAP
EST 38 TON
EST 113 SY FF

STANDARD CUT DITCH
SEE DETAIL 5
CLASS 'B' RIP RAP
EST 91 TONS
EST 260 SY FF

SPECIAL CUT DITCH
SEE DETAIL 1

OUTLET PROTECTION
CLASS 'B' RIP RAP
W/ FILTER FABRIC
EST 1 TON
EST 5 SY FF

GRADE TO DRAIN

REMOVE PORTION OF WING WALL TO PROVIDE POSITIVE DRAINAGE
SPECIAL CUT DITCH
SEE DETAIL 1

REMOVE EX 18" CMP AND REPLACE WITH 18" RCP

EULA MAE M LAVENDER
DEED BOOK 817 PAGE 123 TRACT 2

MICHAEL A. & MARTHA JANE KEITH
DEED BOOK 1363 PAGE 295

B. A. DUNSON HEIRS
DEED BOOK 1021 PAGE 201

EARL D. JR & ELLEN L. FRASURE
DEED BOOK 1491 PAGE 623
DEED BOOK 892 PAGE 423

CONCRETE CULVERT W/BST DECK
CONCRETE RAILS
18.35' WHEEL CLEARANCE
HIGH WATER ELEVATION=2383.57

APPROXIMATE LOCATION OF SEPTIC TANK

SEWER CLEAN-OUT

AREA UNDER CONSTRUCTION

5"x6" SERVICE POLE

4"x6" SERVICE POLE

ROCK WALL

BLK WALL

SEPTIC

1.5SFD

ISFD

MD DECK

WOODS

PASTURE

CULTIVATED GARDEN

GRASS

18" CMP

18" CMP W/CONC HDWL

30" CMP W/CONC HDWL

BROAD RIVER

NC 9

SITE 2

NC GRID NAD 83/95

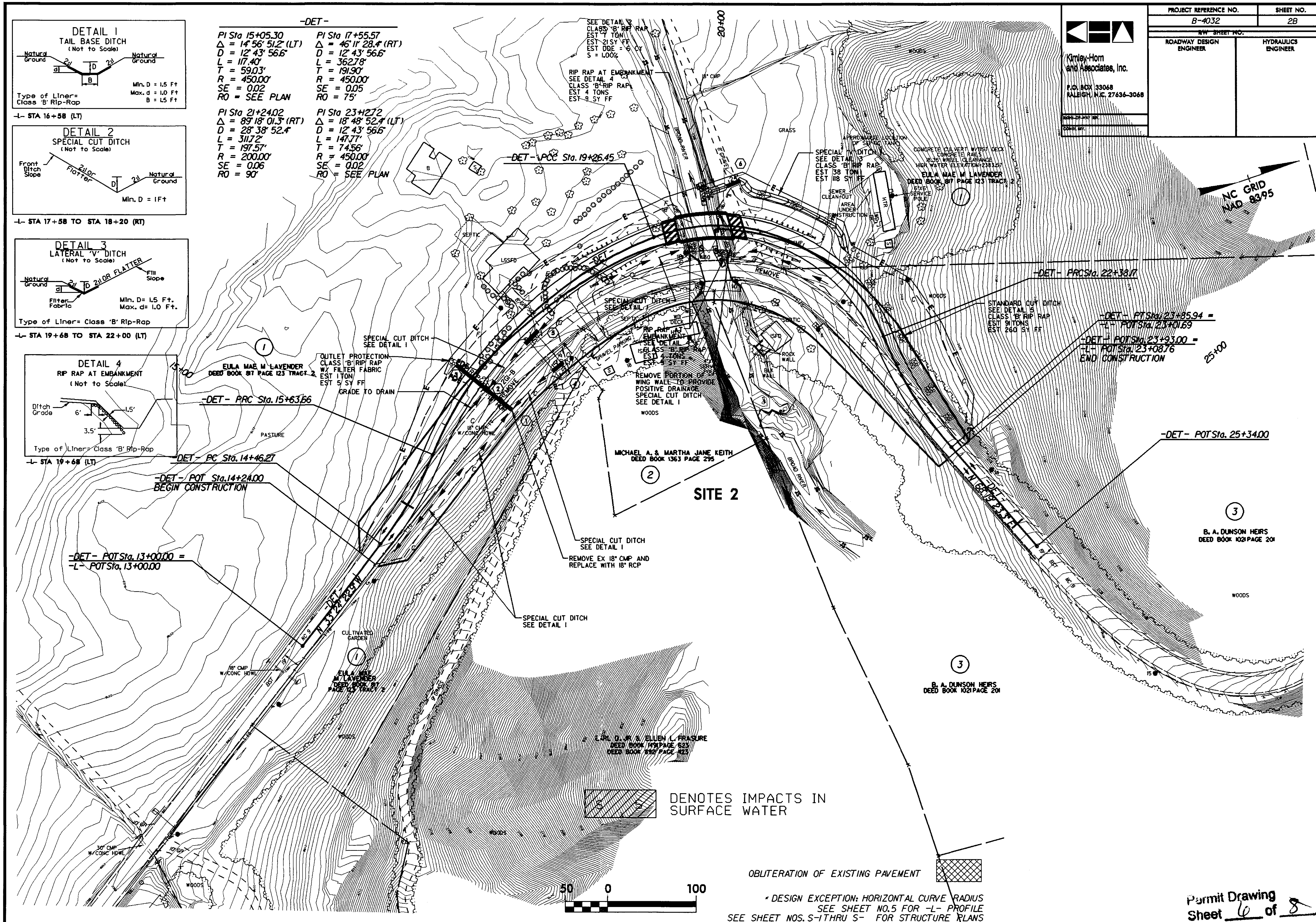
DENOTES IMPACTS IN SURFACE WATER

OBLITERATION OF EXISTING PAVEMENT

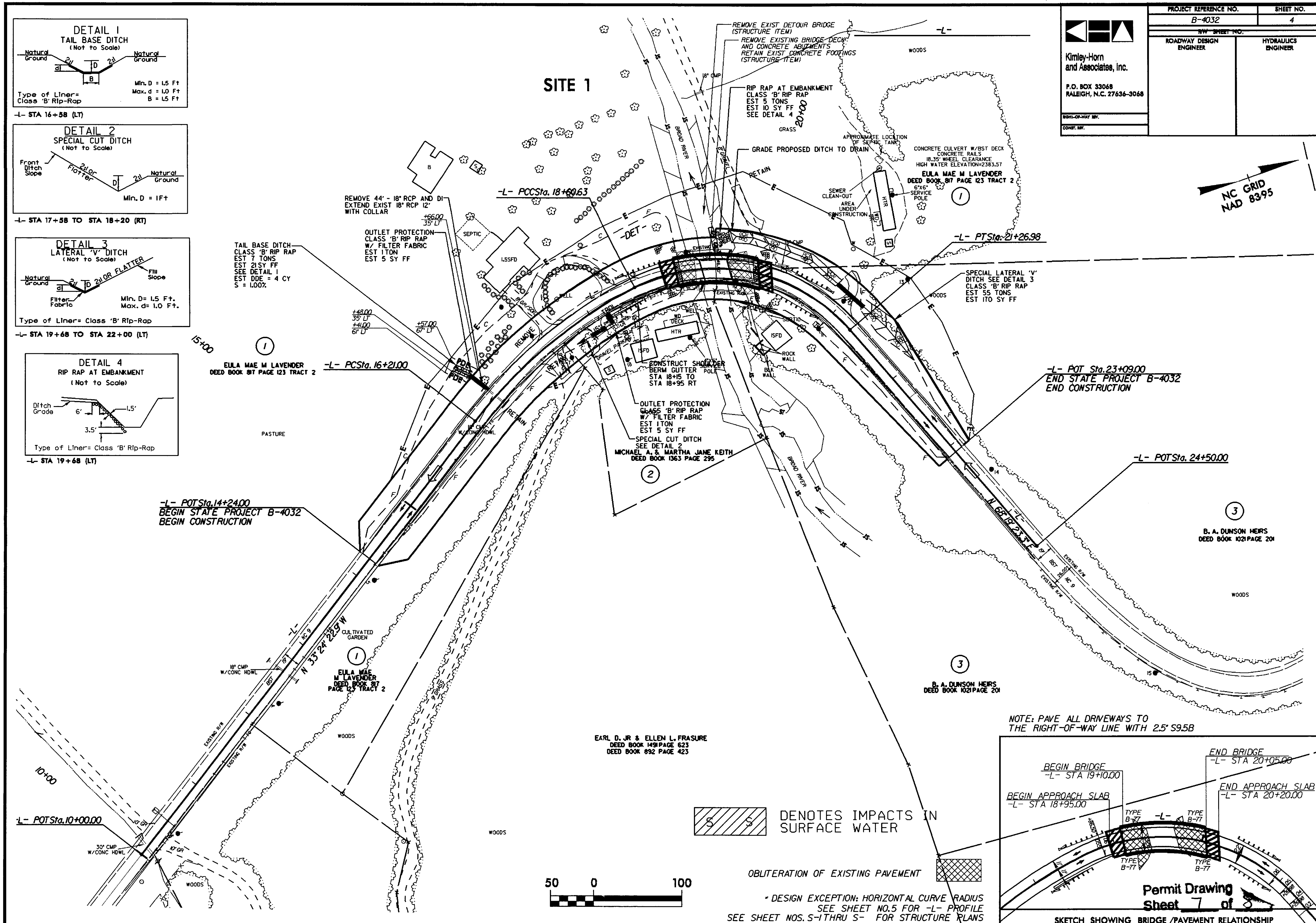
50 0 100

* DESIGN EXCEPTION: HORIZONTAL CURVE RADIUS
SEE SHEET NO.5 FOR -L- PROFILE
SEE SHEET NOS. S-1 THRU S- FOR STRUCTURE PLANS

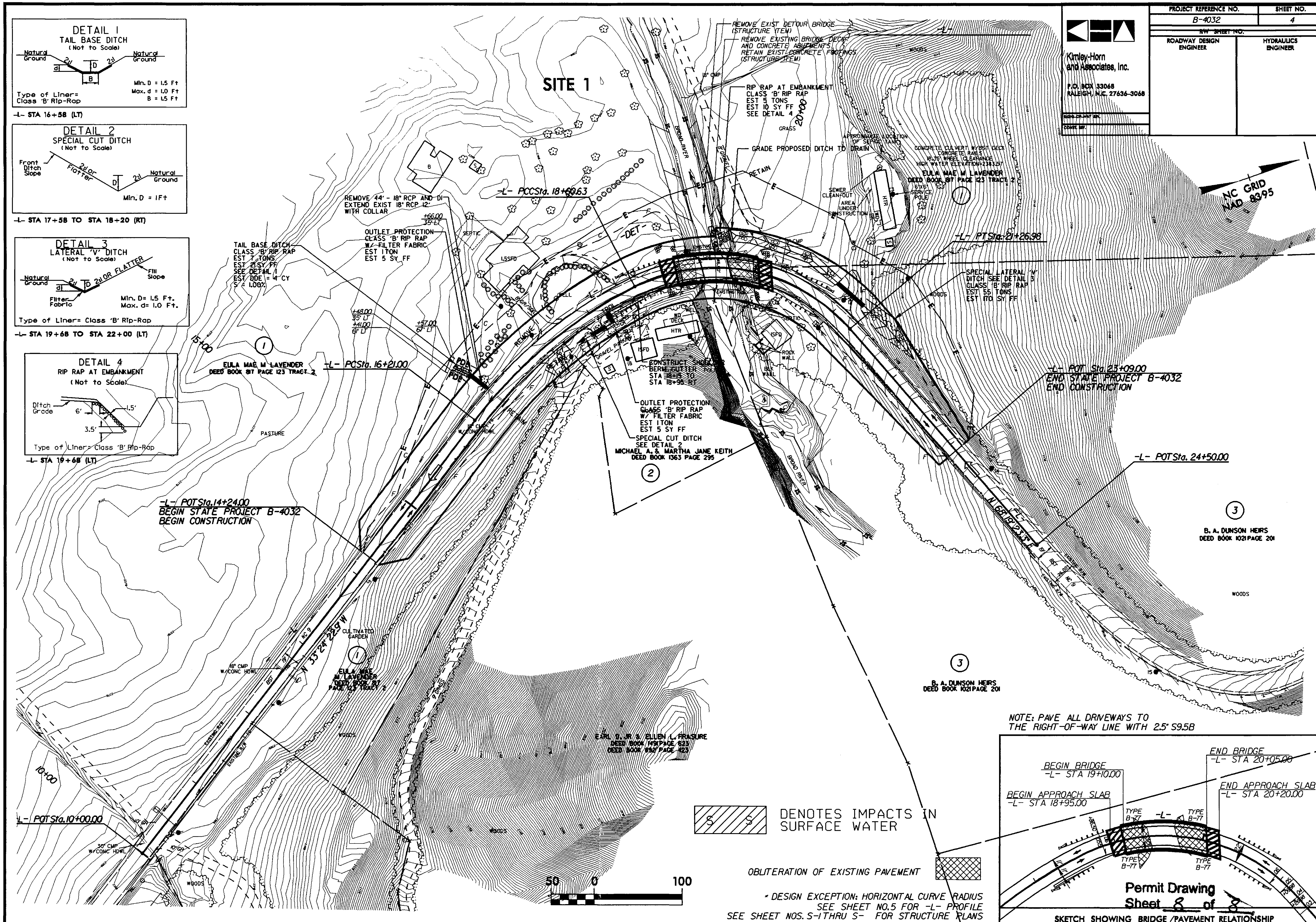
Permit Drawing
Sheet 5 of 8



PROJECT REFERENCE NO.
B-4032
SHEET NO.
2B
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068
DETAIL 1
TAIL BASE DITCH
(Not to Scale)
Natural Ground
Natural Ground
Min. D = 1.5 Ft
Max. d = 1.0 Ft
B = 1.5 Ft
Type of Liner= Class 'B' Rip-Rap
-L- STA 16+58 (LT)
DETAIL 2
SPECIAL CUT DITCH
(Not to Scale)
Front Ditch Slope
2:1 or Flatter
Natural Ground
Min. D = 1 Ft
-L- STA 17+58 TO STA 18+20 (RT)
DETAIL 3
LATERAL 'V' DITCH
(Not to Scale)
2:1 OR FLATTER
Fill Slope
Natural Ground
Filter Fabric
Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
Type of Liner= Class 'B' Rip-Rap
-L- STA 19+68 TO STA 22+00 (LT)
DETAIL 4
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade
6'
1.5'
3.5'
Type of Liner= Class 'B' Rip-Rap
-L- STA 19+68 (LT)
-DET-
PI Sta 15+05.30
Δ = 14° 56' 51.2" (LT)
D = 12° 43' 56.6"
L = 117.40'
T = 59.03'
R = 450.00'
SE = 0.02
RO = SEE PLAN
PI Sta 17+55.57
Δ = 46° 11' 28.4" (RT)
D = 12° 43' 56.6"
L = 362.78'
T = 191.90'
R = 450.00'
SE = 0.05
RO = 75'
PI Sta 21+24.02
Δ = 89° 18' 01.3" (RT)
D = 28° 38' 52.4"
L = 311.72'
T = 197.57'
R = 200.00'
SE = 0.06
RO = 90'
PI Sta 23+12.72
Δ = 18° 48' 52.4" (LT)
D = 12° 43' 56.6"
L = 147.77'
T = 74.56'
R = 450.00'
SE = 0.02
RO = SEE PLAN
SEE DETAIL 2
CLASS 'B' RIP RAP
EST 7 TON
EST 21 SY FF
EST DDE = 6 CY
S = 1.00%
RIP RAP AT EMBANKMENT
SEE DETAIL 4
CLASS 'B' RIP RAP
EST 4 TONS
EST 9 SY FF
-DET- PCC Sta. 19+26.45
SPECIAL 'V' DITCH
SEE DETAIL 3
CLASS 'B' RIP RAP
EST 38 TON
EST 118 SY FF
CONCRETE CULVERT W/BST DECK
EULA MAE M LAVENDER
DEED BOOK 817 PAGE 123 TRACT 2
NC GRID NAD 83/95
-DET- PRC Sta. 22+38.17
STANDARD CUT DITCH
SEE DETAIL 5
CLASS 'B' RIP RAP
EST 91 TONS
EST 260 SY FF
-DET- PT Sta. 23+85.94 =
-L- POT Sta. 23+01.69
-DET- POT Sta. 23+93.00 =
-L- POT Sta. 23+08.76
END CONSTRUCTION
SPECIAL CUT DITCH
SEE DETAIL 1
RIP RAP AT EMBANKMENT
SEE DETAIL 4
CLASS 'B' RIP RAP
EST 4 TONS
EST 5 SY FF
REMOVE PORTION OF WING WALL TO PROVIDE POSITIVE DRAINAGE
SPECIAL CUT DITCH
SEE DETAIL 1
SPECIAL CUT DITCH
SEE DETAIL 1
OUTLET PROTECTION
CLASS 'B' RIP RAP
W/ FILTER FABRIC
EST 1 TON
EST 5 SY FF
GRADE TO DRAIN
EULA MAE M LAVENDER
DEED BOOK 817 PAGE 123 TRACT 2
-DET- PRC Sta. 15+63.66
-DET- PC Sta. 14+46.27
-DET- POT Sta. 14+24.00
BEGIN CONSTRUCTION
MICHAEL A. & MARTHA JANE KEITH
DEED BOOK 1363 PAGE 295
SITE 2
-DET- POT Sta. 25+34.00
B. A. DUNSON HEIRS
DEED BOOK 1021 PAGE 201
SPECIAL CUT DITCH
SEE DETAIL 1
REMOVE EX 18" CMP AND REPLACE WITH 18" RCP
-DET- POT Sta. 13+00.00 =
-L- POT Sta. 13+00.00
SPECIAL CUT DITCH
SEE DETAIL 1
EULA MAE M LAVENDER
DEED BOOK 817 PAGE 123 TRACT 2
B. A. DUNSON HEIRS
DEED BOOK 1021 PAGE 201
EARL G. JR & ELLEN L. FRASURE
PASTURE
WOODS
CULTIVATED GARDEN
BROAD RIVER
DENOTES IMPACTS IN SURFACE WATER
OBLITERATION OF EXISTING PAVEMENT
50 0 100
* DESIGN EXCEPTION: HORIZONTAL CURVE RADIUS
SEE SHEET NO.5 FOR -L- PROFILE
SEE SHEET NOS. S-1 THRU S- FOR STRUCTURE PLANS
Permit Drawing Sheet 6 of 8



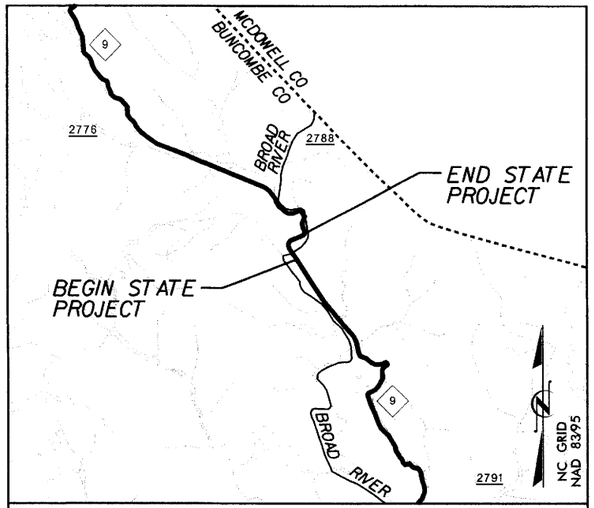
DETAIL 1
TAIL BASE DITCH
(Not to Scale)
Natural Ground
Natural Ground
Min. D = 1.5 Ft
Max. d = 1.0 Ft
B = 1.5 Ft
Type of Liner= Class 'B' Rip-Rap
-L- STA 16+58 (LT)
DETAIL 2
SPECIAL CUT DITCH
(Not to Scale)
Front Ditch Slope
2:1 or Flatter
Natural Ground
Min. D = 1Ft
-L- STA 17+58 TO STA 18+20 (RT)
DETAIL 3
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
2:1 OR FLATTER
Fill Slope
Filter Fabric
Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
Type of Liner= Class 'B' Rip-Rap
-L- STA 19+68 TO STA 22+00 (LT)
DETAIL 4
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade
Type of Liner= Class 'B' Rip-Rap
-L- STA 19+68 (LT)
SITE 1
REMOVE EXIST DETOUR BRIDGE (STRUCTURE ITEM)
REMOVE EXISTING BRIDGE DECK AND CONCRETE ABUTMENTS
RETAIN EXIST CONCRETE FOOTINGS (STRUCTURE ITEM)
RIP RAP AT EMBANKMENT
CLASS 'B' RIP RAP
EST 5 TONS
EST 10 SY FF
SEE DETAIL 4
GRADE PROPOSED DITCH TO DRAIN
APPROXIMATE LOCATION OF SEPTIC TANK
CONCRETE CULVERT W/BST DECK
CONCRETE RAILS
18.35' WHEEL CLEARANCE
HIGH WATER ELEVATION=2383.57
EULA MAE M LAVENDER
DEED BOOK 817 PAGE 123 TRACT 2
-L- PCC Sta. 18+60.63
REMOVE 44' - 18" RCP AND DI
EXTEND EXIST 18" RCP 12' WITH COLLAR
OUTLET PROTECTION
CLASS 'B' RIP RAP
W/ FILTER FABRIC
EST 1 TON
EST 5 SY FF
TAIL BASE DITCH
CLASS 'B' RIP RAP
EST 7 TONS
EST 21SY FF
SEE DETAIL 1
EST DDE = 4 CY
S = 1.00%
-L- PT Sta. 21+26.98
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3
CLASS 'B' RIP RAP
EST 55 TONS
EST 170 SY FF
EULA MAE M LAVENDER
DEED BOOK 817 PAGE 123 TRACT 2
-L- PC Sta. 16+21.00
CONSTRUCT SHOULDER BERM GUTTER
STA 18+15 TO STA 18+95 RT
OUTLET PROTECTION
CLASS 'B' RIP RAP
W/ FILTER FABRIC
EST 1 TON
EST 5 SY FF
SPECIAL CUT DITCH
SEE DETAIL 2
MICHAEL A. & MARTHA JANE KEITH
DEED BOOK 1363 PAGE 295
-L- POT Sta. 23+09.00
END STATE PROJECT B-4032
END CONSTRUCTION
-L- POT Sta. 24+50.00
-L- POT Sta. 14+24.00
BEGIN STATE PROJECT B-4032
BEGIN CONSTRUCTION
B. A. DUNSON HEIRS
DEED BOOK 1021 PAGE 201
N 33°24'22.9" W
N 68°19'23.3" E
EULA MAE M LAVENDER
DEED BOOK 817 PAGE 123 TRACT 2
EARL D. JR & ELLEN L. FRASURE
DEED BOOK 1491 PAGE 623
DEED BOOK 892 PAGE 423
-L- POT Sta. 10+00.00
NC GRID NAD 83/95
DENOTES IMPACTS IN SURFACE WATER
OBLITERATION OF EXISTING PAVEMENT
* DESIGN EXCEPTION: HORIZONTAL CURVE RADIUS
SEE SHEET NO.5 FOR -L- PROFILE
SEE SHEET NOS. S-1 THRU S- FOR STRUCTURE PLANS
NOTE: PAVE ALL DRIVEWAYS TO THE RIGHT-OF-WAY LINE WITH 2.5" S9.5B
BEGIN BRIDGE -L- STA 19+10.00
END BRIDGE -L- STA 20+05.00
BEGIN APPROACH SLAB -L- STA 18+95.00
END APPROACH SLAB -L- STA 20+20.00
SKETCH SHOWING BRIDGE /PAVEMENT RELATIONSHIP
Permit Drawing Sheet 7 of 8
Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068
PROJECT REFERENCE NO. B-4032
SHEET NO. 4
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER



PROJECT REFERENCE NO. B-4032
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068
DETAIL 1
TAIL BASE DITCH
(Not to Scale)
Natural Ground
Type of Liner= Class 'B' Rip-Rap
Min. D = 1.5 Ft
Max. d = 1.0 Ft
B = 1.5 Ft
-L- STA 16+58 (LT)
DETAIL 2
SPECIAL CUT DITCH
(Not to Scale)
Front Ditch Slope
2:1 or Flatter
Min. D = 1 Ft
-L- STA 17+58 TO STA 18+20 (RT)
DETAIL 3
LATERAL 'V' DITCH
(Not to Scale)
2:1 OR FLATTER
Fill Slope
Filter Fabric
Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
Type of Liner= Class 'B' Rip-Rap
-L- STA 19+68 TO STA 22+00 (LT)
DETAIL 4
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade
Type of Liner= Class 'B' Rip-Rap
-L- STA 19+68 (LT)
SITE 1
REMOVE EXIST DETOUR BRIDGE (STRUCTURE ITEM)
REMOVE EXISTING BRIDGE DECK AND CONCRETE ABUTMENTS RETAIN EXIST. CONCRETE FOOTINGS (STRUCTURE ITEM)
RIP RAP AT EMBANKMENT CLASS 'B' RIP RAP EST 5 TONS EST 10 SY FF SEE DETAIL 4
GRADE PROPOSED DITCH TO DRAIN
APPROXIMATE LOCATION OF SEPTIC TANK
EULA MAE M LAVENDER DEED BOOK 817 PAGE 123 TRACT 2
NC GRID NAD 83/95
-L- PCCSta. 18+60.63
REMOVE 44' - 18" RCP AND DI EXTEND EXIST 18" RCP 12' WITH COLLAR
OUTLET PROTECTION CLASS 'B' RIP RAP W/ FILTER FABRIC EST 1 TON EST 5 SY FF
TAIL BASE DITCH CLASS 'B' RIP RAP EST 7 TONS EST 21 SY FF SEE DETAIL 1 EST DDE = 4 CY S = 1.00%
-L- PTSta. 21+26.98
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 CLASS 'B' RIP RAP EST 55 TONS EST 170 SY FF
-L- PCSta. 16+21.00
CONSTRUCT SHOULDER BERM GUTTER STA 18+15 TO STA 18+95 RT
OUTLET PROTECTION CLASS 'B' RIP RAP W/ FILTER FABRIC EST 1 TON EST 5 SY FF
SPECIAL CUT DITCH SEE DETAIL 2
MICHAEL A. & MARTHA JANE KEITH DEED BOOK 1363 PAGE 295
-L- POT Sta. 23+09.00
END STATE PROJECT B-4032
END CONSTRUCTION
-L- POTSta. 24+50.00
B. A. DUNSON HEIRS DEED BOOK 1021 PAGE 201
-L- POTSta. 14+24.00
BEGIN STATE PROJECT B-4032
BEGIN CONSTRUCTION
PASTURE
CULTIVATED GARDEN
N 33°24'22.9" W
EULA MAE M LAVENDER DEED BOOK 817 PAGE 123 TRACT 2
EARL D., JR & ELLEN L. FRASURE DEED BOOK 1491 PAGE 623 DEED BOOK 832 PAGE 123
WOODS
-L- POTSta. 10+00.00
NOTE: PAVE ALL DRIVEWAYS TO THE RIGHT-OF-WAY LINE WITH 2.5" S9.5B
DENOTES IMPACTS IN SURFACE WATER
OBLITERATION OF EXISTING PAVEMENT
* DESIGN EXCEPTION: HORIZONTAL CURVE RADIUS
SEE SHEET NO.5 FOR -L- PROFILE
SEE SHEET NOS. S-1 THRU S- FOR STRUCTURE PLANS
BEGIN BRIDGE -L- STA 19+10.00
END BRIDGE -L- STA 20+05.00
BEGIN APPROACH SLAB -L- STA 18+95.00
END APPROACH SLAB -L- STA 20+20.00
TYPE B-77
Permit Drawing Sheet 8 of 8
SKETCH SHOWING BRIDGE /PAVEMENT RELATIONSHIP

TIP PROJECT: B-4032

SEE SHEET 1-A FOR INDEX OF SHEETS
SEE SHEET 1-B FOR CONVENTIONAL SYMBOLS



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

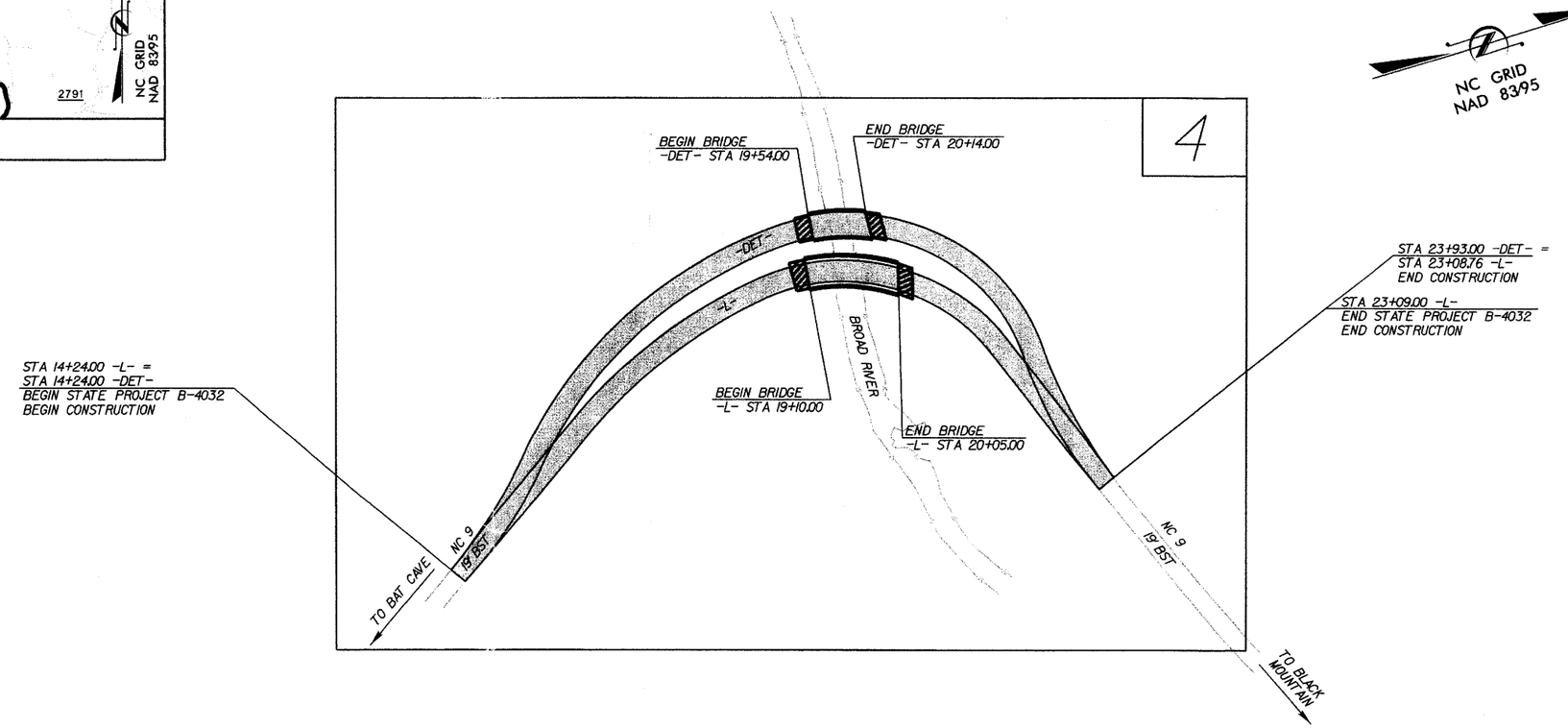
BUNCOMBE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4032	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33399.1.1	BRSTP-0009(1)	P.E.
33399.2.1	BRSTP-0009(1)	R/W
33399.2.1	BRSTP-0009(1)	UTILITY

LOCATION: BRIDGE NO. 130 OVER THE BROAD RIVER ON NC 9

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



NCDOT CONTACT: B.D. TAYLOR, P.E.
PROJECT ENGINEER
ROADWAY DESIGN UNIT

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:

R:\DI\036118\Sem\NCDOT\ROW Plans\Roadway\Proj\b4032_rdy_tstdgn
7/27/2007

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2007 = 1,200 VPD
ADT 2030 = 2,100 VPD
DHV = 12%
D = 60%
T = 8% *
V = 35 mph

DESIGN EXCEPTION:
HORIZONTAL CURVE RADIUS
HORIZONTAL SSD

FUNCTIONAL CLASSIFICATION:
RURAL MAJOR COLLECTOR
* (TTST 2% + DUAL 6%)

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4032 = 0.150 MILE

LENGTH OF STRUCTURE TIP PROJECT B-4032 = 0.018 MILE

TOTAL LENGTH OF TIP PROJECT B-4032 = 0.168 MILE

PLANS PREPARED FOR THE NCDOT BY:

Kimley-Horn and Associates, Inc.

Post Office Box 33068
Raleigh, North Carolina 27636

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 19, 2007

LETTING DATE:
JUNE 17, 2008

JEFFREY W. MOORE, PE
PROJECT ENGINEER

J. JASON PACE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

PROJECT REFERENCE NO.	SHEET NO.
B-4032	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing High Quality Wetland Boundary — HQ 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
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- 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.

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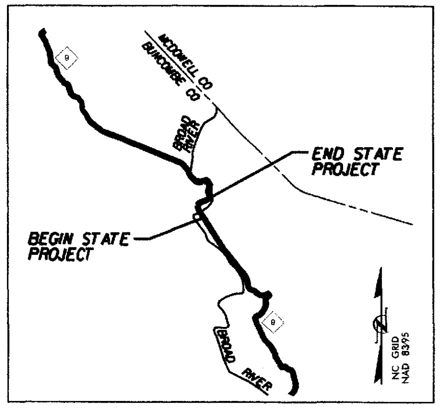
7/27/2007

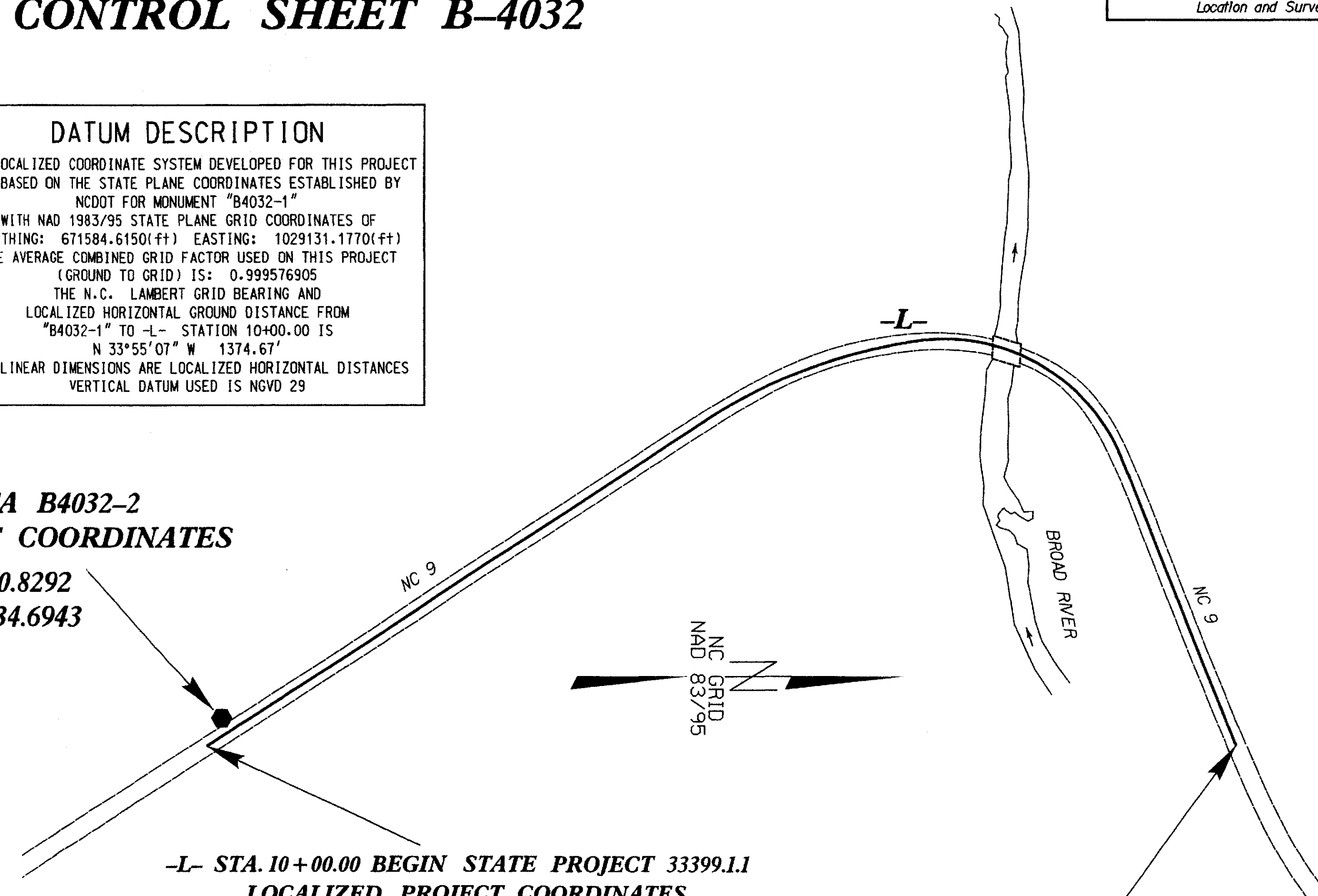
SURVEY CONTROL SHEET B-4032



VICINITY MAP
DRAWING NOT TO SCALE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4032-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 671584.6150(ft) EASTING: 1029131.1770(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999576905 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4032-1" TO -L- STATION 10+00.00 IS N 33°55'07" W 1374.67'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29



NCDOT GPS STA B4032-2
LOCALIZED PROJECT COORDINATES
N = 672740.8292
E = 1028334.6943

-L- STA. 10+00.00 BEGIN STATE PROJECT 33399.1.1
LOCALIZED PROJECT COORDINATES
N = 672725.3597
E = 1028364.0887

-L- STA. 24+50.00 END STATE PROJECT 33399.1.1
LOCALIZED PROJECT COORDINATES
N = 673799.0353
E = 1028362.5631

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
B4032_LS_CONTROL_060321.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

⬢ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

NCDOT GPS STA B4032-1
LOCALIZED PROJECT COORDINATES
N = 671584.6150
E = 1029131.1770

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
GPS2	GPS STA B4032-2	672740.8292	1028334.6943	2379.22	10+29.10	16.02 LT
1		673253.3858	1028000.2580	2382.87	16+40.62	13.37 LT
2		673534.9780	1027928.4649	2388.77	19+27.55	11.82 LT
3		673665.5006	1028067.5398	2394.94	21+26.48	15.12 RT
4		673781.1986	1028359.9846	2411.84	24+41.02	15.62 RT
5		673934.6771	1028590.1212	2428.07	OUTSIDE PROJECT LIMITS	

BM1 ELEVATION = 2382.56
N 673264 E 1027991
L STATION 16+54 16 LEFT
CHISELED SQUARE SW CORNER OF HEADWALL

BM2 ELEVATION = 2389.03
N 673395 E 1027978
L STATION 17+81 24 RIGHT
SPIKE IN BASE 23 INCH LOCUST

BM3 ELEVATION = 2391.41
N 673572 E 1027943
L STATION 19+65 8 LEFT
BRASS DISK TVA - LHT 1835

BM4 ELEVATION = 2426.19
N 673835 E 1028349
L STATION 24+50
N 20° 33' 16.5" W DIST 38.68
SPIKE IN BASE 10 INCH OAK

NOTE: DRAWING NOT TO SCALE

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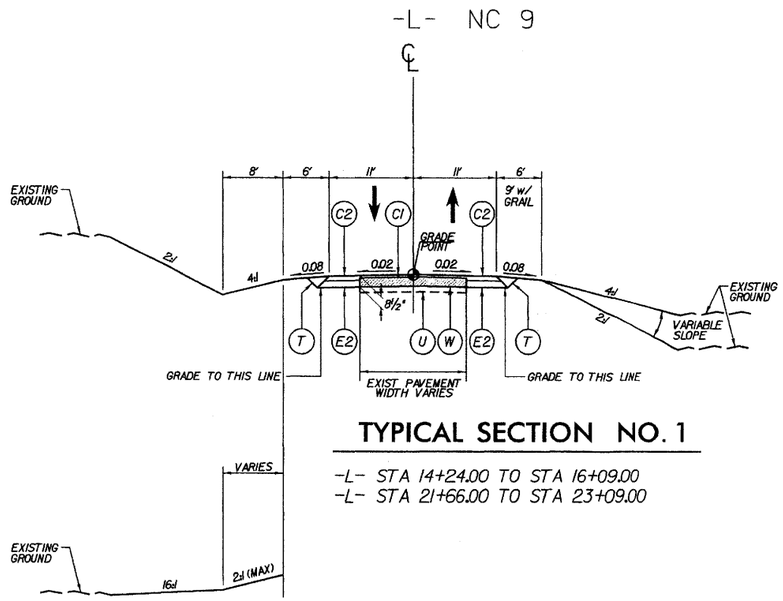
7/27/2007

Kimley-Horn
and Associates, Inc.

P.O. BOX 33068
RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
B-4032	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

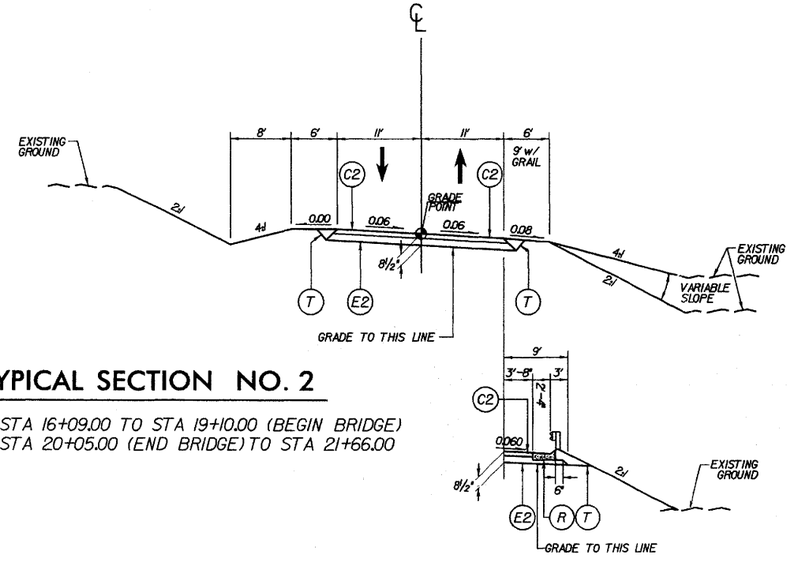


TYPICAL SECTION NO. 1

-L- STA 14+24.00 TO STA 16+09.00
-L- STA 21+66.00 TO STA 23+09.00

TYPICAL SECTION NO. 1A

-L- STA 15+50.00 TO STA 19+10.00 (LT)



TYPICAL SECTION NO. 2

-L- STA 16+09.00 TO STA 19+10.00 (BEGIN BRIDGE)
-L- STA 20+05.00 (END BRIDGE) TO STA 21+66.00

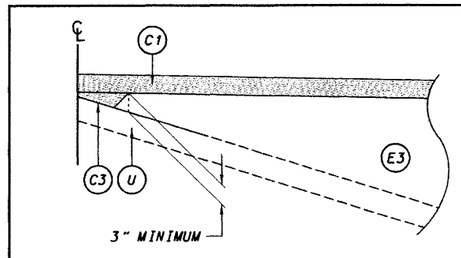
TYPICAL SECTION NO. 2A

-L- STA 18+15.00 TO STA 18+95.00 (RT)

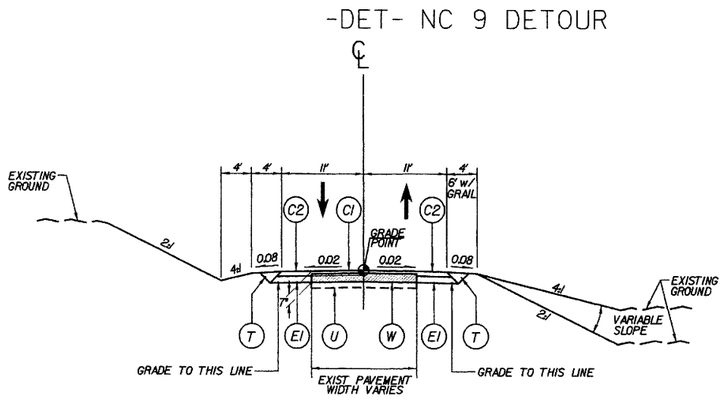
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5½" DEPTH.
R	PROPOSED SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL W I THIS SHEET)

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED

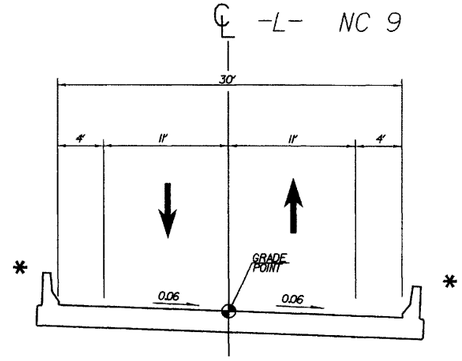


DETAIL W I SHOWING METHOD OF WEDGING

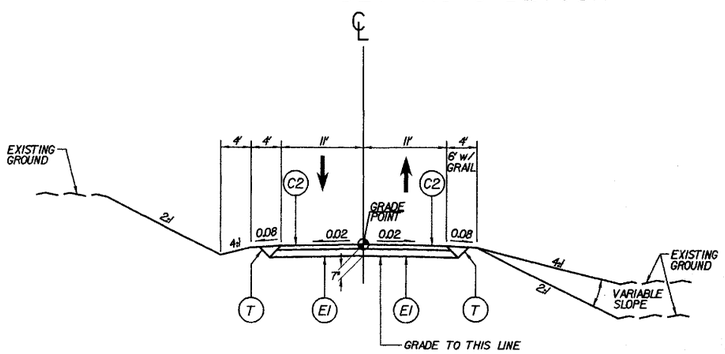


TYPICAL SECTION NO. 3

-DET- STA 14+24.00 TO STA 15+39.00
-DET- STA 22+94.00 TO STA 23+93.00

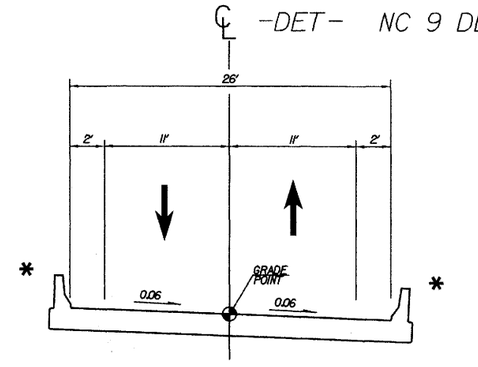


BRIDGE TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 4

-DET- STA 15+39.00 TO STA 19+54.00 (BEGIN BRIDGE)
-DET- STA 20+14.00 (END BRIDGE) TO STA 22+94.00



BRIDGE TYPICAL SECTION NO. 2

Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
B-4032	2-A

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

C1	1½" S9.5B
C2	3" S9.5B
EI	4" B25.0B
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED

DESIGN DATA

ADT 2007	=	1,200 VPD
ADT 2030	=	2,100 VPD
DHV	=	12%
D	=	60%
TTST	=	2%
DUAL	=	6%
V	=	35 mph

* BRIDGE RAIL TO BE DETERMINED BY STRUCTURE DESIGN UNIT

R:\0II036II\BSent\NCDOT\ROW PlansRoadway\Proj\b4032_rdy_typ.dgn
7/27/2007

PROJECT REFERENCE NO.	SHEET NO.
B-4032	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

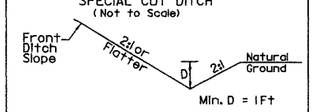
Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

RIGHT-OF-WAY REV.

CONST. REV.

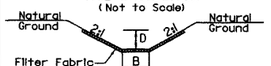
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)



-DET- STA 14+24 TO STA 15+50 (RT)
-DET- STA 15+50 TO STA 16+58 (RT)
-DET- STA 16+58 TO STA 17+58 (RT)
-DET- STA 16+60 TO STA 17+75 (RT)
-DET- STA 18+50 TO STA 19+50 (RT)
-DET- STA 20+15 TO STA 21+50 (RT)

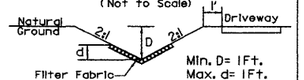
DETAIL 2
TAIL BASE DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

-DET- STA 19+90 TO 20+08 (LT)

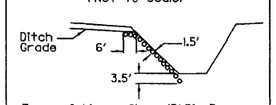
DETAIL 3
SPECIAL 'V' DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

-DET- STA 20+16 TO STA 21+40 (LT)

DETAIL 4
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

-DET- STA 19+62 (RT)
-DET- STA 19+90 (LT)
-DET- STA 20+05 (RT)

-DET-

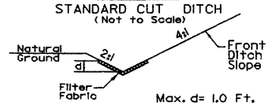
PI Sta 15+05.30
Δ = 14° 56' 51.2" (LT)
D = 12° 43' 56.6"
L = 117.40'
T = 59.03'
R = 450.00'
SE = 0.02
RO = SEE PLAN

PI Sta 17+55.57
Δ = 46° 11' 28.4" (RT)
D = 12° 43' 56.6"
L = 362.78'
T = 191.90'
R = 450.00'
SE = 0.05
RO = 75°

PI Sta 21+24.02
Δ = 89° 18' 01.3" (RT)
D = 28° 38' 52.4"
L = 311.72'
T = 197.57'
R = 200.00'
SE = 0.06
RO = 90°

PI Sta 23+12.72
Δ = 18° 48' 52.4" (LT)
D = 12° 43' 56.6"
L = 147.77'
T = 74.56'
R = 450.00'
SE = 0.02
RO = SEE PLAN

DETAIL 5
STANDARD CUT DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

-DET- STA 21+40 TO STA 23+93 (LT)

TAIL BASE DITCH
SEE DETAIL 2
CLASS 'B' RIP RAP
EST 7 TON
EST 21SY FF
EST DDE = 6 CY
S = 1.00%

RIP RAP AT EMBANKMENT
SEE DETAIL 4
CLASS 'B' RIP RAP
EST 4 TONS
EST 9 SY FF

END BRIDGE
-DET- STA 20+14.00
END APPROACH SLAB
-DET- STA 20+29.00

BEGIN BRIDGE
-DET- STA 19+54.00
BEGIN APPROACH SLAB
-DET- STA 19+39.00
-DET- PCC Sta. 19+26.45

SPECIAL 'V' DITCH
SEE DETAIL 3
CLASS 'B' RIP RAP
EST 38 TON
EST 118 SY FF

EULA MAE M LAVENDER
DEED BOOK 817 PAGE 123 TRACT 2
(1)

NC GRID
NAD 83/95

-DET- PRCSta. 22+38.17

STANDARD CUT DITCH
SEE DETAIL 5
CLASS 'B' RIP RAP
EST 91TONS
EST 260 SY FF

-DET- PTSta. 23+85.94 =
-L- POTSta. 23+01.69

-DET- POTSta. 23+93.00 =
-L- POTSta. 23+08.76
END CONSTRUCTION

SEE SHEET 4 FOR RIGHT-OF-WAY CONTINUATION

-DET- POTSta. 25+34.00

-DET- N 68° 19' 23.5" E

B. A. DUNSON HEIRS
DEED BOOK 1021 PAGE 201
(3)

SPECIAL CUT DITCH
SEE DETAIL 1

OUTLET PROTECTION
CLASS 'B' RIP RAP
W/ FILTER FABRIC
EST 1TON
EST 5 SY FF

GRADE TO DRAIN

EULA MAE M LAVENDER
DEED BOOK 817 PAGE 123 TRACT 2
(1)

-DET- PRC Sta. 15+63.66

SEE SHEET 4 FOR RIGHT-OF-WAY CONTINUATION

-DET- PC Sta. 14+46.27

-DET- POT Sta.14+24.00
BEGIN CONSTRUCTION

-DET- POTSta. 13+00.00 =
-L- POTSta. 13+00.00

-DET- N 33° 24' 22.9" W

RIP RAP AT EMBANKMENT
SEE DETAIL 4
CLASS 'B' RIP RAP
EST 4-TONS
EST 9 SY FF

REMOVE PORTION OF WING WALL TO PROVIDE POSITIVE DRAINAGE
SPECIAL CUT DITCH
SEE DETAIL 1

MICHAEL A. & MARTHA JANE KEITH
DEED BOOK 1363 PAGE 295
(2)

TOP OF BANK

SPECIAL CUT DITCH
SEE DETAIL 1

REMOVE EX 18" CMP AND REPLACE WITH 18" RCP

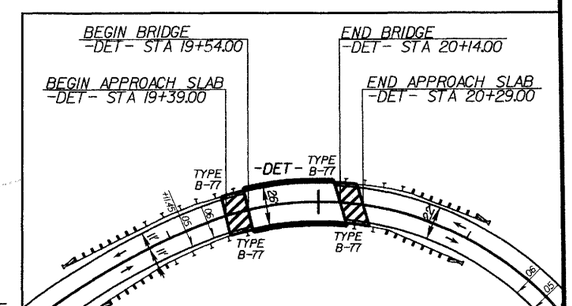
SPECIAL CUT DITCH
SEE DETAIL 1

EULA MAE M LAVENDER
DEED BOOK 817 PAGE 123 TRACT 2
(1)

EARL D. JR & ELLEN L. FRASURE
DEED BOOK 1491 PAGE 623
DEED BOOK 892 PAGE 423

B. A. DUNSON HEIRS
DEED BOOK 1021 PAGE 201
(3)

SEE SHEET NO.5 FOR -DET- PROFILE
SEE SHEET NOS. S- THRU S- FOR STRUCTURE PLANS



SKETCH SHOWING BRIDGE /PAVEMENT RELATIONSHIP

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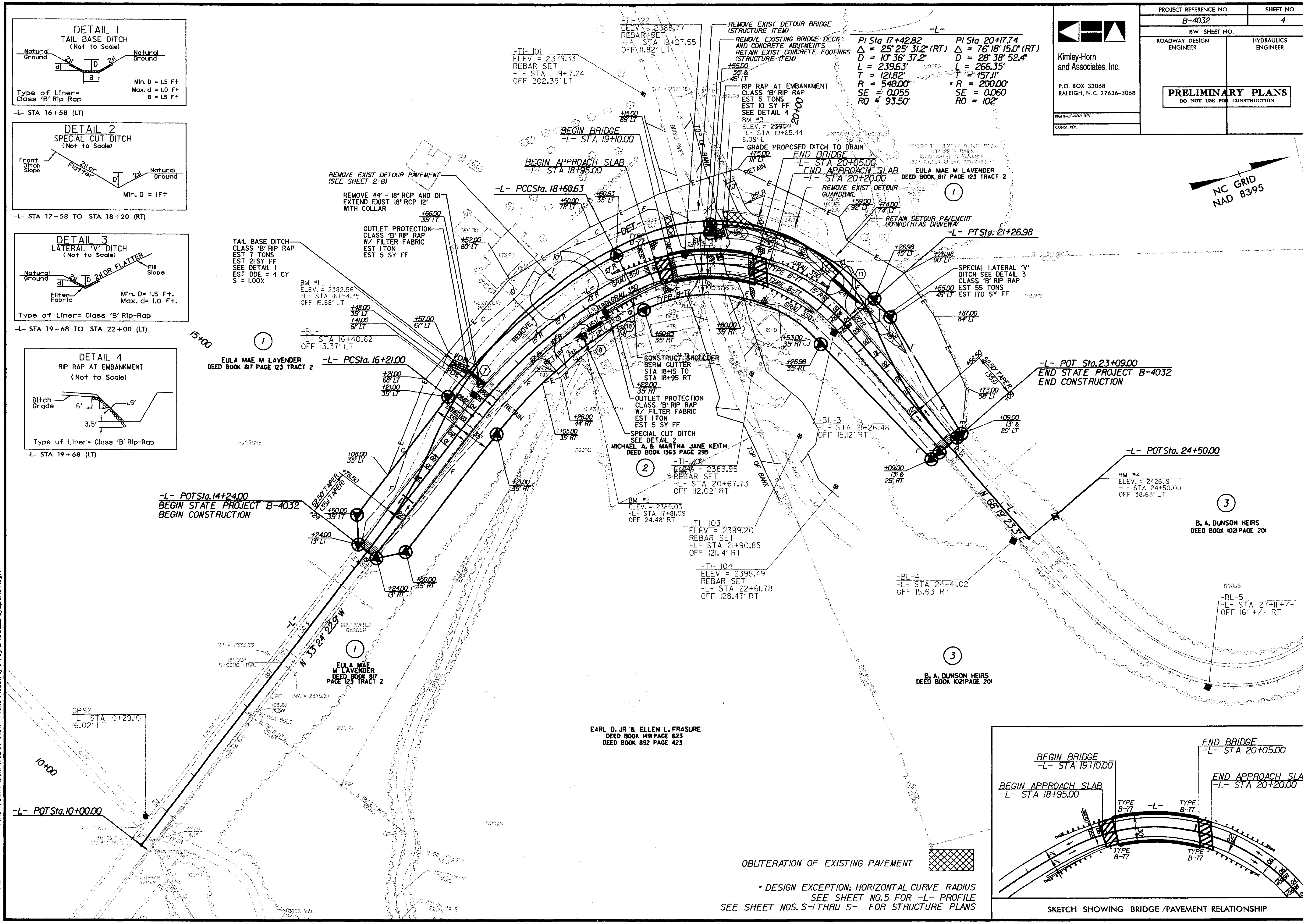
7/27/2007



PROJECT REFERENCE NO. B-4032
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
RIGHT-OF-WAY REV.
CONST. REV.
DETAIL 1
TAIL BASE DITCH
(Not to Scale)
Type of Liner= Class 'B' Rip-Rap
Min. D = 1.5 Ft
Max. d = 1.0 Ft
B = 1.5 Ft
-L- STA 16+58 (LT)
DETAIL 2
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1Ft
-L- STA 17+58 TO STA 18+20 (RT)
DETAIL 3
LATERAL 'V' DITCH
(Not to Scale)
Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
Type of Liner= Class 'B' Rip-Rap
-L- STA 19+68 TO STA 22+00 (LT)
DETAIL 4
RIP RAP AT EMBANKMENT
(Not to Scale)
Type of Liner= Class 'B' Rip-Rap
-L- STA 19+68 (LT)
-L-
PI Sta 17+42.82
Δ = 25° 25' 31.2" (RT)
D = 10° 36' 37.2"
L = 239.63'
T = 121.82'
R = 540.00'
SE = 0.055
RO = 93.50'
PI Sta 20+17.74
Δ = 76° 18' 15.0" (RT)
D = 28° 38' 52.4"
L = 266.35'
T = 157.11'
* R = 200.00'
SE = 0.060
RO = 102'
NC GRID NAD 83/95
BEGIN BRIDGE -L- STA 19+10.00
BEGIN APPROACH SLAB -L- STA 18+95.00
END BRIDGE -L- STA 20+05.00
END APPROACH SLAB -L- STA 20+20.00
-L- PCCSta. 18+60.63
-L- PCSta. 16+21.00
-L- PTSta. 21+26.98
-L- POTSta. 14+24.00
BEGIN STATE PROJECT B-4032
BEGIN CONSTRUCTION
-L- POT Sta. 23+09.00
END STATE PROJECT B-4032
END CONSTRUCTION
-L- POTSta. 24+50.00
-L- POTSta. 10+00.00
N 33° 24' 22.9" W
N 68° 19' 23.3" E
EULA MAE M LAVENDER
DEED BOOK 817 PAGE 123 TRACT 2
MICHAEL A. & MARTHA JANE KEITH
DEED BOOK 1363 PAGE 295
B. A. DUNSON HEIRS
DEED BOOK 1021 PAGE 201
EARL D. JR & ELLEN L. FRASURE
DEED BOOK 1491 PAGE 623
DEED BOOK 892 PAGE 423
OBLITERATION OF EXISTING PAVEMENT
* DESIGN EXCEPTION: HORIZONTAL CURVE RADIUS
SEE SHEET NO.5 FOR -L- PROFILE
SEE SHEET NOS. S-1 THRU S- FOR STRUCTURE PLANS
SKETCH SHOWING BRIDGE /PAVEMENT RELATIONSHIP
R:\01103618\Sent\NCDOT\ROW Plans\Roadway\Proj\b4032_rdy_psh04.dgn
7/27/2007

PROJECT REFERENCE NO.	SHEET NO.
B-4032	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

Kimley-Horn and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1900 CFS
DESIGN FREQUENCY	= 50 YR
DESIGN HW ELEVATION	= 2384.8 FT
BASE DISCHARGE	= 2300 CFS
BASE FREQUENCY	= 100 YR
BASE HW ELEVATION	= 2385.5 FT
OVERTOPPING DISCHARGE	= 3500 CFS
OVERTOPPING FREQUENCY	= 500 YR +
OVERTOPPING ELEVATION	= 2387.3 FT
DATE OF SURVEY	= 12/1/2005
W.S. ELEVATION AT DATE OF SURVEY	= 2379.4 FT

BM#1
-L- STA 16+54.35 (15.88' LT)
ELEV 2382.56'

BM#2
-L- STA 17+81.09 (24.48' RT)
ELEV 2389.03'

BM#3
-L- STA 19+65.44 (8.09' LT)
ELEV 2391.41'

BM#4
-L- STA 24+50.00 (38.68' LT)
ELEV 2426.19'

BEGIN GRADE
-L- STA 14+24.00 ELEV 2381.76'
TIE PROPOSED PAVEMENT TO EXISTING

BEGIN BRIDGE
-L- STA 19+10.00
ELEV 2392.87'

CL STA 19+57.50 -L-
1@ 95' = 54" CURVED STEEL PLATE GIRDER
CL ELEV = 2393.82'
EB #1 = 90° RADIAL
EB #2 = 72° SKEW

END BRIDGE
-L- STA 20+05.00
ELEV 2394.77'

PI = 17+34.00
EL = 2,386.41'
VC = 150'
K = 51

PI = 18+54.00
EL = 2,391.75'
VC = 90'
K = 37

PI = 21+44.00
EL = 2,397.55'
VC = 110'
K = 51

PI = 22+79.00
EL = 2,403.19'
VC = 60'
K = 54

(+)1.5000%
(+)14.4500%
(+)12.0%
(+)2.0000%
(+)14.1778%
(+)5.3000%
(+)3.54%
(+)5.76%
(+)14.23%
1.5%

BEGIN SPECIAL DITCH GRADE RT
-L- STA 17+58.00
ELEV = 2384.26

END SPECIAL DITCH GRADE RT
-L- STA 18+20.00
ELEV = 2386.45

NORMAL W.S.E.L.= 2379.4'
(12/01/05)

PI = 20+50.00
ELEV = 2388.41

REMOVE EXIST. BRIDGE DECK AND CONCRETE ABUTMENTS
RETAIN EXIST. CONCRETE FOOTINGS

BEGIN SPECIAL DITCH GRADE LT
-L- STA 19+68.00
ELEV = 2384.94

END SPECIAL DITCH GRADE LT
-L- STA 22+00.00
ELEV = 2397.05

END GRADE
-L- STA 23+09.00 ELEV 2404.78'
TIE PROPOSED PAVEMENT TO EXISTING

UNCLASSIFIED STRUCTURE EXCAVATION

SEE SHEET NO.4 FOR -L- PLAN

-L- NC 9

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 850 CFS
DESIGN FREQUENCY	= 5 YR
DESIGN HW ELEVATION	= 2382.4 FT
BASE DISCHARGE	= 2300 CFS
BASE FREQUENCY	= 100 YR
BASE HW ELEVATION	= 2385.5 FT
OVERTOPPING DISCHARGE	= 3500 CFS
OVERTOPPING FREQUENCY	= 500 YR +
OVERTOPPING ELEVATION	= 2387.3 FT
DATE OF SURVEY	= 12/1/2005
W.S. ELEVATION AT DATE OF SURVEY	= 2379.4 FT

BEGIN GRADE
-DET- STA 14+24.00 ELEV 2381.76'
TIE PROPOSED PAVEMENT TO EXISTING

CL STA 19+84.00 -DET-
1@ 60' - DETOUR BRIDGE
CL ELEV = 2387.97'
EB #1 SKEW = 90°
EB #2 SKEW = 72.8°

BEGIN BRIDGE
-DET- STA 19+54.00
ELEV 2387.66'

END BRIDGE
-DET- STA 20+14.00
ELEV 2388.46'

PI = 15+44.00
EL = 2,383.56'
VC = 50'
K = 100

PI = 20+45.00
EL = 2,388.57'
VC = 140'
K = 39

PI = 23+73.00
EL = 2,403.71'
VC = 40'
K = 59

(+)11.5000%
(+)11.0000%
(+)15.3000%
(+)14.6159%
(+)11.10%
(+)11.19%
(+)11.00%
(+)3.54%
(+)3.58%
(+)15.35%
(+)16.92%
(-)10.5%

BEGIN SPECIAL DITCH GRADE RT
-DET- STA 14+24.00
ELEV = 2380.61

PI = 15+50.00
ELEV = 2382.00

PI = 16+58.00
ELEV = 2380.72

18" RCP

BEGIN SPECIAL DITCH GRADE RT
-DET- STA 16+60.00
ELEV = 2382.85

END SPECIAL DITCH GRADE RT
-DET- STA 17+58.00
ELEV = 2384.26

END SPECIAL DITCH GRADE RT
-DET- STA 17+75.00
ELEV = 2384.00

BEGIN SPECIAL DITCH GRADE RT
-DET- STA 18+50.00
ELEV = 2384.00

END SPECIAL DITCH GRADE RT
-DET- STA 19+50.00
ELEV = 2383.50

NORMAL W.S.E.L.= 2379.4'
(12/01/05)

2' (TYP.)
1.5% (TYP.)

3.5' (TYP.)

BEGIN SPECIAL DITCH GRADE LT
-L- STA 20+16.00
ELEV = 2383.39

PI = 21+00 (RT)
ELEV = 2388.00

PI = 21+00 (LT)
ELEV = 2387.68

END SPECIAL DITCH GRADE RT
-DET- STA 21+50.00
ELEV = 2391.46

END SPECIAL DITCH GRADE LT
-L- STA 21+40.00
ELEV = 2391.88

END GRADE
-DET- STA 23+93.00 ELEV 2404.77'
TIE PROPOSED PAVEMENT TO EXISTING

-DET- NC 9 DETOUR

SEE SHEET NO.2-B FOR -DET- PLAN

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7/27/2007

Buncombe County

Bridge No. 130 on NC 9 over the Broad River

Federal-Aid Project No. BRSTP-0009(1)

State Project 8.1845601

WBS # 33399.1.1

T.I.P. No. B-4032

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

05/02/06
DATE

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

5/2/06
DATE

for John F. Sullivan, III, P.E.
Division Administrator, FHWA

Buncombe County

Bridge No. 130 on NC 9 over the Broad River

Federal-Aid Project No. BRSTP-0009(1)

State Project 8.1845601

WBS # 33399.1.1

TIP Project No. B-4032

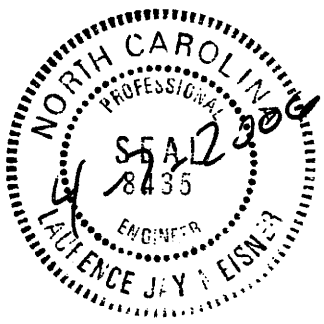
CATEGORICAL EXCLUSION

April 2006

Document Prepared by:
Kimley-Horn and Associates, Inc.

Ronald G. Hairr
Project Manager

Larry Meisner, P.E.
Senior Vice President



For the North Carolina Department of Transportation

Joseph Miller, P.E.
Project Manager
Western Region Project Development Unit

PROJECT COMMITMENTS

Buncombe County
Bridge No. 130 on NC 9 over the Broad River
Federal-Aid Project No. BRSTP-0009(1)
State Project 8.1845601
WBS # 33399.1.1
TIP Project No. B-4032

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

Division Construction/Project Services Unit:

There will be an in-stream and 25-foot buffer work moratorium from January 1 to April 15.

Buncombe County
Bridge No. 130 on NC 9 over the Broad River
Federal-Aid Project No. BRSTP-0009(1)
State Project 8.1845601
WBS # 33399.1.1
TIP Project No. B-4032

INTRODUCTION: The replacement of Bridge No. 130 is included in the 2006-2012 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) and the Federal-Aid Bridge Replacement Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion."

I. PURPOSE AND NEED STATEMENT

Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 47.5 out of a possible 100 for a new structure. The bridge is considered functionally obsolete and structurally deficient. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

Bridge No. 130 is located on NC 9 in Buncombe County. NC 9 is classified as a rural major collector in the Statewide Functional Classification System. Land use in the project area is woodland and residential. Private residences and maintained yards are located in the northeast and southwest quadrants. There is an old mill located northeast of the bridge. Buncombe County is designated as a trout county by the North Carolina Wildlife Resources Commission.

There are aerial power lines on the downstream (west) side of the bridge. A buried telephone cable is located on the upstream (east) side of the bridge and has an aerial span along the length of the bridge. Figure 4 includes photographs of the bridge and approaches. Utility impacts are expected to be moderate.

Bridge No. 130 was constructed in 1929. The existing structure is 33.5 feet in length and consists of one span. The clear roadway width is 18 feet, providing two travel lanes with no effective shoulder width. The existing right of way width is 60 feet. The superstructure of Bridge No. 130 consists of reinforced concrete girders with an asphalt wearing surface and reinforced concrete railing. The substructure of the bridge consists of reinforced concrete abutments. The bed to crown height is 11.3 feet. The normal depth of flow is 0.5 feet. The weight limit is not posted.

The approach roadway from the northeast is on a horizontal curve with a length of 151 feet using a radius of 190 feet to meet the bridge. The approach roadway from the south

is on a compound horizontal curve with a length of 280 feet using a radius of 375 feet to meet the bridge. A residential driveway is located approximately 80 feet from the south end of the bridge to the west. The speed limit in the vicinity of the bridge is posted at 30 miles per hour.

The estimated 2004 average daily traffic volume is 1,000 vehicles per day (vpd). The projected traffic volume is expected to increase to 1,900 vpd by the design year 2030. The volumes include 2 percent TTST and 6 percent dual tired vehicles.

This section of NC 9 in Buncombe County is not part of a designated bicycle route and is not listed in the TIP as needing incidental bicycle accommodations. Two (2) school buses cross this bridge four (4) times daily.

There were no accidents reported for the three-year period of September 1, 2001 through August 31, 2004.

III. ALTERNATIVES

A. Project Description

It is anticipated that the proposed replacement structure for Bridge No. 130 will be (85) feet in length. Final bridge length will be determined during final design. The proposed bridge will consist of two 11-foot travel lanes with 4-foot shoulders as shown in Figure 3.

The drainage area for the bridge is 6.02 square miles and is not located in a FEMA Detailed Study area. The channel geometry is such that there is a large floodplain on the right (north) side downstream. The length and opening size of the proposed structure may increase or decrease as necessary to accommodate peak flows, as determined by a detailed hydraulic analysis to be performed during the final design phase of the project.

The proposed approach roadway will consist of two 11-foot travel lanes with 6-foot shoulders as shown in Figure 3. It is recommended that the proposed structure match the existing grade. The design speed is 40 miles per hour. The grades approaching the proposed bridge ends will tie in as soon as possible in order to not fill in the adjacent floodplains and not impact the Broad River.

B. Build Alternatives

Three (3) build alternatives studied for replacing the existing bridge are described below.

Alternative 1 constructs a bridge on new alignment approximately 35 feet downstream (west) of the existing location. Traffic will be maintained on the existing structure during construction. Alternative 1 was not selected as the preferred alternative because it shifted the road closer to an adjacent residence along the curve and was anticipated to have a substantial impact on that property.

Alternative 2 constructs a bridge on new alignment approximately 50 feet upstream (east) of the existing location. Traffic will be maintained on the existing structure during construction. Alternative 2 was not selected as the preferred alternative due to substantial impacts to adjacent properties including two residential relocations.

Alternative 3 (Preferred) constructs a temporary detour approximately 54 feet downstream of the existing bridge and replaces the bridge at the existing location. Traffic will be maintained on the temporary structure during construction. The proposed temporary structure is anticipated to be 50 feet long. Final length will be determined during final design. Although the temporary detour does shift the roadway toward the residence impacted in Alternative 1, it has a temporary impact unlike the permanent shift in Alternative 1.

C. Alternatives Eliminated from Further Study

The "Do-Nothing" Alternative will eventually necessitate removal of the bridge. This is not desirable due to the traffic service provided by NC 9.

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

D. Preferred Alternative

Alternative 3 was selected as the preferred alternative because it avoids relocations and reduces impacts to adjacent properties.

The Division Engineer concurs with Alternative 3 as the preferred alternative.

IV. ESTIMATED COSTS

The estimated costs, based on current 2004 prices, are as follows:

	Alternative 1	Alternative 2	Alternative 3 (Preferred)
Structure Removal (existing)	$7,670.00	$7,670.00	$7,670.00
Structure (proposed)	$216,750.00	$216,750.00	$216,750.00
Detour Structure (temporary)	N/A	N/A	$49,000.00
Roadway approaches	$252,200.00	$160,700.00	$257,580.00
Miscellaneous and Mobilization	$146,380.00	$105,880.00	$157,000.00
Engineering and Contingencies	$102,000.00	$84,000.00	$112,000.00
ROW/Const. Easements/Utilities	$140,000.00	$230,500.00	$140,000.00
Total	$865,000.00	$805,500.00	$940,000.00

The estimated cost of the project, as shown in the 2006-2012 Transportation Improvement Program, is $1,015,000 including $140,000 for right-of-way and $800,000 for construction.

V. NATURAL RESOURCES

A. Methodology

Field investigations were conducted along the project study area on October 10, 2003. Pedestrian surveys were undertaken to determine natural resource conditions and to document natural communities, wildlife, and the presence of protected species or their habitats.

Published information regarding the project study area and region was derived from a number of sources including: United States Geological Survey (USGS) 7.5-minute topographical quadrangle map (Black Mountain, North Carolina, 1941, revised 1978), United States Fish and Wildlife Service (USFWS) database reviews, National Wetland Inventory (NWI) Map (Black Mountain, North Carolina, 1995), 2002 NCDOT aerial photography (1" = 200'), and Natural Resources Conservation Service (NRCS) soil survey mapping of Buncombe County (1998, provisional, unpublished).

Surface waters within the project study area were evaluated in the field to document their physical characteristics and jurisdictional status. Water resources information was obtained from publications of the North Carolina Department of Environment and Natural Resources - Division of Water Quality (NCDENR-DWQ).

Approximate boundaries of plant communities were mapped in the field utilizing aerial photography of the project study area. Dominant plant species were identified in each strata for each plant community. Plant community descriptions are based on the classifications utilized by Schafale and Weakley (1990). Plant names follow the nomenclature found in Radford *et al.* (1968).

Wildlife occurrences were determined through visual field observations, evaluation of habitat-types within the project study area, secondary indicators of species (tracks, scat, and burrows), as well as a review of supporting literature (Coe, 1994, Martof, *et al* 1980, and Webster, *et al* 1985). Field observations and literature reviews (Bogan, 2002, Jenkins and Burkhead, 1993, and Voshell, Jr., 2002) were utilized to assess aquatic life.

Information concerning the potential occurrence of federal and state protected species within the project study area and project vicinity was obtained from the U.S. Fish and Wildlife Service (USFWS) list of protected species (updated February 5, 2003 – current as of January 6, 2005) and the North Carolina Natural Heritage Program (NCNHP) database of rare species and unique habitats (updated January 2004 – current as of January 6, 2005). Field evaluations of the project study area were conducted to identify suitable habitat for protected species. If suitable habitat was identified, field surveys were conducted for federally listed endangered or threatened species.

Jurisdictional wetlands were identified and delineated based on the methodology outlined in the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987). Wetland systems were classified based on the U.S. Fish and Wildlife Service *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, *et al*, 1979).

B. Physiography and Soils

Buncombe County lies in the Blue Ridge Mountain physiographic province of western North Carolina. The county encompasses 646 square miles and is primarily rural. The county ranges in elevation from approximately 1,900 feet Mean Sea Level (MSL) where the Broad River flows into Henderson County to over 6,000 feet MSL in the western portion of the county. Elevations within the project area range from approximately 2,391 to 2,400 feet MSL, with the floodplain of the Broad River at 2,391 feet MSL. The land uses surrounding and within the project study area are mainly forest, agricultural land and sparse residential development.

The geologic features underlying the project study area are associated with the Blue Ridge Belt, specifically, muscovite-biotite gneiss which is sulfidic, interlayered and gradational, with mica schist, minor amphibolite, and hornblende gneiss rock (North Carolina Division of Land Resources, 1985). The study area is

depicted as a formation of biotite gneiss which is migmatic, interlayered and gradational with biotite-garnet gneiss and amphibolite. Quartz and aluminosilicates are locally abundant throughout this formation. The project vicinity is located within the Oconee Supergroup.

The portion of Buncombe County within which the project study area is located has been mapped by NRCS (NRCS map panel # 19-21) under the currently provisional (1998, unpublished) soil survey. Official soil series descriptions were also obtained by the NRCS. A brief description of the soil types mapped by NRCS is as follows:

Dellwood-Reddies soil complex (0 to 3 percent slopes)
This complex has been mapped by NRCS along the floodplain and lowermost elevations of the Broad River stream valley within portions of the project area. The soils comprising this complex consist of moderately well-drained, rapidly permeable soils formed in dominantly coarse-textured alluvium on floodplains in the Southern Appalachian Mountains. These soils consist of shallow to sandy material that has more than 35 percent by volume of gravel and cobbles. The soils formed in loamy and sandy alluvium that contains a large amount of rounded gravel and cobbles. The alluvium has washed from upland soils formed in residuum weathered from granite, gneiss, schist, and metasedimentary rocks such as phyllite and slate. The soils exhibit a typical A horizon consisting of up to 8 inches (20 centimeters) of dark brown (10YR3/3) to brown (10YR4/3) cobbly sandy loam. The seasonal high water table is at depths of 2 to 4 feet (0.6 to 1.2 meters) in winter and spring. Runoff is slow. Permeability is moderately rapid in the A horizon and rapid or very rapid in the C horizon. Flooding frequency ranges from occasional to frequent.

Tate gravelly loam (8 to 15 percent slopes)
This soil unit has also been mapped by NRCS along the floodplain and lowermost elevations of the Broad River stream valley within portions of the project area. The Tate series consists of very deep, well-drained, moderately permeable soils on benches, fans, and toe slopes in coves in the Southern Appalachian Mountains. The soils formed in alluvium and colluvium derived from materials weathered from felsic to mafic crystalline rocks such as granite, mica gneiss, hornblende gneiss, and schist. Tate soils exhibit a typical A horizon consisting of up to 7 inches (18 centimeters) of very friable, dark grayish brown (10YR4/2) loam with moderate fine granular structure. Tate soils exhibit moderate permeability in the subsoil and moderately rapid permeability in the underlying material. Runoff class is low on gentle slopes, medium on strong or moderately steep slopes, and high on steeper slopes. Runoff is lower where forest litter has not been disturbed or has had only partial disturbance (USDA, 1998).

Dellwood gravelly fine sandy loam and Tate gravelly loam are not listed as hydric soils of Buncombe County; however, Dellwood gravelly fine sandy loam and Tate gravelly loam are listed as a soil unit that typically contains inclusions of hydric soils (USDA, 1998).

C. Water Resources

1. Waters Impacted

Streams, creeks, and tributaries within the project vicinity are part of the Broad River watershed within the Broad River Basin. The Broad River basin covers approximately 1,506 square miles.

The NCDWQ classifies surface waters of the state based on their intended best uses. The Broad River is classified as "C Tr" from its source to Pool Creek, including backwaters of Black Mountain below 991 feet above MSL. Class "C" denotes waters that are suitable for aquatic life propagation and maintenance of biological integrity, wildlife, secondary recreation, and agriculture. Sources of water pollution which preclude any of these uses on either a short-term or long-term basis shall be considered to be violating a water quality standard. "Tr" is defined as trout waters (NCDENR 2001).

North Carolina's Section 303(d) list is a comprehensive public accounting of all impaired waterbodies in the state (NCDWQ 2004). The Broad River is not listed on the DWQ 2004 Draft 303 (d) list of impaired waters.

No High Quality Waters (HQW), Water Supplies (WS-I or WS-II), or Outstanding Resource Waters (ORW) occur within the project vicinity. The Broad River is not designated as a North Carolina Natural and Scenic River or a National Wild and Scenic River. The Broad River is not designated as essential fish habitat and does not contain anadromous fish species.

2. Water Resource Characteristics

The Broad River represents the only surface water in the project study area. The project is located approximately one-quarter mile east-southeast of Black Mountain. It is situated in NCDWQ Sub-basin 03-08-01 and Hydrologic Unit Code (HUC) 03050105. The project study area contains approximately 300 linear feet of the Broad River.

The Broad River is a perennial stream that flows northwest to west-southwest. The top of bank width is approximately 25 feet wide with a wetted width of 15 to 20 feet. One to two feet of moderately flowing water was observed within the channel during the site visit. The Broad

River has a bankfull depth of approximately 4 feet throughout the project study area. The 3 to 5 feet tall stream banks appeared stable. The substrate consisted of silt and sand with cobble and gravel riffle sections. The water was clear with moderate sediment deposition. The channel morphology exhibits strong indicators of a perennial channel. Excellent habitat conditions exist within the channel for numerous aquatic species. The stream received a NCDWQ stream classification of 46 and a USACE stream quality score of 78.

Based on Rosgen classification, the Broad River is an "F" channel. It is entrenched with a meandering, riffle/pool channel on a low gradient with a high width/depth ratio.

The Ambient Monitoring System (AMS) is a network of stream, lake, and estuarine water quality monitoring stations strategically located for the collection of physical and chemical water data. There are no AMS stations or benthic macroinvertebrate sampling locations within the project vicinity.

Point source dischargers are permitted through the National Pollutant Discharge Elimination System (NPDES) program and are required to register for a permit. Based upon DWQ's database, there are no NPDES permit locations within one mile of the project study area (NCDENR 2001).

Nonpoint source discharge refers to runoff that enters surface waters through stormwater, snowmelt or atmospheric deposition. Land use activities such as land development, construction, mining operations, crop production, animal feeding lots, failing septic systems, landfills, roads and parking lots are contributors of nonpoint source pollutants. Land uses surrounding and within the project study area are mainly commercial, with some residential development.

3. Anticipated Impacts to Water Resources

a) General Impacts

The proposed project is expected to impact both soils and topography. The topography within the project study area is gently sloping. The possible construction of a new bridge and/or road improvements is likely to require the removal of soils and the placement of fill. No adverse long-term impacts to soils and topography are expected from the proposed bridge replacement.

The primary sources of water-quality degradation in rural areas are nonpoint-source discharges and stormwater runoff. Aquatic

organisms are very sensitive to discharges and inputs from construction. Potential impacts associated with construction of the proposed project include the following: increased sedimentation resulting from the clearing of streams and in-stream construction activities, soil compaction, loss of shading due to vegetation removal, and fertilizers and pesticides used in revegetation. Measures to minimize these potential impacts include formulation of an erosion and sedimentation control plan, provisions for waste material and storage, stormwater management measures, and appropriate road-maintenance measures. NCDOT's Best Management Practices for Protection of Surface Waters (BMPs-PSW) and Sedimentation Control guidelines will be strictly enforced during the construction stages of the project. Limiting in-stream activities and revegetating stream banks immediately following the completion of grading can further reduce impacts. No adverse long-term impacts to water resources are expected to result from the proposed bridge replacement.

4. Impacts Related to Bridge Demolition and Removal

The superstructure of Bridge No. 130 consists of reinforced concrete girders with an asphalt wearing surface and reinforced concrete railing. The substructure of the bridge consists of reinforced concrete abutments.

It should be possible for the superstructure and substructure elements to be removed without any resulting fill into the Broad River during demolition and removal. The maximum resulting temporary fill associated with the removal of the bridge is approximately 51.7 cubic yards.

D. Biotic Resources

This section describes the existing vegetation and associated wildlife that occur within the project study area. The project study area is composed of two different vegetative communities based on topography, soils, hydrology, and disturbance. These systems are interrelated and in many aspects interdependent. Potential impacts affecting these communities are also discussed. Scientific nomenclature and common name (when applicable) are provided for each plant and animal species listed. Subsequent references to the same organism only include the common name.

1. Plant Communities

a) Maintained-Disturbed Land

This community is located throughout the project study area. Vegetation within these areas has been maintained in herbaceous cover or in early successional stages through mechanical or possibly chemical vegetation management practices. No woody plant species were observed at the time of the site investigation within the maintained right-of-ways of the project study area. Dominant herbaceous species observed include common plantain (*Plantago major*), clover (*Trifolium* spp.), Queen Anne's lace (*Daucus carota*), dandelion (*Taraxacum officinale*), and unidentified grasses (Poaceae). Dominant vine species observed include poison ivy (*Toxicodendron radicans*) and Japanese honeysuckle (*Lonicera japonica*).

The pasture area consists of a recently cut field located in the northwest quadrant of the project study area. The pasture contained a variety of herbaceous plants included those species found in the maintained right-of-ways.

The early successional and scrub/shrub communities include saplings of ironwood (*Carpinus caroliniana*), pecan (*Carya illinoensis*), black cherry (*Prunus serotina*), willow oak (*Quercus phellos*), hickory saplings (*Carya* spp.), American elm (*Ulmus americana),* tulip tree (*Liriodendron tulipifera*), and Virginia pine (*Pinus virginiana*). Dominant shrub species observed include multiflora rose (*Rosa multiflora*), tag alder (*Alnus serrulata),* dog-hobble (*Leucothoe axillaris*), witch-hazel (*Hamamelis virginiana*), and pale rhododendron (*Rhododendron maximum*). Dominant herbaceous species observed include pokeweed (*Phytolacca americana*), violets (*Viola* sp.), blackberry (*Rubus* sp.), and goldenrod (*Solidago* sp.). Dominant vine species observed include poison ivy, Japanese honeysuckle, and Virginia creeper (*Parthenocissus quinquefolia*).

b) Montane Oak-Hickory Forest

This community is located in the southeast corner of the project study area outside the construction limits of the three alternatives. Dominant tree species observed within the montane oak-hickory forest at the time of the site investigation include red maple (*Acer rubrum*), tulip tree, and black locust (*Robinia pseudoacacia*). There is a dense shrub layer of pale rhododendron.

2. Terrestrial Wildlife

Due to forest fragmentation common to the project region, species that require large contiguous tracts of forests are not likely to utilize the project

study area on a frequent basis. Heavily browsed herbaceous layers observed at the time of field investigation indicate that certain opportunistic wildlife species, such as white-tailed deer (*Odocoileus virginianus*), woodchuck (*Marmota monax*), and eastern cottontail rabbit (*Sylvilagus floridanus*), utilize edge habitat present within the project study area. Due to the relatively small size of the project area and the fact that many wildlife species are capable of moving between and/or utilizing adjoining communities, no distinct terrestrial wildlife habitat can be assigned to the one terrestrial plant community within the project study area.

No mammals were observed in the project vicinity at the time of field investigation; however tracks and scat of raccoon (*Procyon lotor*) were observed along the banks of the Broad River. Although not observed, other mammals common to the project region which can be expected to periodically utilize habitat of the project study area include Virginia opossum (*Didelphis virginiana*), gray squirrel (*Sciurus carolinensis*), beaver (*Castor canadensis*), eastern harvest mouse (*Reithrodontomys humulis*), white-footed mouse (*Peromyscus leucopus*), golden mouse (*Ochrotomys nuttalli*), hispid cotton rat (*Sigmodon hispidus*), eastern woodrat (*Neotoma floridana*), meadow vole (*Microtus pennsylvanicus*), woodland vole (*Microtus pinetorum*), muskrat (*Ondatra zibethicus*), black rat (*Rattus rattus*), meadow jumping mouse (*Zapus hudsonius*), woodland jumping mouse (*Napaeozapus insignis*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), black bear (*Ursus americanus*), long-tailed weasel (*Mustela frenata*), striped skunk (*Mephitis mephitis*), and bobcat (*Felis rufus*).

The maintained-disturbed areas within the project study area provide limited but suitable habitat and forage areas for a variety of birds. Birds observed at the time of field investigation include common crow (*Corvus brachyrhynchos*), mockingbird (*Mimus polyglottos*), blue jay (*Cyanocitta cristata*), mourning dove (*Zenaida macroura*), Carolina chickadee (*Parus carolinensis*), and northern cardinal (*Cardinalis cardinalis*). The open landscaped areas and croplands within the project vicinity provide probable hunting grounds for birds of prey, such as red-tailed hawk (*Buteo jamaicensis*), and eastern screech owl (*Otus asio*).

Common reptiles and amphibians which could be expected to utilize the project study area habitat include brown snake (*Storeria dekayi*), northern water snake (*Nerodia sipedon*), rat snake (*Elaphe obsoleta*), eastern fence lizard (*Sceloporus undulatus*), five-lined skink (*Eumeces fasciatus*), broadhead skink (*E. laticeps*), snapping turtle (*Chelydra serpentina*) and eastern box turtle (*Terrapene carolina*).

3. Aquatic Habitats and Wildlife

The Broad River provides aquatic habitat within the project study area. The physical characteristics (size and water quality) of the stream, as well as the adjacent terrestrial community, directly influence faunal composition of this aquatic community. The quality of aquatic habitat within the project study area is expected to be high. Woody debris located throughout the stream provides habitat, shade, and concealment pockets for several aquatic species. Aquatic invertebrates are a major component of aquatic ecosystems as primary and secondary consumers, as well as prey items for organisms higher in the food chain.

Insects typically found in this type of community include Mayflies (Ephemeroptera), stoneflies (Plecoptera), caddisflies (Trichoptera), dragonflies (*Odonta* sp.), aquatic beetles (Coleoptera), mosquito larvae (*Culicidae* sp.) and midges (*Chironomidae* sp.). Stoneflies, craneflies (*Diptera* sp.) and caddisfly casings were observed during field review.

Small non-game fish in the area that inhabit the Broad River include the bluehead chub (*Nocomis leptocephalus*), rosyside dace (*Clinostomus funduloides*), creek chub (*Semotilus atromaculatus*), spottail shiners (*Notropis hudsonius*) and margined madtom (*Noturus exilis*). Larger species like the northern hog sucker (*Hypentelium nigricans*), red-breasted sunfish (*Lepomis auritus*), white suckers (*Castomus commersoni*), rainbow trout (*Onchorychus mykiss*) and brown trout (*Salmo trutta*) may be found in the Broad River near Black Mountain.

Freshwater mussels that may occur include Carolina lance (*Elliptio angustata)*, Carolina slabshell (*E.congaraea)* and pondhorn (*Uniomerus* sp.). Other aquatic species likely to be found include snapping turtle (*Chelydra serpentina*), Eastern mud turtle (*Kinosternon subrubrum*), sliders (*Chrysemys scripta*), and painted turtles (*Chrysemys picta*).

No freshwater mussels were found during a field survey of the project study area conducted on September 7, 2003.

4. Anticipated Impacts to Biotic Communities

a) Terrestrial Communities

Table 1 describes the acreage of plant communities within the proposed construction limits that would be impacted by the alternatives.

TABLE 1 ANTICIPATED IMPACTS TO PLANT COMMUNITIES			
Community Type	**Alternative 1 Impact Acres**	**Alternative 2 Impact Acres**	**Alternative 3 (Preferred)Impact Acres**
Maintained-Disturbed Area	1.68	1.10	1.63

Due to the minimal disturbance of plant communities anticipated as a result of the bridge replacement, substantial impacts to terrestrial wildlife populations are not expected.

Loss of wildlife is an unavoidable aspect of development. Temporary fluctuations in populations of animal species that utilize these communities are anticipated during the course of construction. Slow-moving, burrowing, and/or subterranean organisms will be directly impacted by construction activities, while mobile organisms will be displaced to adjacent communities. Competitive forces in the adapted communities will result in a redefinition of population equilibria.

b) Aquatic Communities

Aquatic organisms are acutely sensitive to changes in their environment, and environmental impacts from construction activities may result in long term or irreversible effects. Impacts usually associated with in-stream construction include alterations to the substrate and impacts the adjacent streamside vegetation. Such disturbances within the substrate lead to increased siltation, which can clog the gills and/or feeding mechanisms of benthic organisms, fish, and amphibian species. Siltation may cover benthic macroinvertebrates with excessive amounts of sediment that inhibit their ability to obtain oxygen.

The removal of streamside vegetation and placement of fill material during construction enhances erosion and possible sedimentation. Quick revegetation of these areas helps to reduce the impacts by supporting the underlying soils. Erosion and sedimentation may carry soils, toxic compounds, trash, and other materials into the aquatic communities at the construction site. As a result, bars may form downstream of the site. Increased light penetration from the removal of streamside vegetation may increase water temperatures. Warmer water contains less

oxygen, thus reducing aquatic life that depends on high oxygen concentrations.

Impacts to "Waters of the United States" have been determined based on the construction limits for the three alternatives (Table 2).

TABLE 2
ANTICIPATED IMPACTS TO JURISDICTIONAL STREAMS
(LINEAR FEET WITHIN CONSTRUCTION LIMITS)

Jurisdictional Stream	Alternative 1	Alternative 2	Alternative 3 (Preferred)
Broad River	68	72	69

E. Special Topics

1. "Waters of the United States": Jurisdictional Issues

Section 404 of the Clean Water Act requires regulation of discharges into "Waters of the United States." The U.S. Army Corps of Engineers (USACE) has the responsibility for implementation, permitting, and enforcement of the provisions of the Act. The USACE regulatory program is defined in 33 CFR 320-330.

Wetlands, defined in 33 CFR 328.3, are those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The project study area was surveyed for jurisdictional wetlands. This approach incorporates three criteria in delineating wetlands: (1) the presence of hydrophytic vegetation, (2) the presence of hydric soils, and (3) evidence of wetland hydrology. All three criteria must be present in a given location for an area to be considered a jurisdictional wetland.

No jurisdictional wetlands were identified within the project study area.

2. Permits (*as applicable*)

a) Section 404 of the Clean Water Act

Impacts to "Waters of the United States" come under the jurisdiction of the USACE. Any action that proposes to place fill into these areas falls under the jurisdiction of the USACE under

Section 404 of the Clean Water Act (33 USC 1344). Permits will be required for highway encroachment into jurisdictional wetlands and streams. The Nationwide Permit 23 should cover the impacts to jurisdictional streams in the project study area. Nationwide Permit 33 may be needed for temporary construction access.

b) Section 401 Water Quality Certification

A Section 401 General Water Quality Certification is also required for any activity which may result in a discharge into "Waters of the United States" or for which an issuance of a federal permit is required. The issuance of a required Section 401 certification is a prerequisite to the issuance of a Section 404 permit. The NCDENR-DWQ has regulatory input through Section 401 Water Quality Certification.

Final determination of permit applicability lies with USACE. NCDOT will coordinate with the USACE to obtain the necessary permits.

3. Mitigation

The USACE has adopted, through the Council on Environmental Quality (CEQ), a mitigation policy which embraces the concepts of "no net loss of wetlands" and project 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: avoidance of impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20). Each of these aspects (avoidance, minimization, and compensatory mitigation) must be considered in sequential order.

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States". It is not feasible for this project to completely avoid the Broad River. Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to "Waters of the United States". Compensatory mitigation is not normally considered until anticipated impacts to "Waters of United States" have been avoided and minimized to the maximum extent possible.

In accordance with 15A NCAC 2H.0506 (h) and 40 CFR 1508.20, mitigation will be required for impacts to jurisdictional streams requiring mitigation when these impacts are equal to or greater than 150 linear feet

per stream. It is anticipated that the bridge replacement over the Broad River will likely impact less than 150 linear feet of stream. Therefore, no stream mitigation requirement is anticipated. However, final permit/mitigation decisions will be determined by the USACE and NCDWQ.

F. Rare and Protected Species

Federal law under the provisions of Section 7 of the Endangered Species Act (ESA) of 1973, as amended, requires that any action likely to adversely affect a federally protected species be subject to review by the U.S. Fish and Wildlife Service. Other species may warrant protection under separate state laws.

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 ESA. According to the internet list, the USFWS lists 12 federally protected species for Buncombe County with one threatened due to similarity of appearance (Table 3).

TABLE 3
FEDERALLY PROTECTED SPECIES FOR BUNCOMBE COUNTY

Common name	Scientific name	Federal Status	Biological Conclusion
Bog turtle	*Clemmys muhlenbergii*	T(S/A)*	N/A*
Carolina northern flying squirrel	*Glaucomys sabrinus coloratus*	Endangered	No Effect
Eastern cougar	*Puma concolor couguar*	Endangered	No Effect
Gray bat	*Myotis grisescens*	Endangered	No Effect
Spotfin chub	*Hybopsis monacha*	Threatened	No Effect
Appalachian elktoe	*Alasmidonta raveneliana*	Endangered	No Effect
Oyster mussel	*Epioblasma capsaeformis*	Endangered	No Effect
Bunched arrowhead	*Sagittaria fasciculata*	Endangered	No Effect
Mountain sweet pitcher plant	*Sarracenia jonesii*	Endangered	No Effect
Spreading avens	*Geum radiatum*	Endangered	No Effect
Virginia spiraea	*Spiraea virginiana*	Threatened	No effect
Rock gnome lichen	*Gymnoderma lineare*	Endangered	No Effect

* Threatened due to similarity of appearance.

Bog turtle (*Clemmys muhlenbergii*)
Animal Family: Emydidae
Date Listed: November 4, 1997

Bog turtles are small (3 to 4.5-inch) reptiles with a weakly keeled carapace (upper shell) that ranges in color from light brown to ebony. This species is easily distinguished from other turtles by a large, conspicuous, bright orange to yellow

blotch on each side of its head. Bog turtles are semi-aquatic and inhabit muddy, bog-like habitats. They can be found during the spring mating season from June to July and at other times from April to October when the humidity is high and temperatures are in the 70s. Bog turtle habitat consists of bogs, swamps, marshy meadows, and other wet environments, specifically those which exhibit soft, muddy bottoms (USFWS 2004).

In November 1987, the northern population of the bog turtle (from New York south to Maryland) was listed as federally threatened, and the southern population (from Virginia south to Georgia) was listed as federally threatened due to similarity of appearance. The southern populations are not protected under Section 7 of the Endangered Species Act; however, the T(S/A) designation bans the collection and interstate or international commercial trade of bog turtles from the southern population.

This site contains no wetlands; therefore, suitable habitat for the bog turtle is not present. No bog turtles were observed in the project vicinity. NCNHP has no records of any known populations of the bog turtle within a one-mile radius of the project area. This species will not be impacted as a result of project construction.

Carolina northern flying squirrel (*Glaucomys sabrinus coloratus*)
Animal Family: Sciuridae
Date Listed: July 1, 1985

The northern flying squirrel is a small nocturnal mammal that inhabits the high elevation ecotone between coniferous and northern hardwood forest. This high elevation habitat usually occurs above 5,500 feet above MSL. These squirrels are 10 to 12 inches long and weigh 3 to 5 ounces. Adults are gray with a light brown to reddish cast on their backs and light gray to white or buff undersides. The broad tails and folds of skin between the wrist and ankles form wing-like surfaces that enable these animals to glide downward from tree to tree or tree to ground. These mammals eat a wide variety of foods such as lichens, mushrooms, seeds, nuts, insects and fruits. These squirrels nest in tree cavities such as woodpecker holes and usually produce one litter in the early spring (USFWS 2004).

Suitable habitat for the Carolina northern flying squirrel, consisting of mixed deciduous/coniferous forests located above 5,500 feet above MSL, does not exist within the project study area. Review of NCNHP maps indicated no known populations of this species within one mile of the project area. No impacts to this species from project construction are anticipated.

Biological Conclusion: ***No Effect***

Eastern cougar (*Felis concolor couguar*)
Animal Family: Felidae
Date Listed: June 4, 1973

The eastern cougar is described as a large, unspotted, long-tailed cat. Its body and legs are a uniform fulvous or tawny hue, and its belly is pale reddish or reddish white. The inside of this cat's ears are light-colored, with a blackish color behind the ears. Cougars feed primarily on deer, but their diet may also include small mammals, wild turkeys, and occasionally domestic livestock, when available. Cougars begin breeding when two or three years old and breed thereafter once every two to three years. A typical litter size is three, with the newborn kittens weighing 8 to 16 ounces.

The primary habitat appears to be large wilderness areas with an adequate food supply. Cougars avoid human-developed areas and have been considered by some as extirpated for this reason. Male cougars typically occupy a range of 25 or more square miles, and females from 5 to 20 square miles. Sightings have been reported in three North Carolina areas including the Nantahala National Forest, the northern portion of the Uwharrie National Forest, and North Carolina's southeastern counties. The remaining population of this species is extremely small, with exact numbers unknown (USFWS 2004).

There are no large expanses of relatively undeveloped lands within the in the project study area. Also, cougars are not likely in the project area due to the frequency of human activity within the study area and localized development near the study area. The NCNHP has no records of any known populations of the eastern cougar within a one-mile radius of the project area. No impacts to this species from project construction are anticipated.

Biological Conclusion: ***No Effect***

Gray bat (*Myotis grisescens*)
Animal Family: Vespertilionidae
Date Listed: April 28, 1976

The gray bat is the largest of its genus in the eastern United States. It weighs between 0.25 and 0.56 ounces and has a forearm that reaches from 1.6 to 1.8 inches in length. This bat can be distinguished from other eastern bats by its uni-colored dorsal fur and by its wing membrane that connects to the foot at the ankle. Other eastern species of bats have bi- or tri-colored dorsal fur and have a wing membrane that connects to the base of their first toe. The gray bat's fur is dark gray for a short time after it molts in July or August and then turns to a russet color in between molts. It is known to feed on aquatic insects, especially mayflies.

This bat inhabits only caves or cave-like habitats. They are very selective about which caves they will inhabit. The caves are usually located within 0.62 miles of a river or reservoir and have a specific temperature in both the summer and the winter (USFWS 2004).

A memorandum dated July 2, 2002 serves as a programmatic screening/survey for the project. The results of the habitat evaluation indicated no survey was required. Review of NCNHP maps indicated no known populations of this species within one mile of the project study area. No impacts to this species from project construction are anticipated.

Biological Conclusion: ***No Effect***

Spotfin Chub (*Hybopsis monacha*)
Animal Family: Cyprinidae
Date Listed: September 9, 1994

Spotfin chub is a small fish growing to a maximum size of 3.6 inches in length. The body is elongate; usually there is one pair of minute, terminal labial barbels; scales are moderate to somewhat small in size; and a distinctive large black spot is present in the caudal region. The spotfin chub is restricted to the Tennessee River drainage where it once occurred widely in 12 tributary systems distributed over five states. The spotfin chub inhabits moderate to large streams, 50 to 200 feet average width, with a good current, clear water, and cool to warm temperatures. These streams have pools frequently alternating with riffles (USFWS 2004).

The project study area is not located within the Tennessee River Basin where this species is known to occur; therefore no impacts to this species from project construction are anticipated.

Biological conclusion: ***No Effect***

Appalachian elktoe (*Alasmidonta raveneliana*)
Animal Family: Unionidae
Date Listed: November 23, 1994
The Appalachian elktoe, listed in 1994 by the USFWS, is a kidney-shaped freshwater mussel endemic to the upper Tennessee River system in western North Carolina and eastern Tennessee. The adult shell reaches 3.5 inches in length and is usually dark brown with prominent to obscure greenish rays. This mussel inhabits relatively shallow medium-sized creeks and rivers with moderate to fast flowing water. It is generally found in gravelly substrates mixed with cobbles and boulders or occasionally in silt-free, coarse sandy substrates. Reproduction is similar to that of other freshwater mussels, and the banded sculpin (*Cottus carolinea*) has been identified as a host species for developing glochidia. Historically, this mussel was found in the French Broad River system, including

French Broad main stem and the Little River in Transylvania County (USFWS, 2004).

Suitable habitat for the Appalachian elktoe consisting of shallow medium-sized creeks with fast flowing water and clean, silt-free, gravel substrates is readily available in the project area. Review of NCNHP maps indicated no known populations of this species within one mile of the project area. A mussel survey conducted by qualified aquatic biologist found no mussels in the project study area. No impacts to this species from project construction are anticipated.

Biological Conclusion: ***No Effect***

Oyster mussel (*Epioblasma capsaeformis*)
Animal Family: Unionidae
Date Listed: November 23, 1994

The oyster mussel is a small, up to 2.1 inches in length, freshwater mussel. Its distinguishing characteristic is the pronounced development of the posterior-ventral region in the females. The outer shell or perostracum is dull to sub-shiny yellowish to green with numerous thin dark green rays. The inside shell or nacre is whitish to bluish-white in color. This mussel inhabits small to mediums sized streams with a coarse sand to boulder substrate (no mud) and moderate to swift currents (USFWS 2004).

Suitable habitat for the oyster mussel is readily available in the project study area; however, the oyster mussel is restricted to the Tennessee River basin, which is not within the project study area. Review of NCNHP maps indicated no known populations of this species within one mile of the project area. No impacts to this species from project construction are anticipated.

Biological Conclusion: ***No Effect***

Bunched arrowhead (*Sagittaria fasciculata*)
Plant Family: Alismataceae
Date Listed: July 25, 1979

Bunched arrowhead is an emergent aquatic perennial herb, which grows 6 to 13 inches in height. Its spatulate-shaped leaves reach 12 inches long and 0.3 inch wide, and stem from the base of the plant. Three white petals are present during flowering and fruiting occurs from May to July.

Bunched arrowhead grows in seepage areas that have little or no net flow but are not stagnant. The soil in the seepages can be characterized as sandy loams overtopped by a muck layer ranging in depth from 9.8 to 23.6 inches (USFWS 2004).

Review of NCNHP maps indicated no known populations of this species within one mile of the project area. No seepages are located in the project study area; therefore no suitable habitat for the bunched arrowhead exists within the project study area. No impacts to this species from project construction are anticipated.

Biological Conclusion: ***No Effect***

Mountain sweet pitcher plant (*Sarracenia jonesii*)
Plant family: Sarraceniaceae
Date listed: September 30, 1988

Mountain sweet pitcher plant is a perennial, carnivorous herb. Its leaves form pitchers that are hollow, trumpet shaped, and dull green with criss-crossing maroon to purple veination. The deep maroon flowers are three to four inches wide and borne singly at the top of a stalk in the spring, usually in May. Due to its distinct appearance, this plant is readily identifiable outside of its spring flowering season. This species inhabits wet bogs with mucky surfaces and sandy bottoms.

Review of NCNHP maps indicated no known populations of this species within one mile of the project area. No mucky bog habitat is present; therefore no suitable habitat exists in the project study area (USFWS 2004). No impacts to this species from project construction are anticipated.

Biological Conclusion: ***No Effect***

Spreading avens (*Geum radiatum*)
Plant family: Rosaceae
Date listed: April 5, 1990

Spreading avens is a perennial herb of the Rosaceae family. The densely pubescent plant forms a basal rosette arising from horizontal rhizomes. The basal leaves are kidney-shaped, serrate, and three to six inches wide. The inflorescence is an indefinite cyme supporting a few, large (1 to 2 inches in diameter), yellow flowers. Flowering occurs from June through September. This plant is found in sunny locations such as high elevation rocky balds, pockets of soil on nearly vertical cliffs, and shrub-free (due to rock or ice falls) grassy areas at the base of cliffs. These sunny/rocky openings are surrounded by spruce-fir (*Picea rubens-Abies fraseri*) forests that generally occur above 5,500 feet elevation (USFWS 2004).

The highest elevation in the project study area is approximately 2,100 feet above MSL, well below the high elevation habitats where this plant grows. Review of NCNHP maps indicated no known populations of this species within one mile of the project area. No suitable habitats such as rocky balds or vertical cliffs were

observed in the project study area. No impacts to this species from project construction are anticipated.

Biological Conclusion: ***No Effect***

Virginia spiraea (*Spiraea virginiana*)
Plant family: Rosaceae
Date listed: June 15, 1990

Virginia spiraea grows from 2.0 to 10.0 feet tall and has arching, upright stems. This shrub bears cream-colored flowers on branched and flat-topped axles. Its alternate leaves are of different sizes and shapes. Spiraea spreads clonally and forms dense clumps, which spread in rock crevices and around boulders. Flowering occurs in June and July.

Virginia spiraea occurs along rocky, flood-scoured riverbanks in gorges or canyons. Flood scouring is essential to this plant's survival because it eliminates taller woody competitors and creates riverwash deposits and early successional habitats. Spiraea is found in thickets (USFWS 2004).

Review of NCNHP maps indicated no known populations of this species within one mile of the project area. No rocky, flood scoured riverbanks exist within the project study area; therefore no habitat for Virginia spiraea is located within the project study area. No impacts to this species from project construction are anticipated.

Biological Conclusion: ***No Effect***

Rock gnome lichen (*Gymnoderma lineare*)
Plant family: Cladoniaceae
Date listed: January 18, 1995

Rock gnome lichen is a squamulose lichen of the reindeer moss family. This species is the only member of its genus occurring in North America. It occurs in small (usually less than one square yard), dense colonies of narrow, strappy, leaf-like pads. These strap-like lobes are usually blue-gray on the upper surface and generally shiny white on the lower surfaces. The fruiting bodies are borne at the tips of the strap-like lobes and are black, in contrast to the red to brown fruiting bodies of other reindeer moss lichens. These lichens fruit from July through September. The rock gnome lichen is endemic to the southern Appalachian Mountains of North Carolina and Tennessee. They primarily inhabit vertical rock faces in areas of high humidity such as river gorges or areas frequently bathed in fog. Most populations occur above an elevation of 5,000 feet (USFWS 2004).

The project study area lacks suitable habitat for the rock gnome lichen consisting of high humidity environments such as deep river gorges or other seepy wet rock

faces. The highest elevation in the project study area is approximately 3,050 feet above MSL, well below the elevations (5,000 feet above MSL) preferred by this species. Review of NCNHP maps indicated no known populations of this species within one mile of the project area. This species will not be affected by project construction.

Biological Conclusion: ***No Effect***

There are 24 federal species of concern listed by the USFWS for Buncombe County (Table 4). Federal species of concern (FSC) are not afforded federal protection under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. However, the status of these species may be upgraded at any time, thus they are included here for consideration. Federal Species of Concern are defined as species that are under consideration for listing for which there is insufficient information to support listing.

TABLE 4
FEDERAL SPECIES OF CONCERN FOR BUNCOMBE COUNTY

Common Name	Scientific Name	State Status**	Habitat Requirement	Habitat Present
Bachman's sparrow	*Aimophila aestivalis*	SC*	open longleaf pine forests, old fields [breeding season only]	No
Southern Appalachian saw-whet owl	*Aegolius acadicus*	T	spruce-fir forests or mixed hardwood/spruce forests (for nesting)	No
Rafinesque's big-eared bat	*Corynorhinus (=Plecotus) rafinesquii*	T*	roosts in old buildings, caves, and mines, usually near water	No
Hellbender	*Cryptobranchus alleganiensis*	SC	large and clear fast-flowing streams	No
Cerulean warbler	*Dendroica cerulea*	SR	mature hardwood forests; steep slopes and coves in mountains	No
Blotched chub	*Erimystax insignis*	SR	primarily French Broad drainage	No
Southern Appalachian red crossbill	*Loxia curvirostra*	SC	coniferous forests, preferably spruce-fir	No
Eastern small-footed myotis	*Myotis leibii*	SC	roosts in hollow trees (warmer months), in caves and mines (winter)	No
Southern Appalachian woodrat	*Neotoma floridana haematoreia*	SC	rocky places in deciduous or mixed forests	No
Alleghany woodrat	*Neotoma magister*	SC	rocky places and abandoned buildings in deciduous or mixed forests in the northern mountains and adjacent Piedmont	No
Longhead darter	*Percina macrocephala*	SC*	larger creeks and small to medium sized rivers often in silty areas	No

Southern Appalachian black-capped chickadee	*Poecile atricapillus practicus*	SC	high elevation forests, mainly spruce-fir [breeding season only]	No
Paddlefish	*Polyodon spathula*	E*	French Broad River	No
Southern water shrew	*Sorex palustris punctulatus*	SC	stream banks in montane forests	No
Southern Appalachian yellow-bellied sapsucker	*Sphyrapicus varius appalaciensis*	SC	mature, open hardwoods with scattered dead trees [breeding season only]	No
Appalachian Bewick's wren	*Thryomanes bewickii altus*	E*	woodland borders or openings, farmlands or brushy fields, at high elevations [breeding season only]	No
French Broad crayfish	*Cambarus reburrus*	W2	tributaries of French Broad River	No
Tawny crescent butterfly	*Phycoides batesii batesii*	SR*	rocky ridges, woodland openings, at higher elevations; host plants -- asters, mainly *Aster undulatus*	No
Diana fritillary butterfly	*Speyeria diana*	SR*	rich woods and adjacent edges and openings; believed extirpated from the lower Piedmont; host plants -- violets (Viola)	No
Fraser fir	*Abies fraseri*	SR-L	spruce-fir forests	No
Piratebush	*Buckleya distichophylla*	E	bluffs, dry slopes, forests on lower slopes	No
Cain's reed grass	*Calamagrostis cainii*	E	high elevation rocky summits	No
Glade spurge	*Euphorbia purpurea*	SR-T	forests, especially over mafic rock	No
Mountain heartleaf	*Hexastylis contracta*	E	acidic forests under rhododendron	No

*Historic record – the species was last observed in the county more than 50 years ago.
**E=Endangered, T=Threatened, SC=Special Concern, SR=Significantly Rare, L=Limited range, T=Throughout

VI. CULTURAL RESOURCES

A. Compliance Guidelines

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

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted, and four structures within the APE were photographed. Later an NCDOT staff

architectural historian reviewed these photos. Properties 1 through 3 and Bridge No. 130 were determined not eligible for the National Register of Historic Places (NRHP) and were shown to the State Historic Preservation Office (HPO) in a meeting on July 8, 2003. At that meeting HPO staff concurred that Properties 1 through 3 and Bridge No. 130 were not eligible, and a form was signed to this effect. A copy of the concurrence form is included in the Appendix. NCDOT later identified a nearby structure, the Lavender Barn, and conducted an additional field survey since it was not considered in the previous study. HPO determined No Effect on the National Register-eligible Lavender Barn on August 31, 2005, and signed the concurrence form on September 7, 2005. A copy of this form is also included in the Appendix.

C. Archaeology

In a memorandum dated January 23, 2002, the State Historic Preservation Officer requested that if the replacement is to be in a new location, NCDOT is to forward a map indicating the location of the new alignment so that SHPO may evaluate the potential effects of the replacement. A copy of the SHPO memorandum is included in the Appendix. TRC Garrow Associates, Inc., conducted an intensive archaeological survey for the preferred alternative (Alternative 3) on behalf of NCDOT on September 8 and 9, 2005. During the course of the survey, one site was located within the project study area. However, the report recommended that no further archaeological work be conducted within the project area, since the project will not involve significant archaeological resources. SHPO concurred with this finding on February 7, 2006. A copy of this memorandum is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations, and the use of the existing bridge as a pedestrian-only structure will provide an additional community resource.

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

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

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

Right-of-way acquisition will be limited. No relocations are expected with the implementation of the proposed alternative. A temporary construction easement will be required for the on-site detour.

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

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

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impacts to prime and important farmland soils by all land acquisition and construction projects. Prime and important farmland soils are defined by the Natural Resources Conservation Service (NRCS). Since there are no prime or important farmlands in the immediate vicinity of the proposed bridge the Farmland Protection Policy does not apply.

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

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

The traffic volumes will not increase or decrease because of this project. The project's impact on noise and air quality will not be substantial.

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

A field reconnaissance survey was conducted in the vicinity of the project and based on the survey, there are no anticipated underground storage tank (UST) impacts with this project. Research shows that no regulated or unregulated landfills or dumpsites occur within the project limits, and no superfund sites were identified in the vicinity of the project.

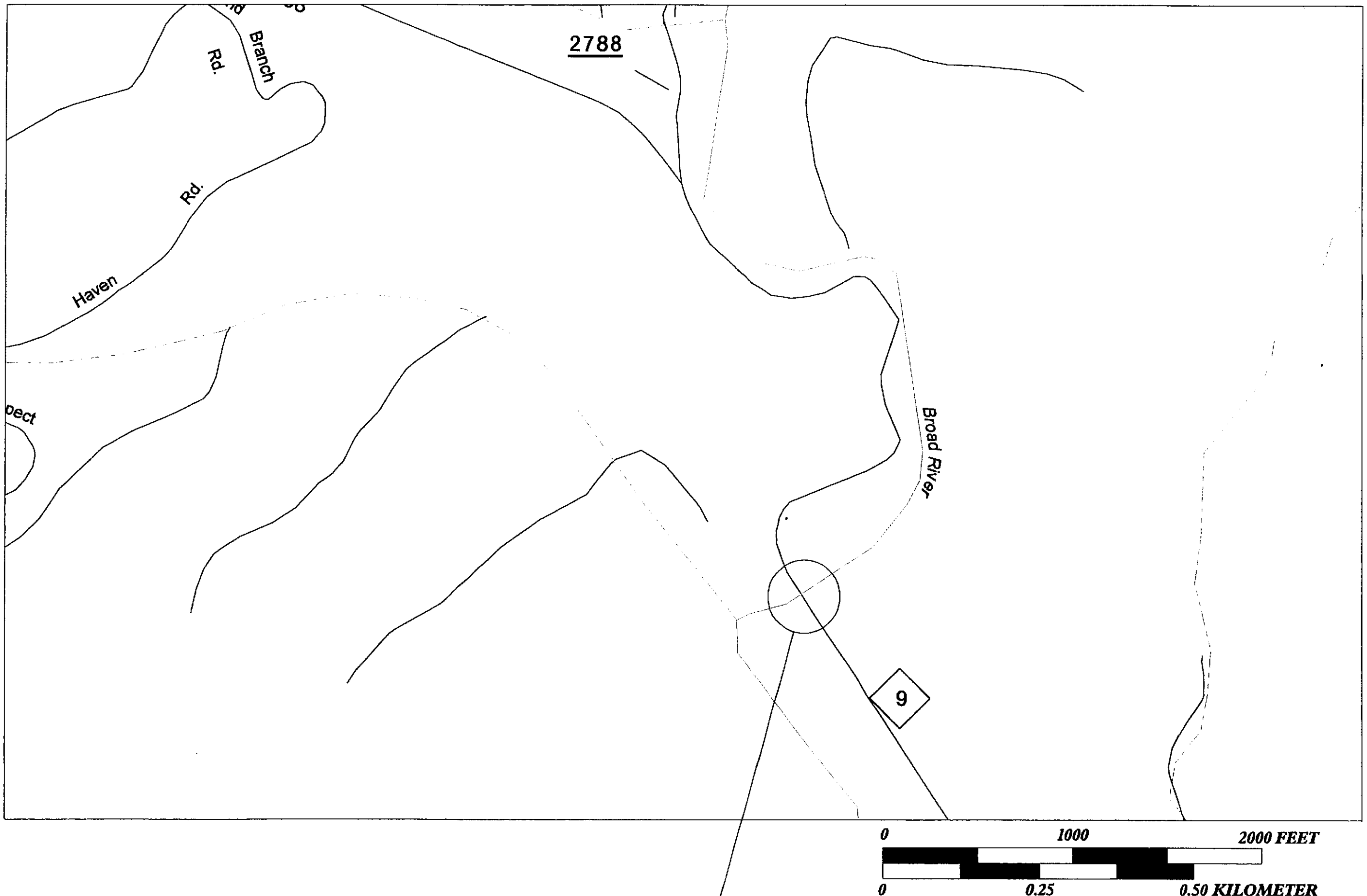
Buncombe County is a participant in the National Flood Insurance Program. The project bridge site is not included in a Detailed FEMA Study area. A copy of the Flood Insurance Rate Map is shown in Figure 5. The project is not anticipated to increase the level or extent of the upstream flood hazard and no practical alternatives exist to crossing the flood plain.

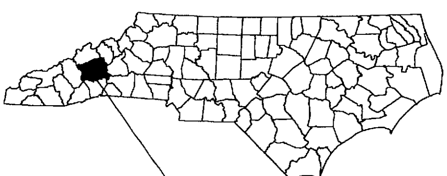
On the basis of the above discussion, it is concluded that no significant adverse environmental effects will result from implementation of the project.

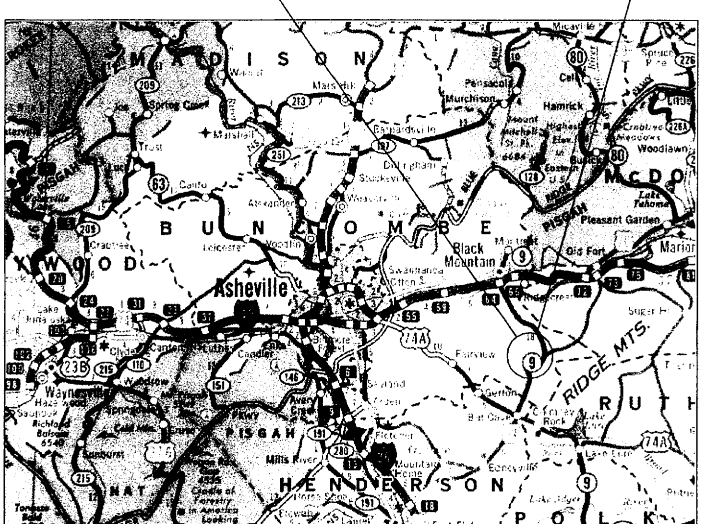
VIII. PUBLIC INVOLVEMENT

Efforts were undertaken early in the planning process (January 2003) to contact local officials to involve them in the project development with scoping letters. A letter requesting citizen input was mailed to local residents adjacent to the bridge site. Representatives from NCDOT held a small group meeting with local residents on-site on July 28, 2004 between the hours of 8:30 a.m. and 10:30 a.m. to discuss Alternative 1 and Alternative 2. The local residents preferred that the bridge be replaced in-place with a temporary detour to minimize long-term effects on adjacent residences. Alternative 3 was developed in response to residents' concerns and subsequently selected as the preferred alternative. A letter and graphic describing Alternative 3 as the preferred alternative was later mailed to the residents.

FIGURES







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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

BUNCOMBE COUNTY

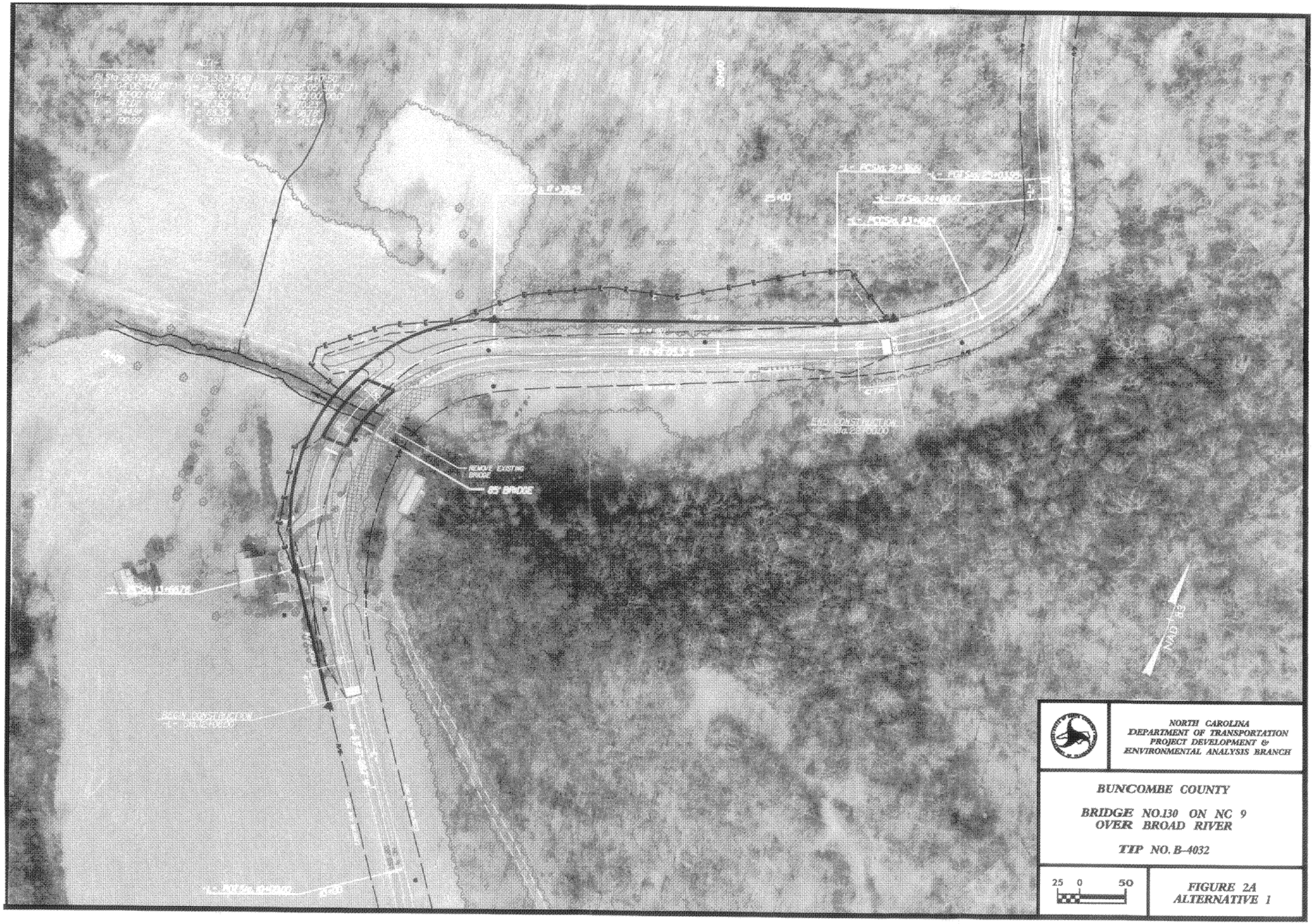
BRIDGE NO. 130 ON NC 9
OVER BROAD RIVER

TIP NO. B-4032

VICINITY MAP
FIGURE 1

h:\PN\011036068\graphics\130FIG1.dgn

10/08/2004



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

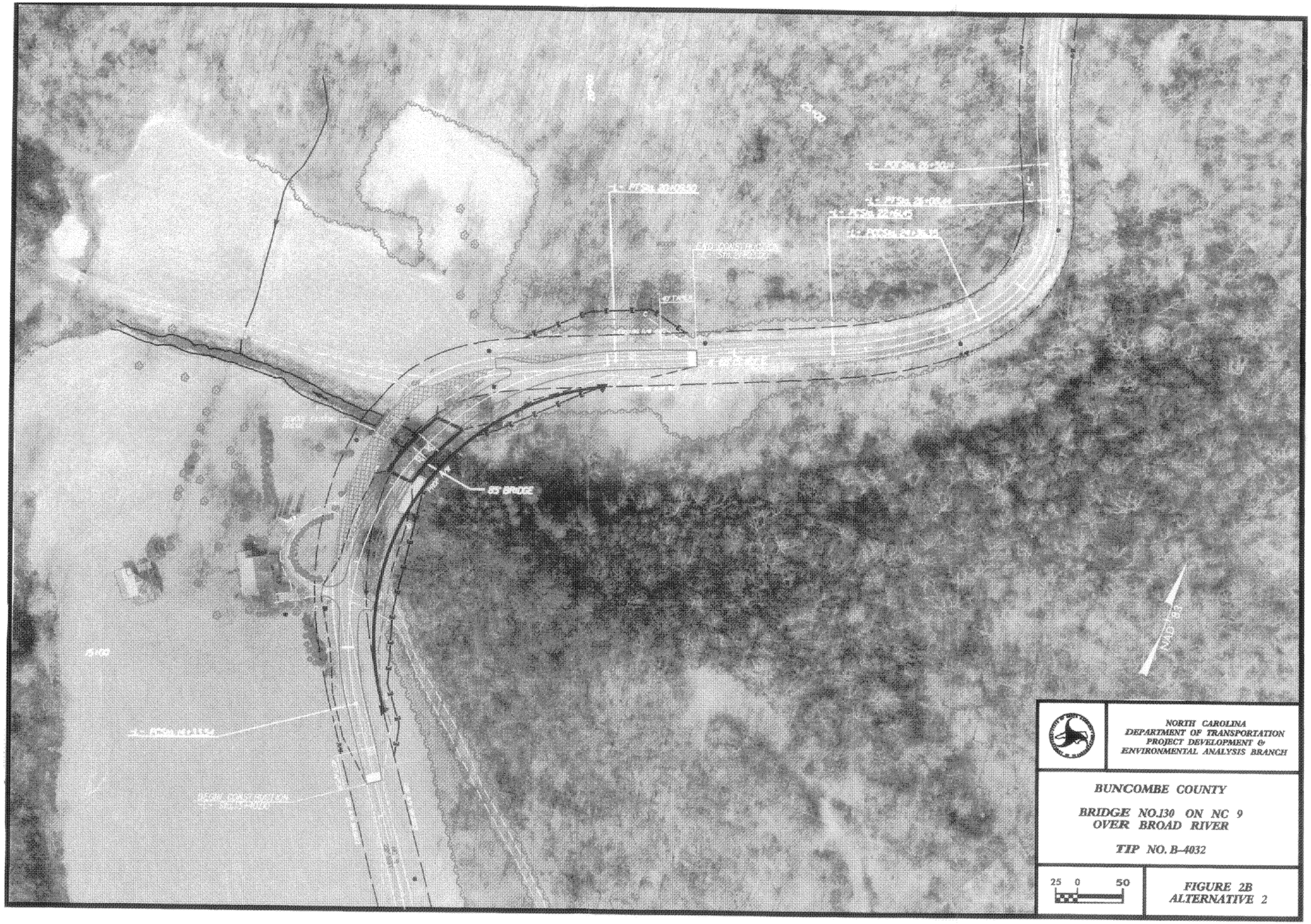
BUNCOMBE COUNTY

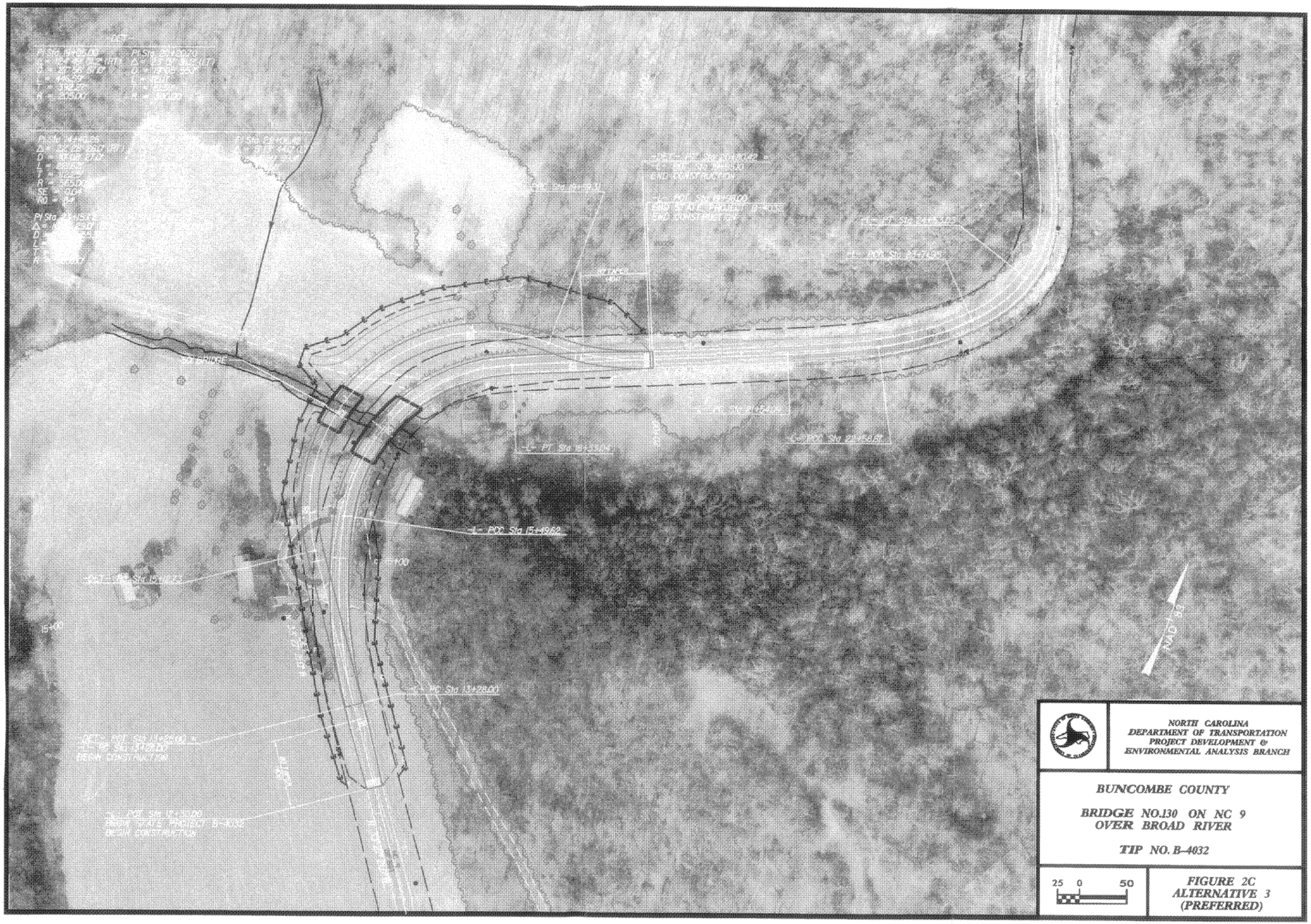
BRIDGE NO.130 ON NC 9
OVER BROAD RIVER

TIP NO. B-4032

25 0 50

FIGURE 2A
ALTERNATIVE 1


65' BRIDGE
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH
BUNCOMBE COUNTY
BRIDGE NO.130 ON NC 9
OVER BROAD RIVER
TIP NO. B-4032
25 0 50
FIGURE 2B
ALTERNATIVE 2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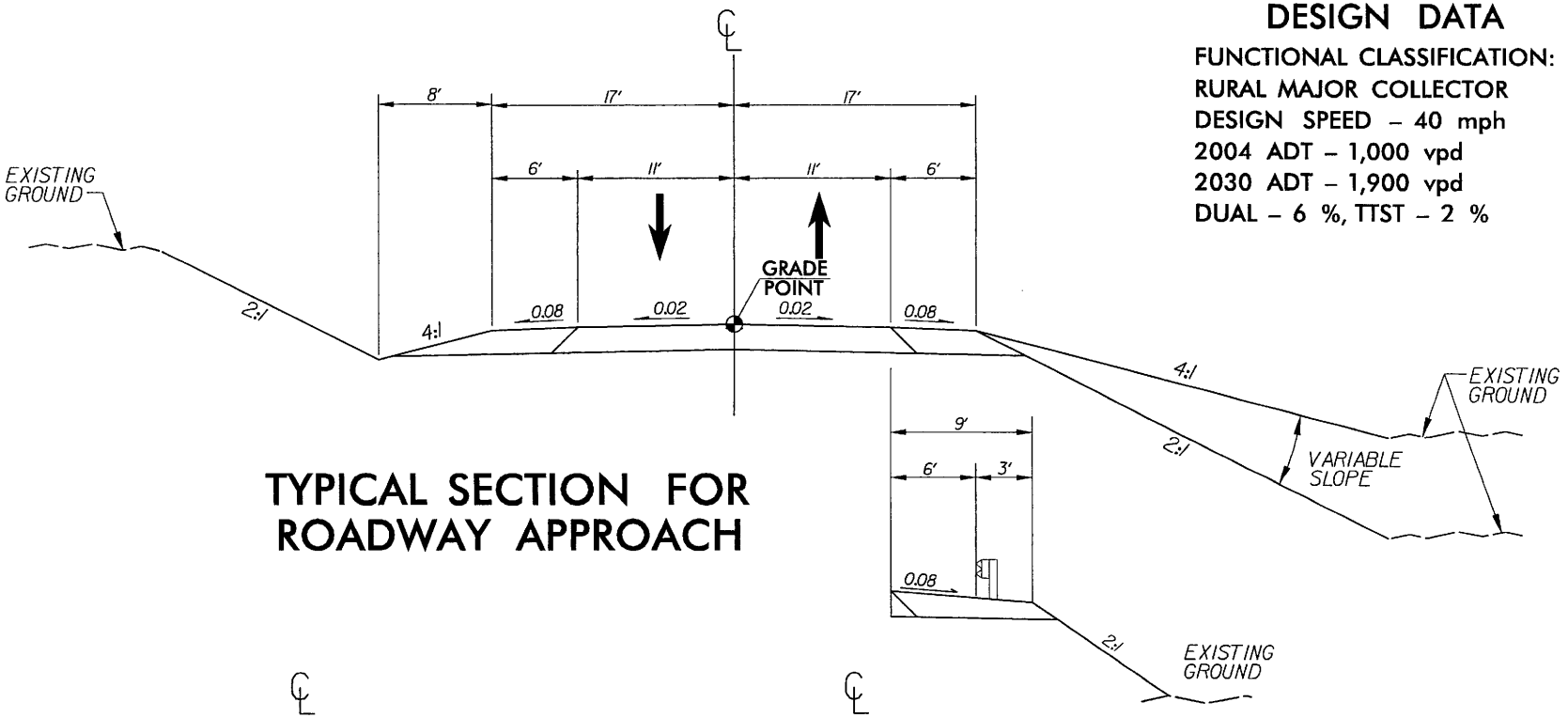
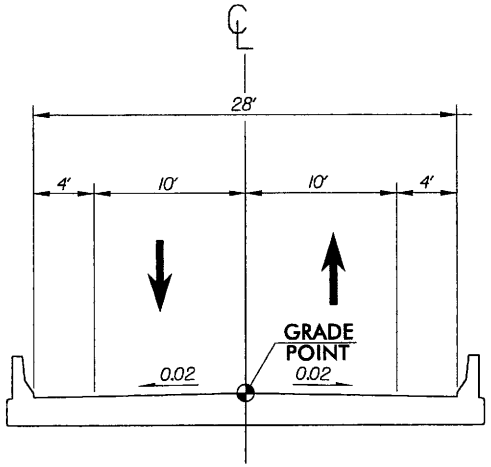
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH
BUNCOMBE COUNTY
BRIDGE NO.130 ON NC 9
OVER BROAD RIVER
TIP NO. B-4032
25 0 50
FIGURE 2C
ALTERNATIVE 3
(PREFERRED)

DESIGN DATA

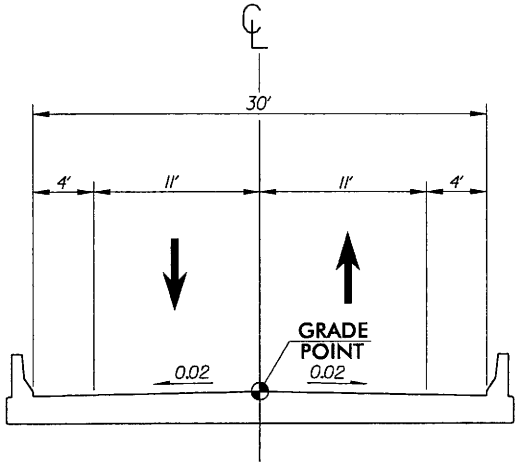
FUNCTIONAL CLASSIFICATION:
RURAL MAJOR COLLECTOR
DESIGN SPEED – 40 mph
2004 ADT – 1,000 vpd
2030 ADT – 1,900 vpd
DUAL – 6 %, TTST – 2 %



TYPICAL SECTION FOR ROADWAY APPROACH



TYPICAL SECTION FOR DETOUR STRUCTURE



TYPICAL SECTION FOR PROPOSED STRUCTURE

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

BUNCOMBE COUNTY

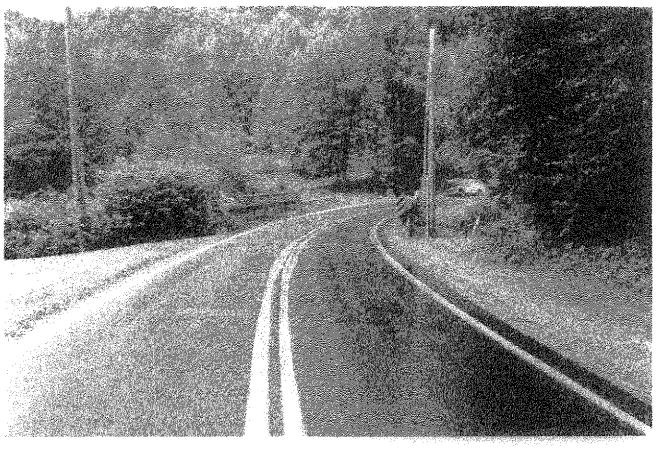
BRIDGE NO. 130 ON NC 9
OVER BROAD RIVER

TIP NO. B-4032

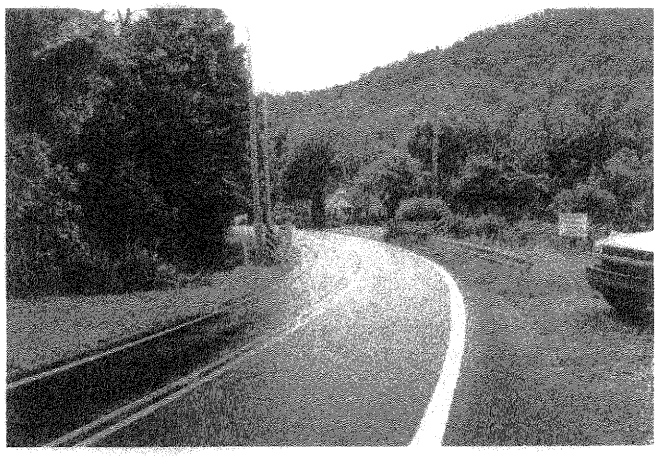
FIGURE 3

FIGURE 4 – COLOR PHOTOGRAPHS
B-4032 Rutherford County
Bridge No. 130 on NC 9 over
Broad River

Looking Northwest along NC 9 toward
Bridge No. 130



Looking Northwest along NC 9 toward
Bridge No. 130



Looking South along NC 9 toward
Bridge No. 130

Looking Northeast toward
Bridge No. 130

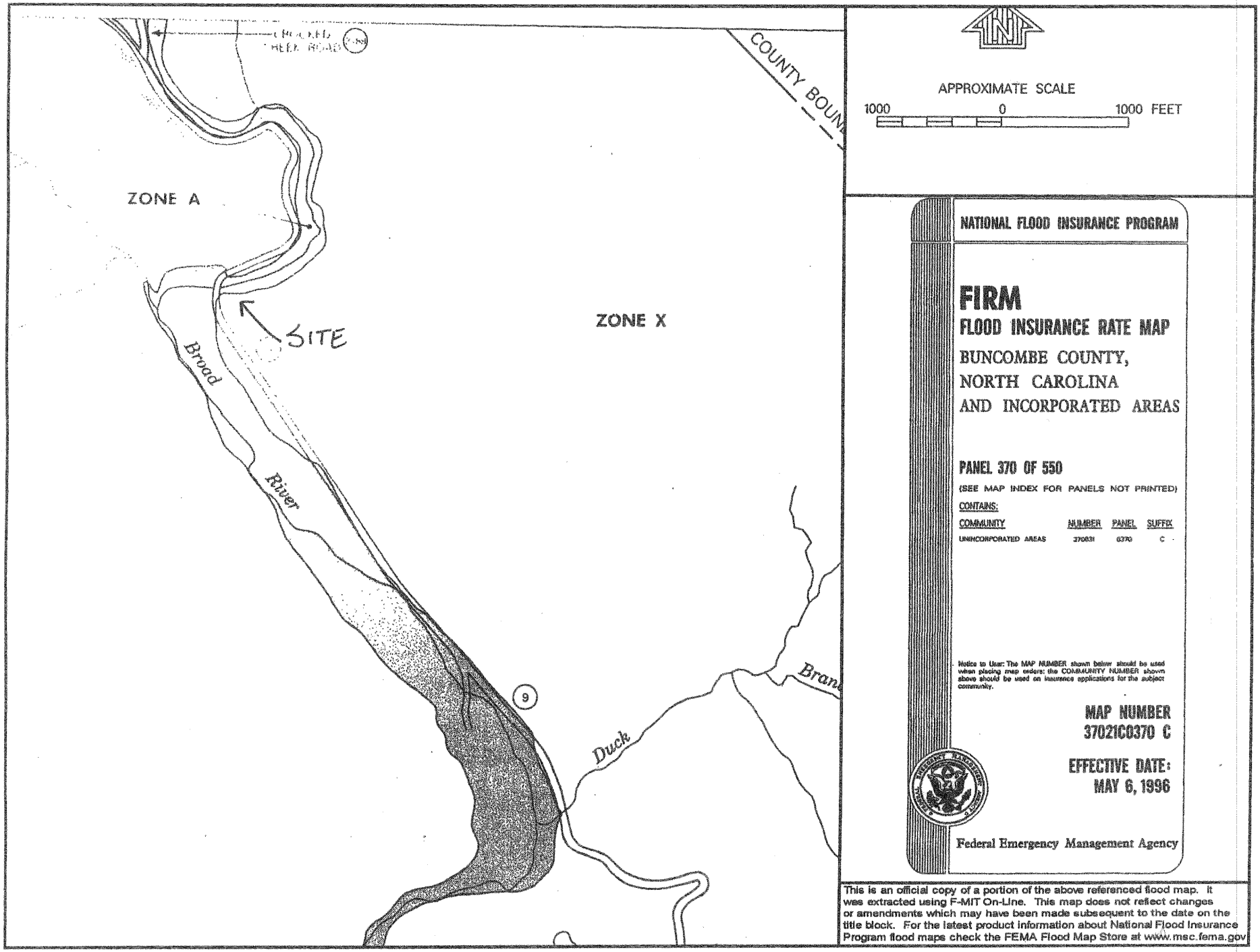


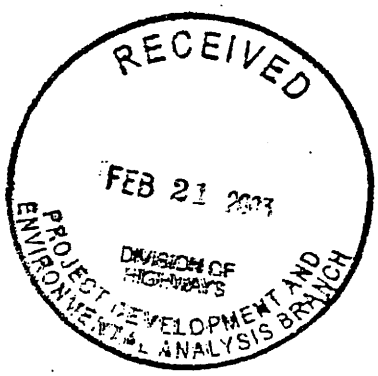
FIGURE 5
FLOODPLAIN MAP

Appendix

United States Department of the Interior

NATIONAL PARK SERVICE
Blue Ridge Parkway
199 Hemphill Knob Road
Asheville, North Carolina 28803

IN REPLY REFER TO



L7619
PIN 1280

February 11, 2003

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

Subject: Request for comments on Bridge Replacement Projects B-4032, B-4036, B-4037, B-4258, B-4261, B-2988, B-4144, B-4291

Dear Dr. Thorpe:

Thank you for the opportunity to comment on the above referenced projects. Parkway staff reviewed the scoping document and the potential impacts of the proposed project on resource values that may be present on National Park Service (NPS) lands and have the following comments:

The proposed projects should have no impact to park natural resources.

In reference to Bridge Number 262, over south Hominy Creek on SR 3452 connecting to State Route 151: SR 151 is an important connecting road to the Blue Ridge Parkway. Would this bridge construction in any way delay SR 151 traffic or reroute vehicular traffic on the Blue Ridge Parkway from SR 151? If so what would be the delay duration? We would want to review detour sign planning, if applicable. Otherwise, we have no visual impact concerns to the Blue Ridge Parkway, as this bridge is located out of the park viewshed area.

3-2988 *In reference to Bridge Number 13, on SR 1890 and near SR 276, crossing over the East Fork of the Pigeon River: SR 276 is an important connecting road to the Blue Ridge Parkway. Would this bridge construction in any way delay SR 276 traffic or reroute vehicular traffic on the Blue Ridge Parkway from SR 276? If so what would be the delay duration? We would want to review detour sign planning, if applicable. Otherwise, we have no visual impact concerns to the Blue Ridge Parkway, as this bridge is located out of the park viewshed area.*

Again, thank you for the opportunity to review and comment on these important bridge replacement projects. If you have any questions, please contact Suzette Molling, Environmental Protection Specialist, at 828/271-4779 ext. 219.

Sincerely,

Daniel W. Brown
Superintendent

cc: Park Resident Landscape Architect, BLRI
Chief, Branch of Resource Management, BLRI
Highlands District Ranger, BLRI
Highlands District Resource Management Specialist, BLRI

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
151 PATTON AVENUE
ROOM 208
ASHEVILLE, NORTH CAROLINA 28801-5006

COPY

REPLY TO
ATTENTION OF

CESAW-RG-A

May 23, 2003

MEMORANDUM FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT), PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH, ATTN: Gregory J. Thorpe, PhD, Environmental Management Director

SUBJECT: Natural Resources Technical Reports, Bridge Replacement Projects, 2002-2008 Transportation Improvement Plan

1. The purpose of this memorandum is to respond to your requests of January 6, 2003, April 10, 2003 and May 6, 2003 with supplemental information provided on May 13, 2003 seeking our comments on 6 bridge replacement projects in Division 10 and 12 bridge replacement projects in Division 13.

2. Based on the referenced reports and other information provided, 12 project sites exhibit characteristics that would cause us to place them in your yellow to red categories meaning that additional close coordination with resource and regulatory agencies should be maintained for successful project completion. These characteristics include the presence of high quality aquatic habitat, outstanding resource waters, trout fisheries, presence of wetlands, presence of endangered species or suitable habitat for endangered species and unresolved endangered species issues. Under these circumstances, we would normally recommend that the existing bridge structure be replaced with another spanning structure and that construction of onsite detours be avoided unless the detours are also spanning structures. In addition, bridge demolition should not result in any discharge into waters or wetlands at the site. These 12 projects include the following TIP's: B-3905, B-4032, B-4036, B-4037, B-4051, B-4182, B-4258, B-4262, B-4278, B-4294, B-4295, B-4296.

3. The remaining 6 project sites lack the distinguishing characteristics referenced above and we would therefore place them in your green category meaning that normal processing procedures should be able to address anticipated impacts to aquatic resources. These 6 projects include the following TIP's: B-3813, B-3815, B-3874, B-3907, B- 4261, B-4263.

4. Please be reminded that all 12 projects in Division 13 are located in trout waters counties and will require pre-discharge notification to this office and the North Carolina Wildlife Resources Commission prior to the use of any Nationwide Permit.

5. If you have any questions, please contact me at telephone (828) 271-7980, extension 4.

Steven W. Lund
Regulatory Project Manager

Cc: William T. Goodwin
Bridge Replacement Planning Unit

COPY

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

MEMORANDUM

TO: William T. Goodwin, P.E., Unit Head
Bridge Replacement Planning Unit
Project Development and Environmental Analysis Branch, NCDOT

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

DATE: July 3, 2002

SUBJECT: Scoping and Natural Resources Technical Report, Replace Bridge No. 130 on NC 9 Over Broad River, Buncombe County, TIP No. B-4032
Fish and Wildlife Project Status: GREEN

Biologists with the North Carolina Wildlife Resources Commission familiar with the project area have reviewed the technical report for the subject project to assess the potential for adverse impacts to fish and wildlife resources. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

The proposed work involves the replacement of bridge number 130 on NC 9 over Broad River. Construction impacts on fish and wildlife resources will depend on the extent of disturbance in the streambed and surrounding floodplain areas. A narrow riparian corridor within the project area is characterized as successional sapling and scrub/shrub communities (with discontinuous wetland fringe along river). Although the riparian area is narrow, it likely provides important wildlife cover and a travel corridor across landscaped areas and hayfields.

The Division of Water Quality classifies Broad River as C trout. This reach of the Broad River is not designated trout water by the NCWRC. However, this stream reach likely does support trout. We are of the opinion that this project could result in adverse impacts to trout.

We prefer bridge designs that do not alter the natural stream morphology or impede fish passage. Efforts should be made during design to place bridge supports outside of the bankfull channel. Bridge designs should also include provisions for the deck drainage to flow through a vegetated upland buffer prior to reaching the subject surface waters. Correction of altered stream morphology at the road crossing should be considered during design.

Streams and riparian zones provide connectivity of the landscape; and thus, are natural movement corridors for terrestrial wildlife species. Bridge designs should consider leaving sufficient corridors under the bridge to encourage movement of wildlife under the bridge rather than across the highway. The movement of animals, especially larger animals (e.g., deer and

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Telephone: (919) 733-3633 ext. 281 • Fax: (919) 715-7643

bear), under the bridge may reduce automobile crashes involving wildlife. Where feasible, increasing the riparian corridor width under the bridge is recommended.

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

Listed below are our standard recommendations on this project. Because the Corps of Engineers (COE) recognizes the project county as a "trout water county", the NCWRC will review any nationwide or general 404 permits for the proposed projects and will likely request the following as conditions of the 404 permit.

1. This bridge should be replaced with another spanning structure.

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

3. Live concrete should not be allowed to contact the water in or entering into the stream. Water that has inadvertently come in contact with live concrete should not be discharged to surface waters but should be disposed in an upland area.

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

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

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

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

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

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

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

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

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

13. Wastewater from drilling operations should not be discharged to surface waters but should be pumped to upland areas.

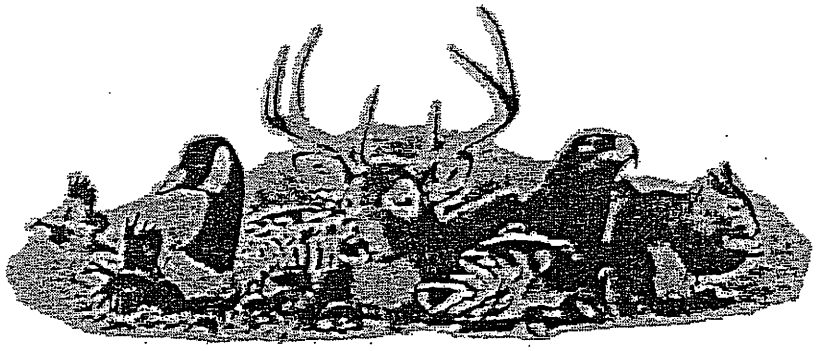
14. **Instream construction and construction within the 25-foot buffer is prohibited during the trout-spawning period of October 15 to April 15 to avoid impacts on trout reproduction.**

15. Discharge of materials into surface waters from demolition of the old bridge should be avoided as much as practicable. Any materials that inadvertently reach surface waters should be removed.

16. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is strictly prohibited.

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

cc: Mr. John Hendrix, NCDOT Coordinator, COE, Asheville
Ms. Marella Buncick, Biologist, USFWS Asheville
Ms. Cynthia Van Der Wiele, Highway Coordinator, Division of Water Quality



North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

TO: John Wadsworth, Project Planning Engineer
Project Development and Environmental Analysis Branch, NCDOT

FROM: Marla Chambers, Highway Projects Coordinator
Habitat Conservation Program, NCWRC

DATE: March 21, 2003

SUBJECT: Scoping review of NCDOT's proposed bridge replacement projects B-4032, B-4036, B-4037, B-4258, B-4261, B-2988, B-4144, B-4291 in Buncombe, Rutherford, Haywood and Transylvania Counties.

North Carolina Department of Transportation (NCDOT) has requested comments from the North Carolina Wildlife Resources Commission (NCWRC) regarding impacts to fish and wildlife resources resulting from the subject project. Staff biologists have reviewed the information provided and have the following preliminary comments. These comments are provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

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

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

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

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

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Telephone: (919) 733-3633 ext. 281 • **Fax:** (919) 715-7643

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed

down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. Tall fescue should not be used in riparian areas. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-4032, Buncombe Co., Bridge No. 130 over the Broad River. The Broad River is classified as C-Tr and rainbow trout are present. An in-stream and 25-foot buffer work moratorium from January 1 to April 15 should apply.

2. B-4036, Buncombe Co., Bridge No. 220 over Reems Creek. Reems Creek is classified as C-Tr and is hatchery supported trout water. An in-stream and 25-foot buffer work moratorium from October 15 to April 15 should apply.

3. B-4037, Buncombe Co., Bridge No. 262 over South Hominy Creek. South Hominy Creek is classified as C-Tr and rainbow and brown trout are present. An in-stream and 25-foot buffer work moratorium from October 15 to April 15 should apply.

4. B-4258, Rutherford Co., Bridge No. 7 over the Broad River. The Broad River flows into Lake Lure just downstream of this bridge and is classified as B-Tr and C-Tr in the project vicinity. The site is downstream of Hatchery Supported Trout Water and an in-stream and 25-foot buffer work moratorium for rainbow trout, from January 1 to April 15, is most appropriate for this project.

5. B-4261, Rutherford Co., Bridge Nos. 39 and 37 over Fork of Cathey's Creek. The Santee chub (*Cyprinella zanema*), a state listed significantly rare fish species, occurs both upstream and downstream of the project. An in-stream work moratorium to protect smallmouth bass and redbreast sunfish, from May 1 to July 15, is most appropriate for this project.

6. B-2988, Haywood Co., Bridge No. 13 over the East Fork of the Pigeon River. The East Fork of the Pigeon River is classified as WS-III Tr in the project area and rainbow and brown trout are present. Appalachian elktoe (*Alasmidonta raveneliana*), a federal and state listed endangered mussel species and the olive darter (*Percina squamata*), a state listed special concern fish species, are present in the Pigeon River downstream of the East Fork Pigeon River confluence. An in-stream and 25-foot buffer work moratorium from October 15 to April 15 should apply. Special precautions should be taken to prevent sedimentation downstream.

7. B-4144, Haywood Co., Bridge No. 211 over Richland Creek. Trout are present in Richland Creek, class B waters, which joins the Pigeon River not far downstream of the project site. Longear sunfish (*Lepomis megalotis*), a state significantly rare fish species, has been observed in Richland Creek upstream of the project. An in-stream and 25-foot buffer work moratorium from October 15 to April 15 should apply.

8. B-4291, Transylvania Co., Bridge No. 193 over the Davidson River. Rainbow and brown trout are present in the project area of Davidson River, class C waters, which joins the French Broad River not far downstream of the project site. The creeper (*Strophitus undulatus*), a state listed threatened mussel species, is present in the French Broad River immediately downstream of the confluence of the Davidson River. Two amphibian species, the common mudpuppy (*necturus maculosus*), state special concern, and the hellbender (*Cryptobranchus alleganiensis*), federal species of concern and state special concern, have been found in the Davidson River upstream of the project site. An in-stream and 25-foot buffer work moratorium from October 15 to April 15 should apply. Special precautions should be taken to prevent sedimentation downstream. In addition, a public access area should be incorporated into the plans for this project.

We request that NCDOT routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. The NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks, reducing habitat fragmentation and vehicle related mortality at highway crossings.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (704) 485-2384. Thank you for the opportunity to review and comment on these projects.

cc: Cynthia Van Der Wiele, DWQ
Marella Buncick, USFWS
Sarah Kopplin, NHP

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

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

NCDENR
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

June 3, 2002

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

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

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

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

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

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

This office would prefer bridges to be replaced with new bridges. However if the bridge must be replaced by a culvert and 150 linear feet or more of stream is impacted, a stream mitigation plan will be needed prior to the issuance of a 401 Water Quality Certification. While the NCDWQ realizes that this may not always be practical, it should be noted that for projects requiring mitigation, appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.

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

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

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

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

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

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

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

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

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

bridge NE

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

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

Division of Archives and History
Jeffrey J. Crow, Director

January 23, 2002

MEMORANDUM

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

FROM: David Brook DB for David Brook

SUBJECT: Bridge 130 on NC 9 Replacement, TIP B-4032, Buncombe County, ER 02-8496

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

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

Because the architectural survey for the area of potential effect is more than ten years old, we recommend that a Department of Transportation architectural historian identify and evaluate any structures over fifty years old and report the findings to us.

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.

DB:kgc

cc: Mary Pope Furr, NCDOT
Matt Wilkerson, NCDOT

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

HISTORIC ARCHITECTURE SECTION
North Carolina Department of Transportation

MEMORANDUM

TO: John Wadsworth, Project Planning Engineer

FROM: Richard Silverman, Office of Human Environment

SUBJECT: B-4032, Buncombe County

DATE: August 11, 2003

CC: Project File

Attached is a signed concurrence form which states that NCDOT and SHPO, agree that:

- There are properties over fifty years old within the project's area of potential effects, but based on the historical information available and the photographs of each property, none is considered eligible for the National Register and no further evaluation of them is necessary.
- There are no National Register-listed properties within the project's area of potential effects.
- The bridge itself is not eligible for the National Register.

Since there are no historical properties affected by the proposed project, compliance with Section 106 of the National Historic Preservation Act is complete. Please notify us in writing if the scope of this project changes. A change in scope may necessitate a new survey of the APE.

Federal Aid # **BRSTP-0009(1)** *TIP#* **B-4032** *County:* **Buncombe**

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

Project Description: **Replace Bridge No. 130 on NC 9, Buncombe County**

On **July 8, 2003** Representatives of the

- ☒ North Carolina Department of Transportation (NCDOT)
- ☒ Federal Highway Administration (FHWA)
- ☒ North Carolina State Historic Preservation Office (HPO)
- ☐ Other

Reviewed the subject project at

- ☐ Scoping meeting
- ☒ 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.
- ☒ 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.
- ☒ 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/ies identified as **# 1 House; #2 House and #3 Bridge No. 130** is/are considered not eligible for the National Register and no further evaluation of it/them is/are necessary.
- ☒ There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- ☒ 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.
- ☒ There are no historic properties affected by this project. (*Attach any notes or documents as needed*)

Signed:

Representative, NCDOT — 8 July 2003 — Date

FHWA, for the Division Administrator, or other Federal Agency — 7/14/03 — Date

Representative, HPO — July 8, 03 — Date

State Historic Preservation Officer — 7/15/03 — Date

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

North Carolina Department of Cultural Resources

State Historic Preservation Office

Peter B. Sandbeck, Administrator

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

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

September 13, 2005

MEMORANDUM

TO: Gregory Thorpe, Ph.D., Director
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: Peter Sandbeck RSE for Peter Sandbeck

SUBJECT: Lavender Barn, Replace Bridge 130 on NC 9 over the Broad River, B-4032, Buncombe County, ER 02-8496

Thank you for your letter of August 5, 2005, transmitting the Determination of Eligibility by Jennifer Cathey concerning the above project.

For purposes of compliance with Section 106 of the National Historic Preservation Act, we concur that the following property is eligible for the National Register of Historic Places:

- Lavender Barn, 1930 NC Highway 9, Black Mountain vicinity, is eligible for the National Register under Criterion C, as a significant representative of the six-pen barn. The structure represents a traditional agricultural building form in western North Carolina, and its milled brace-frame construction illustrates the evolution of building technology.

We concur with the proposed National Register boundaries as defined and delineated in the report, and note that the Lavender House is not eligible for the National Register.

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, NCDOT
Jennifer Cathey, NCDOT

Federal Aid # **BRSTP-0009(1)** *TIP #* **B-4032** *County*: **Buncombe**

CONCURRENCE FORM FOR ASSESSMENT OF EFFECTS

Project Description: **Replace Bridge No. 130 on NC 9 over the Broad River, Buncombe County**

On **August 31, 2005** representatives of the

- ☒ North Carolina Department of Transportation (NCDOT)
- ☐ Federal Highway Administration (FHWA)
- ☒ North Carolina State Historic Preservation Office (HPO)
- ☐ Other

Reviewed the subject project and agreed

- ☐ There are no effects on the National Register-listed property/properties located within the project's area of potential effect and listed on the reverse.
- ☒ There are no effects on the National Register-eligible property/properties located within the project's area of potential effect and listed on the reverse.
- ☐ There is an effect on the National Register-listed property/properties located within the project's area of potential effect. The property/properties and the effect(s) are listed on the reverse.
- ☐ There is an effect on the National Register-eligible property/properties located within the project's area of potential effect. The property/properties and effect(s) are listed on the reverse.

Signed:

Jennifer Cathey — 8/31/05
Representative, NCDOT — Date

For FHWA — 9.7.05
FHWA, for the Division Administrator, or other Federal Agency — Date

Laura D McKinney — 8/31/05
Representative, HPO — Date

Renee Gledhill-Earley — 8/31/05
State Historic Preservation Officer — Date

North Carolina Department of Cultural Resources

State Historic Preservation Office

Peter B. Sandbeck, Administrator

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

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

February 7, 2006

MEMORANDUM

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

FROM: Peter Sandbeck RJE for Peter Sandbeck

SUBJECT: Bridge No. 130 on NC 9, TIP B-4032, Buncombe County, ER 02-8496

Thank you for your letter of January 4, 2006, transmitting the archaeological survey report by Tracy Martin, TRC Garrow Associates Inc., for the above project. The report meets our office's guidelines and those of the Secretary of the Interior.

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

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

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

cc: Paul Webb and Tracy Martin, TRC Garrow Associates, Inc.

County of Buncombe

BUNCOMBE COUNTY EMERGENCY MANAGEMENT AGENCY

EMERGENCY OPERATING CENTER
35 WOODFIN STREET
ASHEVILLE, NORTH CAROLINA 28801

M. Jerry Vehaun **Director of Emergency Services**

Mr. Davis Moore
NCDOT
Project Development &
Environmental Analysis Branch
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

July 3, 2001

Re: State Project No. 8.2844701 - B-4037
State Project No. 8.2844601 - B-4036
State Project No. 8.1845601 - B-4032

Dear Mr. Moore:

In reply to your request for information regarding the above listed projects, there are no problems which we will not be able to address by re-routing emergency vehicles while these projects are underway. There are no unworkable situations involved with these three projects.

Should you need additional information, please feel free to contact me.

Sincerely,

M. Jerry VeHaun, Director
Emergency Services

MAILING ADDRESS: 60 COURT PLAZA, ASHEVILLE, N. C. 28801-3561

Buncombe County Public Schools

Transportation Department
74 Washington Avenue
Asheville, North Carolina 28804
Phone: (828) 232-4240 – Fax: (828) 252-8637

July 23, 2001

Mr. Davis Moore
North Carolina Department of Transportation
Project Development and Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

RE: Replacement of Bridge Number 130 located on NC 9 over Broad River

Dear Mr. Moore:

I am writing in response to your request concerning the number of school buses that cross bridge number 130 in Buncombe County. Two school buses cross this bridge four times a day. This does not include the parents who transport their children to and/or from school. Students who live in this area attend Black Mountain Elementary School, Black Mountain Primary School, Owen Middle School, and Owen High School.

Road closure would create an unworkable situation for school bus transportation. An on-site detour with the replacement of the bridge at its existing location, or the permanent realignment of the road with a new bridge while maintaining traffic on the existing bridge are the only options feasible in order to provide school bus transportation in a timely and efficient manner.

If you need additional information, please contact me at the address or telephone number listed above.

Sincerely,

Harold F. Laflin
Director of Transportation

Attachment

pc: Mr. Marshall Roberts

RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

[x] E.I.S. [ ] CORRIDOR [ ] DESIGN

PROJECT:	8.1845601	COUNTY	BUNCOMBE	Alternate 1 Of 2 Alternates
I.D. NO.:	B-4032	F.A. PROJECT		
DESCRIPTION OF PROJECT:	Bridge Number 130 on NC 9 over the Broad River			

ESTIMATED DISPLACEES					INCOME LEVEL				
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP
Residential	0	0	0	0	0	0	0	0	0
Businesses	0	0	0	0					
Farms	0	0	0	0					
Non-Profit	0	0	0	0					

VALUE OF DWELLING				DSS DWELLING AVAILABLE			
Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	5	$ 0-150	0
20-40M	0	150-250	0	20-40M	11	150-250	1
40-70M	0	250-400	0	40-70M	16	250-400	7
70-100M	0	400-600	0	70-100M	18	400-600	11
100 UP	0	600 UP	0	100 UP	36	600 UP	6
TOTAL	0		0		86		25

ANSWER ALL QUESTIONS

Yes	No	*Explain all "YES" answers.*
	x	1. Will special relocation services be necessary?
	x	2. Will schools or churches be affect by displacement?
x		3. Will business services still be available after project?
	x	4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	x	5. Will relocation cause a housing shortage?
		6. Source for available housing (list).
	x	7. Will additional housing programs be needed?
x		8. Should Last Resort Housing be considered?
	x	9. Are there large, disabled, elderly, etc. families?
	x	10. Will public housing be needed for project?
x		11. Is public housing available?
x		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	x	13. Will there be a problem of housing within financial means?
		14. Are suitable business sites available (list source). **N/A**
		15. Number months estimated to complete RELOCATION? **N/A**

REMARKS (Respond by Number)

No relocatees on this alternate.

You may notice a difference in the number of displacees on the Relocation EIS Report and the Appraisal Cost Estimate. This is due to possible proximity damage being a factor on the Cost Estimate Report and improvements not actually in the proposed acquisition areas shown on the plans.

	7-29-03		8-7-03
Right of Way Agent	Date	Relocation Coordinator	Date

Form 15.4 Revised 09-02

Original & Copy 1: Relocation Coordinator
Copy 2: Division Relocation File

RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

[X] E.I.S. [ ] CORRIDOR [ ] DESIGN

PROJECT:	8.1845601	COUNTY	BUNCOMBE	Alternate 2 Of 2 Alternates	
I.D. NO.:	B-4032	F.A. PROJECT			
DESCRIPTION OF PROJECT:	Bridge Number 130 on NC 9 over the Broad River				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	0	2	2	0
Businesses	0	0	0	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
1	1	0	0	0

VALUE OF DWELLING / DSS DWELLING AVAILABLE

Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	5	$ 0-150	0
20-40M	0	150-250	1	20-40M	11	150-250	1
40-70M	0	250-400	1	40-70M	16	250-400	7
70-100M	0	400-600	0	70-100M	18	400-600	11
100 UP	0	600 UP	0	100 UP	36	600 UP	6
TOTAL	0		2		86		25

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affect by displacement?
X		3. Will business services still be available after project?
	X	4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
		6. Source for available housing (list).
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X	13. Will there be a problem of housing within financial means?
		14. Are suitable business sites available (list source). **N/A**
		15. Number months estimated to complete RELOCATION? **12 months**

REMARKS (Respond by Number)

3. **Business services will not be disrupted due to the project.**
6. **Beverly-Hanks Realtors and local real estate publications indicate sufficient DSS housing properties will be available.**
8. **As necessary in accordance with State law.**
12. **Beverly-Hanks Realtors and local real estate publications indicate sufficient DSS housing properties will be available.**

You may notice a difference in the number of displacees on the Relocation EIS Report and the Appraisal Cost Estimate. This is due to possible proximity damage being a factor on the Cost Estimate Report and improvements not actually in the proposed acquisition areas shown on the plans.

Right of Way Agent	Date		Relocation Coordinator	Date
Daryl C. Roberts	7-29-03		Ann Simpson	8-7-03

Form 15.4 Revised 09-02

Original & Copy 1: Relocation Coordinator
Copy 2: Division Relocation File