STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 16, 2006

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 23 and 33 Applications** for the proposed replacement of Bridge No. 264 on SR 1103 (Bat Cave Road) over Jackson Creek, in McDowell County. Federal Aid Project No. BRZ-1103(12), State Project No. 8.2872801, WBS Element 33549.1.1, TIP No. B-4192, in Division 13.

Dear Sir:

Please find enclosed a copy of the Pre-Construction Notification, Ecosystem Enhancement Program (EEP) Mitigation Acceptance Letter, permit drawings and 1/2 size plans and Categorical Exclusion for the above referenced project. The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 264 on the existing alignment with a triple 7 foot by 7 foot chambered reinforced concrete box culvert (RCBC). There will be 131 linear feet of permanent fill in surface waters and 92 linear feet of temporary impacts. There are no jurisdictional wetlands within the project area. Traffic will be maintained via a signalized on-site detour lane.

Impacts to Waters of the United States

The water resource impacted by project B-4192 is Jackson Creek located in Catawba River Basin, Subbasin 03-08-30. The North Carolina Division of Water Quality classifies Jackson Creek as a "Class **C**" stream and is located in Hydrological Cataloguing Unit (HUC) 03050101. There are no Outstanding Resource Waters (ORW), High Quality Waters (HQW), WS-I, WS-II, or watershed Critical Area (CA), within 1 mile upstream or downstream of the project study area.

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

No special restrictions are required for in-water work other than those outlined in the NCDOT guidelines, "Best Management Practices for Protection of Surface Waters". Jackson Creek is not designated as a trout stream by North Carolina Wildlife Resource Commision (WRC).

Permanent Impacts: The existing structurally deficient bridge will be replaced by a triple 7 foot by 7 foot chambered reinforced concrete box culvert (RCBC). Construction of the proposed project will result in total of 131 linear feet of permanent fill in surface water from the culvert installation.

Temporary Impacts: Diversion dams for dewatering the work area will result in 0.017 acre of temporary construction impacts. The proposed RCBC for the bridge replacement will be widened to accommodate the temporary detour lane.

There are no conflicts with utilities for this project.

Bridge Demolition

The existing bridge is a two-span structure with an overall length of 41 feet, and a clear roadway width of 22.3 feet. It was constructed in 1948. The bridge consists of a timber deck, steel I-beams, yount masonry abutments and a timber helper bent at mid span. Bridge No. 264 is structurally deficient and according to federal guidelines is considered to be functionally obsolete. Bridge No. 264 can be removed without dropping any components into Waters of the United States. Best Management Practices for Bridge Demolition and Removal will be implemented.

Federally Protected Species

As of April 27, 2006, the United States Fish and Wildlife Service shows five federally protected species for McDowell County (Table 1). A description of each species and biological conclusions are provided in the Categorical Exclusion (CE) document issued June 25, 2004.

Table 1. Federally Protected Species for McDowell County.

Common Name	Scientific Name	Status	Habitat	Biological Conclusion
Bog turtle	*Clemmys muhlenbergii*	T(S/A)	No	Not Subject
Bald Eagle	*Haliaeetus leucocephalus*	Threatened	No	No Effect
Mountain Golden Heather	*Hudsonia Montana*	Threatened	No	No Effect
Small-whorled pogonia	*Isotria medeoloides*	Threatened	No	No Effect
Carolina northern flying squirrel	*Glaucomys sabrinus coloratus*	Endangered	No	No Effect

KEY:

Status	Definition
Endangered -	A taxon "in danger of extinction throughout all or a significant portion of its range."
Threatened -	A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."
T(S/A) -	Threatened due to similarity of appearance a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.

Avoidance and Minimization

NCDOT has minimized impacts to the fullest extent practicable. The project purpose necessitates traversing Jackson Creek; therefore, totally avoiding surface water impacts is not practicable.

Mitigation

The Ecosystem Enhancement Program (EEP) will be responsible for 131 feet of mitigation for jurisdictional stream impacts on this project. EEP's acceptance letter is attached to this application.

Regulatory Approvals

Section 404 Permit: It is anticipated that the temporary dewatering of Jackson Creek be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing the temporary dewatering of Jackson Creek. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR § 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certification numbers 3403 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their records.

We anticipate that comments from the NCWRC will be requested prior to authorization by the US Army Corps of Engineers (USACE). By copy of this letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the USACE and NCDOT.

Thank you for your assistance with this project. A copy of this permit application will be posted on the NCDOT Website at http://207.4.62.65/PDEA/PermApps/. If you have any questions or need additional information, please contact Jeff Hemphill at (919) 715-1458.

Sincerely,

E. R. Fuller

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

Cc
W/attachment
Mr. John Hennessy, NCDWQ **(2 Copies)**
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. J.J. Swain, P.E. (Div. 13) Division Engineer
Mr. Roger Bryan (Div. 13) DEO

W/o attachment
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Ms. Beth Harmon, EEP
Mr. Todd Jones, NCDOT External Audit Branch
Mr. Vincent Rhea, P.E., PDEA Project Planning Engineer

Office Use Only: Form Version May 2002

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

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

I. Processing

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

2. Nationwide, Regional or General Permit Number(s) Requested: NWP 23 & NWP 33.

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

4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here: ☒

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

II. Applicant Information

1. Owner/Applicant Information
   Name: NC Department of Transportation
   Mailing Address: 1598 Mail Service Center
   Raleigh, NC 27699-1598
   Telephone Number: (919)-733-3141 Fax Number: (919)-715-1501
   E-mail Address: _____

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

III. Project Information

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

1. Name of project: Replacement of bridge No. 264 on SR 1103 Over Jackson Creek

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4192

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

4. Location
   County: McDowell Nearest Town: Moffitt Hill
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers, landmarks, etc.): From US 40, take exit 73 at Old Fort and head southeast on Bat Cave Road (SR 1103). Proceed for approximately four miles on Bat Cave Road to bridge No. 264. The bridge site is just south of the intersection of Davis Town Church Road (SR 1131) and Bat Cave Road.

5. Site coordinates, if available (UTM or Lat/Long): 35° 33.70' °N 10.95' °W
   (Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)

6. Property size (acres): N/A

7. Nearest body of water (stream/river/sound/ocean/lake): Jackson Creek

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

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The site is located in a rural area of McDowell County. The site is primarily surrounded by fallow field, roadside shoulder , secondary shrub growth and residential property.

10. Describe the overall project in detail, including the type of equipment to be used: The project will consist of replacing the existing 22.3 feet wide and 41 feet long bridge with a triple chambered 7 feet by 7 feet reinforced concrete box culvert. Traffic will be maintained during construction by an onsite signalized detour lane located approximately 10 feet west of the existing roadway. Construction equipment will consist of heavy duty trucks, earth moving equipment, cranes, etc.

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

IV. Prior Project History

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

NA

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.

NA

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

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

mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

Provide a written description of the proposed impacts: This project will have temporary impacts totaling 92 linear feet due to diversion dams for dewatering work area. There will be 131linear feet of permanent impacts associated with this project resulting from a three chambered box culvert being installed in Jackson Creek to replace a structurally deficient bridge.

1. Individually list wetland impacts below:

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

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

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

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

List the total acreage (estimated) of all existing wetlands on the property: 0 acre
Total area of wetland impact proposed: 0 acre

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

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
	Permanent	131	Jackson Creek	7-10 feet	Perennial
	Temporary fill	92	Jackson Creek	7-10 feet	Perennial

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

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at

www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

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

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

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

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

4. 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.): NA

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

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

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.

See Permit Application Cover Letter.

VIII. Mitigation

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

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

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

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
   Mitigation for 131 linear feet of stream impact will be provided by EEP.

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

the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

Amount of stream mitigation requested (linear feet): 131 linear feet
Amount of buffer mitigation requested (square feet): NA
Amount of Riparian wetland mitigation requested (acres): NA
Amount of Non-riparian wetland mitigation requested (acres): NA
Amount of Coastal wetland mitigation requested (acres): NA

IX. Environmental Documentation (required by DWQ)

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

Yes ☒ No ☐

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

Yes ☒ No ☐

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

Yes ☒ No ☐

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

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

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

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

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

Zone*	Impact (square feet)	Multiplier	Required Mitigation
Total			

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

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

XI. Stormwater (required by DWQ)

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

NA

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.

NA

XIII. Violations (required by DWQ)

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

Yes ☐ No ☒

Is this an after-the-fact permit application?

Yes ☐ No ☒

XIV. Other Circumstances (Optional):

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

NA

E.L. Luck 10·23·06

Applicant/Agent's Signature **Date**

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT

May 19, 2

Impacts to surface . . .
The water resource impacted by Project B-4192 is Jackson Creek, located in the Catawba River Basin, subbasin 030830. The North Carolina Division of Water Quality classifies Jackson Creek as a class "C" stream and located in Hydrological Cataloguing Unit (HUC) 03050101. There are no . . .

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

ATTENTION: Ms. Angie Pennock
NCDOT Coordinator

Dear Madam:

SUBJECT: **Nationwide Permit 23 and 33 Applications** for the proposed replacement of Bridge No. 264 on SR 1103 (Bat Cave Road) over Jackson Creek, in McDowell County. Federal Aid Project No. BRZ-1103(12), State Project No. 8.2872801, WBS Element 33549.1.1, TIP No. B-4192, in Division 13.

Please find enclosed a copy of the Categorical Exclusion, Pre-Construction Notification, and Ecosystem Enhancement Program Mitigation Acceptance Letter for the above referenced project. NCDOT proposes to replace Bridge No. 264 on the existing alignment with a triple 7-feet by 7-feet chambered reinforced concrete box culvert. There will be 131 linear feet of permanent fill in surface waters and 92 linear feet of temporary impacts. There are no jurisdictional wetlands within the project area. Traffic will be maintained via a signalized on-site detour lane.

Impacts to Waters of the United States

The water resource impacted for project B-4192 is Jackson Creek. The North Carolina Department of Environment and Natural Resources classifies the Jackson Creek as "Class C". The classification date and index number for this portion of the creek is 04-03-02, 6-20, and the bridge is located in Hydrological Cataloguing Unit 03050101. There are no Outstanding Resource Waters (ORW), High Quality Waters (HQW), WS-I, WS-II, or watershed Critical Area (CA) within 1 mile upstream or downstream of the project study area.

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

No special restrictions are required for in-water work other than those outlined in the NCDOT guidelines, "Best Management Practices for Protection of Surface Waters". Jackson Creek is not designated as a trout stream by NCWRC. ~~As commented by WRC in a letter dated July 12, 2002, WRC has, "No specific concerns other than the minimization of impacts to water quality and aquatic and riparian habitat."~~

Permanent Impacts: Construction of the proposed project will result in total of 131 linear feet ~~(0.025 acre)~~ of permanent fill in surface water. ~~The existing structurally deficient~~ bridge will be replaced by a triple 7-~~feet~~ by 7-~~feet~~ chambered ~~reinforced concrete box culvert~~ (RCBC).

Temporary Impacts: The onsite detour lane will result in ~~92 linear feet (0.017 acre)~~ of temporary construction and dewatering. The proposed RCBC for the bridge replacement will be widened to accommodate the temporary detour lane. Once the new construction is completed, all materials used for the temporary detour will be removed completely from Jackson Creek.

There are no conflicts with utilities for this project.

Bridge Demolition

The existing bridge is a two-span structure with an overall length of 41 feet, and a clear roadway width of 22.3 feet. It was constructed in 1948. The bridge consists of a timber deck, steel I-beams, yount masonry abutments and a timber helper bent at mid span. Bridge No. 264 is structurally deficient and according to federal guidelines is considered to be functionally obsolete. Bridge No. 264 can be removed without dropping any components into Waters of the United States. Best Management Practices for Bridge Demolition and Removal will be implemented.

Federally Protected Species

~~As of January 29, 2003, the~~ United States Fish and Wildlife Service ~~lists~~ eight federally protected species for McDowell County (Table 1). A description of each species and biological conclusions are provided in the Categorical Exclusion (CE) document issued June 25, 2004. ~~Carolina northern flying squirrel was added to the endangered species list for McDowell County on March 8, 2006.~~

?? include column for "Habitat present" ?? yes include

Table 1. Federally Protected Species for McDowell County.

Common Name	Scientific Name	Status	Biological Conclusion
Bog turtle	*Clemmys muhlenbergii*	T(S/A)	N/A
Bald Eagle	*Haliaeetus leucocephalus*	Threatened	No Effect
Mountain Golden Heather	*Hudsonia Montana*	Threatened	No Effect
Small-whorled pogonia	*Isotria medeoloides*	Threatened	No Effect
Carolina northern flying squirrel	*Glaucomys sabrinus coloratus*	Endangered	No Effect

If habitat exists for any of these - mention recent surveys.

KEY:

Status	Definition
Endangered -	A taxon "in danger of extinction throughout all or a significant portion of its range."
Threatened -	A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."
T(S/A)	Threatened due to similarity of appearance a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.

Avoidance and Minimization

NCDOT has minimized impacts to the fullest extent ~~possible~~ practicable. The project purpose necessitates traversing Jackson Creek; therefore, totally avoiding surface water impacts is not practicable.

Mitigation

The Ecosystem Enhancement Program (EEP) will be responsible for 131 feet of ~~handle~~ mitigation for ~~the 131 feet of~~ jurisdictional stream impacts on this project. EEP's acceptance letter is attached to this application.

Regulatory Approvals

Section 404 Permit: It is anticipated that the temporary dewatering of ~~a tributary to Catawba River~~ Jackson Creek be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing the temporary dewatering of Jackson Creek. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR § 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certification numbers 3403 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their records.

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

A copy of this permit application will be posted on the NCDOT website at http- ~~~~~~~~~~.

TVA: This project is located within the jurisdiction of the Tennessee Valley Authority (TVA). Therefore, an approval under Section 26a of the TVA Act will be required.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jeff Hemphill at (919) 715-1458.

Sincerely,

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

Cc
(CC List found at: S:\ProjMgmt\NEPMU Shared Information\cc list.doc

insert list

Office Use Only: Form Version March 05

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

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

I. Processing

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

2. Nationwide, Regional or General Permit Number(s) Requested: NWP 23 & NWP 33

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

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

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

II. Applicant Information

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

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

III. Project Information

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

1. Name of project: Replacement of bridge No. 264 on SR 1103 Over Jackson Creek

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4192

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

4. Location
   County: McDowell Nearest Town: Moffitt Hill
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): From US 40, take exit 73 at Old Fort and head southeast on Bat Cave Road (SR 1103). Proceed for approximately four miles on Bat Cave Road to bridge No. 264. The bridge site is just south of the intersection of Davis Town Church Road (SR 1131) and Bat Cave Road.

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 35° 33.70' °N 10.95' °W

6. Property size (acres): N/A

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

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

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The site is located in a rural area of McDowell County. The site is primarily surrounded by fallow field, roadside shoulder , secondary shrub growth and residential property.

10. Describe the overall project in detail, including the type of equipment to be used:
The project will consist of replacing the existing 22.3 feet wide and 41 feet long bridge with a triple chambered 7 feet by 7 feet reinforced concrete box culvert. Traffic will be maintained during construction by an onsite signalized detour lane located approximately 10 feet west of the existing roadway. Construction equipment will consist of heavy duty trucks, earth moving equipment, cranes, etc.

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

IV. Prior Project History

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

V. Future Project Plans

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

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

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

1. Provide a written description of the proposed impacts: This project will have temporary impacts totaling 92 linear feet due to culverts installed for an onsite detour lane; for diversion dams to dewater work area and a silt check dam downstream of the project. There will be 131linear feet of permanent impacts associated with this project resulting from a three chambered box culvert being installed in Jackson Creek to replace a structurally deficient bridge.

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

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

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

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

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
	Jackson Creek	Permanent	Perennial	7-10 feet	131	0.025
	Jackson Creek	Temporary	Perennial	7-10 feet	92	0.017
Total Stream Impact (by length and acreage)						

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

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

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

Stream Impact (acres):	0.025
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	0.025
Total Stream Impact (linear feet):	131

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. See Permit Application Cover Letter

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.

   Mitigation for 131 linear feet of stream impact will be provided by EEP.

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): 131

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

IX. Environmental Documentation (required by DWQ)

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

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

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

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

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

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

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

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

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

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

XI. Stormwater (required by DWQ)

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

XII. Sewage Disposal (required by DWQ)

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

XIII. Violations (required by DWQ)

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

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

XIV. Cumulative Impacts (required by DWQ)

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

XV. Other Circumstances (Optional):

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

N/A

Applicant/Agent's Signature **Date**

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

Ecosystem Enhancement PROGRAM

May 15, 2006

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

Dear Mr. Lund:

Subject: EEP Mitigation Acceptance Letter:

B-4192, Replace Bridge Number 264 over Jackson Creek on SR 1103 (Bat Cave Road), McDowell County; Catawba River Basin (Cataloging Unit 03050101); Northern Mountains (NM) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the unavoidable impact associated with the above referenced project. As indicated in the NCDOT's mitigation request letter dated May 12, 2006, compensatory stream mitigation from EEP is required for approximately 131 feet of stream impacts.

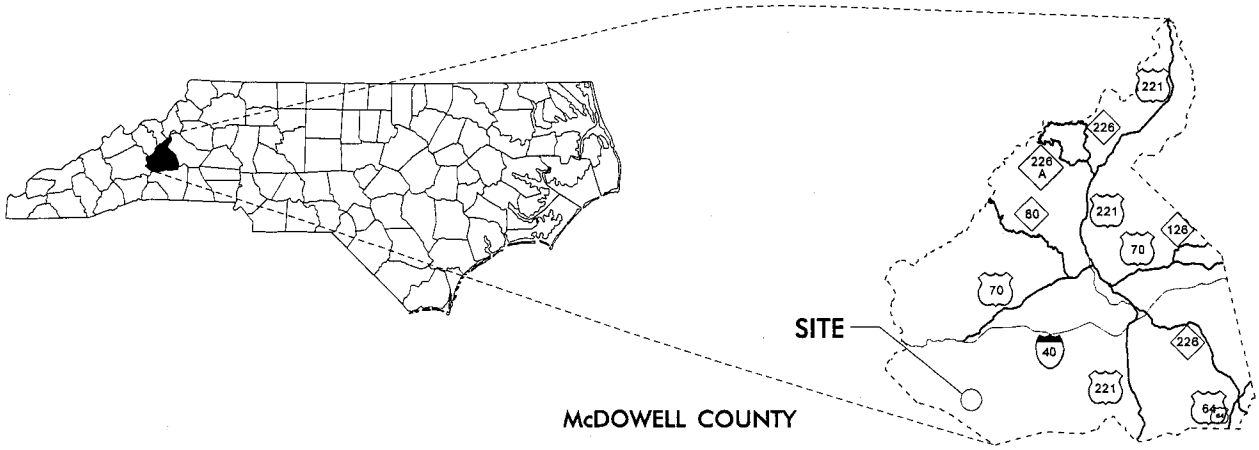
Mitigation for this project will be provided in accordance with Section X of the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers signed on July 22, 2003. EEP commits to implement sufficient compensatory stream mitigation up to a 2:1 ratio to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the impacts change from the above listed amount, then this mitigation strategy letter will no longer be valid and a new mitigation strategy letter will be required from EEP.

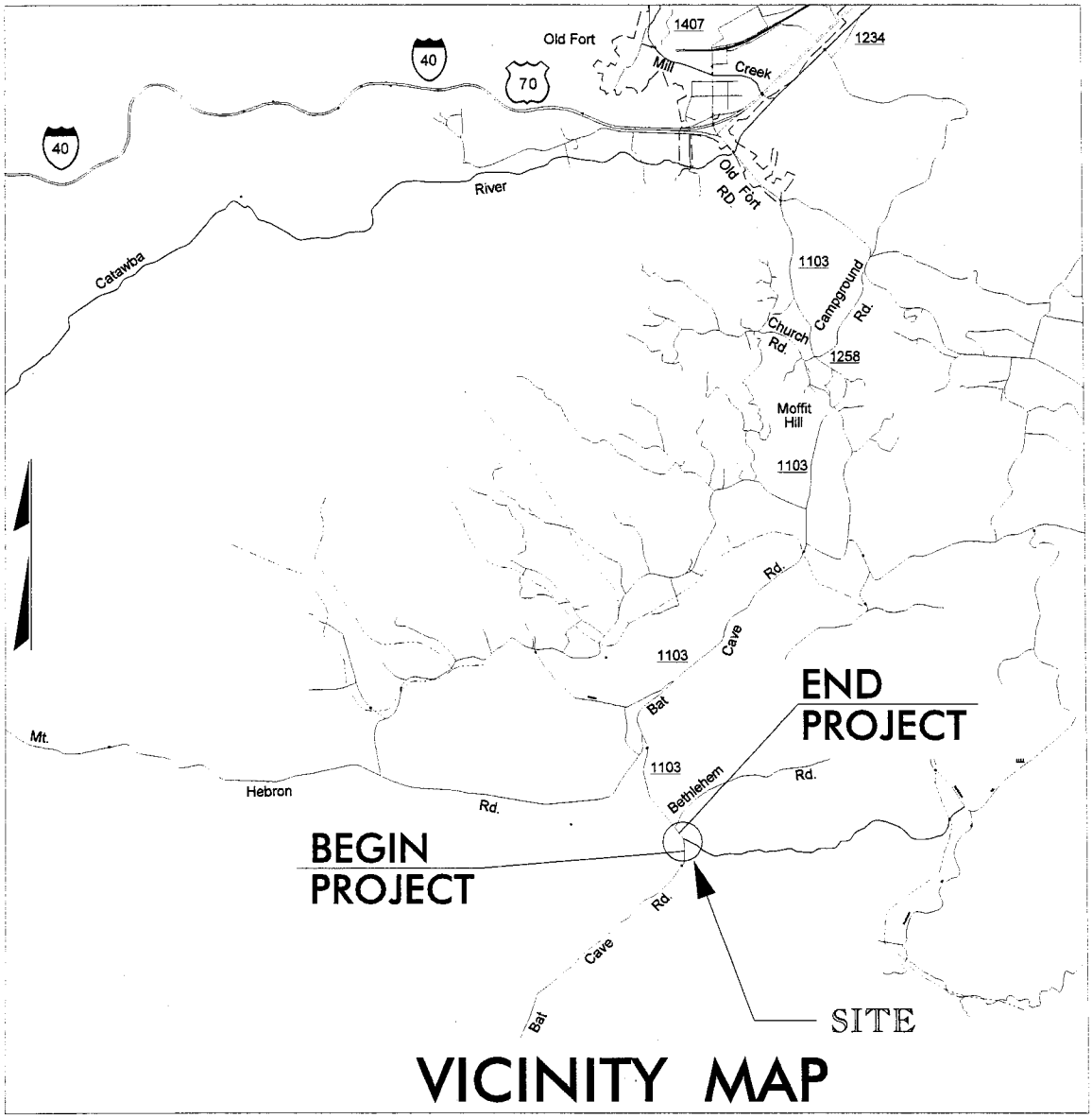
If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-4192





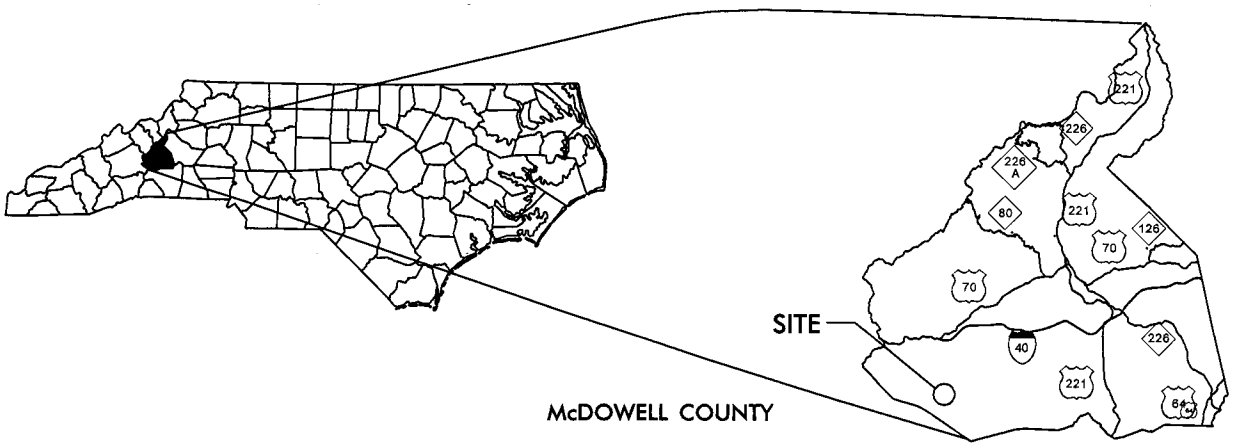
VICINITY MAP

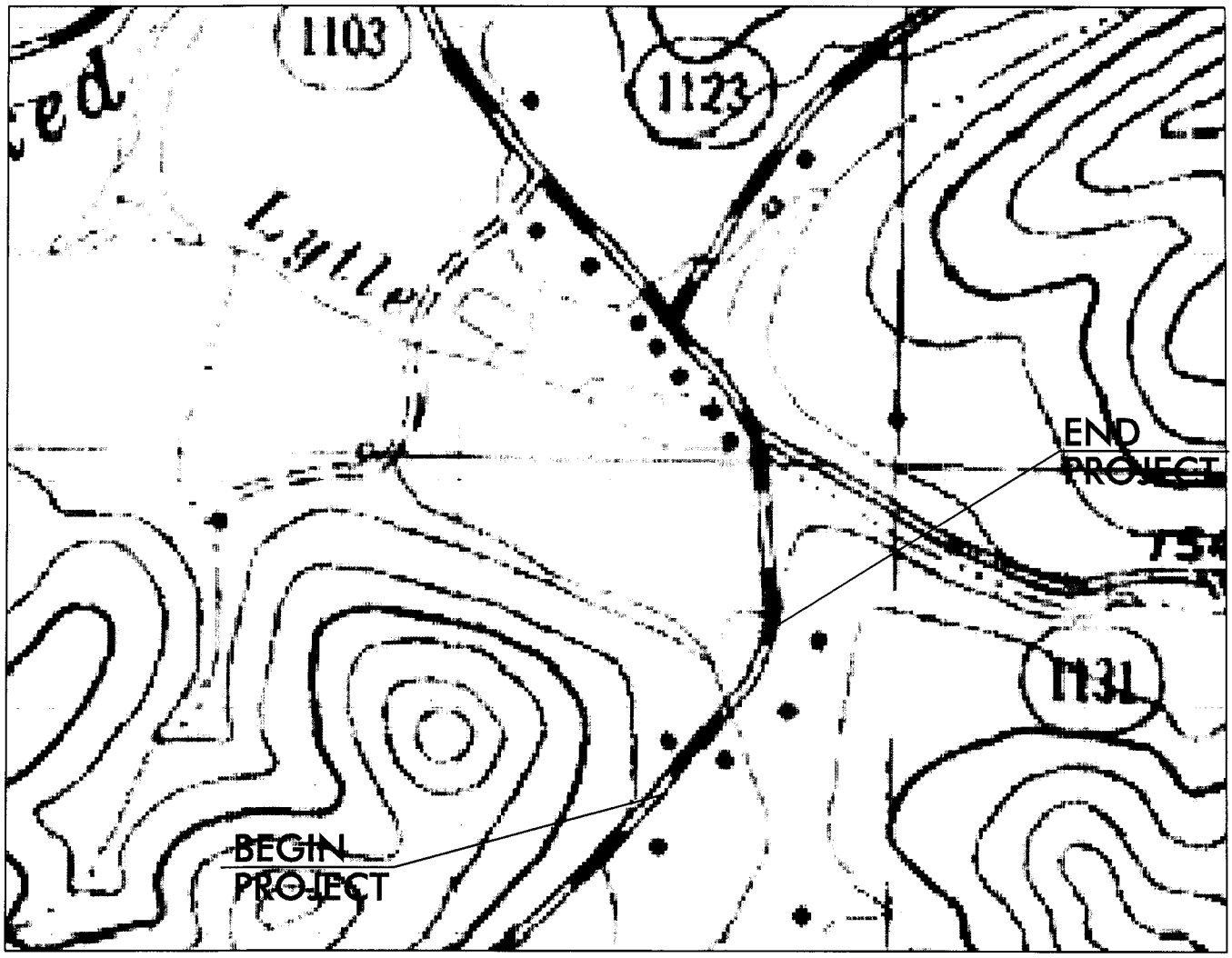
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

McDOWELL COUNTY

33539.1.1 (B-4192)
BRIDGE #264 OVER JACKSON CREEK ON SR 1103
(BAT CAVE ROAD)

SHEET 1 OF 1 12/12/05





VICINITY MAP

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

McDOWELL COUNTY

33639.1.1 (B-4192)
BRIDGE 264 OVER JACKSON CREEK ON SR 1103 (BAT CAVE ROAD)

SHEET 1 OF 2 **12/12/06**

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	KENNETH VESS	5663 BAT CAVE RD OLD FORT, NC 28762
4	DONALD ELKINS	5459 BAT CAVE RD OLD FORT, NC 28762
6	HELEN HAMPTON	P.O. BOX 184 OLD FORT, NC 28762

NCDOT

DIVISION OF HIGHWAYS

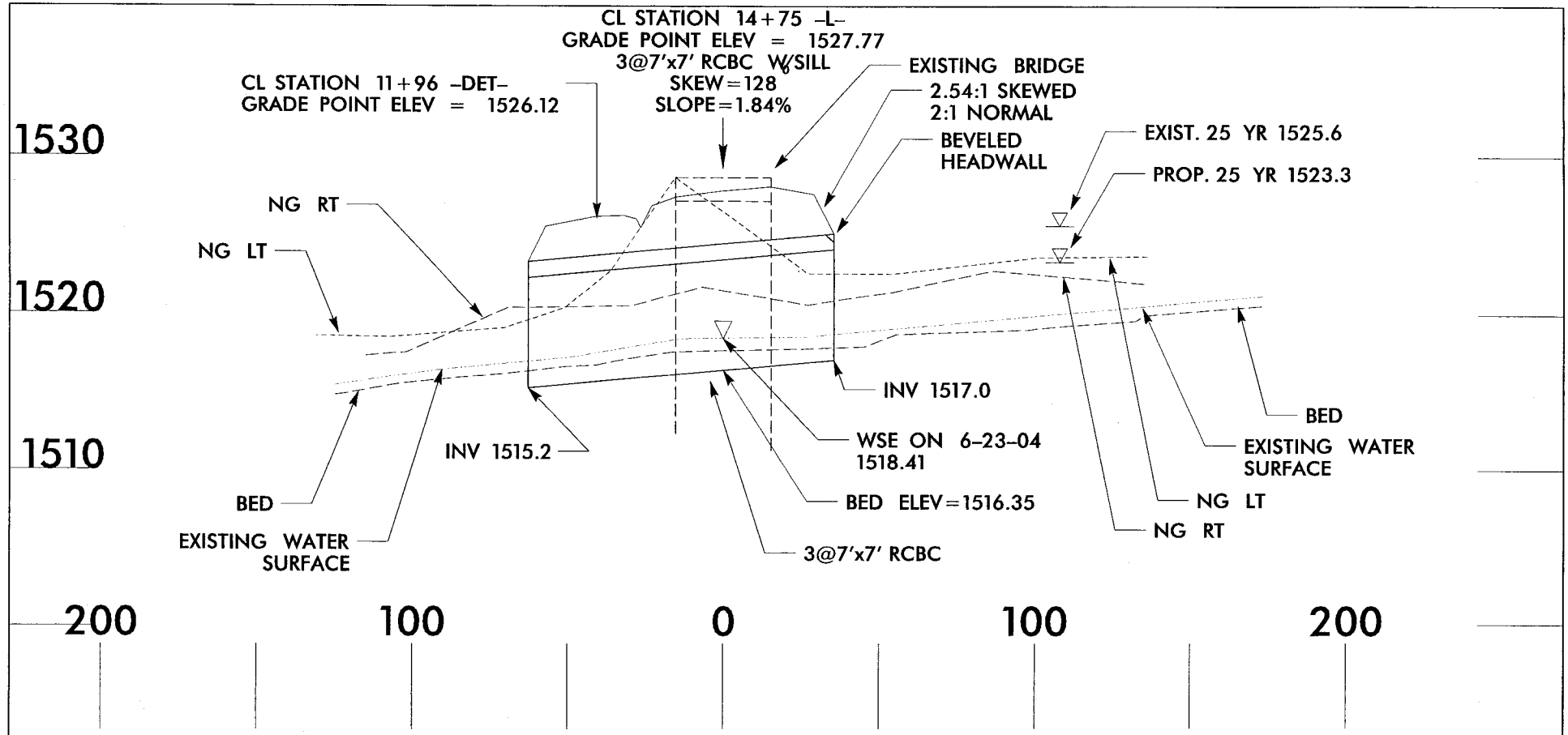
McDOWELL COUNTY

PROJECT: B-4192

BRIDGE NO.264 OVER

JACKSON CREEK ON SR 1103

(BAT CAVE RD)



PROFILE

NCDOT
DIVISION OF HIGHWAYS
McDOWELL COUNTY
PROJECT: 33539.1.1 (B-4192)
BRIDGE #264 OVER JACKSON
CREEK ON SR 1103
(BAT CAVE ROAD)

SHEET 4 OF 8 12/12/05

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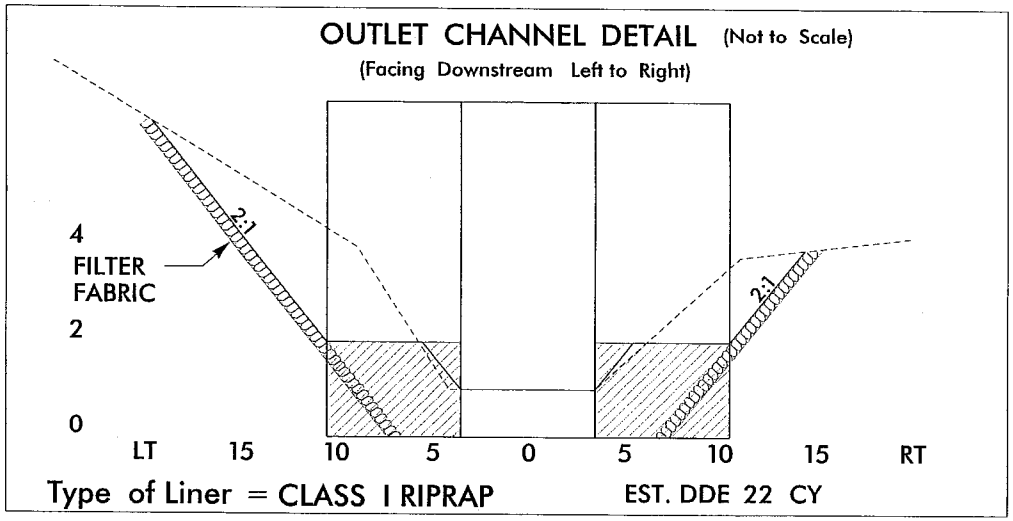

OUTLET SECTION

NCDOT
DIVISION OF HIGHWAYS
McDOWELL COUNTY
PROJECT: 33539.1.1 (B-4192)
BRIDGE #264 OVER JACKSON
CREEK ON SR 1103
(BAT CAVE ROAD)

SHEET 5 OF 8 12/14/05

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WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	14+61/14+88 -L-	3 @ 7' x 7' RCBC						0.025	0.017	131	92	
TOTALS:								0.025	0.017	131	92	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

McDOWELL COUNTY
WBS - 33539.1.1 (B-4192)

SHEET 6 OF 7

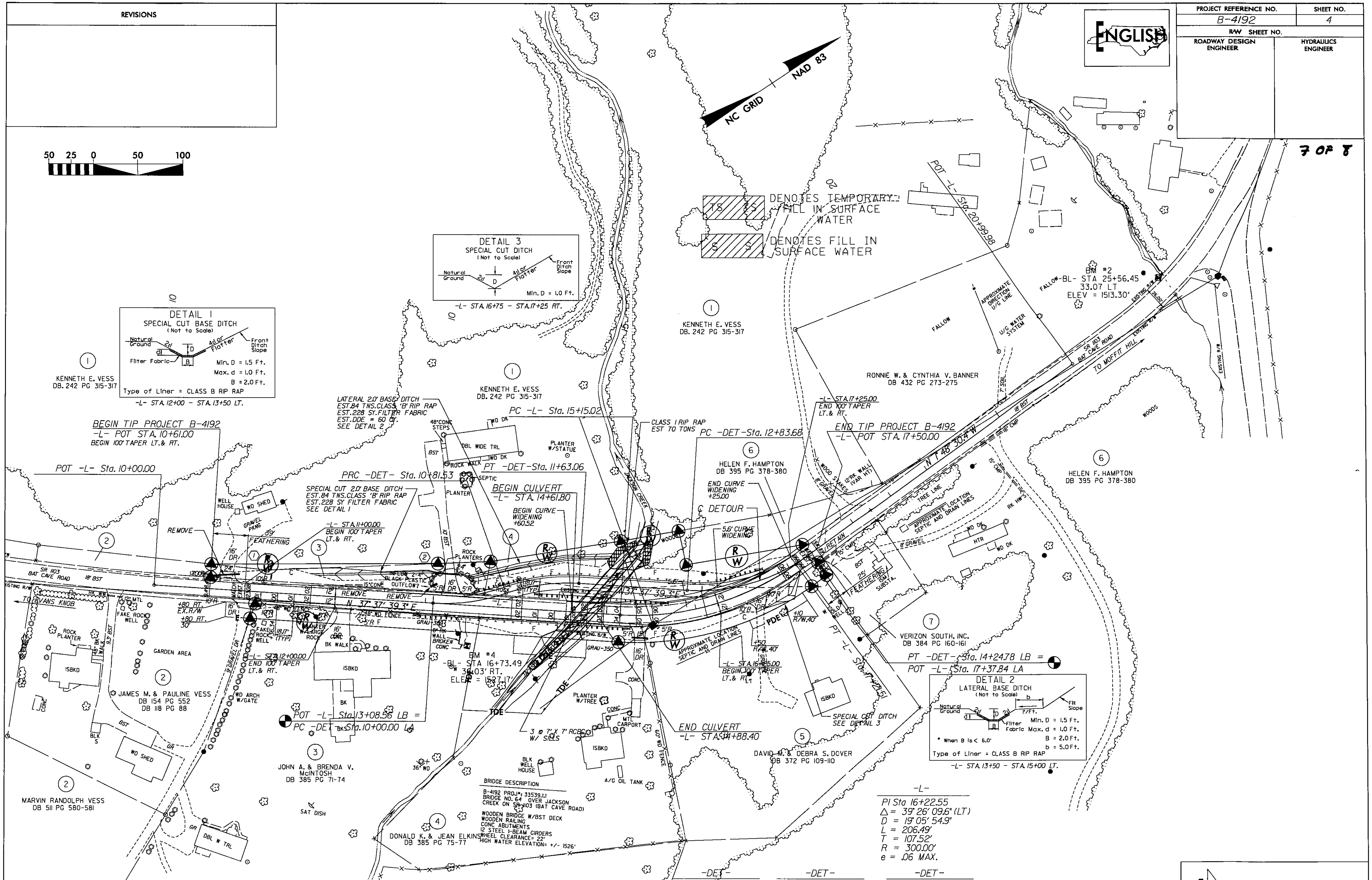
REV 2/28/2006

ATN Revised 3/31/05

PROJECT REFERENCE NO.	SHEET NO.
B-4192	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

7 OF 8



ENGLISH
NC GRID
NAD 83
50 25 0 50 100
DENOTES TEMPORARY FILL IN SURFACE WATER
DENOTES FILL IN SURFACE WATER
DETAIL 3
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
4:1 or Flatter
Min. D = 1.0 Ft.
-L- STA. 16+75 - STA.17+25 RT.
DETAIL 1
SPECIAL CUT BASE DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Front Ditch Slope
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = CLASS B RIP RAP
-L- STA. 12+00 - STA. 13+50 LT.
KENNETH E. VESS
DB. 242 PG 315-317
RONNIE W. & CYNTHIA V. BANNER
DB 432 PG 273-275
BM #2
FALLOW-BL- STA 25+56.45
33.07 LT
ELEV = 1513.30'
POT -L- Sta. 20+99.98
SR 1103 BAT CAVE ROAD
TO MOFFIT HILL
BEGIN TIP PROJECT B-4192
-L- POT STA. 10+61.00
BEGIN 100' TAPER LT.& RT.
POT -L- Sta. 10+00.00
LATERAL 2.0' BASE DITCH
EST.84 TNS.CLASS 'B' RIP RAP
EST.228 SY.FILTER FABRIC
EST.DDE = 60 CY.
SEE DETAIL 2
PC -L- Sta. 15+15.02
CLASS I RIP RAP
EST 70 TONS
PC -DET- Sta. 12+83.68
-L- STA.17+25.00
END 100' TAPER
LT.& RT.
END TIP PROJECT B-4192
-L- POT STA. 17+50.00
N 48° 30' 4" W
PRC -DET- Sta. 10+81.53
PT -DET- Sta. 11+63.06
BEGIN CULVERT
-L- STA. 14+61.80
SPECIAL CUT 2.0' BASE DITCH
EST.84 TNS.CLASS 'B' RIP RAP
EST.228 SY FILTER FABRIC
SEE DETAIL 1
-L- STA.11+00.00
BEGIN 100' TAPER
LT.& RT.
HELEN F. HAMPTON
DB 395 PG 378-380
END CURVE WIDENING +25.00
DETOUR
BEGIN CURVE WIDENING +60.52
5.6' CURVE WIDENING
REMOVE
SR 1103 BAT CAVE ROAD
TO REVANS KNOB
N 37° 37' 39.3" E
-L- STA.12+00.00
END 100' TAPER
LT.& RT.
BM #4
-BL- STA 16+73.49
30.03' RT.
ELEV = 1527.17'
VERIZON SOUTH, INC.
DB 384 PG 160-161
PT -DET- Sta. 14+24.78 LB =
POT -L- Sta. 17+37.84 LA
-L- STA.16+25.00
BEGIN 100' TAPER
LT.& RT.
JAMES M. & PAULINE VESS
DB 154 PG 552
DB 118 PG 88
POT -L- Sta.13+08.56 LB =
PC -DET- Sta.10+00.00 LA
3 @ 7' X 7' RCBC
W/ SILLS
END CULVERT
-L- STA.14+88.40
SPECIAL CUT DITCH
SEE DETAIL 3
DAVID M. & DEBRA S. DOVER
DB 372 PG 109-110
JOHN A. & BRENDA V. McINTOSH
DB 385 PG 71-74
MARVIN RANDOLPH VESS
DB 511 PG 580-581
DONALD K. & JEAN ELKINS
DB 385 PG 75-77
DETAIL 2
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Fill Slope
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B is < 6.0'
Type of Liner = CLASS B RIP RAP
-L- STA. 13+50 - STA. 15+00 LT.
BRIDGE DESCRIPTION
B-4192 PROJ#: 33539.1.1
BRIDGE NO. 64 OVER JACKSON CREEK ON SR-1103 (BAT CAVE ROAD)
WOODEN BRIDGE W/BST DECK
WOODEN RAILING
CONC ABUTMENTS
12 STEEL I-BEAM GIRDERS
WHEEL CLEARANCE= 22'
HIGH WATER ELEVATION= +/- 1526'

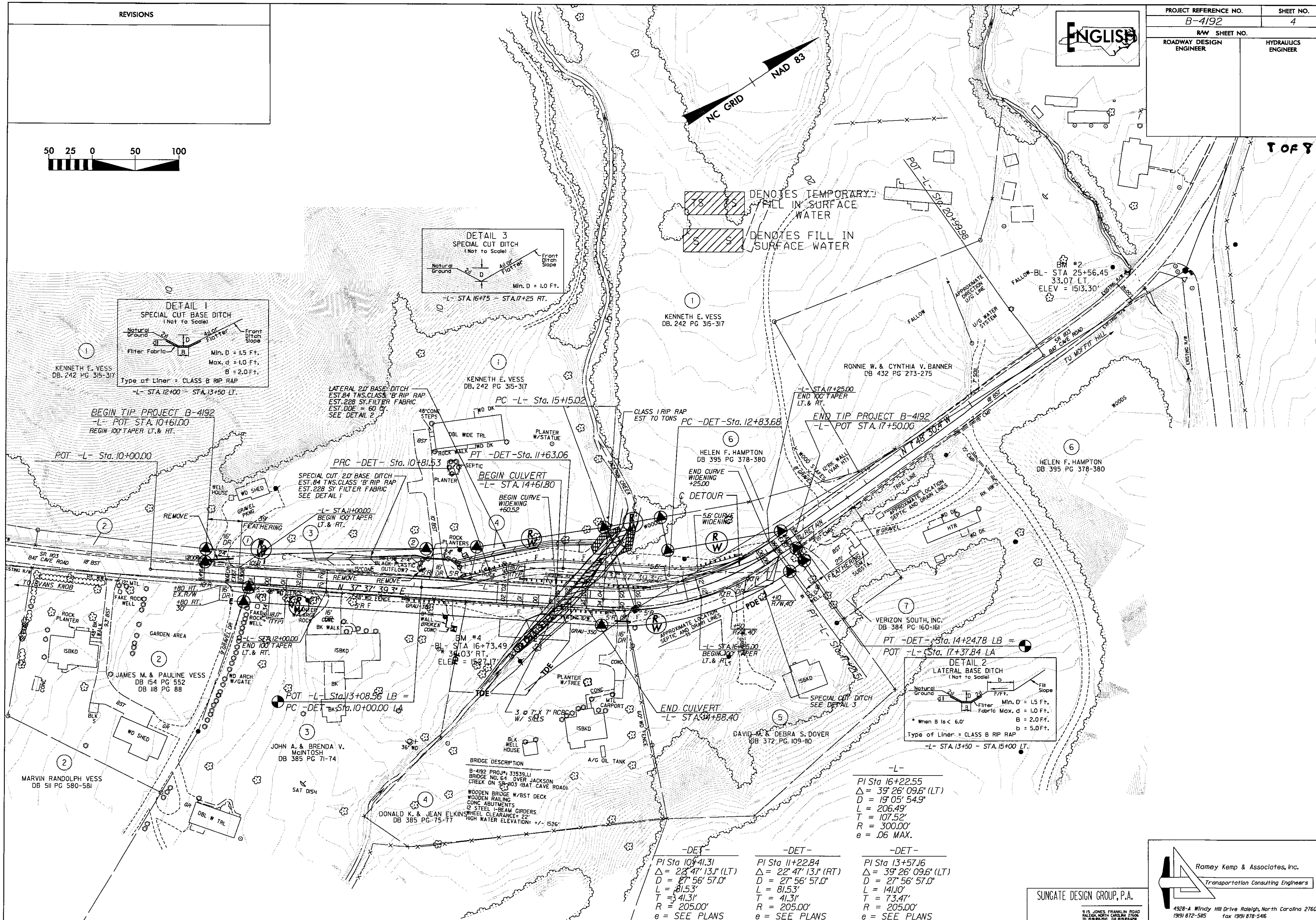
-L-
PI Sta 16+22.55
Δ = 39° 26' 09.6" (LT)
D = 19° 05' 54.9"
L = 206.49'
T = 107.52'
R = 300.00'
e = .06 MAX.

-DET-	-DET-	-DET-
PI Sta 10+41.31	PI Sta 11+22.84	PI Sta 13+57.16
Δ = 22° 47' 13.1" (LT)	Δ = 22° 47' 13.1" (RT)	Δ = 39° 26' 09.6" (LT)
D = 27° 56' 57.0"	D = 27° 56' 57.0"	D = 27° 56' 57.0"
L = 81.53'	L = 81.53'	L = 141.10'
T = 41.31'	T = 41.31'	T = 73.47'
R = 205.00'	R = 205.00'	R = 205.00'
e = SEE PLANS	e = SEE PLANS	e = SEE PLANS

SUNGATE DESIGN GROUP, P.A.

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

REVISIONS



ENGLISH
NC GRID NAD 83
50 25 0 50 100
DENOTES TEMPORARY FILL IN SURFACE WATER
DENOTES FILL IN SURFACE WATER
DETAIL 3
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
4:1 or Flatter
Front Ditch Slope
Min. D = 1.0 Ft.
-L- STA. 16+75 - STA.17+25 RT.
DETAIL 1
SPECIAL CUT BASE DITCH
(Not to Scale)
Natural Ground
4:1 or Flatter
Front Ditch Slope
Filter Fabric
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = CLASS B RIP RAP
-L- STA. 12+00 - STA. 13+50 LT.
DETAIL 2
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Filter Fabric
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
When B is < 6.0'
Type of Liner = CLASS B RIP RAP
-L- STA. 13+50 - STA. 15+00 LT.
KENNETH E. VESS
DB. 242 PG 315-317
RONNIE W. & CYNTHIA V. BANNER
DB 432 PG 273-275
HELEN F. HAMPTON
DB 395 PG 378-380
JAMES M. & PAULINE VESS
DB 154 PG 552
DB 118 PG 88
MARVIN RANDOLPH VESS
DB 511 PG 580-581
JOHN A. & BRENDA V. McINTOSH
DB 385 PG 71-74
DONALD K. & JEAN ELKINS
DB 385 PG 75-77
DAVID M. & DEBRA S. DOVER
DB 372 PG 109-110
VERIZON SOUTH, INC.
DB 384 PG 160-161
BEGIN TIP PROJECT B-4192
-L- POT STA. 10+61.00
BEGIN 100' TAPER LT. & RT.
POT -L- Sta. 10+00.00
PRC -DET- Sta. 10+81.53
PT -DET- Sta. 11+63.06
BEGIN CULVERT
-L- STA. 14+61.80
PC -L- Sta. 15+15.02
PC -DET- Sta. 12+83.68
END TIP PROJECT B-4192
-L- POT STA. 17+50.00
-L- STA. 17+25.00
END 100' TAPER LT. & RT.
POT -L- Sta. 20+99.98
BM #2
-BL- STA 25+56.45
33.07' LT.
ELEV = 1513.30'
BM #4
-BL- STA 16+73.49
34.03' RT.
ELEV = 1527.17'
LATERAL 2.0' BASE DITCH
EST.84 TNS.CLASS 'B' RIP RAP
EST.228 SY.FILTER FABRIC
EST.DDE = 60 CY.
SEE DETAIL 2
SPECIAL CUT 2.0' BASE DITCH
EST.84 TNS.CLASS 'B' RIP RAP
EST.228 SY FILTER FABRIC
SEE DETAIL 1
CLASS I RIP RAP
EST 70 TONS
-L- STA.11+00.00
BEGIN 100' TAPER LT. & RT.
BEGIN CURVE WIDENING +60.52
END CURVE WIDENING +25.00
5.6' CURVE WIDENING
C DETOUR
N 37° 37' 39.3" E
N 14° 48' 30.4" W
-L- STA.12+00.00
END 100' TAPER LT. & RT.
POT -L- Sta.13+08.56 LB =
PC -DET- Sta.10+00.00 LA
PT -DET- Sta. 14+24.78 LB =
POT -L- Sta. 17+37.84 LA
-L- STA.16+25.00
BEGIN 100' TAPER LT. & RT.
END CULVERT
-L- STA. 14+88.40
3 @ 7' X 7' RCBC W/ SILLS
SPECIAL CUT DITCH SEE DETAIL 3
APPROXIMATE LOCATION SEPTIC AND DRAIN LINES
APPROXIMATE DIRECTION U/G LINE
U/G WATER SYSTEM
SR 1103 BAT CAVE ROAD
TO MOFFIT HILL
TO BEANS KNOB
JACKSON CREEK
FEATHERING
REMOVE
WD SHED
WELL HOUSE
DBL WIDE TRL
DBL W TRL
PLANTER W/STATUE
PLANTER W/TREE
ROCK PLANTERS
GARDEN AREA
BK WALK
SEPTIC
ISBKD
HTR
WOODS
FALLOW
SAT DISH
A/G OIL TANK
MTL CARPORT
BLK WELL HOUSE
TREE LINE
BRIDGE DESCRIPTION
B-4192 PROJ#: 33539.1.1
BRIDGE NO. 64 OVER JACKSON CREEK ON SR-1103 (BAT CAVE ROAD)
WOODEN BRIDGE W/BST DECK
WOODEN RAILING
CONC ABUTMENTS
12 STEEL I-BEAM GIRDERS
WHEEL CLEARANCE= 22'
HIGH WATER ELEVATION= +/- 1526'

-L-
PI Sta 16+22.55
Δ = 39° 26' 09.6" (LT)
D = 19° 05' 54.9"
L = 206.49'
T = 107.52'
R = 300.00'
e = .06 MAX.

-DET-
PI Sta 10+41.31
Δ = 22° 47' 13.1" (LT)
D = 27° 56' 57.0"
L = 81.53'
T = 41.31'
R = 205.00'
e = SEE PLANS

-DET-
PI Sta 11+22.84
Δ = 22° 47' 13.1" (RT)
D = 27° 56' 57.0"
L = 81.53'
T = 41.31'
R = 205.00'
e = SEE PLANS

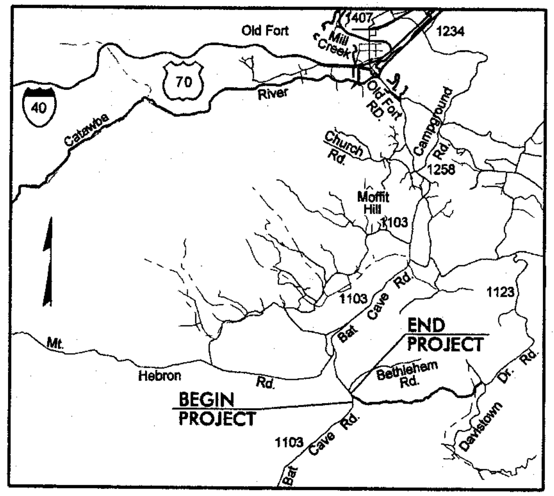
-DET-
PI Sta 13+57.16
Δ = 39° 26' 09.6" (LT)
D = 27° 56' 57.0"
L = 141.10'
T = 73.47'
R = 205.00'
e = SEE PLANS

SUNGATE DESIGN GROUP, P.A.

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

CONTRACT: C201502 TIP PROJECT: B-4192

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

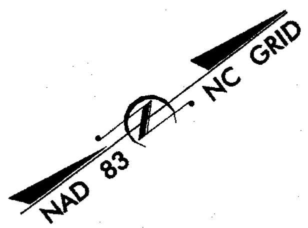
McDOWELL COUNTY

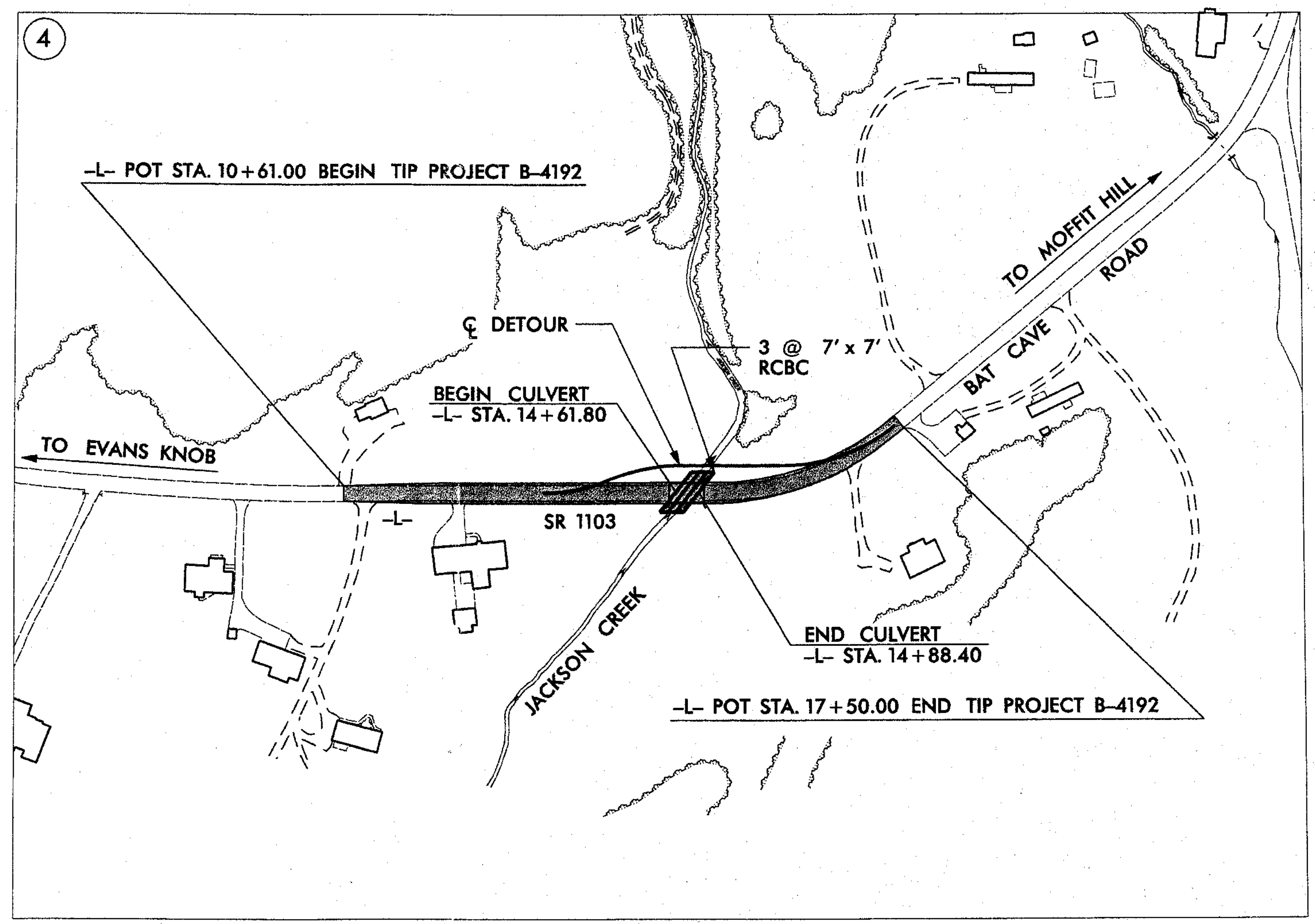
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4192	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33539.1.1	BRZ-1103(12)	P.E.
33539.2.1	BRZ-1103(12)	R/W & UTIL.
33539.3.1	BRZ-1103(12)	CONST.

LOCATION: BRIDGE NO. 264 ON SR 1103 (BAT CAVE ROAD) OVER JACKSON CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE





SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258

** DESIGN EXCEPTION FOR HORIZONTAL ALIGNMENT

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2006 = 1,109
ADT 2025 = 1,900
DHV = 12 %
D = 65 %
T = 3 % *
** V = 60 MPH

* TTST 1% DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4192	=	0.125 mi
LENGTH STRUCTURE TIP PROJECT B-4192	=	0.005 mi
TOTAL LENGTH TIP PROJECT B-4192	=	0.130 mi

Plans prepared in the office of:

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

for the North Carolina Department of Transportation

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 21, 2005

LETTING DATE:
NOVEMBER 21, 2006

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

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR.
12/01/05 P.E.
W. HENRY WELLS, JR.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 27771 ENGINEER MATTHEW B. COPPLE
11/29/05 P.E.
MATTHEW B. COPPLE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

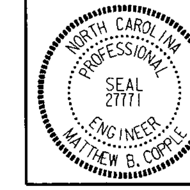
P.E.
STATE DESIGN ENGINEER

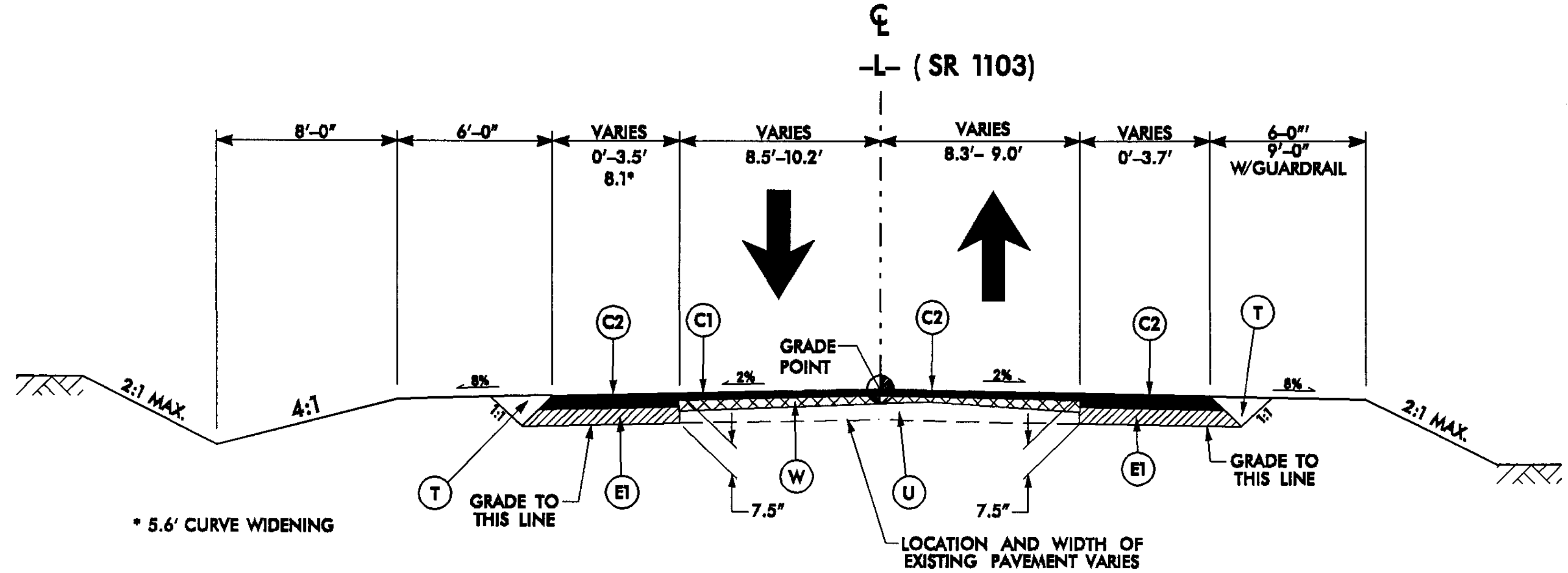
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4192	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER





TYPICAL SECTION NO. 1

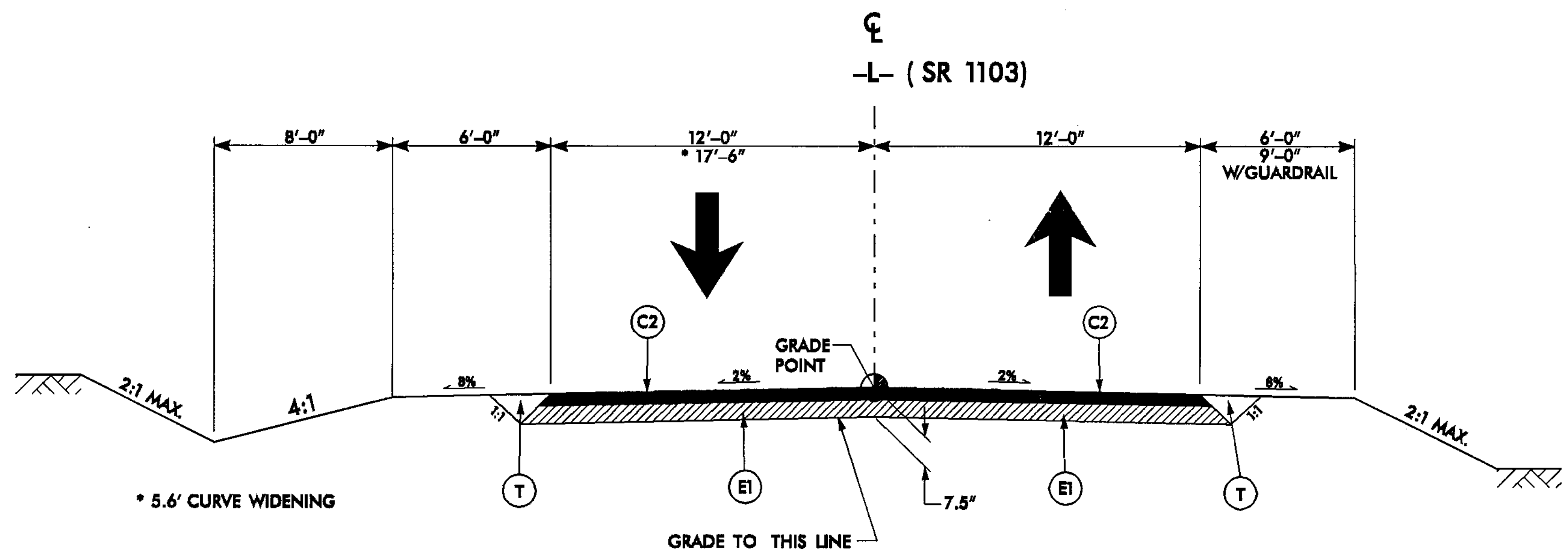
USE TYPICAL SECTION NO. 1

-L- STA. 11+00.00 TO STA. 13+95.00
-L- STA. 16+10.00 TO STA. 17+25.00

NOTE:
FEATHER TO EXISTING PAVEMENT FROM -L- STA. 10+61.00 TO STA. 11+00.00 AND FROM -L- STA. 17+25.00 TO STA. 17+50.00

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	PROPOSED 6" AGGREGATE BASE COURSE
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL THIS SHEET)

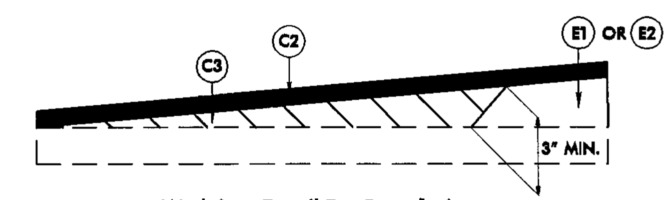
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-L- STA. 13+95.00 TO STA. 16+10.00



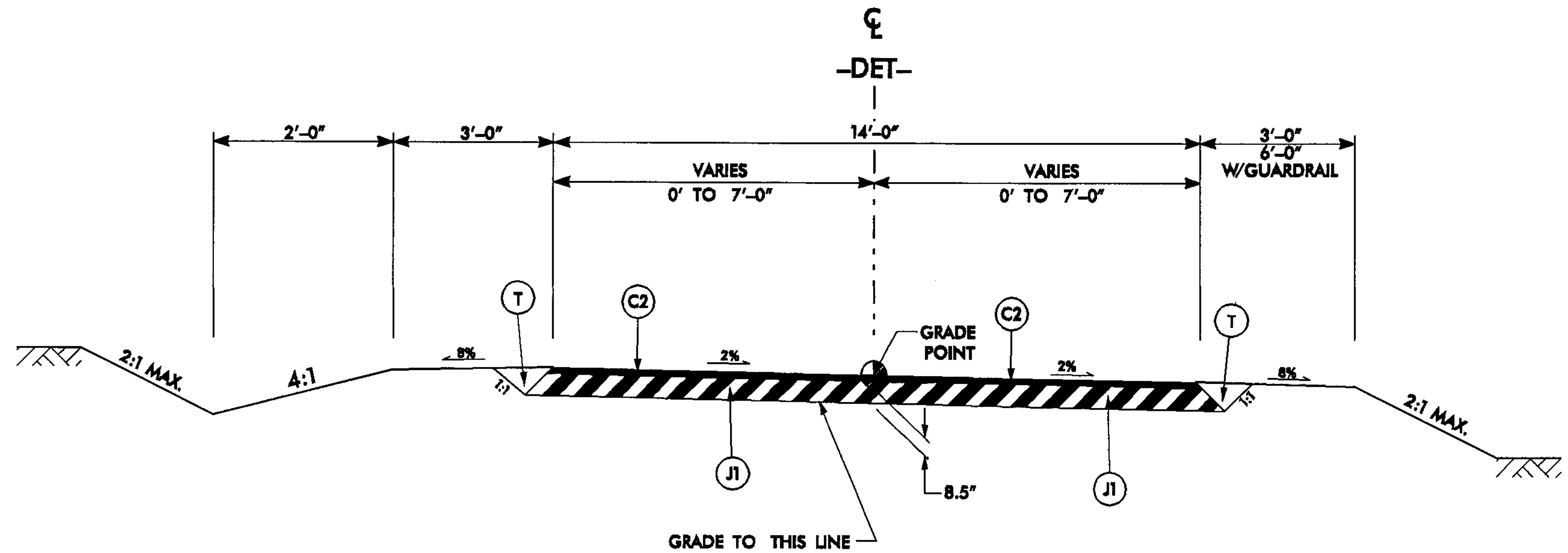
Wedging Detail For Resurfacing

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

6/2/99
02-FEB-2006 10:20
r:\hydraulics\b4192\b4192_rdy_typ.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4192	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27771 ENGINEER MATTHEW B. COPPLE



USE TYPICAL SECTION NO. 3

-DET- STA. 10+61.64 TO STA. 13+37.35

TYPICAL SECTION NO. 3

PAVEMENT SCHEDULE	
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
J1	PROPOSED 6" AGGREGATE BASE COURSE
T	EARTH MATERIAL.

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

02-FEB-2006 10:21

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Transportation Consulting Engineers
4928-A Windy Hill Drive Raleigh, North Carolina 27609
(919) 872-5115 Fax (919) 878-5416

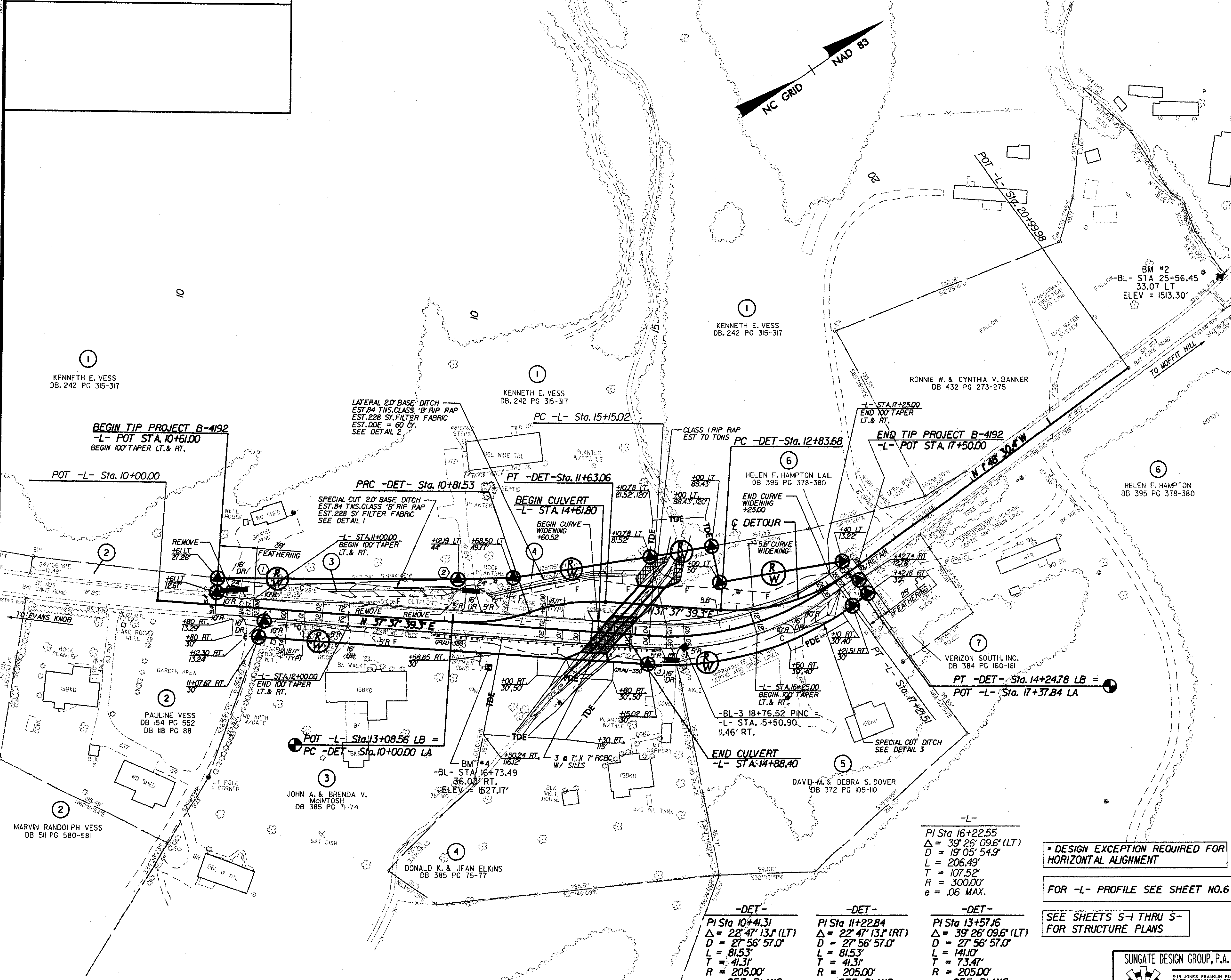
PROJECT REFERENCE NO.	SHEET NO.
B-4192	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 27771 ENGINEER MATTHEW B. COPPLE

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

REVISIONS



DETAIL 1
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground; 2:1; 4:1 or Flatter; Front Ditch Slope; Filter Fabric

Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.

Type of Liner = CLASS B RIP RAP

-L- STA. 12+00 - STA. 13+50 LT.

DETAIL 2
LATERAL BASE DITCH
(Not to Scale)

Natural Ground; 2:1; 1'/Ft.; Fill Slope; Filter Fabric

Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
* When B is < 6.0' b = 5.0 Ft.

Type of Liner = CLASS B RIP RAP

-L- STA. 13+50 - STA. 15+00 LT.

DETAIL 3
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground; 2:1; 4:1 or Flatter; Front Ditch Slope

Min. D = 1.0 Ft.

-L- STA. 16+75 - STA. 17+25 RT.

-L-
PI Sta 16+22.55
Δ = 39° 26' 09.6" (LT)
D = 19° 05' 54.9"
L = 206.49'
T = 107.52'
R = 300.00'
e = .06 MAX.

-DET-	-DET-	-DET-
PI Sta 10+41.31	PI Sta 11+22.84	PI Sta 13+57.16
Δ = 22° 47' 13.1" (LT)	Δ = 22° 47' 13.1" (RT)	Δ = 39° 26' 09.6" (LT)
D = 27° 56' 57.0"	D = 27° 56' 57.0"	D = 27° 56' 57.0"
L = 81.53'	L = 81.53'	L = 141.10'
T = 41.31'	T = 41.31'	T = 73.47'
R = 205.00'	R = 205.00'	R = 205.00'
e = SEE PLANS	e = SEE PLANS	e = SEE PLANS

* DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT

FOR -L- PROFILE SEE SHEET NO.6

SEE SHEETS S-1 THRU S- FOR STRUCTURE PLANS

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27606

Ramey Kemp & Associates, Inc.
Transportation Consulting Engineers
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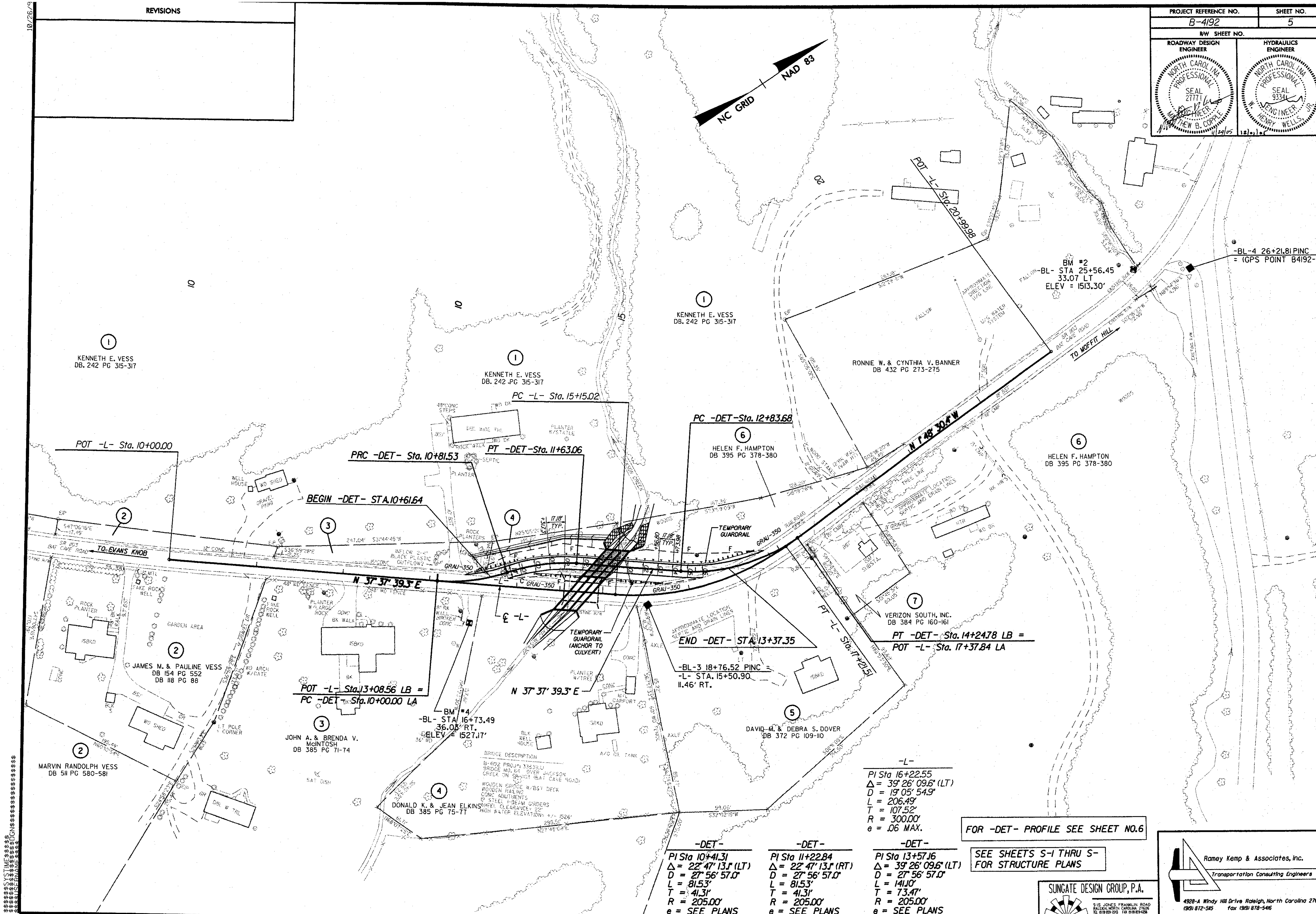
(919) 872-5115 fax (919) 878-5416

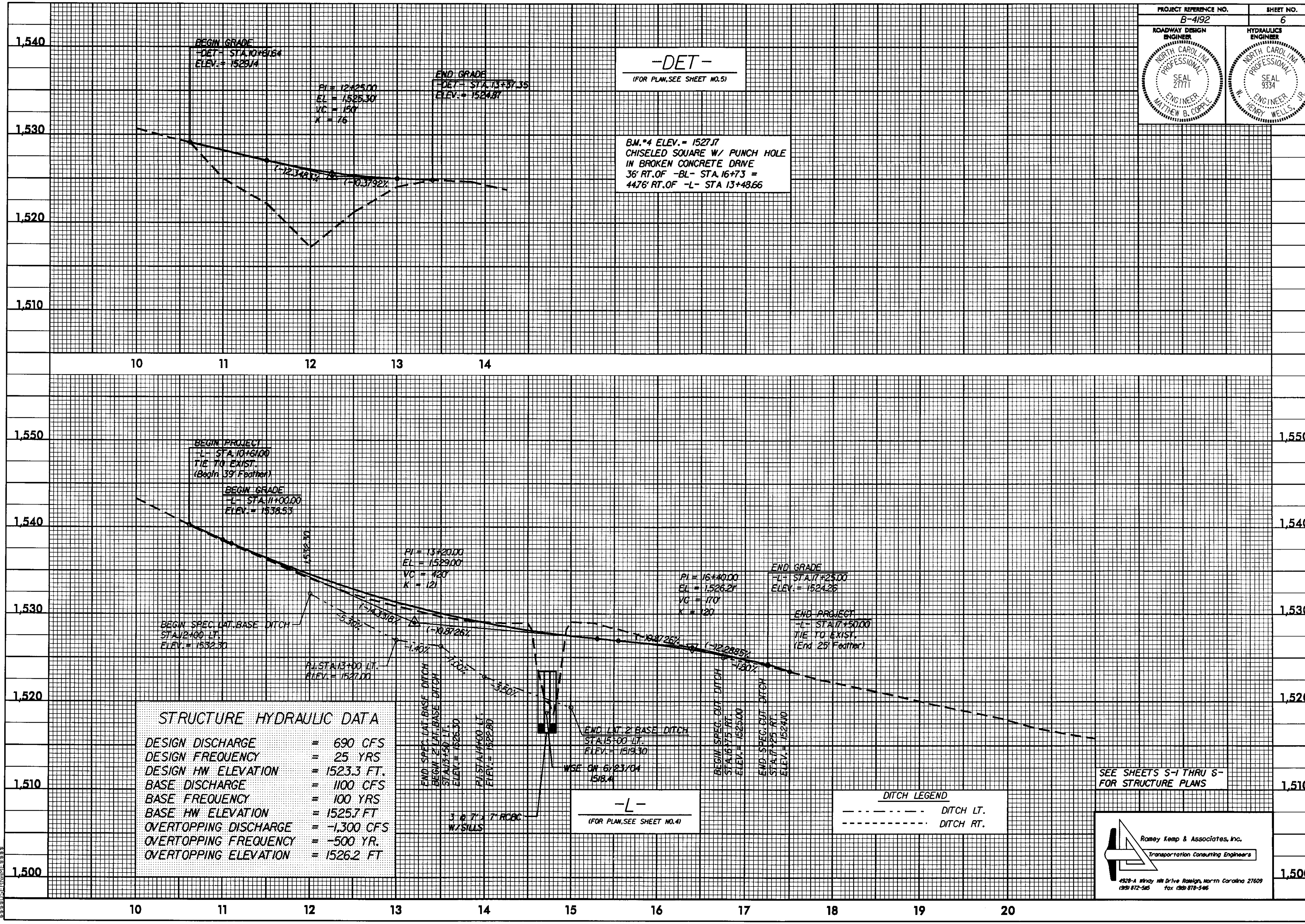
10/26/98


REVISIONS
PROJECT REFERENCE NO. B-4192
SHEET NO. 5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 27771 ENGINEER MATTHEW B. COPPLE
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR.
NC GRID NAD 83
KENNETH E. VESS DB. 242 PG 315-317
RONNIE W. & CYNTHIA V. BANNER DB 432 PG 273-275
HELEN F. HAMPTON DB 395 PG 378-380
JAMES M. & PAULINE VESS DB 154 PG 552 DB 118 PG 88
JOHN A. & BRENDA V. McINTOSH DB 385 PG 71-74
MARVIN RANDOLPH VESS DB 511 PG 580-581
DONALD K. & JEAN ELKINS DB 385 PG 75-77
DAVID M. & DEBRA S. DOVER DB 372 PG 109-110
VERIZON SOUTH, INC. DB 384 PG 160-161
POT -L- Sta. 10+00.00
POT -L- Sta. 20+99.98
PC -L- Sta. 15+15.02
PC -DET- Sta. 12+83.68
PRC -DET- Sta. 10+81.53
PT -DET- Sta. 11+63.06
BEGIN -DET- STA. 10+61.64
END -DET- STA. 13+37.35
POT -L- Sta. 13+08.56 LB = PC -DET- Sta. 10+00.00 LA
PT -DET- Sta. 14+24.78 LB = POT -L- Sta. 17+37.84 LA
PT -L- Sta. 17+21.51
N 37° 37' 39.3" E
N 1° 48' 30.4" W
TO EVANS KNOB
TO MOFFIT HILL
TEMPORARY GUARDRAIL
TEMPORARY GUARDRAIL (ANCHOR TO CULVERT)
BM #2 -BL- STA 25+56.45 33.07 LT ELEV = 1513.30'
BM #4 -BL- STA 16+73.49 36.05' RT. ELEV = 1527.17'
-BL-3 18+76.52 PINC = -L- STA. 15+50.90 11.46' RT.
-BL-4 26+21.81 PINC = (GPS POINT B4192-1)
-L-
PI Sta 16+22.55
Δ = 39° 26' 09.6" (LT)
D = 19° 05' 54.9"
L = 206.49'
T = 107.52'
R = 300.00'
e = .06 MAX.
-DET-
PI Sta 10+41.31
Δ = 22° 47' 13.1" (LT)
D = 27° 56' 57.0"
L = 81.53'
T = 41.31'
R = 205.00'
e = SEE PLANS
-DET-
PI Sta 11+22.84
Δ = 22° 47' 13.1" (RT)
D = 27° 56' 57.0"
L = 81.53'
T = 41.31'
R = 205.00'
e = SEE PLANS
-DET-
PI Sta 13+57.16
Δ = 39° 26' 09.6" (LT)
D = 27° 56' 57.0"
L = 141.10'
T = 73.47'
R = 205.00'
e = SEE PLANS
FOR -DET- PROFILE SEE SHEET NO.6
SEE SHEETS S-1 THRU S- FOR STRUCTURE PLANS
SUNGATE DESIGN GROUP, P.A.
Ramey Kemp & Associates, Inc.
Transportation Consulting Engineers
4928-A Windy Hill Drive Raleigh, North Carolina 27609
(919) 872-5115 fax (919) 878-5416

PROJECT REFERENCE NO.	SHEET NO.
B-4192	6

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 27771 MATTHEW B. COPPLE

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



1,540
1,530
1,520
1,510
BEGIN GRADE
-DET- STA.10+61.64
ELEV.= 1529.14
PI = 12+25.00
EL = 1,525.30'
VC = 150'
K = 76
END GRADE
-DET- STA.13+37.35
ELEV.= 1524.87
(-12.3481)%
(-10.3792%
-DET-
(FOR PLAN,SEE SHEET NO.5)
B.M.#4 ELEV.= 1527.17
CHISELED SQUARE W/ PUNCH HOLE
IN BROKEN CONCRETE DRIVE
36' RT. OF -BL- STA. 16+73 =
44.76' RT. OF -L- STA 13+48.66
10
11
12
13
14
1,550
BEGIN PROJECT
-L- STA.10+61.00
TIE TO EXIST.
(Begin 39' Feather)
BEGIN GRADE
-L- STA.11+00.00
ELEV.= 1538.53
1532.30
PI = 13+20.00
EL = 1,529.00'
VC = 420'
K = 121
(-14.3318)%
-5.30%
(-10.8726%
BEGIN SPEC. LAT. BASE DITCH
STA.12+00 LT.
ELEV.= 1532.30
P.I. STA.13+00 LT.
ELEV.= 1527.00
-1.40%
-1.00%
-3.50%
END SPEC. LAT. BASE DITCH
BEGIN 2 LAT. BASE DITCH
STA.13+50 LT.
ELEV.= 1526.30
P.I. STA.14+00 LT.
ELEV.= 1522.80
END LAT. 2 BASE DITCH
STA.15+00 LT.
ELEV.= 1519.30
WSE ON 6/23/04
1518.41
3 @ 7' x 7' RCBC
W/SILLS
PI = 16+40.00
EL = 1,526.21'
VC = 170'
K = 120
(-10.8726%
(-12.2885%
-1.80%
END GRADE
-L- STA.17+25.00
ELEV.= 1524.26
END PROJECT
-L- STA.17+50.00
TIE TO EXIST.
(End 25' Feather)
BEGIN SPEC. CUT DITCH
STA.16+75 RT.
ELEV.= 1525.00
END SPEC. CUT DITCH
STA.17+25 RT.
ELEV.= 1524.10
-L-
(FOR PLAN,SEE SHEET NO.4)
DITCH LEGEND
DITCH LT.
DITCH RT.
SEE SHEETS S-1 THRU S-
FOR STRUCTURE PLANS
1,500
15
16
17
18
19
20

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	690 CFS
DESIGN FREQUENCY	=	25 YRS
DESIGN HW ELEVATION	=	1523.3 FT.
BASE DISCHARGE	=	1100 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1525.7 FT
OVERTOPPING DISCHARGE	=	~1,300 CFS
OVERTOPPING FREQUENCY	=	~500 YR.
OVERTOPPING ELEVATION	=	1526.2 FT

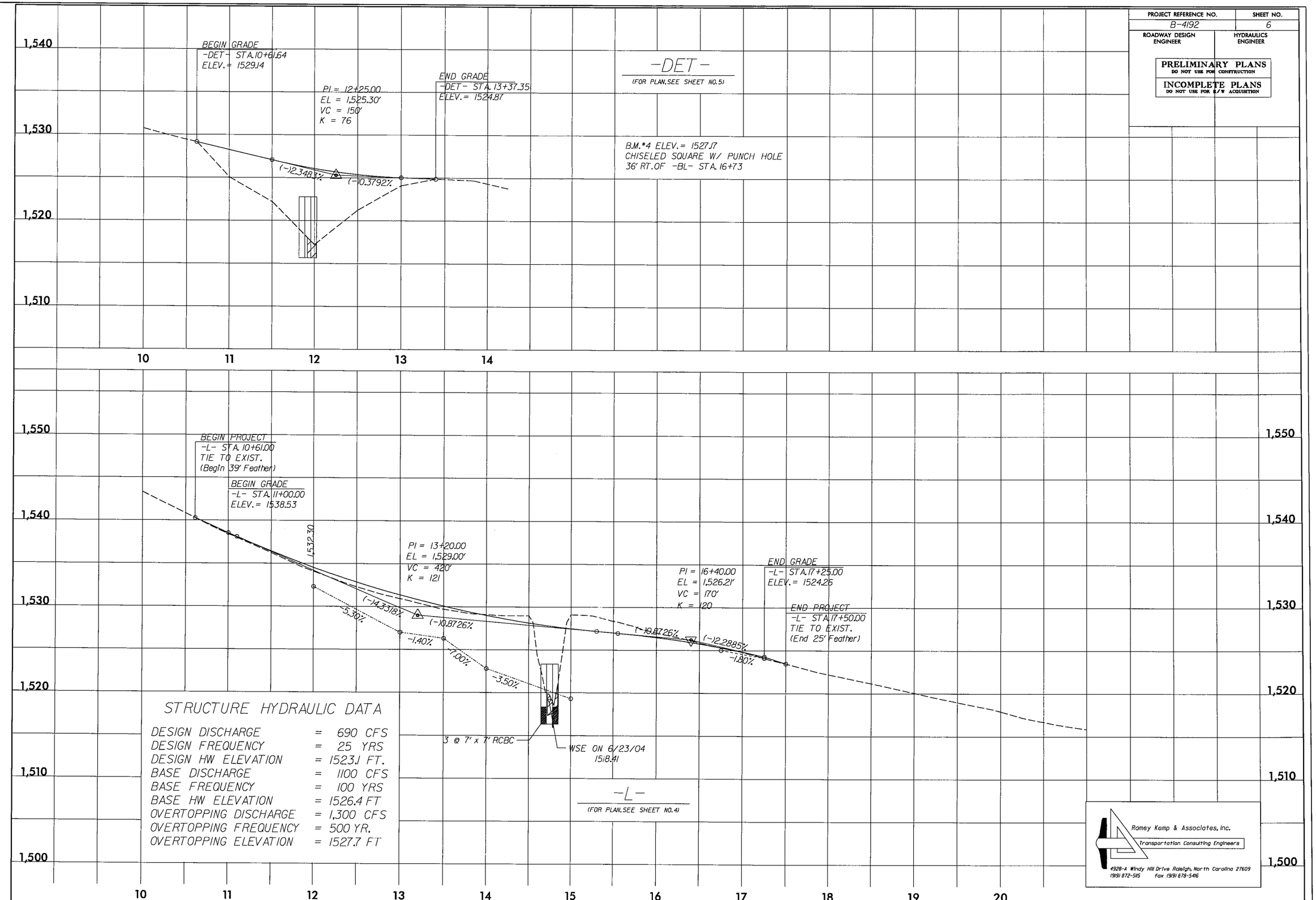
Ramey Kemp & Associates, Inc.
Transportation Consulting Engineers
4928-A Windy Hill Drive Raleigh, North Carolina 27609
(919) 872-5115 Fax (919) 878-5416

$$$$SYSTIME$$$$ $$$$USERNAME$$$$ $$$$DGN$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4192	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	690 CFS
DESIGN FREQUENCY	=	25 YRS
DESIGN HW ELEVATION	=	1523.1 FT.
BASE DISCHARGE	=	1100 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	1526.4 FT
OVERTOPPING DISCHARGE	=	1,300 CFS
OVERTOPPING FREQUENCY	=	500 YR.
OVERTOPPING ELEVATION	=	1527.7 FT

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PROJECT REFERENCE NO.	SHEET NO.
B-4192	X-4

0 5

70 60 50 40 30 20 10 ℄ -L- 10 20 30 40 50 60 70

FILL IN SURFACE WATER

G.P. = 1527.47

℄ DETOUR
11+95.70

1530

0.005 0.005

2:1 2:1 2:1

0.0318 0.0318

2:1

EP EP

1520

STA. 15+00
EL. 1529.08

3 @ 7' x 7' RCBC

℄ DETOUR
11+43.55

G.P. = 1528.13

FILL IN SURFACE WATER

1530

0.018 0.018

2:1 2:1 2:1

0.0200 0.0045

2:1

EP EP

1520

STA. 14+50
EL. 1528.96

3 @ 7' x 7' RCBC

℄ DETOUR
10+90.43

G.P. = 1529.00

1530

.012 .012

2:1 2:1 2:1

0.0200 0.0200

4:1 2:1

EP EP

1520

STA. 14+00
EL. 1529.08

70 60 50 40 30 20 10 ℄ -L- 10 20 30 40 50 60 70

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGNFILE$$$$

MCDOWELL COUNTY
BRIDGE NO. 264 ON SR 1103 (BAT CAVE ROAD)
OVER JACKSON CREEK

FEDERAL-AID PROJECT NO. BRZ-1103(12)
STATE PROJECT NO. 8.2872801
TIP NO. B-4192

CATEGORICAL EXCLUSION

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

APPROVED:

6/23/04
DATE

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

6/25/04
DATE

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

MCDOWELL COUNTY
BRIDGE NO. 264 ON SR 1103 (BAT CAVE ROAD)
OVER JACKSON CREEK

FEDERAL-AID PROJECT NO. BRZ-1103(12)
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CATEGORICAL EXCLUSION

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Ramey Kemp & Associates, Inc.

6-2-4
Date

For the North Carolina Department of Transportation

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

PROJECT COMMITMENTS

MCDOWELL COUNTY
BRIDGE NO. 264 ON SR 1103 (BAT CAVE ROAD)
OVER JACKSON CREEK

FEDERAL-AID PROJECT NO. BRZ-1103(12)
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TIP NO. B-4192

No other commitments have been agreed to by NCDOT except for the standard Nationwide Permit #23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for the Protection of Surface Waters, NCDOT's Guidelines for Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification.

MCDOWELL COUNTY
BRIDGE NO. 264 ON SR 1103 (BAT CAVE ROAD)
OVER JACKSON CREEK

FEDERAL-AID PROJECT NO. BRZ-1103(12)
STATE PROJECT NO. 8.2872801
T.I.P. NO. B-4192

INTRODUCTION

The replacement of Bridge No. 264 located on SR 1103 (Bat Cave Road) over Jackson Creek is included in the North Carolina Department of Transportation (NCDOT) 2002-2008 Transportation Improvement Program (TIP) and in the Federal-Aid Bridge Replacement Program (BRZ-1103(12)). The location is show in Figure 1.

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

I. PURPOSE AND NEED

The NCDOT Bridge Maintenance Unit records indicate Bridge No. 264 has a sufficiency rating of 79.6 out of a possible 100 for a new structure. Prior to May 1999, the bridge had a sufficiency rating of 44.7 and was considered structurally deficient. In May 1999, a timber bent was placed at mid span beneath the bridge. These repairs raised the sufficiency rating to its current rating of 79.6. However, the bridge is still considered functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

Bridge No. 264 is located on SR 1103 (Bat Cave Road) in rural McDowell County. Refer to Figure 1 for the project location and Figure 2 for photos of the existing project study area.

Bridge No. 264 was constructed in 1948. The bridge is not currently posted to restrict weight limits.

The overall length of the two-span structure is 41 ft. It has a clear roadway width of 22.3 ft that includes two travel lanes over the bridge. The superstructure consists of a timber floor on I-beams. The substructure consists of yount masonry abutments and a timber helper bent at mid span. The height from crown to streambed is 12 ft.

SR 1103 is classified as a rural local in the Statewide Functional Classification System. The 2001 average daily traffic volume (ADT) is estimated to be 900 vehicles per day (vpd). The percentages of truck traffic are 1 percent TTST vehicles and 2 percent dual-tired vehicles. The projected 2025 ADT is 1900 vpd.

The two-lane facility measures approximately 18 ft in width and has approximately 3 ft grassed shoulders on each side of the roadway in the vicinity of the bridge. The horizontal alignment of SR 1103 is poor adjacent to the bridge. There is an approximate 45 degree curve just north of the bridge. The vertical alignment is generally

good within the project area. There is no posted speed limit in the immediate vicinity of the bridge. Therefore, the statutory speed limit is 55 miles per hour (mph). Existing right-of-way is approximately 60 ft in width.

There are overhead power lines along the west side of SR 1103. There are underground and overhead GTE telephone lines along the west side of SR 1103 that connect to a substation just to the north of the project.

This section of SR 1103 is not part of a designated bicycle route nor is it listed in the Transportation Improvement Program as needing incidental bicycle accommodations. There is no indication that an unusual number of bicyclists use this roadway.

Land use within the project area is a mixture of rural residential properties, farmland, and livestock land. However, a development located south of the project, Gateway Mountain, has a capacity of approximately 700 home sites with 100 home sites currently proposed.

According to McDowell County school officials, two buses cross this bridge for a total of four trips per day.

Crash records maintained by the NCDOT indicate there have been no crashes reported in the vicinity of Bridge No. 264 during a recent three-year period.

III. ALTERNATIVES

A. Project Description

Based upon the preliminary hydraulic report, the proposed replacement structure for Bridge No. 264 will consist of a triple (3) 7 ft X 7 ft reinforced concrete box culvert (RCBC).

The roadway approaches will provide two 12 ft travel lanes with 6 ft grassed shoulders. The grade will be approximately the same as the existing roadway. The design speed varies for each alternative.

B. Build Alternatives

Two (2) build alternatives for replacing Bridge No. 264 are described below:

Alternative A (Preferred)

Alternative A consists of replacing the bridge in-place with a RCBC. During construction, traffic will be maintained by an on-site one-lane signalized detour west of SR 1103. The total length of roadway approach work for this alternative is approximately 426 ft. Refer to Figure 3 for illustration of this alternative.

The on-site detour will be located approximately 10 ft west of the existing road and will be facilitated by widening the proposed RCBC to accommodate the temporary detour. The detour roadway approaches will provide one 14 ft travel lane and 3 ft wide shoulders on each side. The length of the temporary detour will be approximately 426 ft.

Alternative B

Alternative B consists of replacing the bridge with a RCBC on new alignment west of SR 1103. During construction, the existing bridge will be used to maintain traffic. The total length of roadway approach work for this alternative is approximately 1169 ft. Refer to Figure 4 for illustration of this alternative.

C. Alternatives Eliminated From Further Consideration

The "Do-Nothing" alternative will eventually necessitate closure of the bridge due to its poor condition. This is not desirable due to the traffic service provided by SR 1103.

Investigation of the existing structure by the NCDOT Bridge Maintenance Unit indicates that rehabilitation of the old bridge is not feasible due to its age and deteriorated condition. A timber helper bent has already been added at mid span as a temporary measure until the bridge can be replaced.

D. Preferred Alternative (Alternative A)

Alternative A consists of replacing the bridge in-place with a RCBC. During construction, traffic will be maintained by an on-site detour west of SR 1103. Alternative A was selected as the preferred because it maintains the existing alignment, avoids impacts to the septic system of the residence to the west of the existing bridge, and has the lowest construction costs.

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

E. Anticipated Design Exception(s)

There is no posted speed limit in the immediate vicinity of the bridge. Therefore, the statutory speed limit is 55 miles per hour (mph). Due to the existing road conditions, a design exception will be required for both the horizontal and vertical alignment for both alternatives.

IV. ESTIMATED COSTS

The estimated costs for each alternative, based on current dollars, are shown in Table 1:

Table 1
Estimated Project Costs

	Alternative A (Preferred)	Alternative B
Structure Removal (Existing)	$11,520	$11,520
Structure Proposed	$114,950	$114,950
Detour Structure and Approaches	$89,230	$0
Roadway Approaches	$63,420	$252,310
Miscellaneous and Mobilization	$81,880	$132,220
Engineering and Contingencies	$64,000	$64,000
Right-of-Way/Easement and Utilities	$79,100	$102,500
Total Project Cost	**$504,100**	**$677,500**

The estimated cost of the project, as shown in the 2004-2010 NCDOT Transportation Improvement Program is $465,000 including $0 spent in prior years, $40,000 for right-of-way and $425,000 for construction.

V. NATURAL RESOURCES

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

A. Methodology

Research was conducted prior to the field investigations. Published resource information pertaining to the project area was collected and reviewed. Resources utilized in this preliminary investigation of the project area include:

- U.S. Geological Survey (USGS) Moffitt Hill 7.5–minute topographic quadrangle map (1994).
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map for Moffitt Hill 7.5–minute quadrangle (1995).
- North Carolina Department of Transportation (NCDOT) aerial photographs of the project area (Scale: 1:1200 scale).
- U.S. Department of Agriculture, Natural Resource Conservation Service (formerly the Soil Conservation Service) provisional Soil Survey of McDowell County, North Carolina (unpublished).
- U.S. Environmental Protection Agency Water Discharges and RCRA Map accessed via EPA's EnviroMapper Program (September 2001).

Water research information was obtained from publications of the North Carolina Department of Environment, and Natural Resources (NCDENR, 1998, 2001). Information concerning the occurrence of federal and state protected species in the project area was obtained from the U.S. Fish and Wildlife Service list of protected and candidate species (March 3, 2001) and from the North Carolina Natural Heritage Program (NCNHP) database of rare species and unique habitats (NCNHP, 2001). NCNHP files were reviewed for documented occurrences of

state and federally listed species. USFWS Recovery Plans for federal listed species were reviewed, where applicable.

A field investigation of natural resources within the project area was conducted on July 25, 2001. Water resources were identified and categorized, and their physical characteristics were documented while in the field. Plant communities and their associated wildlife were also identified and documented. The *Classification of Natural Communities of North Carolina, Third Approximation* (Schafale and Weakley, 1990) was used to classify plant communities, where possible. Plant taxonomy was based primarily upon the *Manual of the Vascular Flora of the Carolinas* (Radford, et al., 1968). Animal taxonomy was based primarily upon *Amphibians and Reptiles of the Carolinas and Virginia* (Martof, et al., 1980), *Freshwater Fishes of the Carolinas, Virginia, Maryland, and Delaware* (Rohde, et al., 1994), *Birds of the Carolinas* (Potter, et al., 1980), and *Mammals of the Carolinas, Virginia, and Maryland* (Webster, et al., 1985).

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

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

B. Physiography and Soils

Most of McDowell County lies in the Blue Ridge (Southern Appalachian) Mountains Physiographic Province of western North Carolina, with the exception of the southeastern portion of the county, which lies within the Southern Piedmont Physiographic Province (USDA, 1995). The county encompasses 437 square miles square kilometers) and is primarily rural. The county ranges in elevation from approximately 980 ft mean sea level (msl) along Cane Creek on the Rutherford County line to 5,665 ft msl on Pinnacle Mountain where Buncombe and Yancey Counties abut McDowell County. Elevations within the project area range from approximately 1,500 to 1,520 ft msl, with the stream bed near the bridge lying at approximately 1,500 ft msl.

The portion of McDowell County within the project area (NRCS map panel 8 of 10) has been mapped by NRCS under the most recently published soil survey of McDowell County (USDA, 1995). A brief description of mapped and observed soil units is as follows:

- Fluvaquents-Udifluvents complex along the stream bed (unmapped but observed).
- Elsinboro loam, 1 to 4 percent slopes, rarely flooded phase (EsB). This unit consists mainly of very deep, well-drained, gently sloping Elsinboro and similar soils on low stream terraces along approximately 12

inches thick. Permeability is moderate and surface runoff is medium in bare or unprotected areas. The seasonal high water table is more than 5.0 ft below the surface. In the project area, Elsinboro loam occurs along the low terrace bordering the western side of Jackson Creek. Elsinboro loam is not listed as a hydric soil of McDowell County (USDA, 1996).

- Iotla sandy loam, 0 to 2 percent slopes, occasionally flooded phase (IoA). This unit consists mainly of very deep, somewhat poorly drained, nearly level Iotla and similar soils on floodplains adjacent to streams throughout the country. The surface layer is dark yellowish brown sandy loam approximately 12 inches thick. Permeability is moderately rapid or rapid and surface runoff is slow. The seasonal high water table is 1.5 to 3.5 ft below the surface. In the project area, Iotla sandy loam occurs along the lower banks and bed of the Jackson Creek and along the low terrace bordering the eastern side of Jackson Creek. This soil unit is not listed as a hydric soil of McDowell County; however, it is listed as a soil unit that typically contains inclusions of hydric soils (USDA, 1996).

C. Water Resources

C.1. Waters Impacted

A perennial stream, Jackson Creek, comprises the single water resource with the project area. Jackson Creek is located within the headwaters of the Catawba River drainage basin. The Catawba River watershed is the eighth largest drainage basin in North Carolina, encompassing 3,285 square miles. Jackson Creek is between 7 and 10 ft wide within the project area. The average stream depth observed at the time of field investigation was 7.0 inches. Field investigation occurred the day following a significant rain event and light rain was falling at the time of field investigation. As a result, surface waters were moderately turbid throughout the time of field investigation. Despite the rainfall, water levels appeared at or around the ordinarily high water level and stream velocity was estimated at 1.5 ft per second at the time of field observation.

C.2. Water Resource Characteristics

The substrate of Jackson Creek in the project area is comprised of sediments ranging in size from fine sand to cobbles. The stream within the project area is relatively straight and appears to have been channelized upstream of the bridge and approximately 50 ft downstream of the bridge. The stream exhibits a relatively simple trapezoidal cross-section. No sand bars or channel meanders were observed.

The stream banks are somewhat low and moderately sloping within the project area. The stream banks are comprised of unconsolidated poorly sorted sediments of alluvial and colluvial origin. The banks upstream and downstream of the bridge are vegetated primarily with grasses, shrubs, and a few trees. Although not eroded at the time of field investigation, the banks upstream of the bridge exhibit high erosion and potential to fail at high flow. The riparian vegetation zone is not present upstream of the bridge and is less than 20 ft wide downstream of the bridge. Small breaks are present downstream of the bridge where the stream flows through the right-of-way. Vertical bridge abutments laterally confine the stream below the existing bridge. Little evidence of erosion was observed near the bridge at the time of investigation.

Under the federal system for cataloging drainage basins, the drainage basin containing the project area is designated as USGS Hydrologic Unit 03050101 (the Upper Catawba River drainage basin). Under the North Carolina DWQ system for cataloging drainage basins, the drainage basin containing the project area is

designated as Subbasin 03-08-30, Catawba River Headwaters. Jackson Creek has been assigned Stream Index Number (SIN) 11-12-4-1.

Jackson Creek has been assigned a best usage classification of **C**. The **C** designation indicates waters that are protected for secondary recreation, fishing, wildlife, fish, and aquatic life propagation and survival, agriculture, and other uses found suitable for Class **C** waters. Secondary recreation includes wading, boating and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. There are no restrictions on watershed development or types of discharges in Class **C** waters.

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

Jackson Creek does not appear on the Department of Environment and Natural Resources 303d list of waters not meeting water quality standards or which have impaired uses.

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

Discharges that enter surface waters through a pipe, ditch or other well-defined point of discharge are broadly referred to as "point sources". No registered point source discharges are located within 1.0 mile of the project area.

C.2. Anticipated Impacts to Water Resources

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

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

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

C.3. Impacts Related to Bridge Demolition and Removal

In order to protect the water quality and aquatic life in the area affected by this project, the NCDOT and all contractors will follow appropriate guidelines for bridge demolition and removal. These guidelines are presented in three NCDOT documents entitled: *Pre-Construction Guidelines for Bridge Demolition and Removal*, *Policy: Bridge Demolition and Removal in Water of the United States*, and *Best Management Practices for Bridge Demolition and Removal.*

The superstructure for Bridge No. 264 is composed of a timber floor on steel I-beams. The substructure is composed of yount masonry abutments and a timber helper bent at mid span. Neither the superstructure nor the substructure will create any temporary fill in the creek. However, the removal of the substructure may create some disturbance of the streambed. If removal of the substructure will create disturbance in the streambed, a turbidity curtain should be used due to sediment concerns.

Because no moratoriums apply and Jackson Creek is a Class **C** water, this project fall under Case 3 (no special restrictions) of the *Best Management Practices for Bridge Demolitions and Removal.*

D. Biotic Resources

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

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

D.1. Plant Communities

Boundaries between contiguous biotic communities are gradational in certain portions of the project area, making boundaries sometimes difficult to delineate. Four discernable terrestrial communities are located within the project area. These communities have been altered to the extent that they cannot be classified as a natural vegetation community under the *Classification of Natural Communities of North Carolina.* These altered communities consist of: (1) altered right-of-way communities, (2) landscaped and/or developed areas, (3) fallow pastureland, and (4) successional sapling and scrub/shrub communities. In addition to the aforementioned terrestrial components, the aquatic community associated with Jackson Creek was assessed within the project area.

Altered Right-of-Way Communities -- These communities are located along the right-of-way bordering on SR 1103. Vegetation within these areas has been maintained in an early succession through mechanical and possibly chemical vegetation management practices. Well-drained Elsinboro loams and somewhat poorly drained Iotla sandy loams underlie these communities.

No mature woody plant species were observed within the altered rights-of-way communities. Black Walnut (Juglans nigra) and tulip tree (Liriodendron tulipifera) seedlings, however, were observed. Dominant herbaceous species observed at the time of site investigation include red clover (Trifolium pratense), Curtis' goldenrod (Solidago curtisii), sensitive brier (Schrankia microphylla), common plantain (Plantago major), common ragweed (Ambrosia artemisiifolia), and unidentified grasses (Poaceae). Dominant vine species observed at the time of site investigation include Japanese honeysuckle (Lonicera japonica) and poison ivy (Toxicodendron radicans).

Landscaped and/or Developed Areas -- These areas occur around residential properties located in the northeast, southwest, and southeast quadrants of the project area. The areas appear regularly mowed and contain a large percentage of cultivars and opportunistic plant species. Well-drained Elsinboro loams and somewhat poorly drained Iotla sandy loams underlie these communities.
Dominant tree species observed within the landscaped and/or developed areas at the time of field investigation include: oaks (*Quercus* sp.), black walnut (*Juglans nigra*), and fire cherry (*Prunus pensylvanica*). Other plant species observed at the time of site investigation include Chinese privet (*Ligustrum sinense*), black locust saplings (*Robinia pseudo-acacia*), assorted cultivars, Curtis' goldenrod (*Solidago curtisii*), crab grass (*Digitaria sanguinalis*), unidentified grasses (Poaceae), common chickweed (*Stellaria media*), dandelion (*Taraxacum officinale*), common plantain (*Plantago major*), common ragweed (*Ambrosia artemisiifolia*), and Japanese honeysuckle (*Lonicera japonica*).

Fallow Pastureland -- This community consists of a fallow pasture located in the northwest quadrant of the project area. The successional nature of the vegetation and conversations with the landowner confirm that the pasture has lain fallow for several growing seasons. Well-drained Elsinboro loams underlie this community.

Species observed in the fallow pasture at the time of field investigation include blackberry (*Rubus* sp.) seedlings, red clover (*Trifolium pratense*), common plantain (*Plantago major*), Queen Anne's lace (*Daucus carota*), tall fescue (*Festuca* sp.), bitter nightshade (*Solanum dulcamara*), common ragweed (*Ambrosia artemisiifolia*), and unidentified grasses (Poaceae).

Successional Sapling and Scrub/Shrub Communities -- These communities occur between the fallow pasture and Jackson Creek in the northwest quadrant of the project area and between the residential property and Jackson Creek in the southwest quadrant. Somewhat poorly drained Iotla sandy loams underlie these communities.

The successional sapling and scrub/shrub communities, as mapped, support few mature trees. Dominant sapling species observed at the time of site investigation include sycamore (Platanus occidentalis), black walnut (Juglans nigra), tulip tree (Liriodendron tulipifera), black willow (Salix nigra), and fire cherry (Prunus pensylvanica). Dominant shrub species observed at the time of site investigation consists of blackberry (Rubus allegheniensis), multiflora rose (Rosa multiflora), and privet (Ligustrum sp.). Tag alder (Alnus serrulata) occurs within a roadside ditch in the northwest quadrant of the project area. Dominant herbaceous species observed at the time of site investigation include Queen Anne's lace (Daucus carota), Curtis' goldenrod (Solidago curtisii), goldenrod

(Solidago sp.), Joe-pye weed (Eupatorium fistulosum), and thistle (Carduus altissimus). Dominant vine species observed at the time of site investigation include Japanese honeysuckle (Lonicera japonica), common greenbrier (Smilax rotundifolia), and poison ivy (Toxicodendron radicans).

D.2. Wildlife

All of the communities within the project vicinity have been altered or affected by man's activities to varying degrees. Due to forest tract fragmentation common to the project region, species that require large contiguous tracts of forests are not likely to utilize the site on a normal basis. Certain opportunistic wildlife species, such as woodchuck (Marmota monax) and eastern cottontail rabbit (Sylvilagus floridanus), can be expected to utilize edge habitat present within the project 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 any one terrestrial plant community within the project area.

The only mammal observed in the project vicinity at the time of field investigation was white-tailed deer (*Odocoileus virginianus*). Tracks and scat of raccoon (*Procyon lotor*) were observed along the stream terraces downstream of the bridge. Other mammals common to the project region which can be expected to periodically utilize habitat of the project area include: Virginia opossum (*Didelphis virginiana*), shrews and moles (Insectivora), gray squirrel (*Sciurus carolinensis*), beaver (*Castor canadensis*), eastern harvest mouse (*Reithrodontomys humulis*), white-footed mouse (*Peromyscus leucopus*), golden mouse (*Ochrotomys nuttalli*), hispid cotton rat (*Sigmodon hispidus*), eastern woodrat (*Neotoma floridana*), meadow vole (*Microtus pennsylvanicus*), woodland vole (*Microtus pinetorum*), muskrat (*Ondatra zibethicus*), black rat (*Rattus rattus*), Norway rat (*Rattus norvegicus*), house mouse (*Mus musculus*), meadow jumping mouse (*Zapus hudsonius*), woodland jumping mouse (*Napaeozapus insignis*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), eastern spotted skunk (*Spilogale putorius*), striped skunk (*Mephitis mephitis*), and black bear (*Ursus americanus*).
The communities on the project area provide limited but suitable habitat and forage areas for a variety of birds. Birds observed at the time of field investigation include brown thrasher (*Toxostoma rufum*) and cardinal (*Cardinalis cardinalis*). Songs and/or calls of the following birds were also noted within the project vicinity at the time of field investigation: common crow (*Corvus brachyrhynchos*) and American robin (*Turdus migratorius*). A wide variety of resident and migratory songbirds can be expected to periodically utilize forested tracts immediately to the south of the project area. The open landscaped areas within the project vicinity provide probable hunting grounds for birds of prey, such as hawks and owls.

No reptiles or amphibians were observed in the project area at the time of field investigation. A variety of reptile and amphibian species may, however, use the communities located in the project area. These animals include the rat snake (*Elaphe obsoleta*), eastern box turtle (*Terrapene carolina*), five-lined skink (*Eumeces fasciatus*), two-lined salamander (*Eurycea bislineata*), pickerel frog (*Rana palustris*), and American toad (*Bufo americanus*). Fish species are discussed in following sections.

D.3. Aquatic Communities

The aquatic community consists of Jackson Creek below the ordinary high water line. The dominant aquatic habitats within this section of Jackson Creek consist of cobble/boulder substrate and undercut banks. The stream within the project area is characterized by a poorly defined riffle and run sequence. The several riffles present are not as wide as the stream and do not extend at least twice the width of the stream. Gravel and cobble substrate was 20 to 40 percent embedded on the day of investigation. Pools are absent. The riparian vegetation zone is not present upstream of the bridge and is less than 20 ft wide downstream of the bridge.

Breaks are present where the stream flows through the right-of-way. The stream is poorly shaded downstream of the bridge and is not shaded upstream of the bridge.

No aquatic vegetation was observed below the ordinary high water line of Jackson Creek at the time of field investigation. Hydrophytic vegetation occurs as very thin bands (less than 3.0 ft wide) along portions of the stream bank.

No aquatic vertebrates were observed within the project area at the time of field investigation. Aquatic invertebrates observed within the project area at the time of field investigation include the following: crayfish (Cambaridae), snail (Pleuroceridae), mayfly larvae (Heptageniidae), caddisfly larvae (Trichoptera sp.), beetle larvae (Psephenidae), riffle beetle (Elmidae), and damselfly (Agria sp.). Pleuroceridae and Heptageniidae were abundant throughout the project area at the time of investigation.

D.4. Anticipated Impacts to Biotic Communities

D.4.a. Terrestrial Communities Impacts

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

Table 2
Potential Impacts to Plant Communities

PLANT COMMUNITY	POTENTIAL IMPACTS acres		
	ALT A (Preferred)		ALT B
	Impacts	Temp. Impacts*	Impacts
Altered Right-of-Way Communities	0.00	0.00	0.00
Landscaped and/or Developed Areas	0.03	0.06	0.29
Fallow Pastureland	0.00	0.00	0.00
Successional Sapling and Scrub/Shrub Communities	<0.01	0.05	0.15
Total (acre)	0.03	0.11	0.44
TOTAL FOR ALT (acre)	**0.14**		**0.44**

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

Permanent community impacts for Alternative A represent the least amount of the two alternatives. The plant community with the largest amount of potential permanent and temporary impacts for both alternatives is the Landscaped and/or Developed Areas.

D.4.b. Aquatic Communities Impacts

The replacement of Bridge No. 264 over Jackson Creek will result in certain unavoidable impacts to the aquatic community. Probable impacts will be associated with the physical disturbance of the benthic habitat and water column disturbances resulting from changes in water quantity and quality. Significant disturbance of stream segments can have an adverse effect on aquatic community composition by reducing species diversity and the overall quality of aquatic habitats. Physical alterations to aquatic habitats can result in the following impacts to aquatic communities:

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

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

E. Special Topics

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

Surface waters within the embankments of the Jackson Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "Waters of the United States" (33 CFR 328.3). Wetlands subject to review under Section 404 of the Clean Water Act (33 U.S.C. 1344) are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology within 12 inches of the soil surface for a portion (12.5 percent) of the growing season (DOA 1987). No wetlands have been mapped within the project study area under the National Wetlands Inventory (NWI) program.

The surface waters within Jackson Creek exhibit characteristics of a permanently flooded, upper perennial riverine habitat with an unconsolidated bottom (R3UBH). Jackson Creek is a jurisdictional surface water.

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

Temporary and permanent impacts to surface waters and wetlands are estimated based on the amount of each jurisdictional area within the project limits. Temporary impacts include those impacts that will result from temporary construction activities outside of permanent right-of-way and/or those associated with temporary on-site detours. Temporary impact areas will be restored to their original condition after the project has been completed. Permanent impacts are those areas that will be in the construction limits and/or the right-of-way of

the new structure and approaches. Portions of those areas that are considered temporary impact areas often end up being within the final right-of-way. Potential wetland and surface water impacts are included in Table 3.

Table 3
Anticipated Impacts to Surface Waters

JURISDICTIONAL AREAS	ALT A (Preferred)		ALT B
	Impacts	Temp. Impacts*	Impacts
Perennial Stream Channel Impacts ft	110	0	70
TOTAL FOR ALT ft	**110**		**70**

*Note: Temporary construction impacts are based on the portion of the impacts not included in the construction limits for the permanent structure.
No jurisdictional wetlands were found within the project study area. Alternative B may impact 70 ft of perennial stream channel. The preferred alternative, Alternative A, incurs the highest amount of jurisdictional impacts. Alternative A may impact 110 ft of perennial stream channel.

E.2. Permits

Section 404 of the Clean Water Act - In accordance with Section 404 of the Clean Water Act (33 U.S.C. 1344), a permit is required from the USACE for projects of this type for the discharge of dredge or fill material in "Waters of the United States". The USACE issues two types of permits for these activities. A general permit may be issued on a nationwide or regional basis for a category, or categories, of activities when: those activities are substantially similar in nature and cause only minimal individual or cumulative environmental impacts, or when the general permit would result in avoiding unnecessary duplication of regulatory control exercised by another Federal, state, or local agency provided that the environmental consequences of the action are individually and cumulatively minimal. If a general permit is not appropriate for a particular activity, then an individual permit must be utilized. Individual permits are authorized on a case-by-case evaluation of a specific project involving the proposed discharges.

It is anticipated that this project will fall under Nationwide Permit 23, which is a type of general permit. Nationwide Permit 23 is relevant to approved Categorical Exclusions. This permit authorizes any activities, work, and discharges undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another federal agency and that the activity is "categorically excluded" from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the environment. Activities authorized under nationwide permits must satisfy all terms and conditions of the particular permit. However, final permit decisions are left to the discretionary authority of the USACE. Since the proposed project is located in a designated "Trout" county, the authorization of a nationwide permit by the USACE is conditioned upon the concurrence of the NCWRC.

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

E.3. Mitigation

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

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

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

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

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

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

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

F. Protected Species

F.1. Federally Protected Species

Species with the federal classification of Endangered (E) or Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Table 4 lists the federal protected species for McDowell County (USFWS list dated February 24, 2003):

Table 4
Federally Protected Species Listed for McDowell County

Common Name	Scientific Name	Status	Biological Conclusion
Bald Eagle	*Haliaeetus leucocephalus*	T	No Effect
Bog Turtle	*Clemmys muhlenbergii*	T(S/A)	N/A
Small-Whorled Pogonia	*Isotria medeoloides*	T	No Effect
Mountain Golden Heather	*Hudsonia Montana*	T	No Effect

Threatened - any native or once-native species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
Threatened (S/A) – a species carrying the threatened status due to having a similar appearance to another listed species.

Bald Eagle - The bald eagle is a large raptor. The characteristic adult plumage consists of a white head and tail with a dark brown body. Juvenile eagles are completely dark brown and do not fully develop the white head and tail until the fifth or sixth year. Fish are the primary food source, but bald eagles will also take a variety of birds, mammals, and turtles (both live and as carrion) when fish are not readily available. Adults average about 3.0 ft from head to tail, weigh approximately 10 to 12 pounds and have a wingspan that can reach 7.0 ft. Generally, female bald eagles are somewhat larger than the males.
Habitat includes quiet coastal areas, rivers or lakeshores with large, tall trees. Man-made reservoirs have also provided habitat.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was reviewed in September of 2001. No populations of the species have been recorded in the project vicinity. The project area was investigated on 25 July 2001. No individual organisms, populations, or suitable habitat were observed within the project area.

BIOLOGICAL CONCLUSION: NO EFFECT

Bog Turtle - The bog turtle (*Clemmys muhlenbergii*) is a small freshwater turtle that has a carapace length of 4.5 inches or less. The surface of the carapace is rough with growth annuli, (worn smooth on adults) and a dark brown, black or mahogany color. The plastron is hingeless and black with irregular shaped yellow to cream blotches along the midline. Fleshy parts are brown to pink-brown and may have some red mottles on limbs. A large conspicuous orange, yellow or reddish blotch lies behind both eyes, but is degenerated in old adults. A low medial keel is present in juveniles. They are found in freshwater wetlands characterized by open fields, meadows, marshes, slow moving streams, ditches, or boggy areas. In July and August they aestivate in the soft mud.

It is found in freshwater wetlands characterized by open fields, meadows, marshes with slow moving streams, ditches, and boggy areas. In July and August, the turtle aestivates in soft mud. During winter they hibernate below the frost zone in holes, muskrat borrows, clumps of sedges, or the mud of waterways.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was reviewed in September of 2001. No populations of the species have been recorded in the project vicinity. The project area was investigated on July 25, 2001. No individual organisms, populations, or suitable habitat were observed within the project area.

BIOLOGICAL CONCLUSION: NO SURVEY REQUIRED

Mountain Golden Heather - Mountain golden heather is a low, needle-leaved shrub with yellow flowers and long-stalked fruit capsules. It usually grows in clumps of 4 to 8 inches across and about 6 inches high, and sometimes is seen in larger patches of 1.0 to 2.0 ft across. The plants have the general aspect of a big moss or a low juniper, but their branching is more open; their leaves are about 0.25 inch long; and the plant is often somewhat yellow-green in color, especially in shade. The leaves from previous years appear scale-like and persist on the older branches. The flowers appear in early or mid-June, and are yellow, nearly 1.0 inch across, with five blunt-tipped petals and 20 to 30 stamens. The fruit capsules are on 0.5 inch stalks, and are roundish with three projecting points at the tips. These fruits often persist after opening, and may be seen at any time of the year.

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

The North Carolina Natural Heritage Program's database of rare species and unique habitats was reviewed in September of 2001. No populations of the species have been recorded in the project vicinity. The project area was investigated on 25 July 2001. Mountain Golden Heather is reported to occur at elevations ranging from 2,800 to 4,000 ft (msl). The maximum elevation of 1,520 ft (msl) within the project area is considered too low to serve as suitable habitat. No individual organisms, populations, or suitable habitat were observed within the project area.

BIOLOGICAL CONCLUSION: NO EFFECT

Small-Whorled Pogonia – The small-whorled pogonia is a terrestrial orchid growing to about 10.0 inches high. Five or six drooping, pale, dusty green, widely rounded leaves with pointed tips are arranged in a whorl at the apex of the green or purple, hollow stem. Typically a single, yellowish-green, nearly stalkless flower is produced just above the leaves; a second flower rarely may be present. Flowers consist of three petals, which may reach lengths of 0.7 inch, surrounded by three narrow sepals up to 1.0 inch in length. Flower production, which occurs from May to July, is followed by the formulation of an erect ellipsoidal capsule 0.7 to 1.2 inches in length (Massey *et al.* 1983). This species may remain dormant for periods up to 10 years between blooming periods (Newcomb 1977).

The small-whorled pogonia is widespread, occurring from southern Maine to northern Georgia, but is very local in distribution. In North Carolina, this species is found scattered locations in the Mountains, Piedmont and Sandhills (Amoroso 2002). Small-whorled pogonia is found in open, dry deciduous or mixed pine-deciduous forest, or

along stream banks. Examples of areas providing suitable conditions (open canopy and shrub layer with a sparse herb layer) where small-whorled pogonia has been found include oldfields, pastures, windthrow areas, cutover forests, old orchards, and semi-permanent canopy breaks along roads, streams, lakes, and cliffs (Massey et al. 1983). In the Mountains and Piedmont of North Carolina, this species is usually found in association with white pine (Pinus strobus) (Weakley 1993).

There is no suitable habitat for small-whorled pogonia within the project study corridor. The entire corridor is residential and maintained regularly, and there are no forests present. A sparse riparian fringe occurs along part of the Jackson Creek banks. NHP records document no occurrences of small-whorled pogonia within 2.0 miles of the study corridor.

BIOLOGICAL CONCLUSION: NO EFFECT

F.2. Federal Species of Concern

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

Table 5
Federal Species of Concern (FSC) for McDowell County

Common Name	Scientific Name	Potential Habitat	State Status
Southern Appalachian Woodrat	*Neotoma floridana haematoreia*	No	SC
Allegheny Woodrat	*Neotoma magister*	No	SC
Olive-sided Flycatcher	*Contopus borealis*	No	SC
Cerulean Warbler	*Dendroica cerulea*	Yes	SR
Bennett's Mill Cave Water Slater	*Caecidotea carolinensis*	No	SR
Diana Fritillary Butterfly	*Speyeria Diana*	Yes	SR
Roan Sedge	*Carex roanenis*	Yes	C

Table 5 (continued)

Common Name	*Scientific Name*	Potential Habitat	State Status
Tall Larkspur	*Delphinium exaltatum*	No	E
Rocky Shoal Spider Lily	*Hymenocallis coronaria*	Yes	---
Butternut	*Juglans cinerea*	No	---
Cuthbert's turtlehead	*Chelone cuthbertii*	No	SR
Gray's Lily	*Lilium grayi*	No	T
Sweet Pinesap	*Monotropsis odorata*	No	C
Northern Oconee-bells	*Shortia galacifolia var. brevistyla*	No	E

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

F.3. Summary of Anticipated Impacts

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

VI. CULTURAL RESOURCES

A. Compliance Guidelines

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

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) for Bridge No. 264 was conducted on November 13, 2002. All structures within the APE were photographed, and later reviewed by the State Historic Preservation Office (HPO). In a concurrence form dated June 20, 2003 the State Historic Preservation Officer (SHPO) concurred that there are no historic architectural resources either listed or eligible for listing in the National Register of Historic Places within the APE. A copy of the concurrence form is included in the Appendix.

C. Archaeology

An archaeological survey was completed in the project's APE. No archaeological remains were identified during the survey, and no previously identified archaeological sites were located within the APE. Therefore, this undertaking will not affect any archaeological sites on or eligible for the National Register of Historic Places and no additional archaeological research was recommended. In a memorandum dated October 29, 2003 the SHPO concurred with this recommendation since the project will not involve significant archaeological resources.

VIII. ENVIRONMENTAL EFFECTS

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

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

Replacement of Bridge No. 264 will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

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

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

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

In compliance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) the project would not disproportionately impact any minority or low-income populations.

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

This project has been coordinated with the United States Department of Agriculture, Natural Resources Conservation Service. The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland for all land acquisition and construction projects. The proposed project involves replacing the bridge in its existing location; therefore, no impacts to prime or locally important farmland are anticipated.

No publicly owned parks or recreational facilities, wildlife and waterfowl refuges, or historic sites of national, state or local significance in the immediate vicinity of the project will be impacted.

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

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

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

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

McDowell County is a participant in the Federal Flood Insurance Program. The project is located in an Approximate Study Area. The replacement structure is proposed as an in-kind replacement and in the absence of historical problems, increased flood impacts associated with this bridge replacement are not anticipated. The approximate 100-year floodplain in the project study area is shown in Figure 5.

Geotechnical borings for the bridge foundation will be necessary.

Based on the above discussion, it is concluded that no substantial adverse environmental impacts will result from the replacement of Bridge No. 264.

IX. PUBLIC INVOLVEMENT

Due to the isolated nature of this bridge replacement project, no formal public involvement program was initiated. Efforts were undertaken early in the planning process to contact local officials to involve them in the project development with a scooping letter.

XI. AGENCY COMMENTS

Agencies have commented on the proposed bridge replacement (see letters in the Appendix). These comments were noted and considered during the environmental and design processes.

X. REFERENCES

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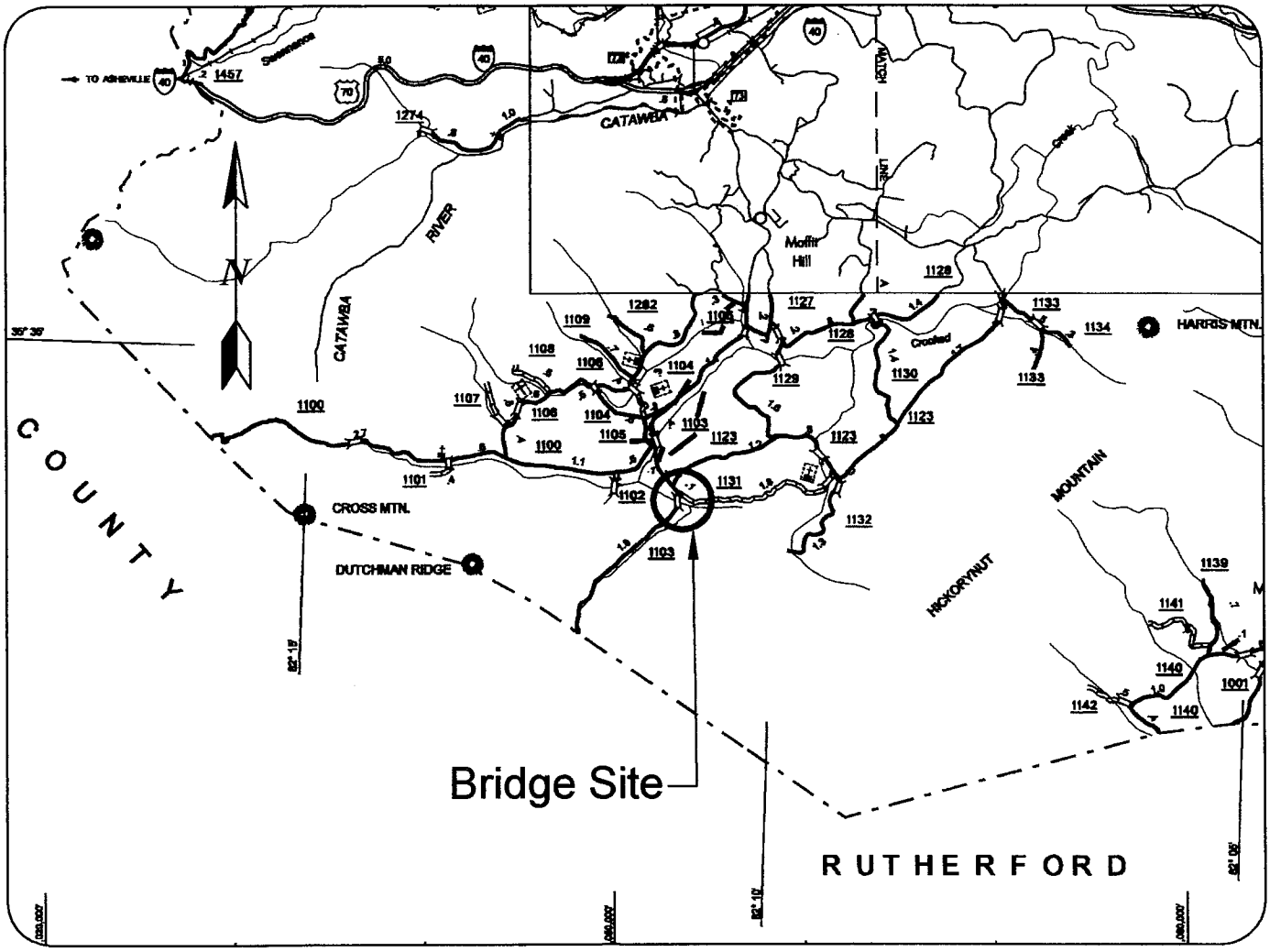
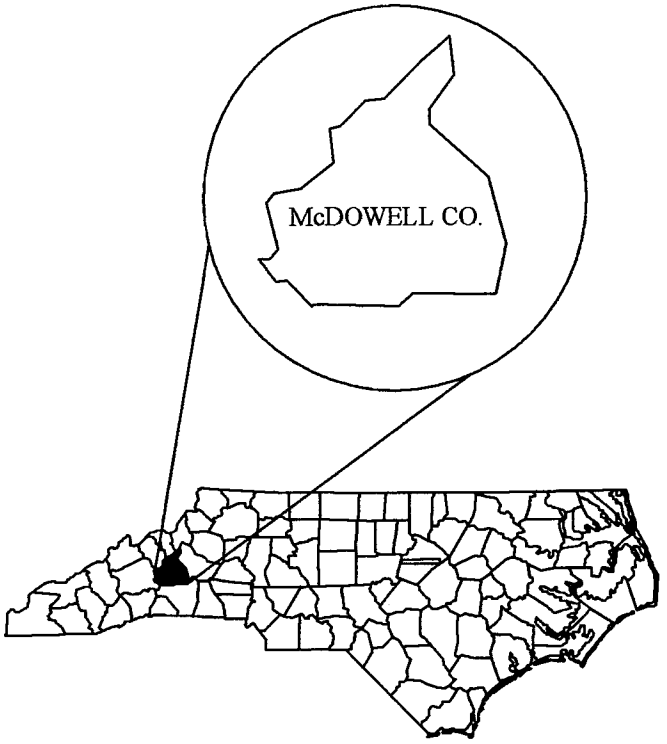
FIGURES





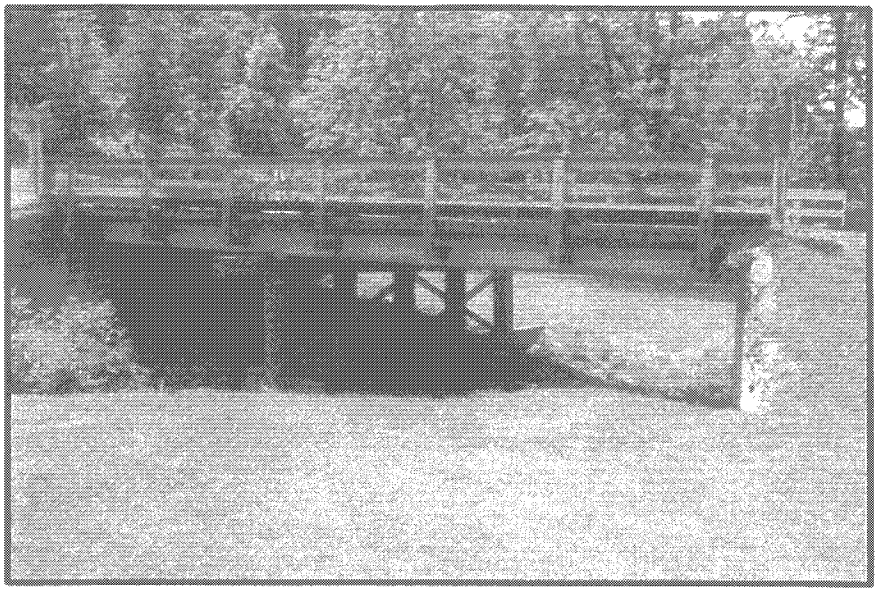
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SR 1103
Replace Bridge No. 264 over
Jackson Creek
McDowell County, North Carolina

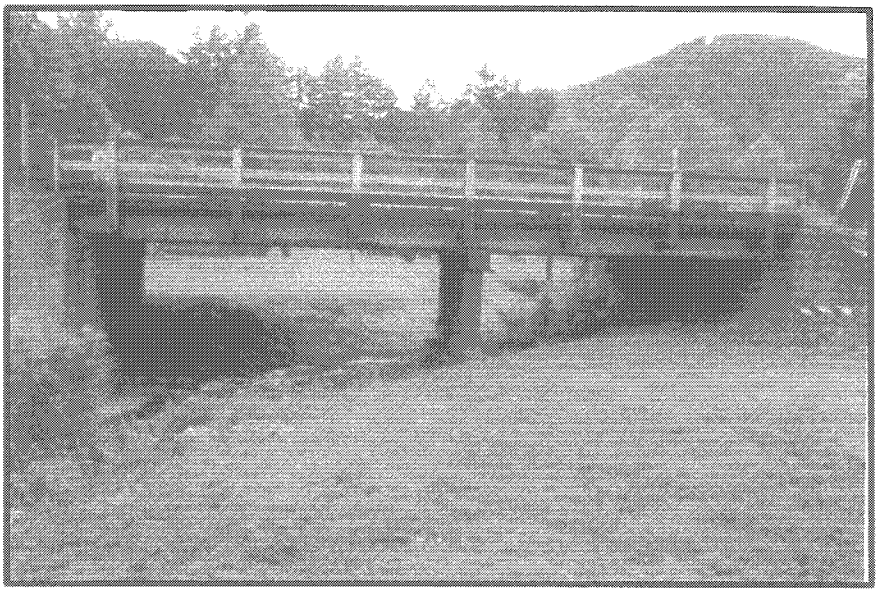
TIP NO. B-4192
PROJECT VICINITY MAP

Not to Scale

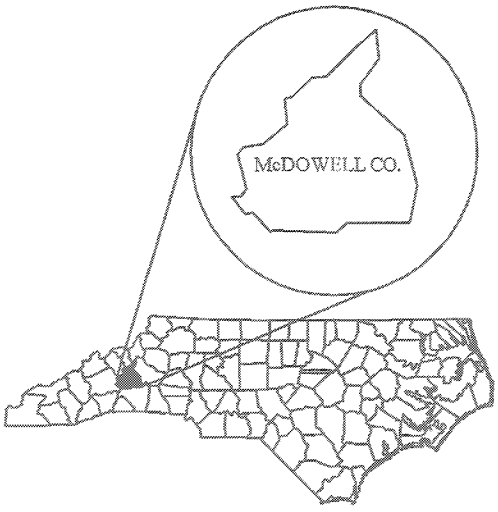
FIGURE 1



Looking West at Bridge No. 264



Looking East at Bridge No. 264



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SR 1103
Replace Bridge No. 264 over
Jackson Creek
McDowell County, North Carolina

TIP NO. B-4192

Not to Scale

FIGURE 2

ALTERNATIVE A
(REPLACE IN-PLACE WITH ON-SITE DETOUR WEST SIDE)

PROJECT REFERENCE NO.	SHEET NO.
B-4192	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DESIGN DATA

DESIGN SPEED	60 mph *
POSTED SPEED	55 mph
CURRENT YEAR ADT (2001)	900 vpd
DESIGN YEAR ADT (2025)	1300 vpd
% TTST ,% DUALS	1% ,2%
FUNCTIONAL CLASSIFICATION	Rural Local
TERRAIN	Mountainous
MAX. RADIUS	1205 ft
MAXIMUM GRADE	10%
SUPERELEVATION RATE	Se = 0.08

* DESIGN EXCEPTION REQUIRED

SCALE
50 0 50 100

POT -L- Sta.10+00.00

BEGIN PROJECT
-L- STA.12+70.00
B-4192

N 37° 37' 39.3" E

3 @ 7' x 7' RCBC

POT -L- Sta.15+15.02

PT -L- Sta.17+21.51

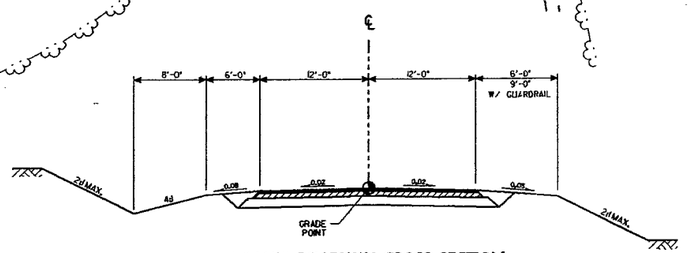
N 7° 48' 30.4" W

POT -L- Sta.20+99.98

END PROJECT
-L- STA.16+60.00
B-4192

-L-
PI Sta 16+22.55
Δ = 39° 26' 09.6" (LT)
D = 19° 05' 54.9"
L = 206.49'
T = 107.52'
R = 300.00'
DS = 30 mph

PREFERRED ALTERNATIVE



TYPICAL ROADWAY CROSS SECTION

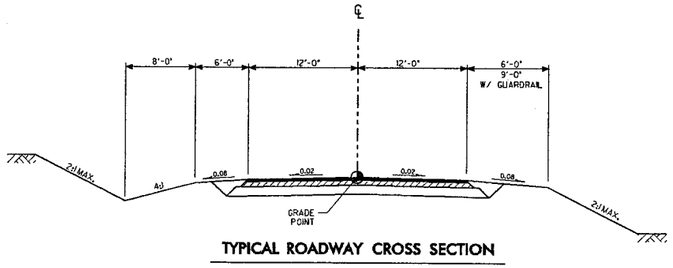
FIGURE 3

ALTERNATIVE B
(NEW LOCATION – WEST SIDE)

PROJECT REFERENCE NO.	SHEET NO.
B-4192	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



TYPICAL ROADWAY CROSS SECTION

-ALTB-
PI Sta 11+97.24
Δ = 12° 22' 26.3" (LT)
D = 5° 56' 14.6"
L = 208.41'
T = 104.61'
R = 965.00'
DS = 55 mph

POT -ALTB- Sta.10+00.00

PC -ALTB- Sta.10+92.62

PT -ALTB- Sta.13+01.03

PC -ALTB- Sta.16+25.09

-ALTB-
PI Sta 18+57.32
Δ = 27° 03' 43.3" (LT)
D = 5° 56' 14.6"
L = 455.79'
T = 232.23'
R = 965.00'
DS = 55 mph

PT -ALTB- Sta.20+90.86

POT -ALTB- Sta.21+68.76

N 48° 30' 4" W

3 @ 7' x 7' RCBC

N 25° 15' 13.0" E

N 37° 37' 39.3" E

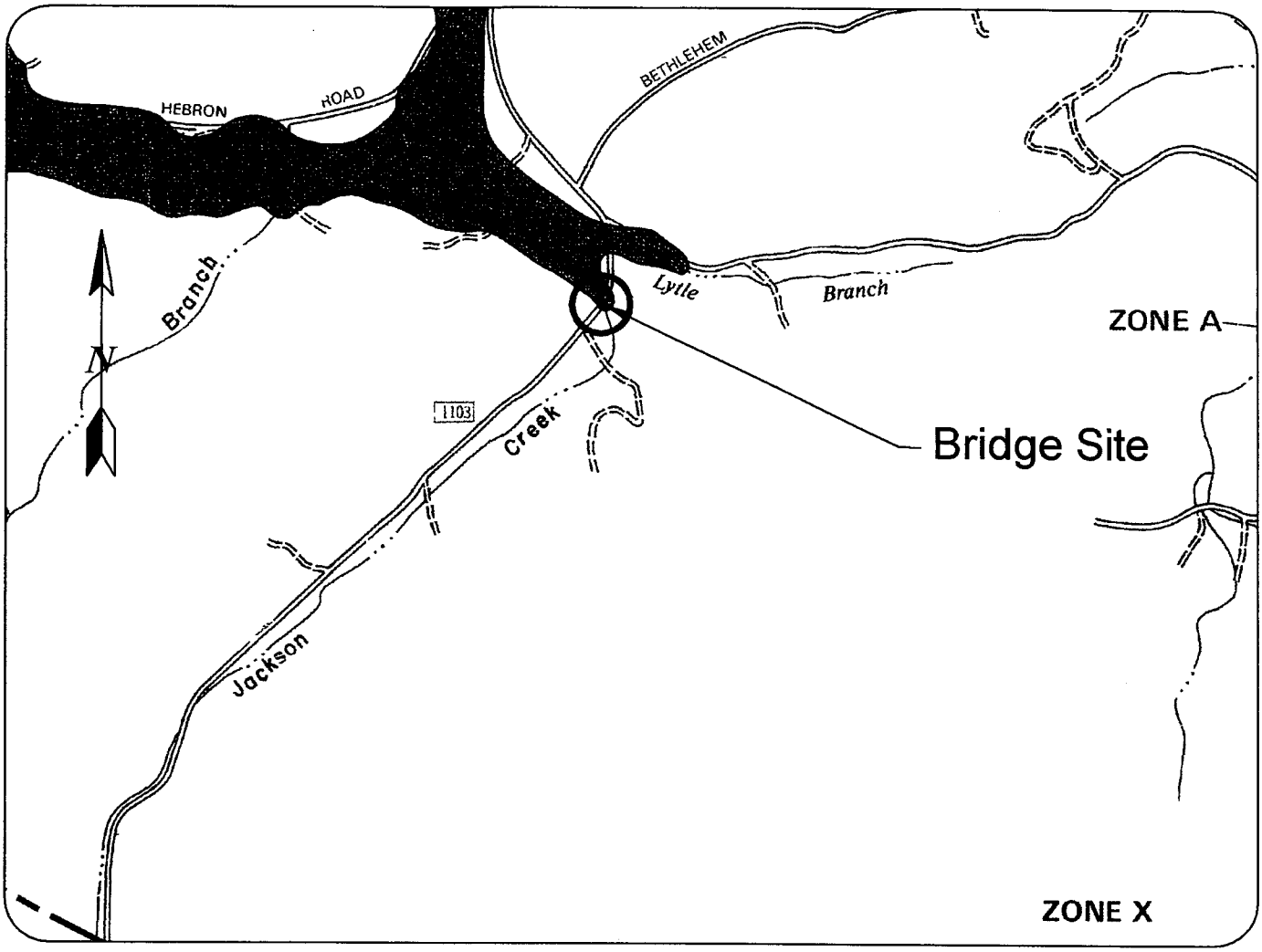
DESIGN DATA

DESIGN SPEED	60 mph *
POSTED SPEED	55 mph
CURRENT YEAR ADT (2001)	900 vpd
DESIGN YEAR ADT (2025)	1,900 vpd
% TTST ,% DUALS	1% , 2%
FUNCTIONAL CLASSIFICATION	Rural Local
TERRAIN	Mountainous
MAX RADIUS	1205 ft
MAXIMUM GRADE	10%
SUPERELEVATION RATE	Se = 0.08

* DESIGN EXCEPTION REQUIRED

FIGURE 4

SCALE
50 0 50 100



MCDOWELL COUNTY,
NORTH CAROLINA AND
INCORPORATED AREAS

PANEL 150 OF 200

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
UNINCORPORATED AREAS	370148	0150	C

Notice To User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

MAP NUMBER
37111C0150 C

MAP REVISED:
FEBRUARY 5, 1997

Federal Emergency Management Agency

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SR 1103
Replace Bridge No. 264 over
Jackson Creek
McDowell County, North Carolina

TIP NO. B-4192
FEMA 100-YEAR FLOOD PLAIN MAP

Not to Scale

FIGURE 5

APPENDIX

DW

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

Michael Easley, Governor
Bill Ross, Secretary
Gregory Thorpe, Director

NCDENR
NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

June 18, 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

From: Robert Ridings
NC Division of Water Quality

Subject: Review of Natural Systems Technical Reports for bridge replacement projects scheduled for construction in CFY 2005: "Green Light" Projects: B-4077, B-4082, B-4090, B-4152, B-4248, B-4036, B-4059, B-4060, B-4155, B-4158, B-4177, B-4178, B-4198, B-4197, B-4194, & B-4192.

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.

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

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.

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.

US Fish and Wildlife Service

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

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

FROM: Marella Buncick

SUBJECT: Review of NCDOT 2005 Bridge Program

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

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

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

Report Content and Organization

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

4. For listed species, it often was difficult to tell whether field surveys had been conducted or whether the information was limited to a database search.
5. In the future, I would appreciate having the Rosgen stream classification included as part of the information.

Listed Species Surveys

Projects currently ranked as Yellow will need to be reviewed in the future after the stated issues are resolved. For those reports with unresolved issues related to listed species, I would recommend that NCDOT wait until closer to implementation time to conduct final surveys. In general, after three to five years we need updated information regarding the project and listed species. Additionally, when aquatic species are involved (particularly mussels) several surveys may be required to adequately determine presence or absence.

The three projects receiving a Red ranking will need to be followed very closely to determine future consultation requirements. These include B-4287 (actually 2 bridge replacements), B-4286, and B-4282. These projects were ranked as Red because of the significance of the number of listed resources potentially affected and the river (either main stem or tributary) involved.

I would encourage NCDOT to require consultants to at least assess habitat for the bog turtle. While the bog turtle technically does not require Section 7 consultation, it is a species of concern and NCDOT is actively managing mitigation sites or parts of sites for this species. Additionally, the Wildlife Resources Commission considers this animal rare in NC and participates actively in surveys and conservation efforts on its behalf.

Bridge Design and Construction Practices

I am assuming that FWS comments/recommendations in the past regarding bridge design, demolition, and construction practices will be folded into each of these projects. Since NCDOT is also working on a BMP manual that covers these practices, I think it would be redundant to state them again. However, if any questions arise, please let me know. I would like to emphasize that we prefer off-site detours wherever possible, to minimize effects to resources.

Each of these projects has been assigned a log number. Please refer to these numbers in future requests regarding the subject projects. Thank you again for the opportunity to provide these comments. If you have questions, please let me know.

PDE	TIP	County	Rank	Reason for Rank	FWS Log Number
SH	B-2988	Haywood	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-391
MD	B-4011	Ashe	Y	FWS requests resurvey for spiraea, assessment for bog turtle and green floater, review bridge plans	4-2-02-405
MD	B-4012	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle	4-2-02-404
MD	B-4013	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-02-403
MD	B-4015	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-02-402
MD	B-4016	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-02-401
SH	B-4032	Buncombe	G	FWS requests review of bridge design	4-2-02-387
SH	B-4036	Buncombe	Y	unresolved for mussels, FWS requests review of bridge design	4-2-02-395
SH	B-4037	Buncombe	Y	unresolved for mussels, FWS requests review of bridge design	4-2-02-396
DW	B-4038	Burke	Y	unresolved for listed species, be careful of downstream effects	4-2-02-379
DW	B-4039	Burke	Y	unresolved for heartleaf	4-2-02-380
RY	B-4040	Burke	Y	FWS requests resurvey for heartleaf	4-2-02-381
DW	B-4041	Burke	Y	FWS requests resurvey for heartleaf	4-2-02-382
RY	B-4043	Burke	Y	FWS requests mussel survey, requests bridge to bridge and review of bridge design	4-2-02-383
RY	B-4044	Burke	Y	FWS requests resurvey for heartleaf and pogonia, bridge to bridge	4-2-02-384
RY	B-4045	Burke	Y	FWS requests resurvey for heartleaf, new occurrence w/in 1 mile	4-2-02-385
RY	B-4046	Burke	Y	unresolved for pogonia, FWS requests resurvey for heartleaf, request bridge for high quality stream	4-2-02-408
RY	B-4047	Burke	Y	unresolved for heartleaf	4-2-02-386
MD	B-4052	Caldwell	Y	unresolved for heartleaf, be careful of the USGS gaging station at this location	4-2-02-407
JJ	B-4059	Cawtaba	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-02-409
DW	B-4060	Cawtaba	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-02-410
RY	B-4067	Cherokee	Y	unresolved for listed species, close coordination w/USFS, high quality stream	4-2-02-394
DW	B-4070	Cherokee	Y	all listed species unresolved, FWS requests special consideration here for sicklefin redhorse	4-2-02-371
JJ	B-4076	Cleveland	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-02-413
SH	B-4103	Davidson	Y	FWS requests mussel survey, requests bridge to bridge because of stream quality	4-2-02-370
JJ	B-4116	Gaston	Y	Need resurvey for heartleaf	4-2-02-416
DW	B-4123	Graham	Y	unresolved for listed species, Indiana Bat, close coordination w/USFS, high quality stream	4-2-02-393
SH	B-4144	Haywood	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-392
DP	B-4155	Iredell	G	FWS requests survey for bog turtle	4-2-02-412
DP	B-4158	Iredell	G	FWS requests survey for bog turtle, contractor suggested survey for heartleaf, FWS requests bridge	4-2-02-411
DW	B-4161	Jackson	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-388
JJ	B-4177	Lincoln	Y	Need resurvey for heartleaf	4-2-02-414
DW	B-4178	Lincoln	Y	Need resurvey for heartleaf	4-2-02-415
DW	B-4179	Macon	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-389
RY	B-4180	Macon	Y	unresolved for listed species, FWS requests bridge to bridge, consideration for green salamander	4-2-02-390
RY	B-4183	Madison	These 2 bridge replacements are part of R-2518 and 2519 merger process, review by merger team		

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

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

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

Division of Historical Resources

October 29, 2003

MEMORANDUM

TO: Matt Wilkerson, Archaeology Supervisor
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: David Brook DSR for David Brook

SUBJECT: Replacement of Bridge No. 264 on SR 1103, TIP B04192, McDowell County, ER02-8518

Thank you for your letter of August 20, 2003, transmitting the archaeological survey report by Coastal Carolina Research, Inc. for the above project.

During the course of the survey, no sites were located within the project area. The report authors have 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: Loretta Lautzenheiser, Coastal Carolina Research, Inc.

Federal Aid # BRZ-1103(12) *TIP#* B-4192 *County:* McDowell

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

Project Description: Replace Bridge No. 264 on SR 1103, McDowell County

On June 20, 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 identified as # 1 - Bridge No. 264 is considered not eligible for the National Register and no further evaluation of it is 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 — Date 6/20/03

FHWA, for the Division Administrator, or other Federal Agency — Date 6/20/03

Representative, HPO — Date 6/20/03

State Historic Preservation Officer — Date 6-20-03

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