



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 7, 2004

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. 183 on SR 1737 (Flat Gap Road) over Fork Muddy Creek in McDowell County. Federal Aid Project No. BRZ-1737(5), State Project No.8.2871901, TIP No. B-3873.

Please find enclosed three copies of the project planning report for the above referenced project. NCDOT proposes to replace Bridge No. 183 on the existing alignment with a 125-foot triple barrel, 10.0 x 12.0-foot reinforced concrete box culvert. The northwest barrel will be silled to simulate the natural width of the stream. Traffic will be maintained using a signed off-site detour on SR 1741. There are no jurisdictional wetlands within the project area.

Impacts to Waters of the United States

Permanent Impacts: Fork Muddy Creek will be impacted by the proposed project. Construction of the proposed project will result in total of 0.0156 acre of permanent fill in surface water. In total, 125 feet of existing stream channel will be permanently impacted by this project.

Temporary Impacts: Temporary dewatering is necessary for culvert installation. Diking materials and methods will be determined during construction by the contractor, and will adhere to NCDOT Best Management Practices for Construction and Maintenance Activities. It is anticipated that there will be 30 feet of temporary impact to Fork Muddy for culvert installation.

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

Bridge Demolition

Bridge No. 183 in McDowell County was built in 1952. The structure consists of one 36-foot span, completely spanning Fork Muddy Creek. The height of the structure above the streambed is 12 feet. The structure of the existing bridge is composed of a timber deck with bituminous wearing surface on steel girders. This structure can be removed without dropping any of its components into Fork Muddy Creek. Best Management Practices for Bridge Demolition and Removal will be implemented.

Water Resources

The water resource impacted for project B-3873 is a Fork Muddy Creek. However, according to the Marion East, N.C. Quadrangle and the FEMA flood map, this stream is known as Young's Fork. Fork Muddy Creek is a tributary to the Catawba River. The North Carolina Department of Environment and Natural Resources classifies Fork Muddy Creek as "C". Class "C" waters are suitable for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, and agriculture.

There are no Outstanding Resource Waters (ORW), High Quality Waters (HQW), WS-I, or WS-II within 1 mile upstream or downstream of the project study area.

Fork Muddy Creek is not designated as a National Wild and Scenic River or a State Natural and Scenic River.

Avoidance & Minimization

The construction of this project has minimized the extent of the built-upon area by using the existing alignment for the widening. Traffic will be maintained using an off site detour. Best management practices (BMP's) will be utilized to minimize water quality impacts. No portion of the project is located in the critical area of the watershed. In compliance with 15A NCAC 02B.0104(m) we have incorporated the use of BMP's in the design of the project.

A culvert was chosen for this replacement due to the following constraints:

The current bridge has vertical abutments that constrict the flow of Muddy Creek. A new bridge would have to be longer to remove these abutments, and restore the stream bank. However, lengthening the bridge is limited by the current alignment, proximity to NC 226 and conflicts with existing driveways.

Mitigation

The U.S. Army Corps of Engineers' interpretation of Nationwide Permits is that all impacts to perennial streams or intermittent streams that exhibit important aquatic function require mitigation. Therefore, the remaining unavoidable impacts to 125 linear feet of stream will be offset by compensatory mitigation.

Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington

District” (MOA), it is understood that the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP), will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 2005.

Since the subject project is listed in Exhibit 1, the necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the EEP. The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloguing unit. The Department has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above.

Federally Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the Fish and Wildlife Service (FWS) lists four federally protected species for McDowell County (Table 1).

Biological conclusions of “No Effect” were reached for all listed species with the exception of small whorled pogonia which was “Unresolved” as reflected in the Natural Resources Technical Report (NRTR) dated December 16, 2002. We have updated the survey for small whorled pogonia in July 2003. No suitable habitat was present within the project area, resulting in a biological conclusion of “No Effect.”

Table 1. Federally-Protected Species for McDowell County

Common Name	Scientific Name	Status	Biological conclusion
Bog turtle	<i>Clemmys muhlenbergii</i>	T(S/A)	N/A
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	No Effect
Mountain golden heather	<i>Hudsonia montana</i>	T	No Effect
Small whorled pogonia	<i>Isotria medeoloides</i>	T	No Effect

KEY:

Status Definition

T - 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 (e.g., American alligator)--a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.

Regulatory Approvals

Section 404 Permit: It is anticipated that the temporary dewatering of Fork Muddy Creek will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing the temporary dewatering of Fork Muddy 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 Certification: We anticipate 401 General Certifications numbers 3403 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing five 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 North Carolina Wildlife Resources Commission (NCWRC) will be requested prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers.

Please see enclosed Pre-Construction Notification form, permit drawings, Categorical Exclusion, Natural Resources Technical Report, and Ecosystem Enhancement Program Acceptance Letter.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Michael Turchy at maturchy@dot.state.nc.us or (919) 715-1468.

Sincerely,



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

W/attachment

- Mr. John Hennessy, Division of Water Quality (7 copies)
- Ms. Marella Buncick, USFWS
- Ms. Marla Chambers, NCWRC
- Mr. David Chang, P.E., Hydraulics
- Mr. Greg Perfetti, P.E., Structure Design
- 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. Omar Sultan, Programming and TIP
- Mr. Art McMillan, P.E., Highway Design
- Mr. Mark Staley, Roadside Environmental
- Mr. David Franklin, USACE, Wilmington (Cover Letter Only)
- Ms. Karen Capps, P.E., PDEA Project Planning Engineer
- Ms. Beth Harmon, EEP

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 Riparian or Watershed Buffer Rules
- Section 10 Permit Isolated Wetland Permit from DWQ
- 401 Water Quality Certification

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

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: Gregory J. Thorpe, Ph.D., Environmental Management Director
 Mailing Address: 1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
 E-mail Address: maturchy@dot.state.nc.us

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)

Name: _____
 Company Affiliation: _____
 Mailing Address: _____

Telephone Number: _____ Fax Number: _____
 E-mail Address: _____

III. Project Information

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

1. Name of project: Replacement of Bridge No. 183 on SR 1737 over Fork Muddy Creek
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3873
3. Property Identification Number (Tax PIN): N/A
4. Location
County: McDowell Nearest Town: Marion
Subdivision name (include phase/lot number): N/A
Directions to site (include road numbers, landmarks, etc.): SR 1737 Between NC 226
5. Site coordinates, if available (UTM or Lat/Long): 35° 39' 50"N, 81° 58' 28"W Marion East
(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): Fork Muddy Creek/ Young's Fork
8. River Basin: Catawba
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)
9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: Residential

10. Describe the overall project in detail, including the type of equipment to be used: Bridge replacement project with a culvert, heavy construction equipment will be used in the removal and construction of the new structure.

11. Explain the purpose of the proposed work: To replace a structurally obsolete structure.

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.

No previous permits issued for this project.

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.

There are no future plans for this project with the exception of those described above.

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

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

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

1. Provide a written description of the proposed impacts: The installation of the culvert will result in 0.0156 acre of permanent fill and 125 of permanent stream channel impact. There will be temporary impacts with the dewatering of Fork Muddy Creek with the installation of a 125 foot culvert.

2. Individually list wetland impacts below:

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

* 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: None

Total area of wetland impact proposed: N/A

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

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
See Cover Letter					

* 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: 125

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

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)
No	open water impacts			

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

5. Pond Creation

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

Pond to be created in (check all that apply): uplands stream wetlands
 Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): _____

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

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

VII. Impact Justification (Avoidance and Minimization)

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

Traffic will be controlled using an off-site detour, which will allow replacement in the current in project footprint. The length of the culvert has also been reduced to the fullest extent possible.

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.

EEP has accepted 125 feet of stream mitigation (see attached EEP acceptance letter)

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): 125 feet

Amount of buffer mitigation requested (square feet): _____

Amount of Riparian wetland mitigation requested (acres): _____

Amount of Non-riparian wetland mitigation requested (acres): _____

Amount of Coastal wetland mitigation requested (acres): _____

IX. Environmental Documentation (required by DWQ)

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

Yes No

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?

Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes No

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

Yes No

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

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

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

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

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

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

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

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

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.

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. 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).

None

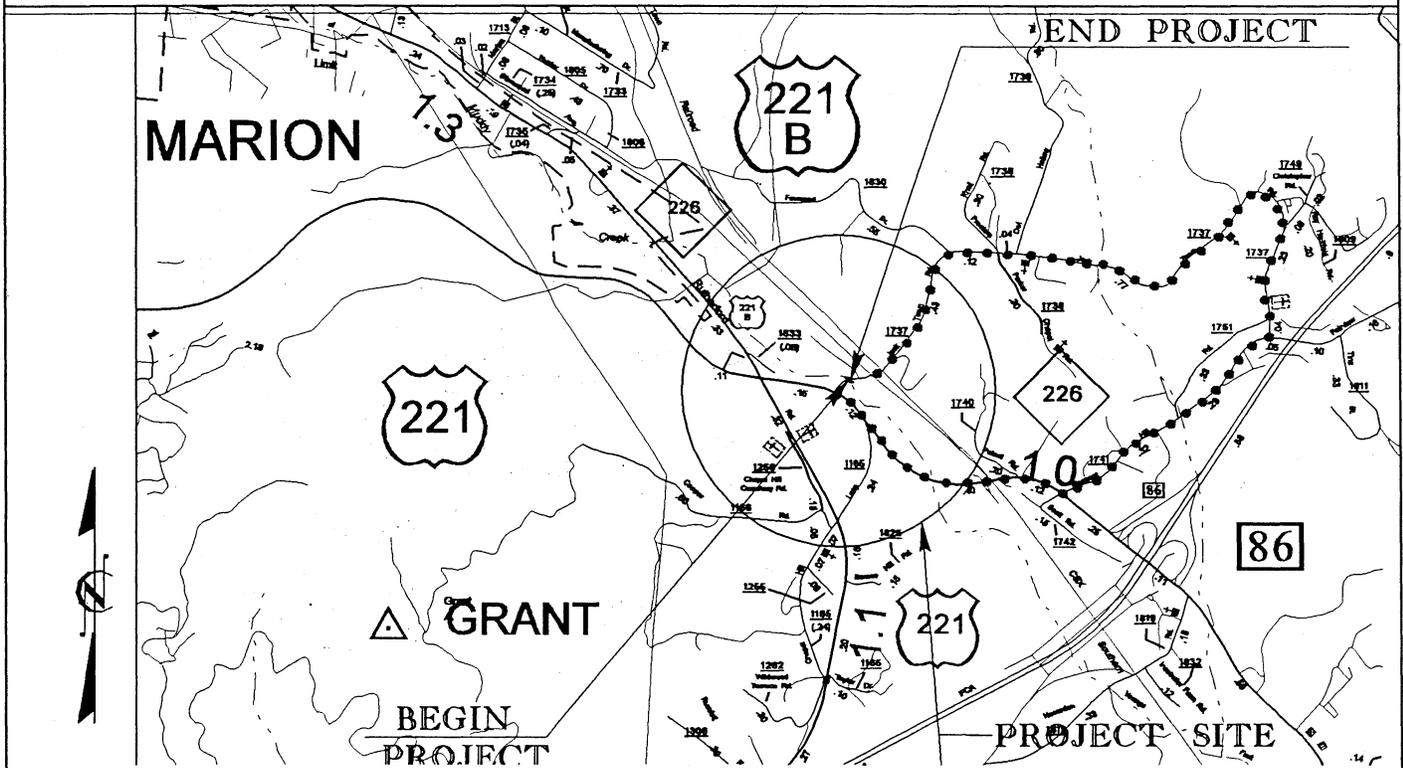
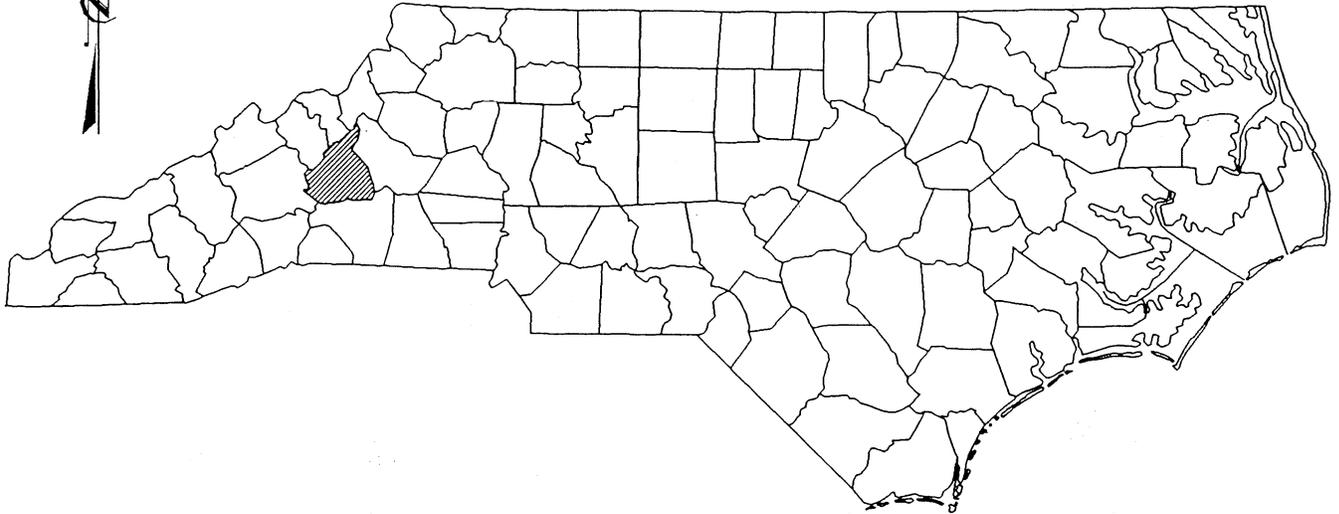


Applicant/Agent's Signature

10/6/04
Date

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

NORTH CAROLINA



VICINITY
MAPS

NCDOT

DIVISION OF HIGHWAYS
MCDOWELL COUNTY

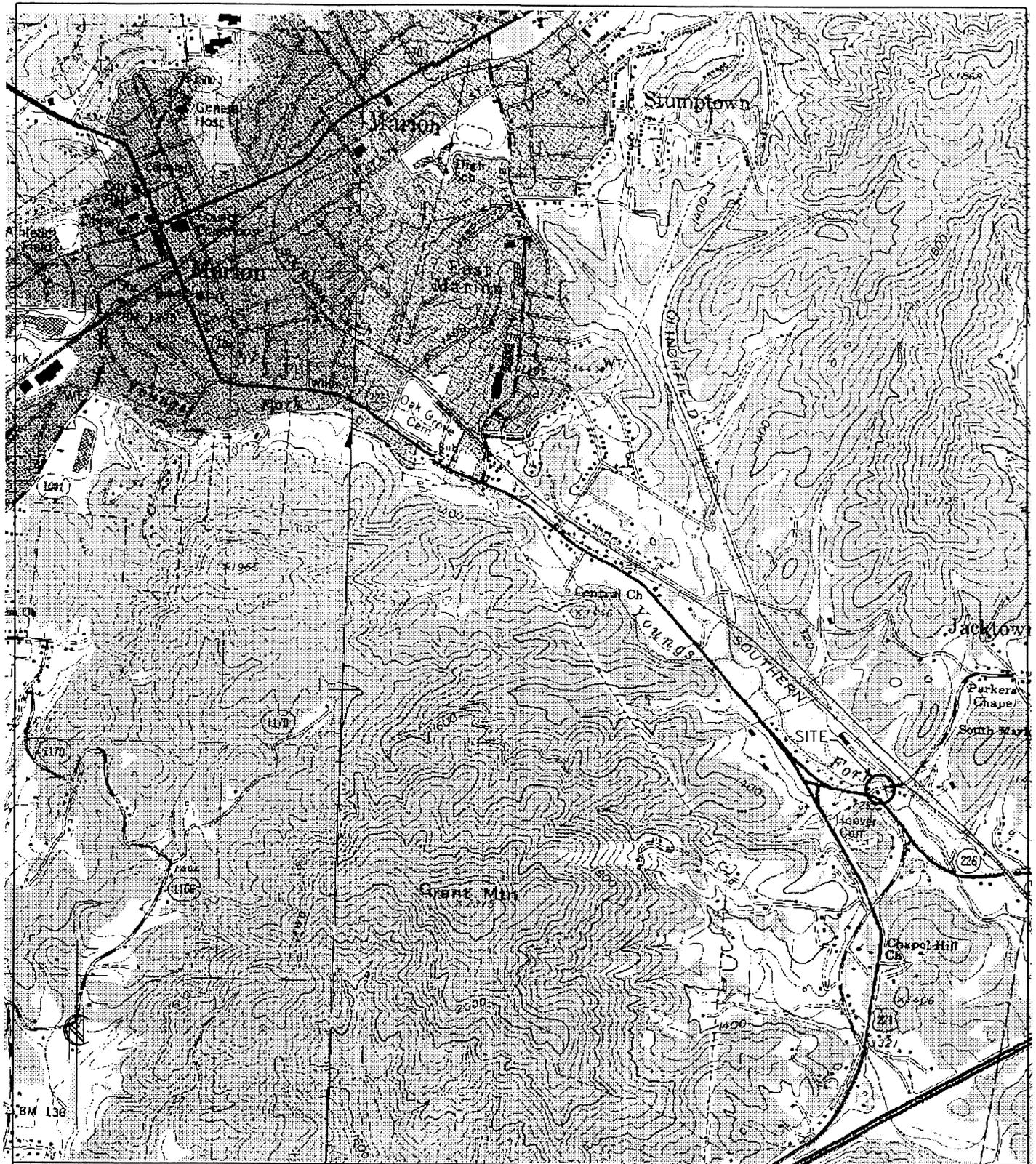
PROJECT: 8.2871901 (B-3873)

YOUNG'S FORK MUDDY CREEK
ON HWY SR1737 BETWEEN NC226

SHEET

1 OF 9

03/18/04



VICINITY
MAPS

NCDOT

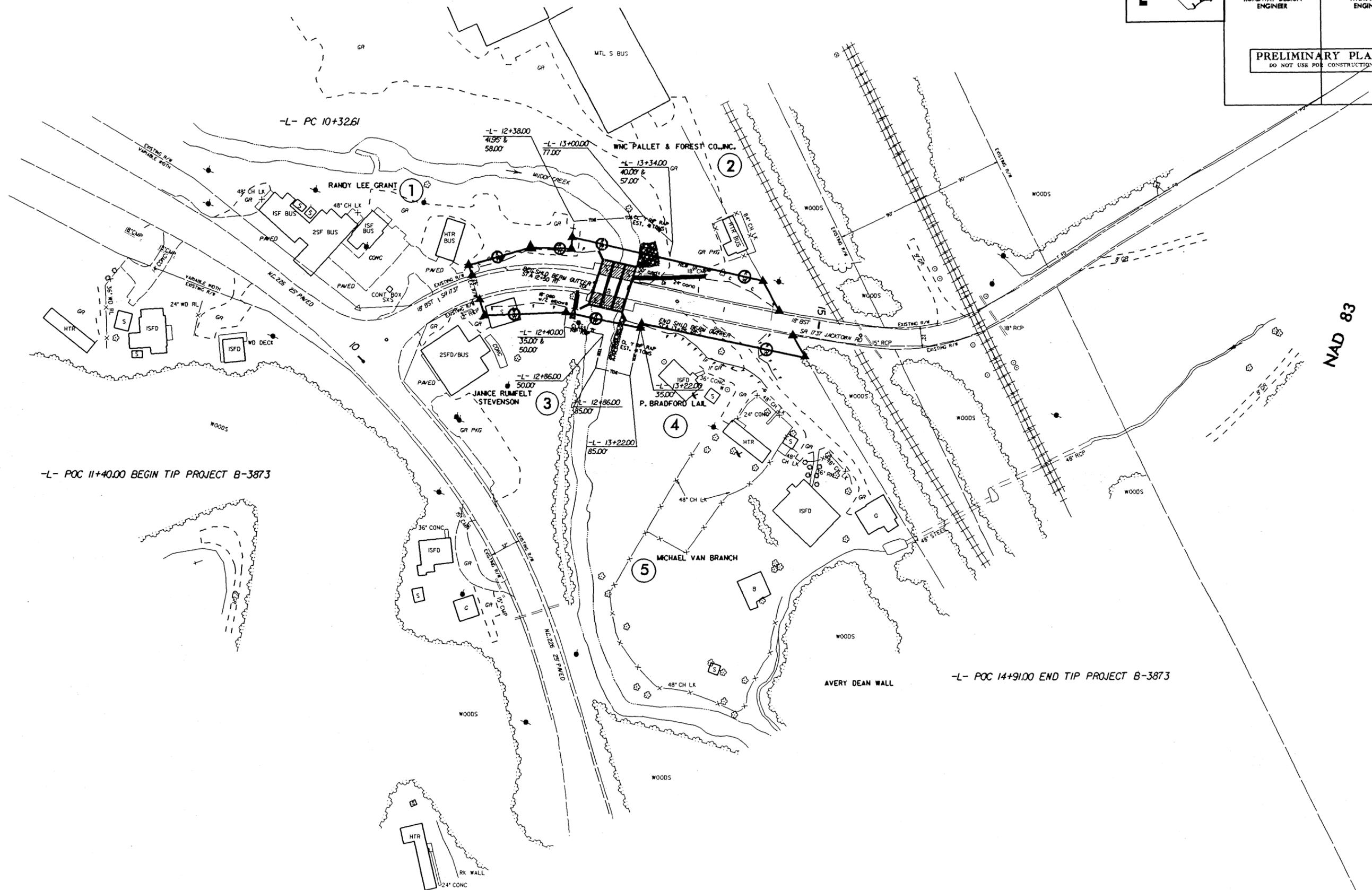
DIVISION OF HIGHWAYS
MCDOWELL COUNTY

PROJECT: 8.2871901 (B-3873)

YOUNG'S FORK MUDDY CREEK
ON HWY SR1737 BETWEEN NC226

PROJECT REFERENCE NO. B-3873		SHEET NO. 3
RW SHEET NO. ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

REVISIONS



-L- POC 10+32.61

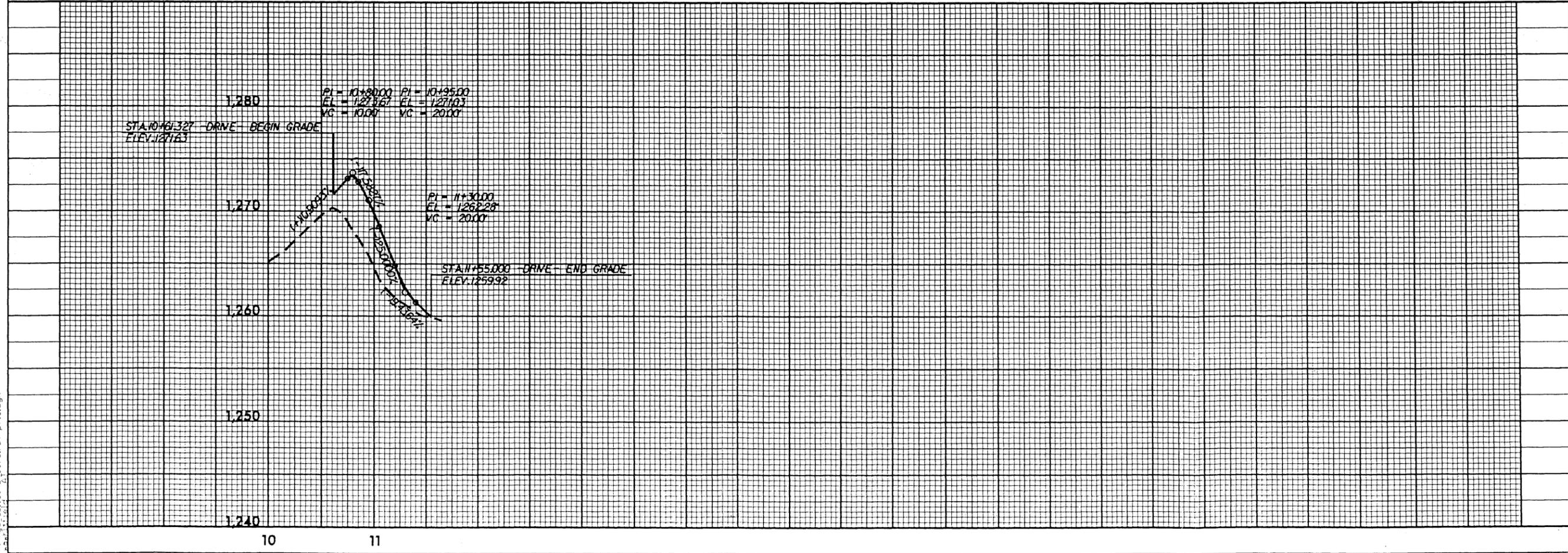
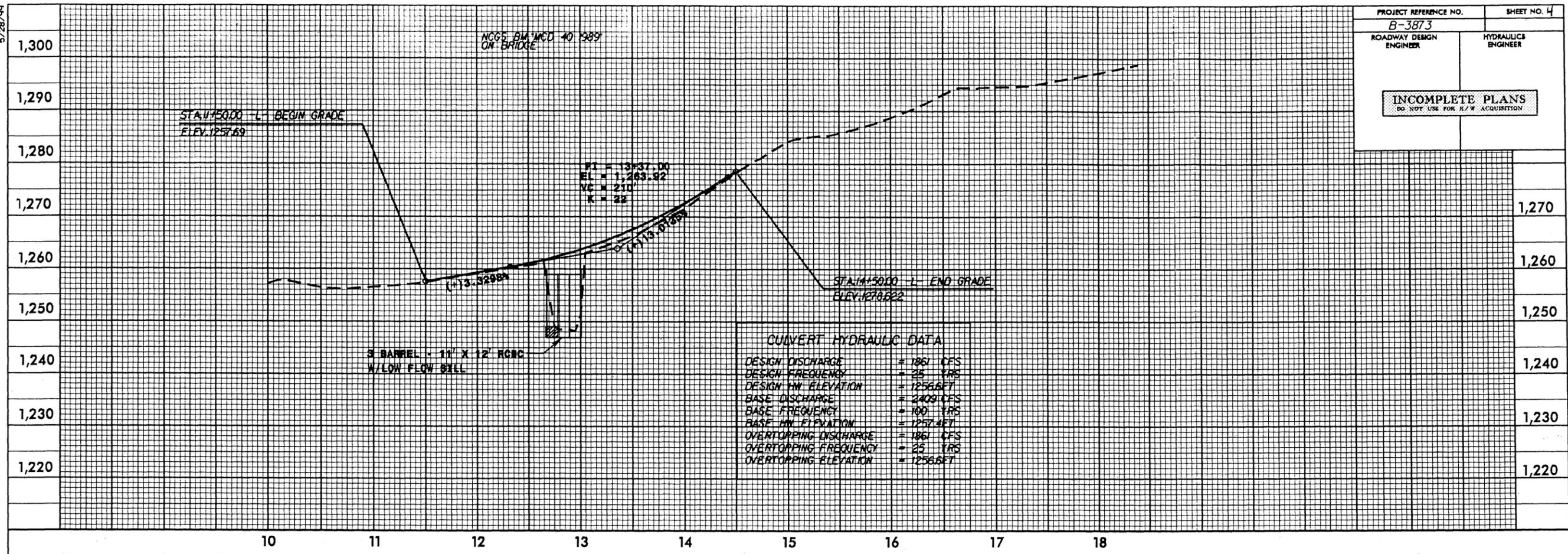
-L- POC 14+91.00 END TIP PROJECT B-3873

NAD 83

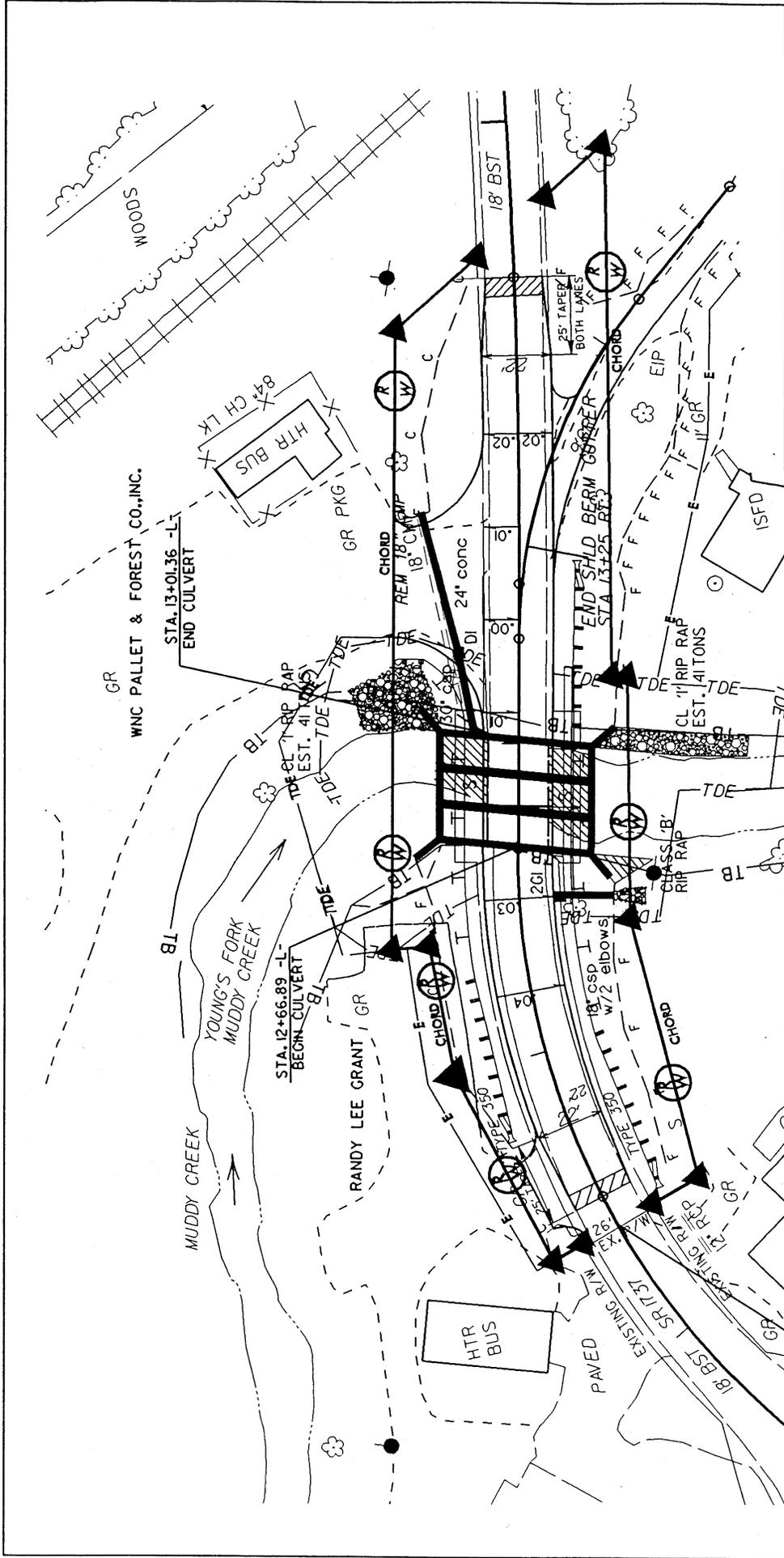
 DENOTES FILL IN SURFACE WATER

5/28/99

PROJECT REFERENCE NO. B-3873	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	



P:\244-2004\4503\Hydro\244-2004\244-2004.dgn

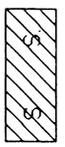


NCDOT

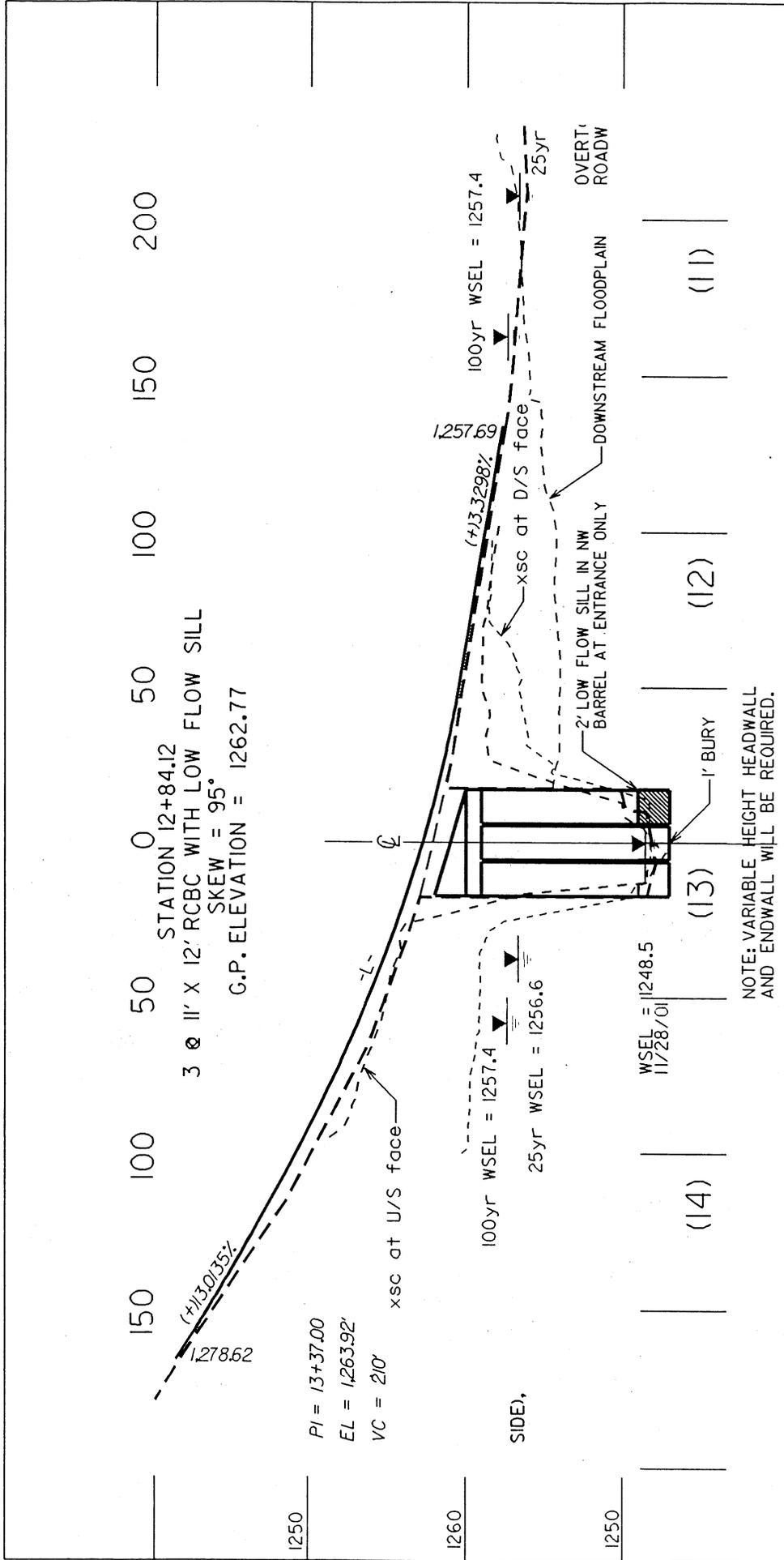
DIVISION OF HIGHWAYS
 MCDOWELL COUNTY
 PROJECT: 8.2871901 (B-3873)
 YOUNG'S FORK MUDDY CREEK
 ON HWY SR1737 BETWEEN NC226

PLAN VIEW



 DENOTES FILL IN
 SURFACE WATER

SCALE: 1" = 50' HORIZ.

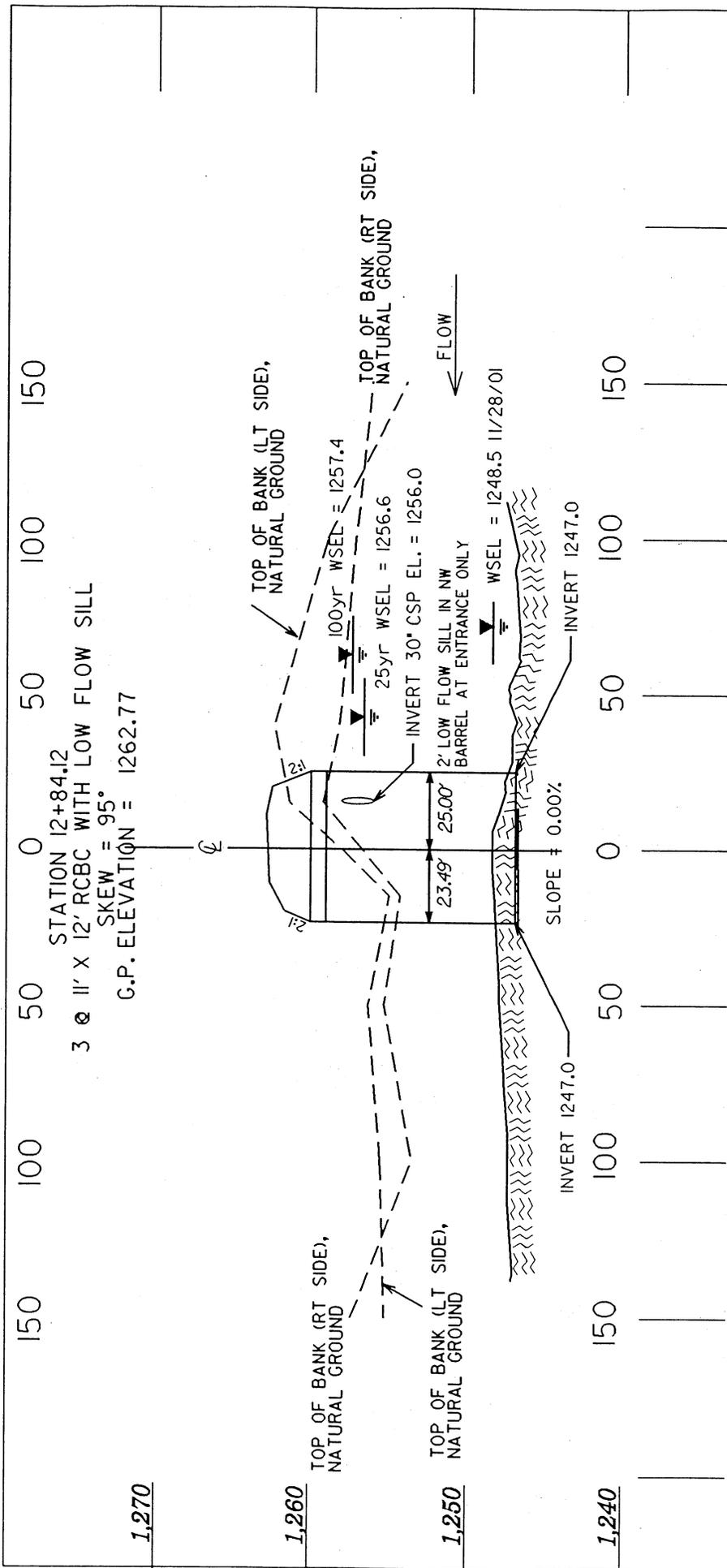


PROFILE



NCDOT

DIVISION OF HIGHWAYS
 MCDOWELL COUNTY
 PROJECT: 8.2871901 (B-3873)
 YOUNG'S FORK MUDDY CREEK
 ON HWY SR1737 BETWEEN NC226



CROSS SECTION



NCDOT
 DIVISION OF HIGHWAYS
 MCDOWELL COUNTY
 PROJECT: 8.2871901 (B-3873)
 YOUNG'S FORK MUDDY CREEK
 ON HWY SR1737 BETWEEN NC226

SHEET 7 OF 9
 04/08/04

PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
①	RANDY LEE GRANT	PO: BOX343 MARION NC. 28752
②	WNC PALLET & FOREST PRODUCTS CO.INC.	PO. BOX 38 CANDLER NC.28715
③	JANICE R. STEVENSON	1405 HWY.226 S. MARION NC. 28752
④	P. BRADFORD LAIL	210 JACKTOWN RD. MARION NC. 28752
⑤	MICHAEL VAN BRANCH	216 JACKTOWN RD. MARION NC 28752

NCDOT
DIVISION OF HIGHWAYS
MCDOWELL COUNTY
PROJECT: 8.2871901 (B-3873)
YOUNG'S FORK MUDDY CREEK
ON HWY SR1737 BETWEEN NC226

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

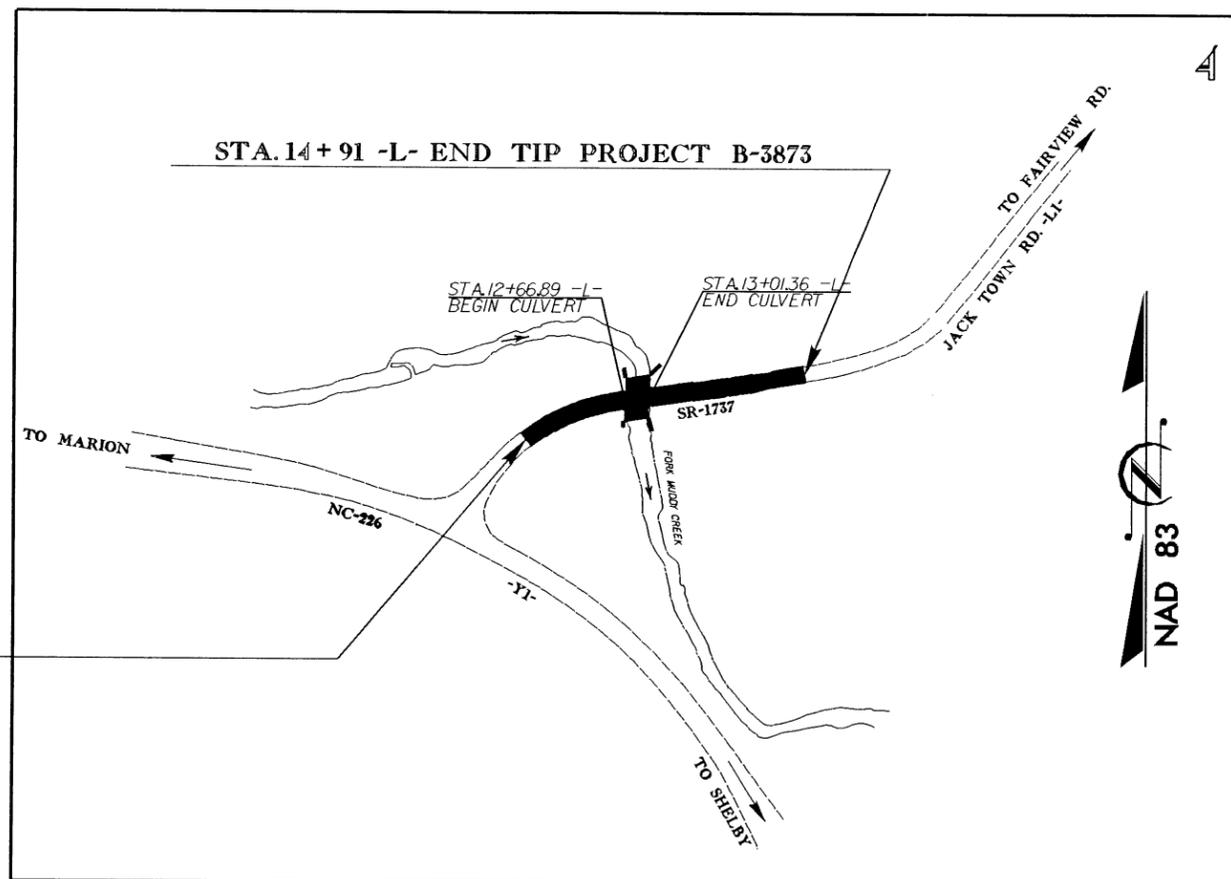
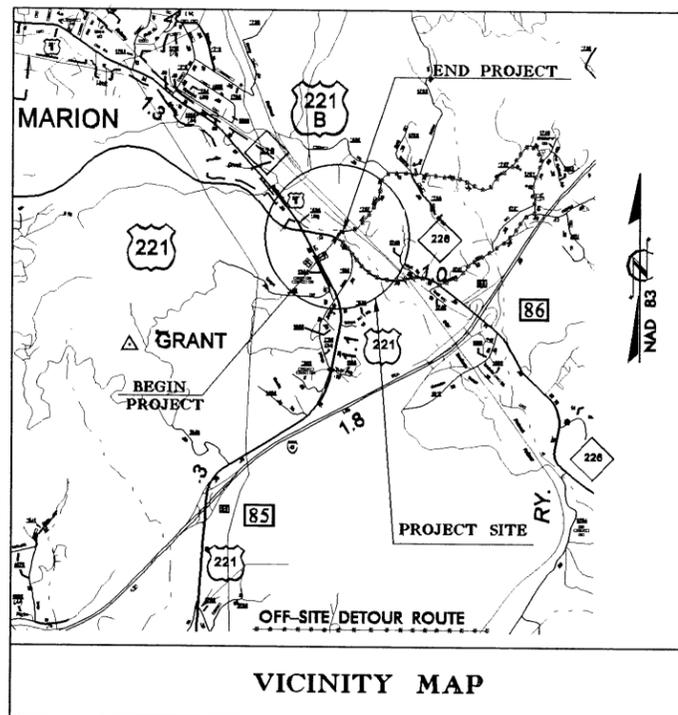
MCDOWELL COUNTY

**LOCATION: REPLACEMENT OF BRIDGE NO. 183 OVER
FORK MUDDY CREEK ON SR-1737**

**TYPE OF WORK: GRADING, WIDENING, PAVING, DRAINAGE,
AND CULVERT**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3873	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33317.1.1	BRZ-1737(5)	PE	
33317.2.1	BRZ-1737(5)	RW & UTIL	
33317.3.1	BRZ-1737(6)	CONST	

CONTRACT: C200916 TIP PROJECT: B-3873



** DESIGN SPEED EXCEPTION WILL BE REQUIRED

<p>GRAPHIC SCALES</p> <p>50 25 0 50 100 PLANS</p> <p>50 25 0 50 100 PROFILE (HORIZONTAL)</p> <p>10 5 0 10 20 PROFILE (VERTICAL)</p>	<p>DESIGN DATA</p> <p>ADT 2004 = 1,338 ADT 2025 = 1,800 DHV = 10 % D = 55 % T = 4 % * ** V = 25 MPH * TTST 3 % DUAL 1 %</p>	<p>PROJECT LENGTH</p> <p>LENGTH ROADWAY TIP PROJECT B-3873 = 0.059 MI LENGTH STRUCTURE TIP PROJECT B-3873 = 0.007 MI TOTAL LENGTH TIP PROJECT B-3873 = 0.066 MI</p>	<p>Prepared In the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., NC, 27610</p> <p>2002 STANDARD SPECIFICATIONS</p> <p>RIGHT OF WAY DATE: FEBRUARY 26, 2004</p> <p>LETTING DATE: FEBRUARY 15, 2005</p> <p>G. E. BREW, PE PROJECT ENGINEER</p> <p>W. T. BEST PROJECT DESIGN ENGINEER</p>	<p>HYDRAULICS ENGINEER</p> <p>SIGNATURE: _____ P.E.</p> <p>ROADWAY DESIGN ENGINEER</p> <p>SIGNATURE: _____ P.E.</p>	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA</p> <p>STATE DESIGN ENGINEER _____ P.E.</p> <p>DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION</p> <p>APPROVED _____ DIVISION ADMINISTRATOR DATE _____</p>
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Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	②③
Existing Fence Line	-----
Proposed Woven Wire Fence	○-----
Proposed Chain Link Fence	□-----
Proposed Barbed Wire Fence	◇-----
Existing Wetland Boundary	----- WLB
Proposed Wetland Boundary	----- WLB
Existing High Quality Wetland Boundary	----- HQ WLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ ○
Well	○ ○
Small Mine	⊗
Foundation	□
Area Outline	□
Cemetery	□ +
Building	□ +
School	□ +
Church	□ +
Dam	-----

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
River Basin Buffer	----- RBB
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Swamp Marsh	-----
Proposed Lateral, Tail, Head Ditch	----- FLD
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	----- CONC
Bridge Wing Wall, Head Wall and End Wall	----- CONC HW
MINOR:	
Head and End Wall	----- CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○
Storm Sewer	-----

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	□
H-Frame Pole	●
Recorded U/G Power Line	----- P
Designated U/G Power Line (S.U.E.*)	----- P

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

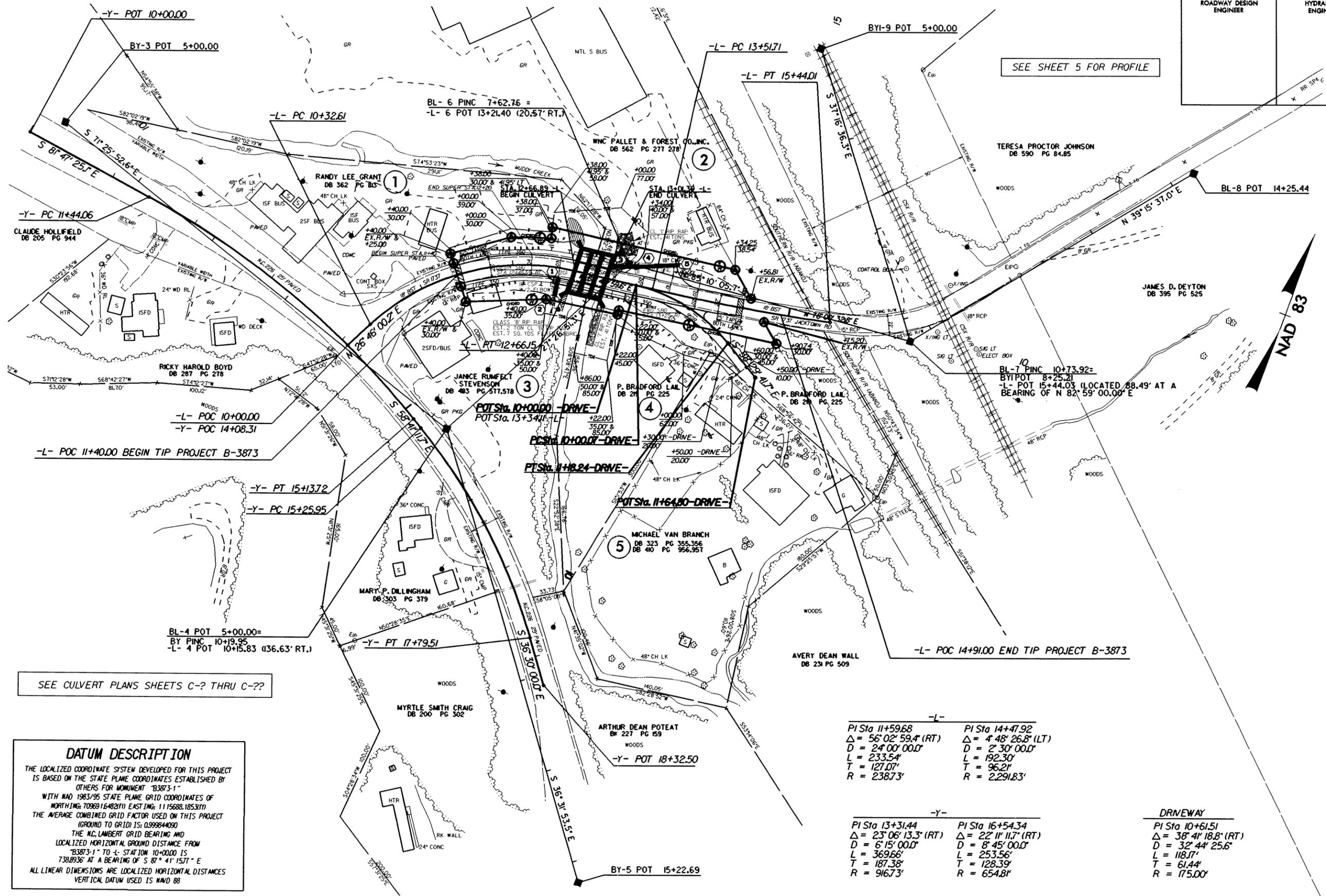
Sanitary Sewer Manhole	○
Sanitary Sewer Cleanout	○
U/G Sanitary Sewer Line	----- SS
Above Ground Sanitary Sewer	----- A/G Sanitary Sewer
Recorded SS Forced Main Line	----- FSS
Designated SS Forced Main Line (S.U.E.*)	----- FSS

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
B-3873	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEE SHEET 5 FOR PROFILE



SEE CULVERT PLANS SHEETS C-? THRU C-??

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "B3873-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 7096916482(1) EASTING: 1115688.1853(1) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99984090 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM B3873-1 TO -L- STATION 10+000 IS 738.8936' AT A BEARING OF S 87° 41' 15.77" E ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

-L-	-L-
PI Sta 11+59.68	PI Sta 14+47.92
$\Delta = 56^{\circ} 02' 59.4" (RT)$	$\Delta = 4^{\circ} 48' 26.8" (LT)$
$D = 24^{\circ} 00' 00.0"$	$D = 2^{\circ} 30' 00.0"$
$L = 233.54'$	$L = 192.30'$
$T = 127.07'$	$T = 96.21'$
$R = 2387.3'$	$R = 2291.83'$

-Y-	-Y-
PI Sta 13+31.44	PI Sta 16+54.34
$\Delta = 23^{\circ} 06' 13.3" (RT)$	$\Delta = 22^{\circ} 11' 11.7" (RT)$
$D = 6^{\circ} 15' 00.0"$	$D = 8^{\circ} 45' 00.0"$
$L = 369.66'$	$L = 253.56'$
$T = 187.38'$	$T = 128.39'$
$R = 916.73'$	$R = 654.81'$

DRIVEWAY
PI Sta 10+61.51
$\Delta = 38^{\circ} 41' 18.8" (RT)$
$D = 32^{\circ} 44' 25.6"$
$L = 118.17'$
$T = 61.44'$
$R = 175.00'$

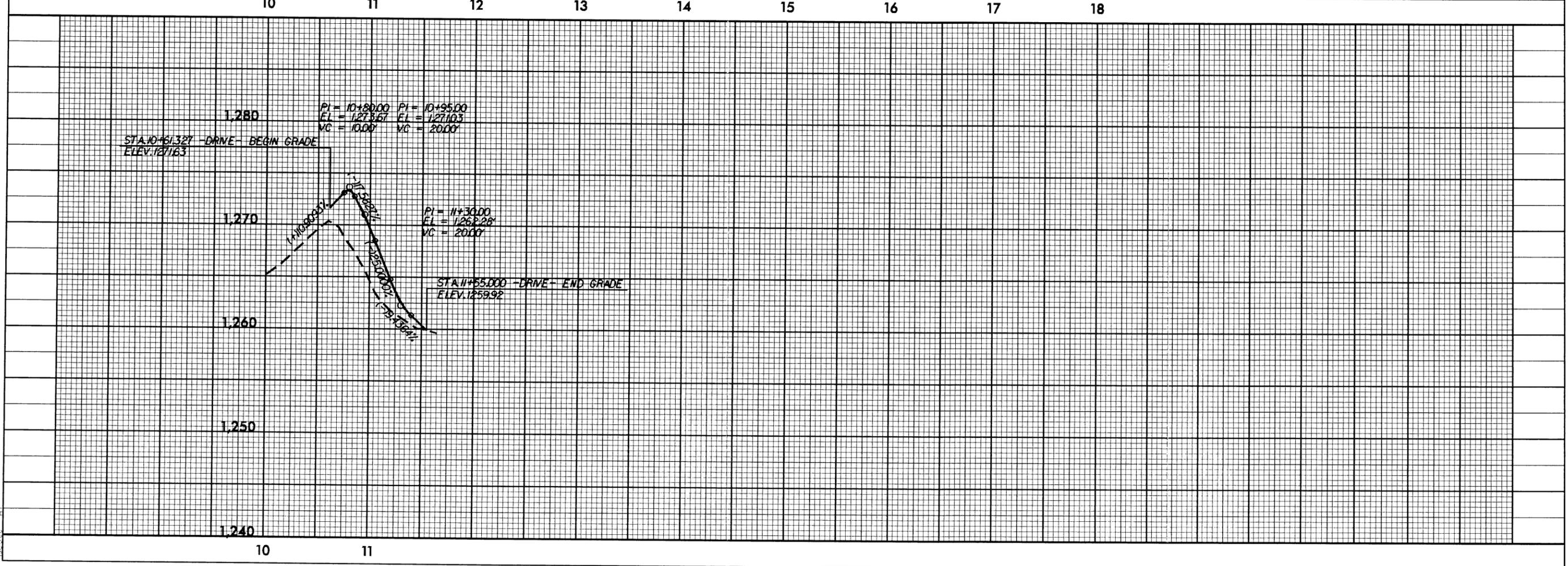
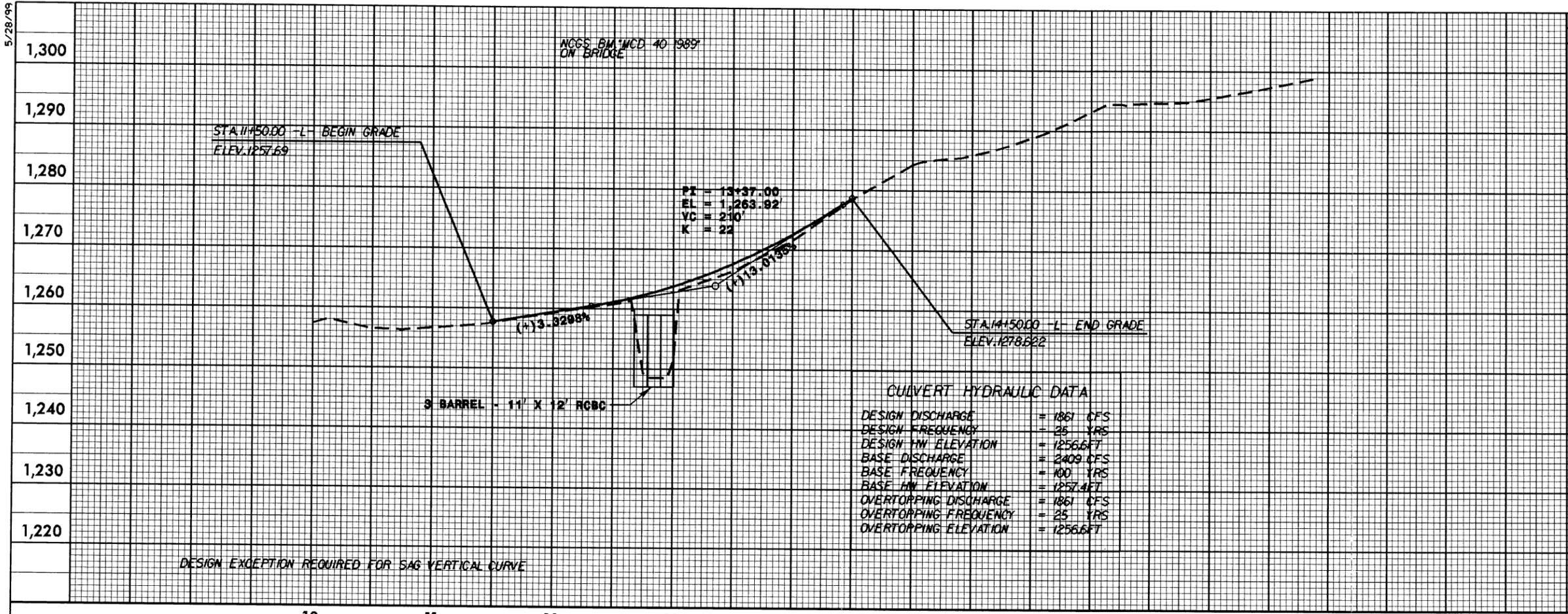
REVISIONS

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3873	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

October 4, 2004

Mr. Gregory J. Thorpe, Ph.D., Manager,
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

Subject: Project: Bridge Replacement, Fork Muddy Creek, SR 1737
TIP#: B-3873, McDowell County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide compensation for the subject project. Based on the information supplied by you in a letter dated September 29, 2004, the impacts are located in CU 3050101 of the Catawba River Basin in the Northern Mountains Eco-Region, and are as follows:

Stream Impacts: 125 feet

As stated in your letter, the subject project is listed in Exhibit 2 of the Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, Wilmington District dated July 22, 2003. The ecosystem enhancement for the subject project will be provided in accordance with Section IX, EEP Transition Period, of this agreement.

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

Sincerely,

William D. Gilmore, P.E.
Transition Manager

cc: Angie Pennock, USACE-Asheville
John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-3873

NC DENR Ecosystem Enhancement Program
1652 Mail Service Center, Raleigh, North Carolina 27699-1652
Phone: 919-715-1413 \ FAX: 919-715-2219 \ Internet: h2o.enr.state.nc.us/wrp/

One
North Carolina
Naturally



North Carolina Department of Environment and Natural Resources
Division of Ecosystem Enhancement

Michael F. Easley, Governor

William G. Ross Jr., Secretary

October 4, 2004

Ms. Angie Pennock
US Army Corps of Engineers
Asheville Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, North Carolina 28801-5006

Dear Ms. Pennock:

Subject: EEP Mitigation Acceptance Letter:

B-3873, Bridge 183 over Fork Muddy Creek on SR 1737, McDowell County; Catawba River Basin (Cataloging Unit 3050101); Northern Mountains Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide 1,250 feet of stream preservation at a 10:1 ratio for the 125 feet of unavoidable stream impacts associated with the subject project. The preservation site that will be debited for this mitigation is:

Little Tablerock (Avery, Mitchell, and McDowell Counties) 1,250 feet

The subject TIP project is listed in Exhibit 2 of the Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, Wilmington District dated July 22, 2003. The compensatory mitigation for the project will be provided in accordance with Section IX, EEP Transition Period, of the Agreement.

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

Sincerely,

William D. Gilmore, P.E.
Transition Manager

cc: Phil Harris, Office of Natural Environment, NCDOT
John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-3873

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	<u>B-3873</u>
State Project No.	<u>8.2871901</u>
Federal Project No.	<u>BRZ-1737(5)</u>

A. Project Description:

The purpose of this project is to replace McDowell County Bridge No.183 on SR 1737 over Fork of Muddy Creek. The replacement structure will be a three-barrel reinforced concrete box culvert (each barrel 10 x 12 feet (3 x 3.7 meters). The cross section will include two 11-foot (3.3-meter) lanes and 6-foot (1.8-meter) grass shoulders (9-foot grass shoulders where guardrail is required). The project length is 350 feet (107 meters). Traffic will be detoured offsite during construction (see Figure 1).

B. Purpose and Need:

Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 25.7 out of a possible 100 for a new structure. The condition of the concrete abutments and footings has deteriorated to a point of needing major repair. In addition, the cross section of the bridge does not conform to modern standards. For these reasons Bridge No. 183 has been programmed for replacement.

C. Proposed Improvements:

The following Type II improvements which apply to the project are circled:

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).
 - a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
 - b. Widening roadway and shoulders without adding through lanes
 - c. Modernizing gore treatments
 - d. Constructing lane improvements (merge, auxiliary, and turn lanes)
 - e. Adding shoulder drains
 - f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
 - g. Providing driveway pipes
 - h. Performing minor bridge widening (less than one through lane)
2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.
 - a. Installing ramp metering devices
 - b. Installing lights
 - c. Adding or upgrading guardrail
 - d. Installing safety barriers including Jersey type barriers and pier protection
 - e. Installing or replacing impact attenuators

- f. Upgrading medians including adding or upgrading median barriers
 - g. Improving intersections including relocation and/or realignment
 - h. Making minor roadway realignment
 - i. Channelizing traffic
 - j. Performing clear zone safety improvements including removing hazards and flattening slopes
 - k. Implementing traffic aid systems, signals, and motorist aid
 - l. Installing bridge safety hardware including bridge rail retrofit
3. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.
- a. Rehabilitating, reconstructing, or replacing bridge approach slabs
 - b. Rehabilitating or replacing bridge decks
 - c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
 - d. Replacing a bridge (structure and/or fill)
4. Transportation corridor fringe parking facilities.
 5. Construction of new truck weigh stations or rest areas.
 6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.
 7. Approvals for changes in access control.
 8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.
 9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.
 10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.
 11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.
 12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may

be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

D. Special Project Information:

Estimated Costs:

Total Construction	\$ 375,000
Right of Way	\$ 53,000
Total	\$ 428,000

Estimated Traffic:

Current	-	1200
Year 2025	-	1800
TTST	-	2%
Dual	-	4%

Accidents: In a check of a recent three-year period, no accidents have been reported in association with the bridge.

Design Speed: The speed limit is not posted along this route. Therefore, statutory 55 mph (90 kph) is assumed. The design speed for the project is 60 mph (100 kph).

Functional Classification: Rural Local Route

School Buses: The School Transportation Director for McDowell wrote in comments indicating that road closure does not present any problems to school busses.

Emergency Services: McDowell County EMS has reviewed the project area and can work around a road closure situation. They have requested notification prior to road closure.

Division Office Comments: The Division has reviewed the project and supports replacing the bridge with a culvert on the existing location and detouring traffic offsite during construction. There was concern for WNC Pallet Company located just across the bridge. In speaking with the manager of WNC, temporary closure of the bridge does not pose a problem since the company has another way out unaffected by this project.

Bridge Demolition: Bridge No. 183 is a single span structure with I-beams and timber deck and reinforced concrete abutments. The abutments can be removed without placing fill into Fork Muddy Creek. Therefore, there will be no resulting fill from demolition.

Offsite Detour: The offsite detour utilizes SR 1737, SR 1741, and NC 226. The average road user will travel an additional 2.2 miles per trip over a period of six months or less.

Design Exception: There will be a design exception for both the vertical and horizontal alignments. The vertical alignment has a design speed of 20 mph and the horizontal alignment has a design speed of 30 mph.

Alternates Eliminated from Further Study

The “no-build” alternate is not feasible. If the existing bridge is not replaced, continued deterioration will necessitate closing the bridge. Closing the bridge is not acceptable due to the amount of traffic SR 1737 serves.

Rehabilitation of the existing bridge is not feasible due to the existing substructure. The reinforced concrete abutments would have to be brought up to current standards along with the need to carry additional loading from a new deck. This is not economically feasible.

E. Threshold Criteria

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

<u>ECOLOGICAL</u>	<u>YES</u>	<u>NO</u>
(1) Will the project have a substantial impact on any unique or important natural resource?	<input type="checkbox"/>	<u>X</u>
(2) Does the project involve habitat where federally listed endangered or threatened species may occur?	<input type="checkbox"/>	<u>X</u>
(3) Will the project affect anadromous fish?	<input type="checkbox"/>	<u>X</u>
(4) If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-third (1/3) of an acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	<u>X</u>	<input type="checkbox"/>
(5) Will the project require the use of U. S. Forest Service lands?	<input type="checkbox"/>	<u>X</u>
(6) Will the quality of adjacent water resources be adversely impacted by proposed construction activities?	<input type="checkbox"/>	<u>X</u>
(7) Does the project involve waters classified as Outstanding Water Resources (OWR) and/or High Quality Waters (HQW)?	<input type="checkbox"/>	<u>X</u>
(8) Will the project require fill in waters of the United States in any of the designated mountain trout counties?	<input type="checkbox"/>	<u>X</u>
(9) Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?	<input type="checkbox"/>	<u>X</u>
 <u>PERMITS AND COORDINATION</u>		
(10) If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?	<input type="checkbox"/>	<u>X</u>
(11) Does the project involve Coastal Barrier Resources Act resources?	<input type="checkbox"/>	<u>X</u>
(12) Will a U. S. Coast Guard permit be required?	<input type="checkbox"/>	<u>X</u>

- | | | | |
|------|--|--------------------------|--------------|
| (13) | Will the project result in the modification of any existing regulatory floodway? | <input type="checkbox"/> | <u> X </u> |
| (14) | Will the project require any stream relocations or channel changes? | <input type="checkbox"/> | <u> X </u> |

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES

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

- | | | | |
|------|---|--------------------------|--------------------------|
| (27) | Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project? | <u> X </u> | <input type="checkbox"/> |
| (28) | Will the project have an "effect" on structures/properties eligible for or listed on the National Register of Historic Places? | <input type="checkbox"/> | <u> X </u> |
| (29) | Will the project affect any archaeological remains, which are important to history or pre-history? | <input type="checkbox"/> | <u> X </u> |
| (30) | Will the project require the use of Section 4(f) resources (public parks, recreation lands, wildlife and waterfowl refuges, historic sites, or historic bridges, as defined in Section 4(f) of the U. S. Department of Transportation Act of 1966)? | <input type="checkbox"/> | <u> X </u> |
| (31) | Will the project result in any conversion of assisted public recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Land and Water Conservation Act of 1965, as amended? | <input type="checkbox"/> | <u> X </u> |
| (32) | Will the project involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the Natural System of Wild and Scenic Rivers? | <input type="checkbox"/> | <u> X </u> |

F. Additional Documentation Required for Unfavorable Responses in Part E
(Discussion regarding all unfavorable responses in Part E should be provided below. Additional supporting documentation may be attached, as necessary.)

Project Commitments

Replacement of Bridge No. 183 on SR 1737 Over Muddy Creek

McDowell County

F. A. Project No. BRZ-1737(5)

State Project No. 8.2871901

T.I.P. No. B-3873

There are no project specific commitments at this time.

**PROPOSED REPLACEMENT OF BRIDGE #183
OVER FORK MUDDY CREEK
MCDOWELL COUNTY**

TIP NO. B-3873

State Project No. 8.2871901

Federal Aid Project No. BRZ-1737(5)

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

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DECEMBER 12, 2002**

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1.0 INTRODUCTION

The following Natural Resources Technical Report is submitted to assist in preparation of a Categorical Exclusion (CE) for the replacement of Bridge No. 183 on SR 1737 (TIP B-3873) in McDowell County (Figure 1).

1.1 PROJECT DESCRIPTION

The project proposes the replacement of Bridge No. 183 over Fork Muddy Creek on SR 1737 (Figure 2). It should be noted that on the McDowell County map and Bridge Maintenance records the stream is known as Fork Muddy Creek but according to the Marion East, NC quadrangle and the FEMA flood map the stream is known as Youngs Fork. It should also be noted that the Division of Water Quality refers to Youngs Fork as Coperning Creek in many of their reports and data listings.

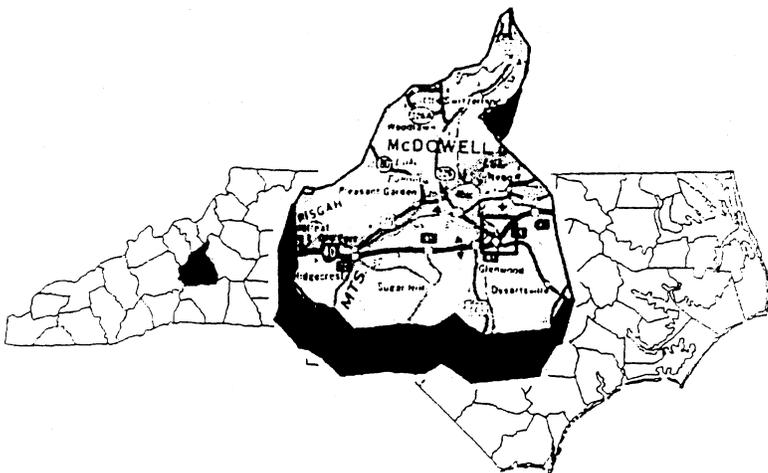
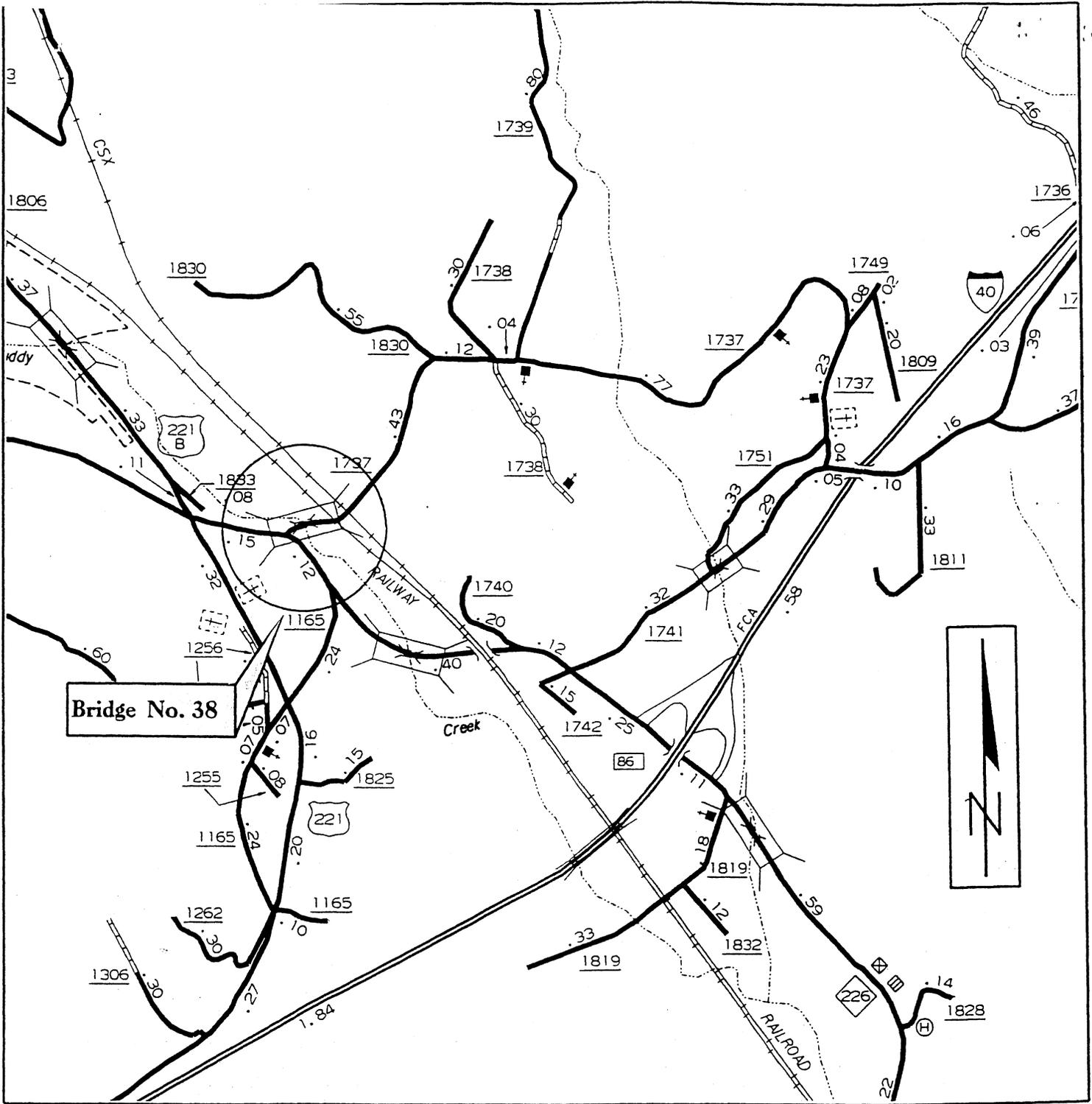
The bridge was constructed in 1952 and has an overall length of 36 feet. It is a single span bridge and consists of a timber and steel beam deck resting on vertical concrete abutments with an asphalt overlay. The width of the bridge deck is 20.2 feet. The width of the existing roadway approaching the bridge is 19.2 feet which lies within an approximate 60 foot right of way measured from ditch line to ditch line. The proposed right of way will be a 40-foot corridor with an estimated project length of 500 feet. The streambed lies approximately 12 feet below the low cord of the steel support girder.

Land use adjacent to the project area is mostly residential or undeveloped along the stream banks. However, a lumber plant does exist immediately northwest of the bridge.

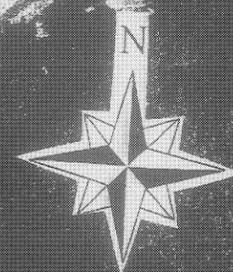
The NC Department of Transportation proposes to replace the bridge in the same location and roadway grade as the existing bridge with three 10' X 12' reinforced concrete box culverts (RCBC) with debris deflectors. Only one build alternative is being considered for this project. Traffic will be detoured offsite during construction.

1.2 PURPOSE

The purpose of this technical report is to inventory, catalog and describe the various natural resources likely to be impacted by the proposed action. This report also attempts to identify and estimate the probable consequences of the anticipated impacts to these resources. Recommendations are made for measures that will minimize resource impacts. **These descriptions and estimates are relevant only in the context of existing preliminary design concepts. If design parameters and criteria change, additional field investigations will need to be conducted.**



	<p>North Carolina Dept. of Transportation Division of Highways Project Development & Environmental Analysis Branch</p>
	<p>McDowell County Replace Bridge No. 183 on SR 1737 Over Fork Muddy Creek B-3873</p>
<p>SCALE: 1 in = 1/3 mi Figure 1</p>	



North Carolina
Department of Transportation
Division of Highways
Project Development &
Environmental Analysis Branch

McDowell County
Replace Bridge No. 183 on SR 1237
Over Fork Muddy Creek
B-3673

Scale 1"=100'

Figure 2

1.3 METHODOLOGY

Research was conducted prior to field investigations. Information sources used in the pre-field investigation of the study area include: U.S. Geological Survey (USGS) quadrangle maps (Marion East), U.S. Fish and Wildlife Service (FWS) National Wetland Inventory Maps (from GIS/Arcview), information from Department of Agriculture Soil Survey (McDowell County), and NCDOT aerial photographs of project area (1:1200). Water resource information was obtained from publications of the NC Department of Environment and Natural Resources (NCDENR 1998). Information concerning the occurrence of federal and state protected species in the study area was gathered from the US Fish and Wildlife Service list of protected species and species of concern (March 7, 2002), and the NC Natural Heritage Program (NHP) database of rare species and unique habitats (July 1999).

General field surveys were conducted along the proposed alignment by NCDOT biologists, Jerry Parker, Elizabeth Lusk and Matt Haney, on August 14, 2002. Plant communities and their associated wildlife were identified and recorded. Wildlife identification involved using one or more of the following observation techniques: active searching and capture, visual observations, and identifying characteristic signs of wildlife (sounds, scat, tracks and burrows). Jurisdictional wetland determinations were performed utilizing delineation criteria prescribed in the "Corps of Engineers Wetland Delineation Manual" (Environmental Laboratory, 1987).

1.4 DEFINITIONS

Definitions for aerial descriptions used in this report are as follows: **Project Study Area** denotes the area bounded by proposed construction limits; **Project Vicinity** describes an area extending 0.5 miles on all sides of the project study area; and **Project Region** is equivalent to an area represented by a 7.5 minute USGS quadrangle map with the project occupying the central position.

1.5 QUALIFICATIONS OF INVESTIGATOR

Investigator: Jerry A. Parker, Natural Systems Specialist, Project Development and Environmental Analysis Branch, NCDOT.

Education: B.S. Professional Biology, North Carolina A & T State University, 1975
M.S. Coastal Biology, University of North Carolina at Wilmington, 1990

Experience: Natural Systems Specialist – NC Dept. of Transportation, July, 2002-present
Environmental Biologist, NC Division of Coastal Management, 1994-2002
Marine Biologist II, NC Division of Marine Fisheries, 1983-1994
Marine Biologist, NC Division of Marine Fisheries, 1978-1983
Fisheries Technician, NC Division of Marine Fisheries, 1975- 1978

2.0 PHYSICAL RESOURCES

Soil and water resources occurring in the study area are discussed below. Soils and availability of water directly influence composition and distribution of flora and fauna in any biotic community.

The project study area lies within the central part of western North Carolina. It is a rural area in the southeastern portion of McDowell County. The topography of the area consists mostly of strongly sloping to very steep uplands. The project area is drained by Muddy Creek and its tributaries. The approximate elevation above mean sea level of the project area is 1257 feet.

2.1 SOILS

Soil types and availability of water directly influence composition and distribution of flora and fauna in any biotic community. This section describes the soil characteristics of the project study area.”

According to the General Soil map (NRCS, 1995), the project study contains soils from the Iotla land association which are characterized as being sandy loam, 0 to 2 percent slopes, and occasionally flooded. The map unit consists mainly of very deep, somewhat poorly drained, nearly level Iotla and similar soils on flood plains adjacent to streams.”

The NRCS defines a hydric soil as one that is saturated, flooded or ponded long enough during the growing season to develop anerobic conditions in the upper part of the soil. Such soils usually support hydrophytic vegetation. The soil survey for McDowell County shows no mapped hydric soils within the project study area. No hydric soils were found in the project area during the field investigation.

2.2 WATER RESOURCES

This section contains information concerning those water resources likely to be impacted by the project. Water resource information encompasses physical aspects of the resource, its relationship to major water systems, Best Usage Standards and water quality

of the resources. Probable impacts to these water bodies are also discussed, as well as means to minimize impacts.

2.2.1 Waters Resource Characteristics

Fork Muddy Creek is a perennial tributary within the 03050101 hydrologic unit of the Catawba River Basin. The creek flows southeast through the project area. The reported base width of the creek is 33 feet with a top width of 50 feet. The reported overall depth is 8ft to 15ft with a normal depth of flow of one foot. On the day of the field investigation, the water depth within the creek was approximately 0.5 to 1.0 feet deep. The water was clear and the stream bottom was visible. The bottom substrate consisted of sand, large gravel and cobbles.

2.2.2 Water Quality

The Division of Water Quality (DWQ) has initiated a basinwide approach to water quality management for the 17 river basins within the state. The basinwide approach allows for more intensive sampling of biological, chemical and physical data that are used in basinwide assessment and planning. Benthic macroinvertebrates, or benthos (mostly aquatic insects that live at least part of their life cycle on the bottom substrate of rivers and streams) have been shown to be very sensitive to subtle changes in water quality. The overall species richness and presence of these indicator organisms help to assess the health of streams and rivers. So it follows that the use of benthos data has proven to be a reliable tool when assessing the cleanliness of streams. Polluted streams result in the elimination of intolerant benthic macroinvertebrates which are replaced by more tolerant taxa. The DWQ has developed criteria which is used to assign bioclassifications ranging from "Poor" to "Excellent" to each benthic sample based on the number of taxa present in the more intolerant orders of Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies). The DWQ refers to this method of sampling as EPT sampling and has also developed different criteria for different ecoregions (mountains, piedmont and coastal) in North Carolina. EPT sampling stations are located across the state. River basins are reassessed every five years to detect changes in water quality and to facilitate National Pollution Discharge Elimination System (NPDES) permit review.

The Division of Water Quality does not maintain an EPT sampling station within three miles of the project area.

2.2.3 Best Usage Classification

The Division of Water Quality (DWQ) assigns streams a best usage classification based on the intended uses of the waters. The Division of Water Quality (DWQ) assigns streams a best usage classification based on the intended uses of the waters. Fork Muddy

Creek has a Class C rating (NCDENR-DWQ 1998), indicating the creek's suitability for aquatic life propagation and maintenance of biological integrity, wildlife, secondary recreation, agriculture and any other usage except for primary recreation or as a source of water supply for drinking, culinary or food processing purposes.

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

The Ambient Monitoring System (AMS) is a network of stream, lake and estuarine water quality monitoring stations strategically located for the collection of physical and chemical water quality data. The type of water quality data or parameters that are collected is determined by the classification of the waterbody (freshwater or saltwater) and corresponding water quality standards. There are no AMS stations located within 1.0 mile of the project area.

Point source dischargers located throughout North Carolina are permitted through the NPDES Program. All dischargers are required to register for a permit. There are no permitted NPDES dischargers located within 1.0 mile of the project area.

Non-point source pollution refers to runoff that enters surface waters through stormwater flow or through no defined point of discharge. There are many types of land use activities that can serve as sources of non-point source pollution, including land development, construction, crop production, animal feedlots, failing septic systems, landfills, roads, and parking lots. Sediments and nutrients are major pollution-causing substances associated with non-point source pollution. Others include fecal coliform bacteria, heavy metals, oil and grease, and any other substance that may be washed off the ground and carried into surface waters. The non-point sources that could be identified during the site visit were runoff from SR 1737 and from adjacent parking areas.

2.2.4 Anticipated Impacts to Water Resources

Fork Muddy Creek will be the only stream that will be impacted by the proposed project. Within the permanent right-of-way, approximately 36 linear feet of stream will be impacted by the installation of the RCBC.

The greatest impact to water resources in the project study area will be at the stream crossing, which will require vegetation clearing and fill placement in and/or around the streambed and floodplain. The replacement of the bridge with a box culvert will result in permanent alteration of the streambed and could diminish the movement of aquatic species through avoidance of the structure or by removing possible habitat for benthic organisms. These impacts should diminish over time if substrate begins to accumulate in the culvert. Short-term impacts include erosion and sedimentation of the streambed, which may occur during construction activities. Other adverse affects may include

degradation of water quality, disturbance of the stream bottom, alterations of water levels and flows due to interruptions and/or additions to surface and ground water flow, and increased turbidity during construction. Highly turbid waters can result in oxygen depletion, coating of gills on fish, incapacitation and potential death of filter feeding organisms, changes in light incidence and water clarity, and interference with spawning activities. The installation of a box culvert can significantly diminish fish and other aquatic animal movements. Impacts are especially detrimental to the less mobile benthic organisms. Many fish may exhibit an avoidance response and leave the immediate area.

Impacts to water quality will be minimized by adherence to NCDOT's "Best Management Practice for Protection of Surface Waters" (June 1991). In addition, a detailed sediment and erosion control plan consisting of best management practices should be developed for the project. Sedimentation and erosion can be reduced through sediment controls such as retention/detention basins, limits on the extent of disturbed areas, turbidity curtains, and discharging stormwater over vegetated buffers. Cut and fill areas should be slope graded appropriately and vegetated promptly. Best management practices to control non-point source pollution will aid in delaying the entry of hazardous material spills into the stream.

This project consists of replacing a deficient bridge with a reinforced concrete box culvert. The new structure is proposed to be placed at the same location and roadway grade as the existing bridge. Capacity, traffic patterns and access improvements are not a part of the project's scope of work. Thus, changes in the patterns of development and/or land uses in the vicinity of the bridge project would not be anticipated as stemming from the bridge's replacement. This type of project is not anticipated to alter the existing land uses or increase accessibility to adjacent parcels. Thus, a detailed cumulative impacts study would not be needed.

3.0 BIOTIC RESOURCES

Biotic resources include terrestrial and aquatic ecosystems. This section describes those ecosystems encountered in the study area, as well as the relationships between fauna and flora within these ecosystems. Composition and distribution of biotic communities throughout the project area are reflective of topography, hydrologic influences and past and present land uses in the study area.

Descriptions of the terrestrial systems are presented in the context of plant community classifications and follow descriptions presented by Schafale and Weakley (1990) where possible. Dominant flora and fauna observed, or likely to occur, in each community are described and discussed.

Scientific nomenclature and common names (when applicable) are provided for each animal and plant species described. Subsequent references to the same organism will include the common name only. Fauna observed during the site visit are denoted by an asterisk (*). Published range distributions and habitat analysis are used in estimating fauna expected to be present within the project area.

3.1 TERRESTRIAL COMMUNITIES

Two terrestrial communities were identified in the project study area through aerial interpretation and field observation conducted on August 14, 2002. The communities identified include an alluvial forest community and maintained/disturbed areas. A photographed image of the project study area is shown on Figure 2.

3.1.1 Alluvial Forest Communities

Within the project study area, forested communities occurred along the northeast and southwest banks of Fork Muddy Creek from SR 1737. These somewhat disturbed forests consist of river birch (*Betula nigra*), sycamore (*Platanus occidentalis*), and white oak (*Quercus alba*) as overstory dominants. Understory and ground cover species composition include saplings of the overstory dominants mixed with red maple (*Acer rubrum*), privet (*Ligustrum sinense*), jewelweed (*Impatiens capensis*), tree of heaven (*Ailanthus altissima*), smartweed (*Polygonum* spp), and kudzu (*Pueraria lobata*).

Alluvial forests provide food, shelter, foraging and nesting resources for a relatively diverse population of wildlife. These areas may be particularly suited to wildlife diversity when they act as an ecotone adjacent to maintained/disturbed areas. Terrestrial faunal species are likely to exploit all communities as shelter and foraging resources or as movement corridors.

3.1.2 Maintained/Disturbed Areas

Maintained/disturbed areas are present in the project study area along the maintained right-of-way for SR 1737 and along the southeast and northwest shoreline of Fork Muddy Creek. Dominant vegetation include fescue (*Festuca* sp.), crab grass (*Digitaria* sp.) and golden rod (*Solidago* spp). The northwest shoreline is mostly void of vegetation, inundated with fill and utilized as a parking area.

Mammals likely to inhabit forested areas include the gray squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor*), eastern chipmunk (*Tamias striatus*), and Virginia opossum (*Didelphis virginiana*). The transitional areas are likely to be inhabited by the eastern cottontail (*Sylvilagus floridanus*), woodchuck* (*Marmota monax*), and many varieties of small rodents such as field mice (*Peromyscus* sp.) and voles (*Microtus* spp).

Common reptiles and amphibians likely to be found in these type forested communities include the eastern box turtle (*Terrapene carolina*), black rat snake (*Elaphe obsoleta*), wood frog (*Rana sylvatica*), and redback salamander (*Plethodon cinereus*). In addition to these species, the black racer (*Coluber constrictor*), eastern garter snake (*Thamnophis sirtalis*), and copperhead (*Agkistrodon contortix*) are likely to be found in the transitional areas.

Avian species likely to be found in these forested communities include the blue jay (*Cyanocitta cristata*), red-bellied woodpecker (*Melanerpes carolinus*), tufted titmouse (*Parus bicolor*), and red-tailed hawk (*Buteo jamaicensis*). The common crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), and American kestrel (*Falco sparverius*) are most likely to be found in the transitional areas.

3.2 AQUATIC COMMUNITIES

This category typically includes streams and waterbodies within a project study area. Fork Muddy Creek is the only stream within the study area. It is described in detail in Section 2.2.

No intensive fish or aquatic organism surveys were performed on the stream. However, during a cursory visual survey, an abundant number of small fish were observed within the stream north of SR 1737 and dobsonfly larvae were observed on the underside of stones within the streambed south of SR1737. According to the WRC, typical fish species that are likely to inhabit such areas include the creek chub (*Semotilus atromaculatus*), common sucker (*Catostomas commersoni*), longnose dace (*Rhinichthys cataractae*), blacknose dace (*Rhinichthys atractulus*), and rock bass (*Ambloplites rupestris*). During a scoping meeting on May 4, 2000, it was stated that the NC Wildlife Resource Commission (WRC) has reviewed the project plans and has no special concerns.

Common benthic invertebrates found in such communities would include stoneflies, caddisflies, and crayfish (*Cambarus* spp.) In addition to these invertebrate species, the pickeral frog (*Rana catesbiana*), mountain dusky salamander (*Desmognathus ochrophaeus*), and northern water snake (*Nerodia sipedon*) are likely to occur within the stream as well.

3.3 SUMMARY OF ANTICIPATED IMPACTS TO BIOTIC COMMUNITIES

Construction of the proposed bridge project will have various impacts on the biotic resources described. Any construction related activities in or near these resources have the potential to impact biological functions. This section quantifies and qualifies impacts to the natural resources in terms of area impacted and ecosystems affected. Table 1 shows the impacts for the proposed project within the permanent right-of-way. Estimated

aquatic impacts are based on the proposed bridge structure. Estimated terrestrial impacts are based upon a project length of 500 ft and a ROW width of 80 ft. These impacts are derived using the entire proposed right of way width; however, project construction does not usually require the entire right of way, therefore, actual impacts may be considerably less.

Table 1. Anticipated Impacts to Biotic Communities	
Community type	Permanent Impacts(ac)
Alluvial Forest	.04
Maintained/Disturbed Area	<0.01
Fork Muddy Creek	.03
Total	.07

3.3.1 Terrestrial Communities

Calculated impacts to terrestrial resources reflect the relative abundance of each community present within the study area. Project construction will result in clearing and degradation of portions of these communities

Plant communities found within the proposed project area serve as nesting and sheltering habitat for various wildlife. Replacing Bridge No. 183 will temporarily reduce habitat for faunal species, thereby diminishing faunal numbers. Animals temporarily displaced by construction activities should repopulate areas suitable for the species. Due to the relatively small size and scope of this project, it is anticipated that impacts to fauna will be minimal.

3.3.2 Aquatic Communities

Aquatic communities are sensitive to small changes in their environment. Stream channelization, scouring, siltation, sedimentation and erosion from construction-related work will affect water quality and biological constituents. Although direct impacts may be temporary, environmental impacts from these construction processes may result in long term or irreversible effects. Impacts often associated with in-stream construction include increased channelization and scouring of the streambed. In-stream construction alters the stream substrate and may remove streamside vegetation (which is vital for streambank stabilization) at the site. Disturbances to the substrate will produce siltation, which clogs the gills and/or feeding mechanisms of benthic organisms (sessile filter-feeders and deposit-feeders), fish and amphibian species. Benthic organisms can also be

covered by excessive amounts of sediment. Many of these organisms are slow to recover or repopulate a stream.

Erosion and sedimentation carry soils, toxic compounds and other materials into aquatic communities at the construction site. These processes magnify turbidity and can cause the formation of sandbars at the site and downstream, thereby altering water flow and the growth of vegetation. Streamside alterations also lead to more direct sunlight penetration and to elevations of water temperatures, which may impact many species.

4.0 JURISDICTIONAL TOPICS

This section provides descriptions, inventories and impact analysis pertinent to two important issues--Waters of the United States and Rare and Protected Species.

4.1 WATERS OF THE UNITED STATES

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

4.1.1 Impacts to Wetlands and Surface Waters

No wetlands will be impacted by the subject project as the Fork Muddy Creek has well defined banks within the bridge replacement corridor. Investigation into the wetland occurrence in the project impact area was conducted using methods of the 1987 Wetland Delineation Manual. Project construction cannot be accomplished without infringing on jurisdictional surface waters. Anticipated surface water impacts fall under the jurisdiction of the USACE. Up to 36 linear feet of permanent jurisdictional surface water impacts may occur due to the proposed replacement of Bridge No. 183. Temporary impacts may also occur during construction.

4.1.2 Clean Water Act Section 303(d) Streams

The DWQ has assembled a list of impaired waterbodies according to the Clean Water Act Section 303(d) and 40 CFR 130.7, hereafter referred to as the NC 2000 Section 303(d) list. The list is a comprehensive public accounting of all impaired waterbodies. An impaired waterbody is one that does not meet water quality standards including

designated uses, numeric and narrative criteria and anti-degradation requirements defined in 40 CFR 131. The standards violation may be due to an individual pollutant, multiple pollutants, pollution, or an unknown cause of impairment. The source of impairment could be from point sources, nonpoint sources, and atmospheric deposition. Some sources of impairment exist across state lines. North Carolina's methodology is strongly based on the aquatic life use support guidelines available in the Section 305(b) guidelines (EPA-841-B-97-002A and -002B). Those streams attaining only Partially Supporting (PS) or Not Supporting (NS) status are listed on the NC 2000 Section 303(d) list. Streams are further categorized into one of six parts within the NC 2000 Section 303(d) list, according to source of impairment and degree of rehabilitation required for the stream to adequately support aquatic life. Within Parts 1, 4, 5, and 6 of the list, N.C. has developed a priority ranking scheme (low, medium, high) that reflects the relative value and benefits those waterbodies provide to the State.

Fork Muddy Creek (Coperning Creek), from The Town of Marion WTP to North Muddy Creek in McDowell County, is listed as biologically impaired water in Part 5 of the NC 2000 Section 303(d) list. Part 5 contains biologically impaired waterbodies with no identified cause of impairment. Roughly half of the waters on the list appear on Part 5. Identification of the cause(s) of impairment will precede movement of these waters to Part 1 (impaired by a pollutant as defined by EPA) and Part 2 (impaired by pollution as defined by EPA). EPA recognized that in specific situations the data is not available to establish a total maximum daily load (TMDL) and that these specific waters might be better placed on a separate part of the NC 2000 Section 303(d) list (64 FR, 46025, August 23, 1999). Data collection and analysis will be performed in an attempt to determine a cause of impairment. According to DWQ, the listing is historical for "sediment" based on biological impairment. Potential Sources are urban runoff and storm sewers. The priority for value and benefits of this stretch of Fork Muddy Creek is low. Because the proposed road improvement project may contribute to the source of impairment it may be necessary to conduct an Indirect and Cumulative Impacts Analysis of the project to the health of this stream.

4.1.3. Impacts from Bridge Demolition

Bridge No. 183 has a timber deck on steel I-beams resting on vertical concrete abutments. There is the potential for spans of the bridge deck to be dropped into the water during removal of this bridge. Removal of the vertical abutments may result in as much as 30 cubic yards of concrete being temporarily placed in waters of the United States. All temporary fill material will be removed from Fork Muddy Creek as soon as possible as part of the bridge removal process. The project engineer has also stated that care and creativity on the part of the contractor may significantly reduce the total amount of temporary fill.

4.1.4 Avoidance, Minimization and Mitigation

Since this project will not impact jurisdictional wetlands, mitigation will not be required. NCDOT's **Best Management Practices for Protection of Surface Waters** will be implemented, as applicable, to minimize adverse impacts to surface waters.

4.1.5 Permits

Construction is likely to be authorized as a Categorical Exclusion under the Federal Highway Administration (FHWA) guidelines and pursuant to Section 404 of the Clean Water Act (CWA). A Nationwide Permit No. 23 may be required by the USACE for Categorical Exclusion's due to the expected minimal impacts. Nationwide Permit No. 33 may also be required for temporary construction access. It will be up to the USACE to determine the applicability of Nationwide Permit No. 23 for this project. Depending upon the decision by the USACE, a Nationwide Permit No. 23 may be applicable for all impacts to Waters of the United States from the proposed project.

McDowell County is one of the 25 counties designated as having trout waters. Projects in these trout water areas must be reviewed and approved by the WRC prior to issuance of the USCOE permit. Also, Section 401 of the CWA requires that the state issue or deny water quality certification for any federally permitted or licensed activity that may result in a discharge to the waters of the United States prior to issuance of USACOE permits. Nationwide permits 23, 33 and General Permit No. 198200031 require a Pre-Discharge Notification (PDN) to the NCDWM before certification can be issued.

Foundation investigations may be required on this project. The investigations will include test borings in soil and/or rock for on-site testing as well as obtaining samples for laboratory testing. This may require test borings in streams.

5.0 RARE AND PROTECTED SPECIES

Some populations of plants and animals have been in, or are in, the process of decline either due to natural forces or their inability to coexist with human activities. Federal law (under the provisions of the Endangered Species Act of 1973, as amended) requires that any action likely to adversely affect a species classified as federally protected be subject to review by the US Fish and Wildlife Service (FWS). Other species may receive additional protection under separate state laws. Rare and protected species listed for McDowell County, and any impacts to these species as a result of the proposed project construction are discussed in the following sections.

5.1 FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act (ESA) of 1973, as amended. As of March 2, 2002, the FWS lists the following federally protected species for McDowell County (Table 2). A brief description of each species' characteristics and habitat requirements follows.

Table 2. Federally-Protected Species for McDowell County		
SCIENTIFIC NAME	COMMON NAME	STATUS
<i>Clemmys muhlenbergii</i>	Bog turtle	Threatened (S/A)
<i>Haliaeetus leucocephalus</i>	Bald eagle	Threatened (proposed for delisting)
<i>Hudsonia montana</i>	Mountain golden heather	Threatened
<i>Isotna medeoloides</i>	Small whorled pogonia	Threatened

Threatened: A taxon “in danger of extinction throughout all or a significant portion of it’s range.”

Threatened (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.

Name: *Clemmys muhlenbergii* (Bog turtle)

Status: T(S/A)

Family: Emydidae

Date Listed: November 4, 1997

Bog turtles are small [three to 4.5 inches (7.6 to 11.4 centimeters)] semiaquatic turtles that have a dark brown carapace and black plastrons. They usually exhibit distinctive orange or yellow blotches on each side of the head and neck.

The bog turtle inhabits shallow, spring fed fens, sphagnum bogs, swamps, marshy meadows, pastures which have soft, muddy bottoms, and clear, cool, slow-flowing water, often forming a network of rivulets. Bog turtles inhabit damp grassy fields, bogs, and marshes in the mountains and upper Piedmont.

The bog turtle is not biologically endangered or threatened and is not subject to Section 7 consultation and therefore does not require a biological conclusion.

***Haliaeetus leucocephalus* (bald eagle)**

Status: Endangered

Animal Family: Accipitridae

Date Listed: March 11, 1967

Bald eagles are found in North America from Florida to Alaska. The only major nesting population in the southeast is in Florida, other nesting occurs in coastal areas of Louisiana, Mississippi, and South Carolina. Migrants and rare nesting pairs do occur elsewhere in the southeast.

Adult bald eagles can be identified by their large white head and short white tail. The body plumage is dark-brown to chocolate-brown in color. Immature eagles lack the white head plumage; the body plumage has a uniform brownish to blackish color with blotchy white on the underside of the wings, belly, and tail. In flight bald eagles can be identified by their flat wing soar. Adults range in length from 27 to 37 inches and have a wingspan ranging from 70 to 90 inches.

There are several factors that affect an eagle's selection of a nest site. Eagle nests are found in close proximity to water (within 0.50 mi) with a clear flight path to the water, in the largest living tree in the area, and having an open view of the surrounding land. Human disturbance can cause an eagle to abandon otherwise suitable habitat. Eagle nests are approximately ten feet in diameter.

The breeding season for the bald eagle begins in December or January. Fish are the major food source for bald eagles. Other sources include coots, herons, and wounded ducks. Food may be live or carrion.

BIOLOGICAL CONCLUSION: ~~MAY AFFECT NOT LIKELY TO ADVERSELY AFFECT~~

NO EFFECT

Suitable open water that would provide feeding habitat for the bald eagle is not present within one mile of the project area, therefore, nesting habitat does not exist at this site. The North Carolina Natural Heritage Program (NHP) database was reviewed on December 12, 2002 and no records of existing bald eagle occurrences were found within 1.00 mi (1.61 km) of the project area. Thus, no impacts to the bald eagle should result from project construction.

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Name: *Hudsonia montana* (Mountain golden heather)

Status: Threatened

Plant family: Cistaceae

Date listed: October 20, 1980

Flowers Present: Late May-June

Distribution in NC: Burke, McDowell Counties

Mountain golden heather is a low, needle-leaved shrub with yellow flowers and long stalked fruit capsules. It usually grows in clumps of 10.16 to 20.32 centimeters (4 to 8 inches) across and approximately 15.0 centimeters (6 inches) high. The leaves are alternate and point toward the tops of the branches. The plant may be yellow-green, especially when growing in the shade. New leaves appear in May, although dead and brown leaves from previous years will persist on the older branches. Flowers bloom from late May to June.

Mountain golden heather grows on gorge rim out crops, rocky summits, pine-oak/heath ridges, rock cliffs, and shrub balds at 2,800 to 4,000 feet elevation. It typically inhabits exposed quartzite ledges in the transition between bare rock and sandmyrtle-dominated heath balds which merge into pine/oak forests. May survive for a while in areas shaded by pines.

BIOLOGICAL CONCLUSION

NO EFFECT

Suitable habitat in the form of quartzite ledges are not present in the project area. The project area elevation of approximately 1257 feet is also considerably less than the elevations of 2,800 to 4,000 feet elevations reported to be necessary for propagation. A review of the North Carolina NHP database indicated no known occurrence of Mountain golden heather within 1.6 km (1.0mi) of the project area. It can therefore be concluded that this project will not affect this species.

***Isotria medeoloides* (small whorled pogonia)**

Status: Threatened

Plant Family: Orchidaceae

Date Listed: September 10, 1982

Flowers Present: mid May-mid June

Distribution in NC: Burke, Haywood, Henderson, Jackson, Macon, McDowell, Surry.

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

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

BIOLOGICAL CONCLUSION

UNRESOLVED

Although the project site does not contain the ideal habitat described for the existence of small whorled pogonia, it does contain a habitat that loosely fits the description. It may be necessary to conduct a survey before a conclusive determination of its absence or presence can be made.

5.2 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 its provisions, including Section 7, until they are formally listed or proposed as Threatened or Endangered. However, the status of these species is subject to change, and therefore should be included for consideration. FSC are defined as a species that is under consideration for listing but for which there is insufficient information to support listing. In addition, organisms, which are listed as Endangered (E), Threatened (T), or Special Concern (SC) by the North Carolina Natural Heritage Program list of Rare Plant and Animal Species, are afforded state protection under the NC State Endangered Species Act and the NC Plant Protection and Conservation Act of 1979.

There are 13 Federal Species of Concern (FSC) listed by the FWS for McDowell County. Detailed surveys for these species were not conducted during the site visit, nor were any of these species observed. A review of the NHP database of rare species and unique habitats on August 14, 2002, revealed no federal species of concern within one mile of the project area.

Table 3 lists the Federal Species of Concern, the species' state status and the presence of suitable habitat for each species in the study area.

Table 3. Federal Species of Concern For McDowell County			
Scientific name	Common name	State Status	Habitat Present
<i>Dendroica cerulea</i>	Cerulean warbler	SR	Yes
<i>Contopus borealis</i>	Olive-sided flycatcher	SC	Yes
<i>Neotoma floridana haematoresia</i>	Southern appalachian woodrat	SC	Yes
<i>Neotoma magister</i>	Alleghany woodrat	SC	Yes
<i>Caecidotea carolinensis</i>	Bennett's Mill Cave water slater	SR	No
<i>Speyeria diana</i>	Diana fritillary butterfly	SR	Yes
<i>Carex roanensis</i>	Roan sedge	SR-T	Yes
<i>Delphinium exaltatum</i>	Tall larkspur	E-SC	No
<i>Hymenocallis coronaria</i>	Rocky shoal spider lily	NL	No
<i>Juglans cinerea</i>	Butternut	NL	No
<i>Lilium grayi</i>	Gray's lily	T-SC	Yes
<i>Monotropsis odorata</i>	Sweet pinesap	SR-T	Yes
<i>Shortia galacifolia</i> var <i>brevistyla</i>	Northern oconee-bells	E-SC	Yes

T : Denotes Threatened (species which are afforded protection by state laws.)
E: Denotes Endangered (species which are afforded protection by state laws.)
SC: Denotes Special Concern (species which are afforded protection by state laws)
SR: Denotes Significantly Rare (species for which population monitoring and conservation action is recommended)
NL: Denotes species for which the state status is unlisted at this time

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MT

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

July 3, 2003

MEMORANDUM TO: John Williams, P.E.
Project Planning Engineer

FROM: ^{KML} Karen M. Lynch, Environmental Specialist
Office of the Natural Environment

SUBJECT: Proposed Bridge Replacement of Bridge No. 83 on SR 1737
over Muddy Creek, McDowell County. Federal Aid Project
No. BRZ-1737(5), State Project No. 8.2871901, TIP No.
B-3873.

The proposed action calls for replacement of Bridge No. 83 on SR 1737 over Muddy Creek. Small whorled pogonia (*Isotria medeoloides*) is federally-listed by the U. S. Fish and Wildlife Service as "Threatened" and occurring in McDowell County. On June 9, 2003, NCDOT biologists visited a known population of this plant at South Mountain State Park in Burke County. In early June, small whorled pogonia plants had finished blooming and had produced seed, but were easily recognized.

After observing a known population of small whorled pogonia, NCDOT biologists, Logan Williams and Karen M. Lynch, surveyed for habitat for small whorled pogonia within the project limits of the proposed bridge replacement site (referenced above). The project area consists of manicured lawns, industrial parking lots, fescue grass (*Festuca* sp.) and prolific growths of kudzu (*Pueraria lobata*). Habitat for small whorled pogonia does not exist within the project area. A description of *Isotria medeoloides* follows.

Isotria medeoloides (small whorled pogonia) **Threatened**
Plant Family: Orchidaceae
Federally Listed: September 10, 1982
Flowers Present: mid May- end of May
Distribution in N.C.: Burke, Haywood, Henderson, Jackson, Macon, Surry.

Small whorled pogonia is a perennial orchid having long pubescent roots and a hollow stem. Stems terminate in a whorl of five or six light green, elliptical leaves that

are somewhat pointed. One or two light green flowers are produced at the end of the stem. Flowers of small-whorled pogonia have short sepals.

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

Biological Conclusion

No Effect

Because no habitat exists for small whorled pogonia, it can therefore be concluded that replacing bridge No. 83 will have "No Effect" on small whorled pogonia.

cc: Heather Montague, Permit Specialist
Office of the Natural Environment

