STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

January 5, 2009

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

ATTN: Mr. David Baker
NCDOT Coordinator

Dear Sir:

Subject: **Application for Section 404 Nationwide Permits 13 & 33** for the proposed replacement of Bridge No. 72 over Mud Creek on SR 1137 (Crail Farm Rd. / Middleton Rd.) in Henderson County, Federal Aid Project No. BRZ-1137(3); Division 14; TIP No. B-4545
$240.00 debit from WBS 33759.1.1

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 72 over Mud Creek on SR 1137 with a 32-foot X 10-foot, 3-sided precast (arched bottomless) concrete culvert. There will be 0.005 acre of temporary surface water impacts and 64 linear feet of permanent surface water impacts from bank stabilization. No mitigation is warranted for these impacts.

Please see enclosed copies of the Pre-Construction Notification (PCN), permit drawings, and design plans for the above-referenced project. The Programmatic Categorical Exclusion (PCE) was completed on January 16, 2008, and distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of September 15, 2009 and a review date of July 28, 2009.

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD
SUITE 240
RALEIGH NC 27604

A copy of this permit application will be posted on the NCDOT Website at: http://www.ncdot.org/doh/preconstruct/pe/. If you have any questions or need additional information, please call Bill Barrett at (919) 715-1624.

Sincerely,

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

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

w/o attachment (see permit website for attachments)
- Dr. David Chang, P.E., Hydraulics
- Mr. Victor Barbour, P.E., Project Services Unit
- Mr. Greg Perfetti, P.E., Structure Design
- Mr. Mark Staley, Roadside Environmental
- Mr. J. B. Setzer, P.E, Division Engineer
- Mr. Mark Davis, DEO
- Mr. Jay Bennett, P.E., Roadway Design
- Mr. Majed Alghandour, P. E., Programming and TIP
- Mr. Art McMillan, P.E., Highway Design
- Mr. Scott McLendon, USACE, Wilmington
- Mr. Greg Blakeney, PDEA Project Planning Engineer

Office Use Only: Form Version March 05

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

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

I. Processing

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

2. Nationwide, Regional or General Permit Number(s) Requested: NW-13 & NW -33

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

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

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

II. Applicant Information

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

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. 72 over Mud Creek on SR 1137 (Crail Farm RD / Middleton Rd)

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4545

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

4. Location
   County: Henderson Nearest Town: Hendersonville
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): from US 64 in Hendersonville, take US 25 south to SR 1127, take SR 1127 south to SR 1137, take SR 1137 to crossing of Mud Creek (site).

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): -82.48 °N 35.28 °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Mud Creek, Class C Water

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

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: Bridge No. 72 is a two-span, one-lane bridge that was

constructed in 1963. The bridge is 31 feet long and approximately 16 feet wide. The existing deck is 12 feet above the creek bed. The existing roadway at the site is gravel, and will reamin a gravel surface at the completion of the project. The area to the south of Mud Creek is Rich Cove Forest, the area to the northeast is Laurel Rock Acres golf course, and the area to the northwest is pasture/agriculture.

10. Describe the overall project in detail, including the type of equipment to be used: Bridge No. 72 will be removed and replaced with a pre-cast arched bottomless culvert. The Standard bridge demolition techniques and equipment will be utilized. The entire bridge is constructed of timber with steel girders. Therefore, the bridge will be removed without dropping any components into Waters of the U.S.

11. Explain the purpose of the proposed work: The purpose of this project is to replace Bridge No. 72 with a precast arched bottomless culvert. NCDOT Bridge Maintenance Unit records indicate Bridge No. 72 has a sufficiency rating of 53.6 out of a possible 100 for a new structure. The bridge has a higher than expected sufficiency rating and structural appraisal from the addition of an interior support bent. The bridge is considered functinally obsolete due to deck geometry of 3 out of 9 according the FHWA standards. The superstructure and substructure of Bridge No. 72 have timber elements that are 43 years old, which have an increasing degree of deterioration that can no longer be addressed by reasonable maintenance activities.

IV. Prior Project History

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

V. Future Project Plans

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

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

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

1. Provide a written description of the proposed impacts: There will be 0.005 acre of temporary impacts associated with the installation of the culvert, and 64 linear feet of permanent stream impacts from the placement of riprap along the bank downstream of the culvert.

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

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

3. List the total acreage (estimated) of all existing wetlands on the property: N/A

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

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	Mud Creek	permanent	P	59	64	0.019
1	Mud Creek	temporary	P	58	35	0.005
Total Stream Impact (by length and acreage)					99	0.024

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

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

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

Stream Impact (acres):	0.024
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	0.024
Total Stream Impact (linear feet):	99

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

   _____

   _____

8. Pond Creation
   If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.
   Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
   Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.):_____

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.):_____
Current land use in the vicinity of the pond:_____
Size of watershed draining to pond:_____ Expected pond surface area:_____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.A bottomless culvert will be utilized at the site to avoid and minimize impacts to the stream substrate. The standard Best Management Practices (BMPs) and the BMPS for Bridge Removal will be ahered to.

VIII. Mitigation

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

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

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

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions

and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

The installation of an arched, bottomless culvert and the placement of riprap along the stream banks are not considered to be loss of Waters of the U.S., therefore, NCDOT proposes no mitigation for the 65 linear feet of permanent stream impacts. There are no Water Supply (WS-I or WS-II), HQW or ORW being impacted.

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

Amount of stream mitigation requested (linear feet):_____
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)

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

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

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

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide

justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

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

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

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

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

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

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level.The roadway grade of the new structure will be approximately the same as the existing grade. The roadway will not be paved and will remain a gravel surface. As such, additional impervious surface will not be added.

XII. Sewage Disposal (required by DWQ)

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

XIII. Violations (required by DWQ)

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

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

XIV. Cumulative Impacts (required by DWQ)

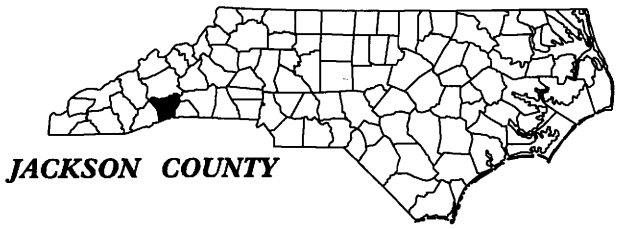
Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina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

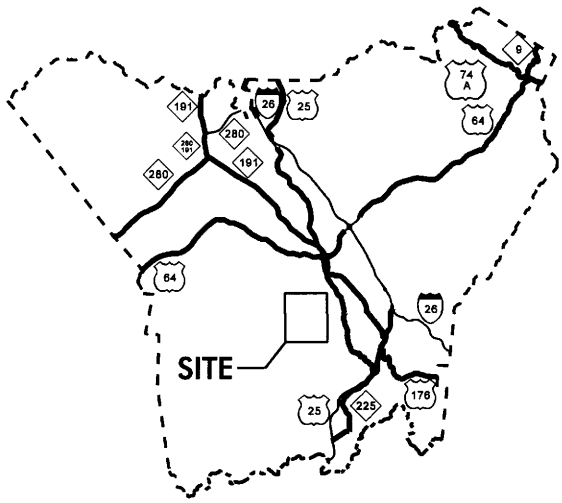
XV. Other Circumstances (Optional):

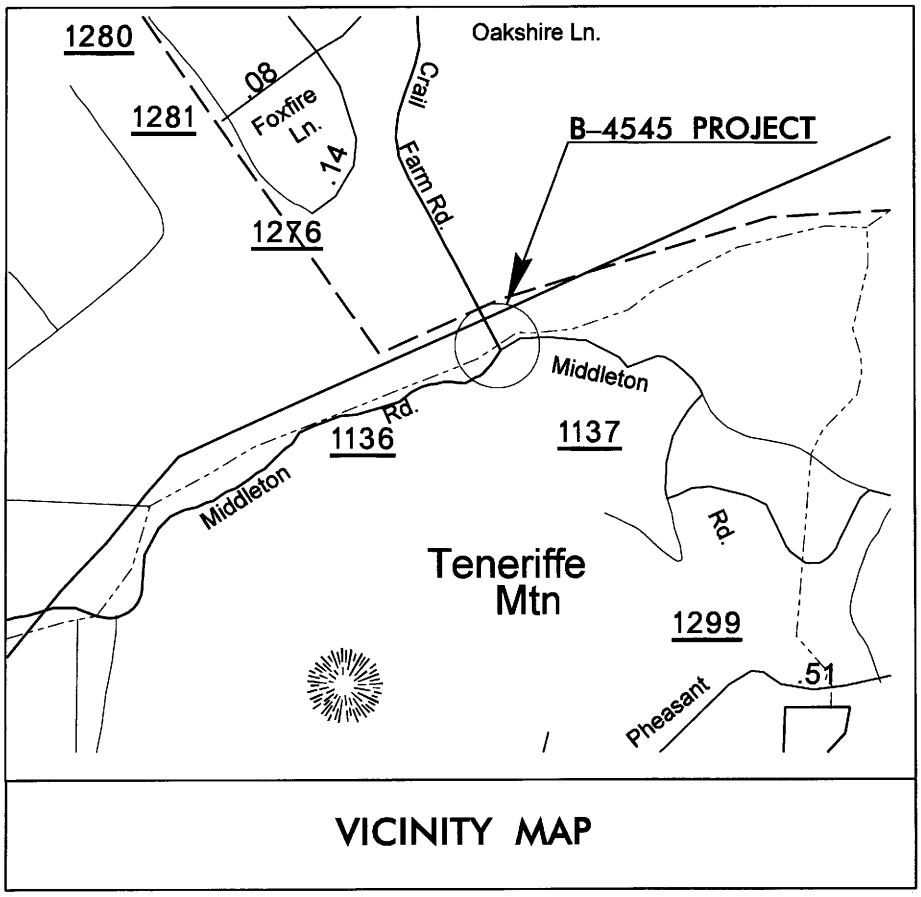
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).
On January 11, 2008, NCDOT biologist re-evaluated the project area based on the design plans, which included the actual footprint of the project. The project footprint contains no habitat for any of the protected species listed for Henderson County. The biological Conclusion for all species is No Effect.

E. L. Lusk — Jan 5, 2009

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







VICINITY MAP

STREAM IMPACTS VICINITY MAP

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
HENDERSON COUNTY

PROJECT: 33759.1.1 (B-4545)

BRIDGE NO. 72 OVER MUD CREEK ON SR 1137 (CRAIL FARM RD./ MIDDLETON RD.)

SHEET 1 OF 9 11/17/08

PROPERTY OWNERS

NAMES AND ADDRESSES

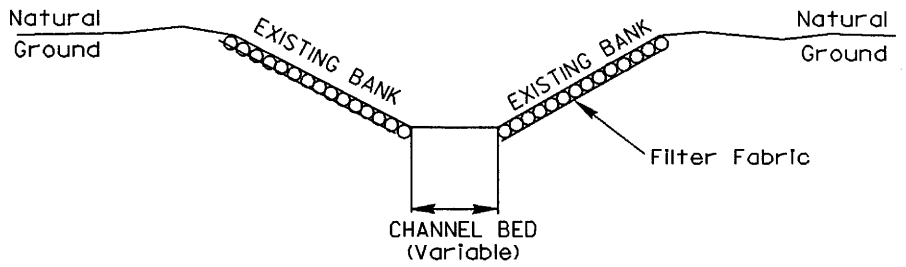
PARCEL NO.	NAMES	ADDRESSES
1	DANIEL RAVENEL JR.	68 Broad St. Charleston, SC 29401
2	THE BROCK ARMS LIVING TRUST	662 Middleton Rd. Flat Rock, NC 28731
3	FRED G. SHEALY TTEE	709 5th Ave. West Hendersonville, NC 28739
4	PAUL M. GOODEN LENNA S. GOODEN	3010 Peanut Plant Rd. Elizabethtown, NC 28337

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
HENDERSON COUNTY

PROJECT: 33759.1.1 (B-4545)

BRIDGE NO. 72 OVER MUD CREEK
ON SR 1137 (CRAIL FARM RD./
MIDDLETON RD.)

BANK STABILIZTION
AT OUTLET OF CULVERT



Length= 60 Ft.
TO TOP OF BANK
Est 80 SY of Filter Fabric
Est.= 75 Tons of Class I Rip-Rap

(Not to Scale)

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
HENDERSON COUNTY

PROJECT: 33759.1.1 (B-4545)

BRIDGE NO. 72 OVER MUD CREEK ON SR 1137 (CRAIL FARM RD./ MIDDLETON RD.)

SHEET 3 OF 9 11/17/08

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
1	10+29.40 To 10+61.40	Prop. 32'x x 10' Bottomless Culvert						0.019	0.005	64	35	
TOTALS:								0.019	0.005	64	35	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

COUNTY

WBS - 33759.1.1 (B-4545)

SHEET 4 of 9 12/2/2008

ATN Revised 3/31/05

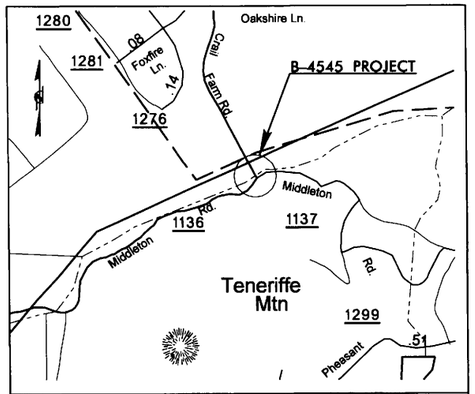
09/08/09

TIP PROJECT: B-4545

CONTRACT:

$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGNS$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4545	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33759.1.1	BRZ-1137(3)	PE	

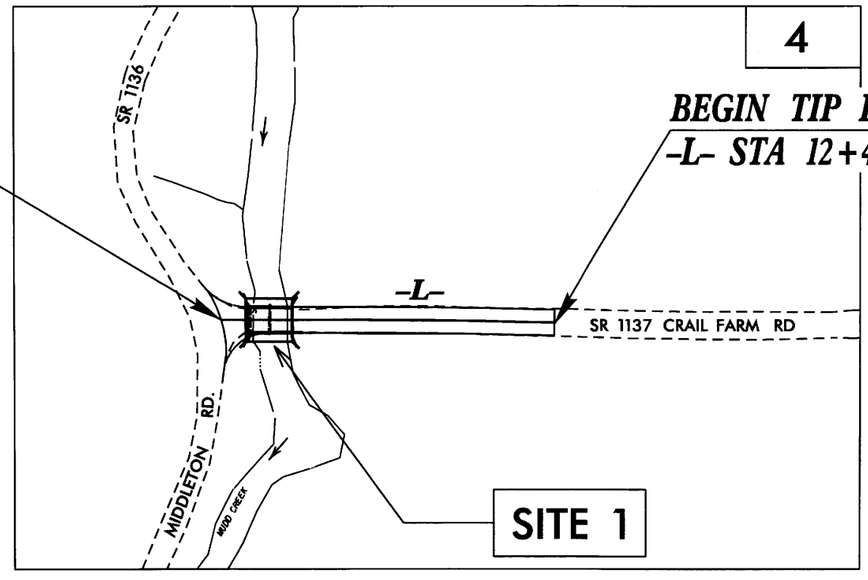
Permit Drawing
Sheet 5 of 9

LOCATION: ***BRIDGE 72 OVER MUD CREEK ON SR 1137 (CRAIL FARM RD /MIDDLETON RD)***

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

STREAM IMPACTS

BEGIN TIP PROJECT B-4545
-L- STA 10+11.00



BEGIN TIP PROJECT B-4545
-L- STA 12+40.00

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDRY

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2004 = 200
ADT 2030 = 300
DHV = 10 %
D ÷ 60 %
T = 4 % *
V = 35 MPH

* TTST 1 DUAL 3

PROJECT LENGTH

LENGTH OF ROADWAY TIP B-4545 = 0.043 MI
TOTAL LENGTH OF TIP B-4545 = 0.043 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 15, 2008

LETTING DATE: SEPTEMBER 15, 2009

TED S. WALLS
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
B-4545	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 6 of 9

NAD 83/95

SEE SHEET 5 FOR -L- PROFILE

-L-

PI Sta 11+50.74
Δ = 1° 12' 30.8" (RT)
D = 1° 08' 45.3"
L = 105.47'
T = 52.74'
R = 5,000.00'

PI Sta 13+44.92
Δ = 1° 36' 52.8" (LT)
D = 1° 08' 45.3"
L = 140.91'
T = 70.46'
R = 5,000.00'

DANIEL RAVENEL JR
DB 517 PG 159

FRED G. SHEALY TTEE
SHEALY SURGICAL CENTER, P.A P/S
FRED G. SHEALY JR., M.D. TRUSTEE
DB 909 PG 689

POT Sta. 10+00.00

PROPOSED 32' X 10' BOTTOMLESS CULVERT

BRIDGE DESCRIPTION
WOOD DECK & BST SURFACE
WOOD WINGWALLS & WOOD ENDWALLS
WOOD PIER
WOOD RAILS
5 STEEL BEAMS
CONC FOUNDATION ON SOUTH END OF BRIDGE

PC Sta. 12+74.47

PT Sta. 14+15.37

POT Sta. 18+37.81

LOW GROUND @ CRAWL SPACE DOOR
EL. = 2109.3'

FINISHED FLOOR
EL. = 2112.3'

JULIE G. ALSUP
DB 3951 PG 215

BEGIN TIP PROJECT B-4545
-L- STA 10+11.00

END TIP PROJECT B-4545
-L- STA 12+20.00

SITE 1
SEE INSET

PAUL M. GOODEN
LENNA S. GOODEN
PT Sta. 12+03.47 671
TRACT 1

THE BROCK ARMS LIVING TRUST
DB 1107 PG 433

-L- 14+40.60(9.41 LT)

-L- 17+81.34 (6.43' LT)

-L- 10+19.00 (19.41' RT)

N 27° 42' 40.4" W

N 26° 30' 09.6" W

N 28° 07' 02.4" W

SR 1137 CRAIL FARM ROAD

RETAIN

INSET

SITE 1

AT-1

TYPE B-77

TYPE B-77 F

TYPE B-77 C

GRAU

GRAU 350

MAINTAINED R/W

EXISTING R/W

WOOD RAIL

SCALE 1" = 40'

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
B-4545	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 7 of 9

NAD 83/95

SEE SHEET 5 FOR -L- PROFILE

BEGIN TIP PROJECT B-4545
-L- STA 10+11.00

PI Sta 11+50.74
Δ = 1° 12' 30.8" (RT)
D = 1° 08' 45.3"
L = 105.47'
T = 52.74'
R = 5,000.00'

PI Sta 13+44.92
Δ = 1° 36' 52.8" (LT)
D = 1° 08' 45.3"
L = 140.91'
T = 70.46'
R = 5,000.00'

-L-

DANIEL RAVENEL JR
DB 1517 PG 159

FRED G. SHEALY TTEE
SHEALY SURGICAL CENTER, P.A P/S
FRED G. SHEALY JR., M.D. TRUSTEE
DB 909 PG 689

POT Sta. 10+00.00

PROPOSED 32' X 10' BOTTOMLESS CULVERT

BRIDGE DESCRIPTION
WOOD DECK & BST SURFACE
WOOD WINGWALLS & WOOD ENDWALLS
WOOD PIER
WOOD RAILS
9 STEEL BEAMS
CONC FOUNDATION ON SOUTH END OF BRIDGE

PC Sta. 12+74.47

PT Sta. 14+15.37

-L- 14+40.60 (9.41' LT)

POT Sta. 18+37.81

LOW GROUND @ CRAWL SPACE DOOR
EL. = 2109.3'

FINISHED FLOOR
EL. = 2112.3'

JUDIE G. ALSUP
DB 3951 PG 215

RETAIN

INV.= 2108.31'

INV.= 2105.86'

INV.= 2101.56

SR 1137 CRAIL FARM ROAD

N 26° 30' 09.6" W

N 28° 07' 02.4" W

N 27° 42' 40.4" W

-L- 10+19.00 (19.41' RT)

-L- 17+81.34 (6.43' LT)

END TIP PROJECT B-4545
-L- STA 12+20.00

PC Sta. 10+98.00

PT Sta. 12+03.67

SITE 1
SEE INSET

PAUL M. GOODEN
LEMNA S. GOODEN
DB 671
TRACT 1

JAMIE BROCK ARMS LIVING TRUST
DB 1107 PG 433

POND

S/S DENOTES IMPACTS IN SURFACE WATER

TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

INSET

SITE 1

AT-1

TYPE B-77

TYPE B-77

GRAU

TYPE B-77

GRAU 350

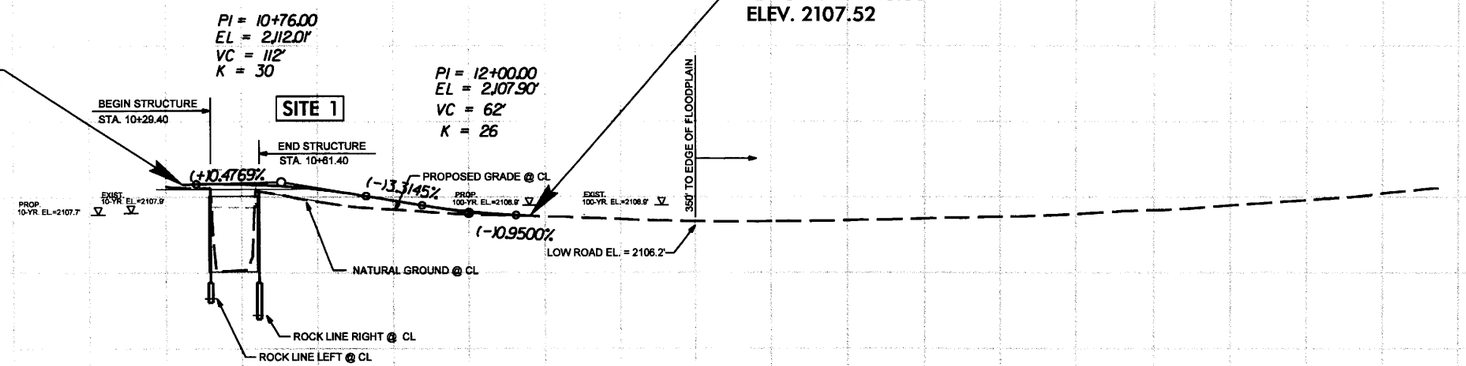
EXISTING R/W

SCALE 1" = 40'

PROJECT REFERENCE NO.	SHEET NO.
B-4545	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 8 of 9



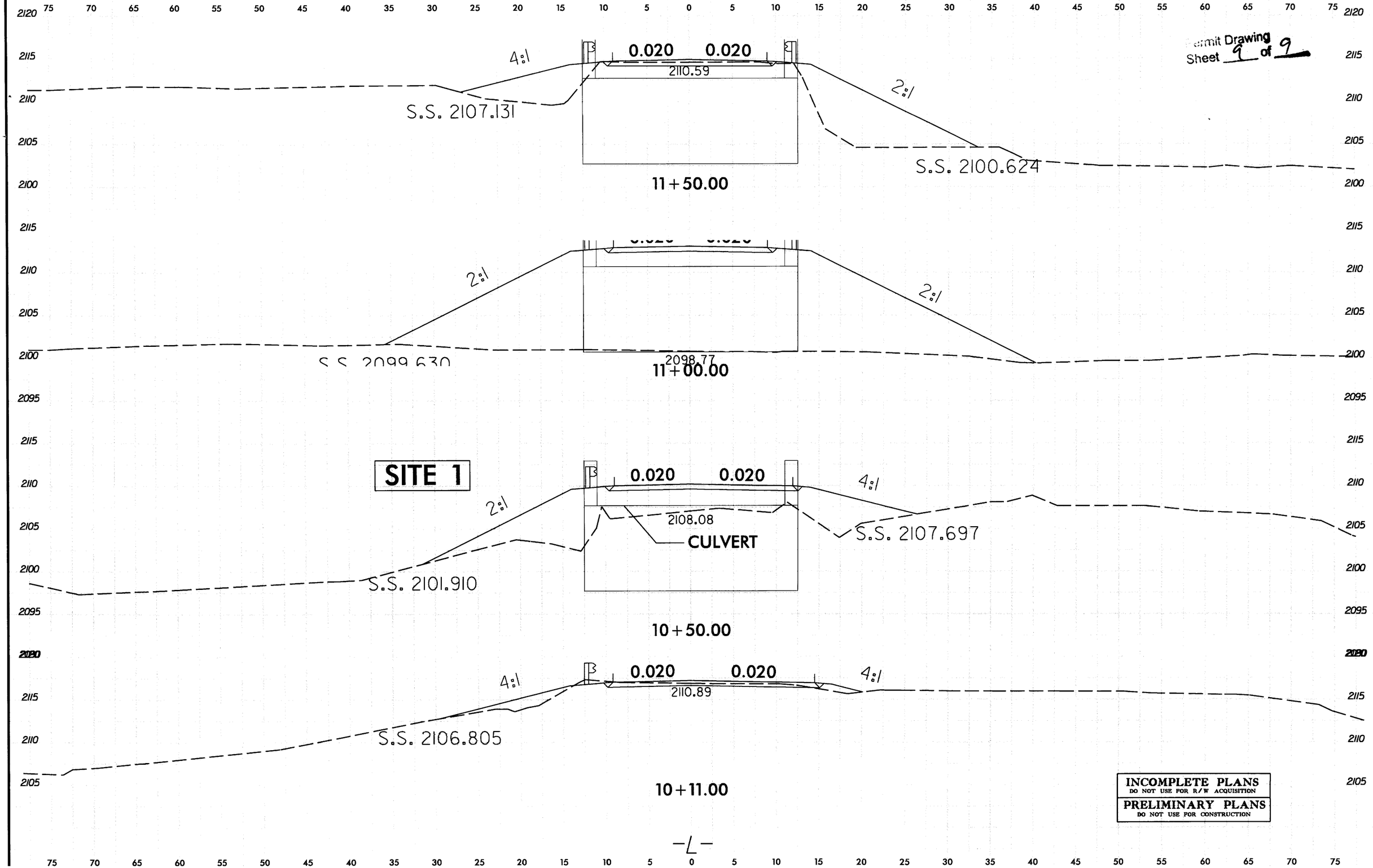
SEE SHEET 4 FOR PLAN VIEW

2210 2200 2190 2180 2170 2160 2150 2140 2130 2120 2110 2100 2090 2080 2070 2060 2050 2040 2030 2020 2010

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4545	X-1

Permit Drawing
Sheet 9 of 9

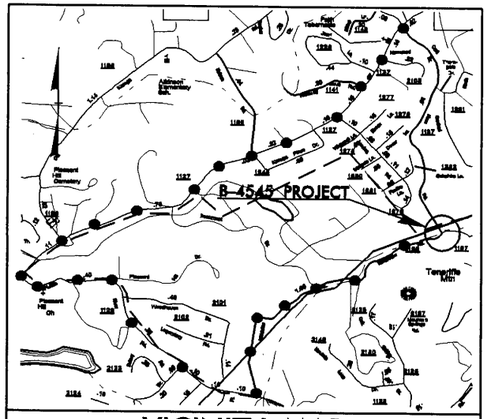


INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

09/08/99

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4545	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33759.1.1	BRZ-1137(3)	PE	

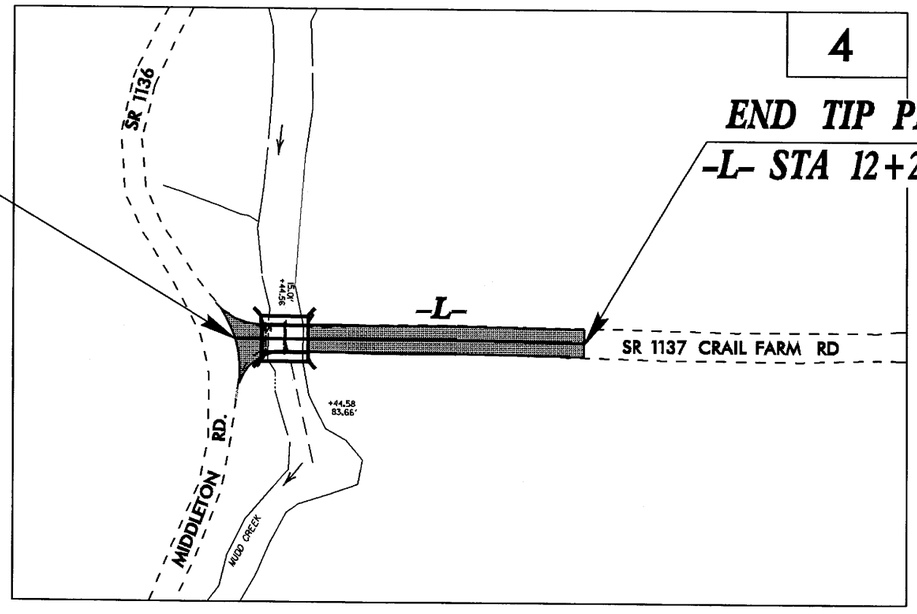
LOCATION: *BRIDGE 72 OVER MUD CREEK ON SR 1137 (CRAIL FARM RD /MIDDLETON RD)*

TYPE OF WORK: *GRADING, DRAINAGE AND CULVERT*

TIP PROJECT: B-4545

CONTRACT:

BEGIN TIP PROJECT B-4545
-L- STA 10+11.00



END TIP PROJECT B-4545
-L- STA 12+20.00

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARY

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2004 = 200
ADT 2030 = 300
DHV = 10 %
D = 60 %
T = 4 % *
V = 35 MPH

* TTST 1 DUAL 3

PROJECT LENGTH

LENGTH OF ROADWAY TIP B-4545 = 0.040 MI
TOTAL LENGTH OF TIP B-4545 = 0.040 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 15, 2008

LETTING DATE: SEPTEMBER 15, 2009

TED S. WALLS
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

20-NOV-2008 14:43
C:\Projects\b-4545_rdy_tsh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4545	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

8/17/99

NAD 83/95

SEE SHEET 5 FOR -L- PROFILE

-L-

PI Sta 11+50.74
Δ = 1° 12' 30.8" (RT)
D = 1° 08' 45.3"
L = 105.47'
T = 52.74'
R = 5,000.00'

PI Sta 13+44.92
Δ = 1° 36' 52.8" (LT)
D = 1° 08' 45.3"
L = 140.91'
T = 70.46'
R = 5,000.00'

BEGIN TIP PROJECT B-4545
-L- STA 10+11.00

END TIP PROJECT B-4545
-L- STA 12+20.00

-BYI-4 5+00.00 POT

-BYI-5 7+43.91 PINC

-BYI-6 11+86.31 POT

-BL-1 5+00.00 POT
9+00.66 PINC
-L- 10+19.00 (19.41' RT)

-BL-2 9+22.26 PINC
-L- 14+40.60 (9.41' LT)

-BL-3 12+63.01 POT
-L- 17+81.34 (6.43' LT)

POT Sta. 10+00.00

PC Sta. 10+98.00

PT Sta. 12+03.47

PC Sta. 12+74.47

PT Sta. 14+15.37

POT Sta. 18+37.81

PROPOSED 32' X 10' BOTTOMLESS C.I.P.U. ARCH

BRIDGE DESCRIPTION
WOOD DECK & BST SURFACE
WOOD WINGWALLS & WOOD ENDWALLS
WOOD PIER
WOOD RAILS
9 STEEL BEAMS
CONC FOUNDATION ON SOUTH END OF BRIDGE

BM #1
-BL- STA 5+04.71
18.30 RIGHT
ELEV. 2111.94

BM #2
OUT OF CHAIN
ELEV. 2113.28

BM #3
-BYI- STA 5+34.88
18.71 LEFT
ELEV. 2110.85

BM #4
OUT OF CHAIN
ELEV. 2111.23

LOW GROUND @ CRAWL SPACE DOOR
EL. = 2109.3'

FINISHED FLOOR
EL. = 2112.3'

DANIEL RAVENEL JR
DB 547 PG 159

FRED G. SHEALY TTEE
SHEALY SURGICAL CENTER, P.A. P/S
FRED G. SHEALY JR., M.D. TRUSTEE
DB 909 PG 689

JULIE G. ALSUP
DB 951 PG 265

PAUL M GOODEN
LENNA S GOODEN
DB 838 PG 671
TRACT 1

THE BROCK ARMS LIVING TRUST
DB 1107 PG 433

MIDDLETON ROAD SR 1137

SR 1137 CRAIL FARM ROAD

MAINTAINED R/W

EXISTING R/W

RETAIN

WOODS

POND

20-NOV-2008 14:43
F:\roadway\prj\b-4545_rdy_psh.dgn
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4545	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	1700 CFS
DESIGN FREQUENCY	=	10 YRS
DESIGN HW ELEVATION	=	2107.8 FT
BASE DISCHARGE	=	3610 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	2108.9 FT
OVERTOPPING DISCHARGE	=	CFS
OVERTOPPING FREQUENCY	=	10 YRS
OVERTOPPING ELEVATION	=	2107.8 FT

BM #1:
8" SPIKE SET IN BASE OF 22 INCH POPLAR TREE
RT OF -L- STA 10+24.81 37.4'
ELEV. 2111.94'

BM #3:
8" SPIKE SET IN BASE OF 16 INCH POPLAR TREE
LT OF -L- STA 10+31.93 290.09'
ELEV. 2110.85'

BEGIN GRADE
-L- STA. 10+11.00
ELEV. 2111.16

PI = 10+55.00
EL = 2111.37'
VC = 90'
K = 11
25 MPH

PI = 11+60.00
EL = 2107.58'
VC = 120'
K = 80
50 MPH

2111.16

2107.22

1+00.00% | -1.50000% | -1.00000%

Ø32"X10'
BOTTOMLESS BC

END GRADE
-L- STA 12+20.00
ELEV. 2107.22

2210 2200 2190 2180 2170 2160 2150 2140 2130 2120 2110 2100 2090 2080 2070 2060 2050 2040 2030 2020 2010

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00

SEE SHEET 4 FOR PLAN VIEW

20-NOV-2008 14:43
C:\Projects\b-4545_rdy_pfl_5.dgn
$$$$USERNAME$$$$

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	**B-4545**
State Project No.	**8.2953001**
W.B.S. No.	**33759.1.1**
Federal Project No.	**BRZ-1137(3)**

A. Project Description:

The purpose of this project is to replace Henderson County Bridge No. 72 on SR 1137 (Crail Farm Road) over Mud Creek. The replacement structure will consist of a precast arched bottomless culvert, 32-foot wide by 10-foot high. The culvert size is based on preliminary design information and is set by hydraulic requirements. This structure will be of sufficient length to provide two 9-foot lanes with 7-foot shoulders on each side. The roadway grade of the new structure will be approximately the same as the existing grade. The roadway will not be paved and will remain a gravel surface.

The approach roadway will extend approximately 180 feet from the northwest end of the new culvert and 20 feet from the southeast end of the new culvert. The approaches will be widened to include a 22-foot gravel roadway width providing two 9-foot lanes, 2-foot shoulders will be provided on each side (7-foot shoulders where guardrail is included). The roadway will be designed as a Rural Local Route with a 35 mile per hour design speed.

Traffic will be detoured off-site during construction (see Figure 1).

B. Purpose and Need:

Bridge No. 72 is a two-span, one-lane bridge that was constructed in 1963. The existing bridge is 31 feet long and approximately 16 feet wide. The existing deck is 12 feet above the creek bed.

NCDOT Bridge Maintenance Unit records indicate Bridge No. 72 has a sufficiency rating of 53.6 out of a possible 100 for a new structure. The existing structure has a higher than expected sufficiency rating and structural appraisal from the addition of an interior support bent. The bridge is considered functionally obsolete due to deck geometry of 3 out of 9 according to Federal Highway Administration (FHWA) standards and therefore eligible for FHWA's Bridge Replacement Program.

The superstructure and substructure of Bridge No. 72 have timber elements that are forty-three years old. Timber components have a typical life expectancy between 40 to 50 years due to the natural deterioration rate of wood. Rehabilitation of a timber structure is generally practical only when a few elements are damaged or prematurely deteriorated. However, past a certain degree of deterioration, most timber elements become impractical to maintain and upon eligibility are programmed for replacement. Timber components of bridge No. 72 are experiencing an increasing degree of deterioration that can no longer

be addressed by reasonable maintenance activities, therefore the bridge is approaching the end of its useful life.

C. Proposed Improvements:

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

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

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

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

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

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

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

4. Transportation corridor fringe parking facilities.

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

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

7. Approvals for changes in access control.

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

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

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

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

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

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

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

D. Special Project Information:

The estimated costs, based on 2008 prices, are as follows:

Structure	$ 234,000
Roadway Approaches	$ 69,350
Detour Structure and Approaches	- 0 -
Structure Removal	$ 8,250
Misc. & Mob.	$ 49,600
Eng. & Contingencies	$ 75,000
Total Construction Cost	$ 436,200
Right-of-way Costs	$ 6,250
Utilities	$ 98,400
Total Project Cost	$ 540,850

Estimated Traffic:

Current	-	200 vpd
Year 2030	-	300 vpd
TTST	-	1%
Dual	-	3%

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

Design Exceptions: Roadway Design Engineers are proposing a 35mph-lane width and vertical curve design this project.

Bridge Demolition: The superstructure of Bridge No. 72 is constructed with a double 2"x 10' timber floor, on a continuous steel girder floor-beam system. The substructure consists of timber abutments with End Bent No.1 on a concrete sill, and the interior bent is composed of a timber cap, timber posts and a timber sill. Both the superstructure and substructure will be removed without dropping components into the Waters of the United States during construction.

Alternatives Discussion:

No Build – The no build alternative would result in eventually closing the road as the existing bridge completely deteriorates.

Rehabilitation – The bridge was constructed in 1963 and the timber materials within the bridge are reaching the end of their useful life. Rehabilitation would require replacing the timber components which would constitute effectively replacing the bridge.

Offsite Detour – Bridge No. 72 will be replaced on the existing alignment. Traffic will be detoured offsite (see Figure 1) during the construction period. NCDOT Guidelines for Evaluation of Offsite Detours for Bridge Replacement Projects considers multiple project variables beginning with the additional time traveled by the average road user resulting from the offsite detour. The offsite detour for this project would include SR 1136 (gravel), SR 1123, and SR 1127. The majority of traffic on the road is through traffic. The detour for the average road user would result in 6.5 minutes additional travel time (2.9 miles additional travel). Up to a 10-month duration of construction is expected on this project.

Based on the Guidelines, the criteria above indicate that on the basis of delay alone the detour is acceptable. Henderson County Emergency Services along with Henderson County Schools Transportation have also indicated that the detour is acceptable. NCDOT Division 14 has indicated the condition of all roads, bridges and intersections on the offsite detour are acceptable without improvement and concurs with the use of the detour.

Onsite Detour – An onsite detour was not evaluated due to the presence of an acceptable offsite detour.

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

New Alignment – Given that the alignment for SR 1137 is acceptable, a new alignment was not considered as an alternative.

Structure Type: The current structure is a bridge built in the 1960's. The reason for building a bridge was not because a culvert would not work but because the design, materials and labor were not practical in the time when this structure was built. A culvert has been determined adequate from a hydraulics standpoint. There are no special resources such as trout or mussels present. Because a culvert is less than half the cost, twice the life expectancy, and virtually no maintenance in comparison to a bridge, a culvert is the preferred structure type.

Other Agency Comments:

The **N.C. Wildlife Resource Commission** in standardized letters provided a request that they prefer any replacement structure to be a spanning structure. Mud Creek is listed as Class C waters on the 303(d) list of impaired waters. The NCWRC also stated that an effort should be made to prevent further degradation of the stream and avoid impacts to the tributary approximately 30 feet downstream of the existing bridge, as well as other waters in the project study area.

Response: At a smaller stream crossing, it is more economical to replace bridges with culverts. Culverts cost less than bridges, require less maintenance throughout their service life than bridges, and last longer than bridges. Therefore, where appropriate NCDOT prefers to use culverts to replace bridges. As there are no protected resources at this site, the proposed culvert will be designed according to current NCDOT design practices. The culvert will bottomless to facilitate fish passage, and placement to minimize channel widening and realignment.

There are no surface waters classified as High Quality Waters (HQW), Water Supplies (WS-I or WS-II), or Outstanding Resource Waters (ORW) located within 1 mi. of Bridge No. 72 over Mud Creek. Mud Creek is included in North Carolina's 303(d) list of impaired water bodies. The cause of impairment is turbidity resulting from agriculture and urban runoff/storm sewers.

The **Tennessee Valley Authority** stated in Scoping Meeting comments that an approval under Section 26a of the TVA Act would likely be needed for the project.

Response: NCDOT will provided TVA with a copy of the signed document. NCDOT will further coordinate with TVA to determine if permits will be warranted for this project.

Public Involvement:

A letter was sent by the Location & Surveys Unit to all property owners affected directly by this project. Property owners were invited to comment. Comments were received from property owners in the area. Their desire is to have a design that will maintain the character of the area and will have minimum to no impacts on the human and natural environments.

E. Threshold Criteria

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

ECOLOGICAL		YES	NO
(1)	Will the project have a substantial impact on any unique or important natural resource?		X
(2)	Does the project involve habitat where federally listed endangered or threatened species may occur?		X

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

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

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES		YES	NO
(15)	Will the project induce substantial impacts to planned growth or land use for the area?		X
(16)	Will the project require the relocation of any family or Business?		X

(17)	Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population?		X
(18)	If the project involves the acquisition of right of way, is the Amount of right of way acquisition considered minor?	X	
(19)	Will the project involve any changes in access control?		X
(20)	Will the project substantially alter the usefulness and/or land use of adjacent property?		X
(21)	Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness?		X
(22)	Is the project included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)?	X	
(23)	Is the project anticipated to cause an increase in traffic Volumes?		X
(24)	Will traffic be maintained during construction using existing roads, staged construction, or on-site detours?	X	
(25)	If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility?	X	
(26)	Is there substantial controversy on social, economic, or Environmental grounds concerning the project?		X
(27)	Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project?	X	
(28)	Will the project have an "effect" on structures/properties Eligible for or listed on the National Register of Historic Places?		X
(29)	Will the project affect any archaeological remains which are Important to history or pre-history?		X
(30)	Will the project require the use of Section 4(f) resources (public parks, recreation lands, wildlife and waterfowl refuges, Historic sites, or historic bridges, as defined in Section 4(f) of the U. S. Department of Transportation Act of 1966)?	X	

(31)	Will the project result in any conversion of assisted public Recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Land and Water Conservation Act of 1965, as amended?	☐	X
(32)	Will the project involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the National System of Wild and Scenic Rivers?	☐	X

F. Additional Documentation Required for Unfavorable Responses in Part E

The North Carolina Department of Transportation, the Federal Highway Administration, and the North Carolina State Historic Preservation Office met on October 30, 2007 to discuss the effect of the Flat Rock Historic District, which is listed on the National Register of Historic Places. It was determined that the construction for this project has "No Effect" on the Flat Rock Historic District, as shown on the attached concurrence form for the assessment of effects. FHWA has made a *De Minimus* determination based on SHPO's concurrence of no historic properties being affected by the project.

(Left Blank Intentionally)

G. CE Approval

TIP Project No.	**B-4545**
State Project No.	**8.2953001**
W.B.S. No.	**33759.1.1**
Federal Project No.	**BRZ-1137(3)**

Project Description:

The purpose of this project is to replace Henderson County Bridge No. 72 on SR 1137 (Crail Farm Road) over Mud Creek. The replacement structure will consist of a precast arched bottomless culvert, 32-foot wide by 10-foot high. The culvert size is based on preliminary design information and is set by hydraulic requirements. This structure will be of sufficient length to provide two 9-foot lanes with 7-foot shoulders on each side. The roadway grade of the new structure will be approximately the same as the existing grade. The roadway will not be paved and will remain a gravel surface.

Categorical Exclusion Action Classification:

____ TYPE II(A)
_X_ TYPE II(B)

Approved:

1/16/08 — Date
William F. Harding
Bridge Project Development Engineer
Project Development & Environmental Analysis Branch

1/16/08 — Date
Bryan D. Kluttz
Project Engineer
Project Development & Environmental Analysis Branch

1/14/08 — Date
Gregory M. Blakeney
Project Planning Engineer
Project Development & Environmental Analysis Branch

For Type II(B) projects only:

1/16/08 — Date
for
John F. Sullivan, III, PE, Division Administrator
Federal Highway Administration

PROJECT COMMITMENTS:

Henderson County
Bridge No. 72 on SR 1137
over Mud Creek
Federal Aid Project No. BRZ-1137(3)
W.B.S. No. 33759.1.1
State Project No. 8.2953001
T.I.P. No. B-4545

All standard procedures and measures, including NCDOT's Best Management Practices for Protection of Surface Waters, Guidelines for Best Management Practices for Bridge Demolition and Removal, will be implemented, as applicable, to avoid or minimize environmental impacts. The following special commitments have been agreed to by NCDOT:

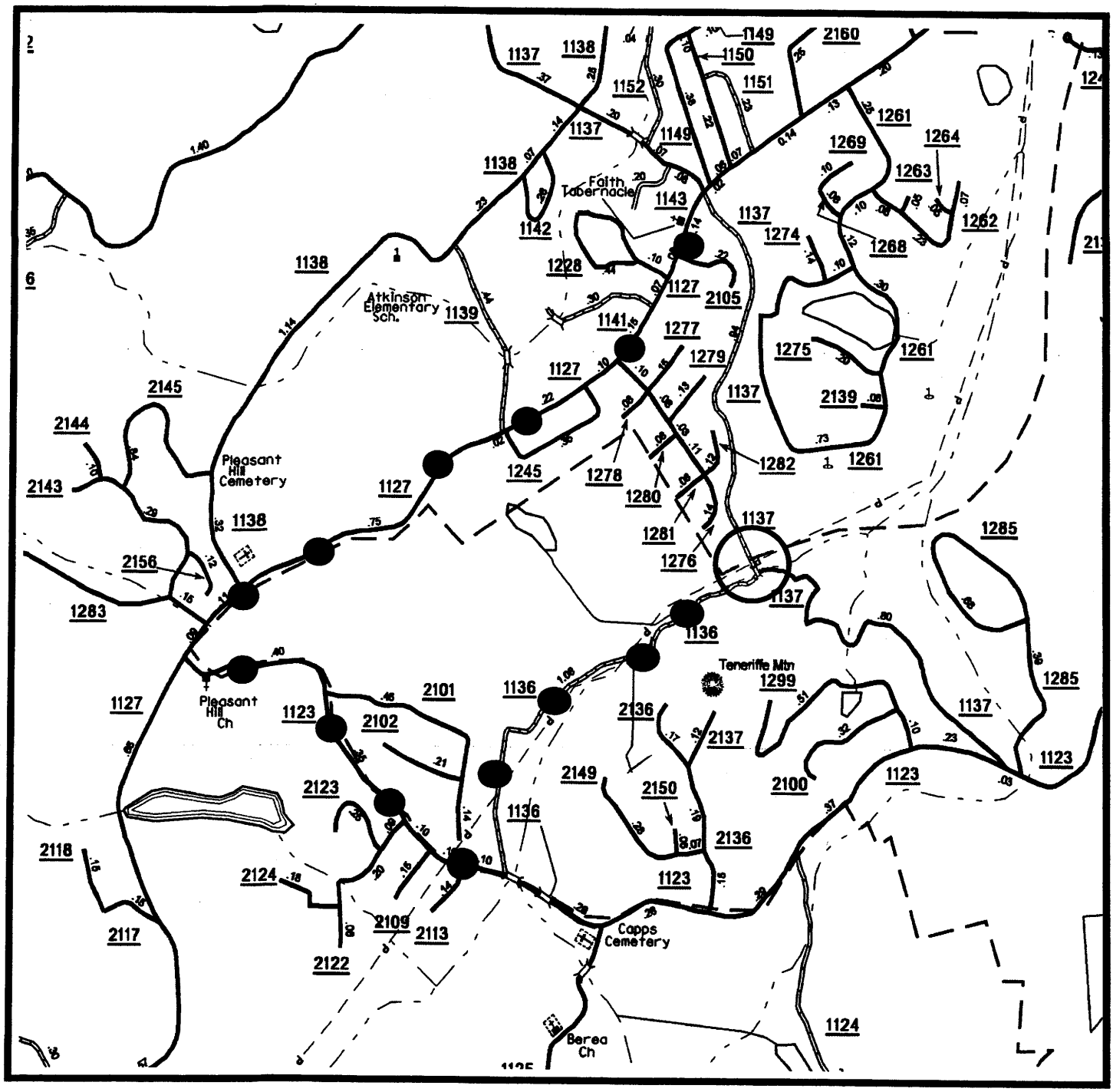
Division 14 Construction:

In order to allow Emergency Management Services (EMS) time to prepare for road closure, the NCDOT Resident Engineer will notify the Director of the Henderson County EMS at (828) 697-4728 of the bridge removal 30 days prior to road closure.

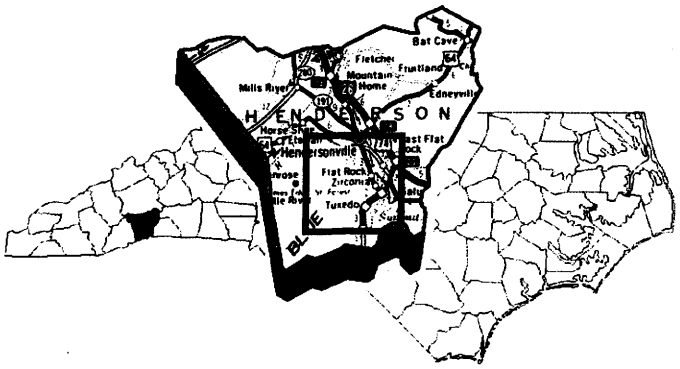
In order to allow Henderson County Schools to prepare for road closure, the NCDOT Resident Engineer will notify the Transportation Director at (828) 697-4739 of the bridge removal 30 days prior to road closure.

Structure Design Unit:

Approval under Section 26a of the Tennessee Valley Authority (TVA) Act will be determined. A copy of the approved Programmatic Categorical Exclusion document will be provided to TVA and the Structural Design Unit shall further coordinate with TVA if permits are required.



STUDIED DETOUR ROUTE



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

HENDERSON COUNTY
REPLACE BRIDGE NO. 72 ON SR 1137
OVER MUD CREEK
B-4545

Figure 1

Federal Aid #**BRZ-1137(3)** *TIP* #**B-4545** *County*: **Henderson**

CONCURRENCE FORM FOR ASSESSMENT OF EFFECTS

Project Description: Replace Bridge No. 72 on SR 1137 over Mud Creek

On 10/30/2007, representatives of the

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

Reviewed the subject project and agreed

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

Signed:

Mary Pope Furr — 10/30/2007
Representative, NCDOT — Date

David Plummer — 10-30-07
FHWA, for the Division Administrator, or other Federal Agency — Date

Representative, HPO — Date

Renee Gledhill-Earley — 10-30-07
State Historic Preservation Officer — Date

Federal Aid #**BRZ-1137(3)** *TIP* #**B-4545** *County*: **Henderson**

Properties within the area of potential effect for which there is no effect. Indicate if property is National Register-listed (NR) or determined eligible (DE).

Flat Rock Historic District (NR) - no effect as per the plans shown 10/30/2007

Properties within the area of potential effect for which there is an effect. Indicate property status (NR or DE) and describe the effect.

Reason(s) why the effect is not adverse (if applicable).

Initialed: NCDOT MPA FHWA DB HPO BGE

FHWA intends to make a deMinimis determination based on SHPO concurrence of no historic properties being affected by the project.