STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

November 19, 2008

Division of Water Quality Central Office
2321 Crabtree Blvd., Suite 250
Raleigh, NC 27604

ATTN: Mr. Rob Ridings
NCDOT Coordinator

Subject: **Application for Tar-Pamlico Riparian Buffer Authorization** for the replacement of Bridge 45 on SR 1600 (Baltimore Road) over Fishing Creek in Warren County, Federal Aid Project Number BRZ-1600 (7), State Project No. 8.2410901, WBS No. 33355.1.1., T.I.P No. B-3921.

Dear Sir,

The North Carolina Department of Transportation (NCDOT) proposes to replace bridge 45 in Warren County. There will be 7494 ft^2 (Zone 1 = 5300 ft^2 and Zone 2 = 2194 ft^2) of allowable buffer impacts to Fishing Creek. These impacts occur as a result of the installation of the interior bents, a temporary crane access mat, and a small section of fill for one of the end bents for the replacement bridge.

Please see the enclosed copies of the permit drawings, design plans, and Pre-Construction Notification (PCN) for the above-referenced project. The Categorical Exclusion (CE) was completed for this project in October 2007 and was distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of June 16, 2009 and a review date of April 28, 2009. A copy of this permit application will be posted on the NCDOT Website at: http://www.ncdot.org/doh/preconstruct/pe/. If you have any questions or need additional information, please call Deanna Riffey at (919) 715-1409.

Sincerely,

E. L. Luck

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

W/attachment
Mr. Eric Alsmeyer, USACE
Mr. J. Wally Bowman, PE., Division Engineer
Mr. Chris Murray, DEO

W/o attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, Project Services Unit
Mr. Gary Jordan, USFWS
Mr. Travis Wilson, NCWRC
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Program. & TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Tracy Walter, PDEA

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

TELEPHONE: 919-715-1334 or
919-715-1335

FAX: 919-715-5501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD. SUITE 240
RALEIGH NC 27604

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: _____

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: North Carolina Department of Transportation
   1598 Mail Service Center, Raleigh, NC 27699
   Telephone Number: 919-733-3141 Fax Number: 919-715-5501
   E-mail Address: _____

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

III. Project Information

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

1. Name of project: Replacement of Bridges 45 on SR 1600 (Baltimore Road) over Fishing Creek.

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3921

3. Property Identification Number (Tax PIN): _____

4. Location
   County: Warren Nearest Town: Warrenton
   Subdivision name (include phase/lot number): _____
   Directions to site (include road numbers/names, landmarks, etc.): 401 north to Baltimore Road prior to Warrenton.

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): 36.36 °N 78.14 °W

6. Property size (acres): _____

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

8. River Basin: Tar-Pamlico (HUC 03020102)
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The land use is primarily forested and SR 1600 is a rural local route.

10. Describe the overall project in detail, including the type of equipment to be used:

Bridge number 45, which is 124-feet, will be replaced east of its existing location with a new 3 span bridge approximately 185 feet in length. A temporary offsite detour will be required to maintain traffic. Heavy duty excavation equipment will be used such as trucks, dozers, cranes and other equipment necessary for roadway construction.

11. Explain the purpose of the proposed work: Improve safety and efficiency of overall traffic operations.

IV. Prior Project History

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

A jurisdictional determination was received for the project on January 2, 2002 for one wetland and Fishing Creek. The determination was not renewed based on the avoidance of the wetland and the stream being a perennial stream. Action Id# 200220364.

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.

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:

Permanent Impacts: There are no permanent impacts to jurisdictional streams or wetlands associated with this project.

Temporary Impacts: No temporary stream impacts to Fishing Creek will result from this project.

Utility Impacts: No jurisdictional impacts by utilities will result from this project.

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

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
					0

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)
Total Stream Impact (by length and acreage)						

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

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

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

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

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

_____

_____

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

VII. Impact Justification (Avoidance and Minimization)

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

developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

NCDOT has eliminated stream impacts by using a longer bridge that spans Fishing Creek and by using an offsite detour. NCDOT will also be using Design Standards for Sensitive Watersheds. Buffer impacts were minimized by incorporating directional bore from upland to upland for the telephone and water utilities.

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 (see DWQ website for most current version.).

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.
   No mitigation is proposed.

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://www.nceep.net/pages/inlieureplace.htm. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

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

IX. Environmental Documentation (required by DWQ)

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

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

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

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

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

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

   There will impacts to the buffer from hand clearing for the aerial power lines. These impacts are located in the 16 foot wide utility corridor. The utility corridor is perpendicular to the stream. The buffer impacts are exempt since this perpendicular crossing impacts less than 150 linear feet of riparian buffer. There will also be buffer impacts from construction of the new bridge. All buffer impacts associated with the bridge are allowable.

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	5300	3 (2 for Catawba)	0
2	2194	1.5	0
Total	7494		

* 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. The utility perpendicular crossing will impact less than 150 linear feet of buffer making the impacts exempt and the bridge impacts allowable.

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.

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.

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).

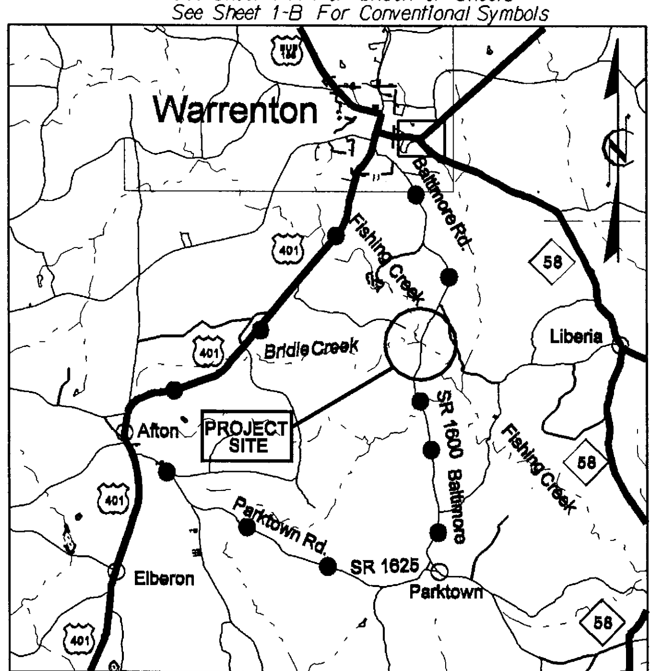
As of January 31, 2008, the United States Fish and Wildlife Service (USFWS) lists two federally protected species for Warren County: the dwarf wedgemussel and the Tar River spinymussel. Surveys were completed in June 2002 and August 2007. Neither of the federally listed species were found. Based on the survey results, the commitment to Design Standards in Sensitive Watersheds, and other available information, the USFWS agreed to a biological conclusion of may affect, not likely to adversely affect the dwarf wedgmussel or Tar River spinymussel in December 2007.

E. L. Lusk — Nov 19, 2008

Applicant/Agent's Signature **Date**

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

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



VICINITY MAP

OFFSITE DETOUR ●●●●

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ENGLISH

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3921	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33355.1.1	BRZ-1600(7)	PE	
33355.2.2	BRZ-1600(7)	R/W & UTIL.	

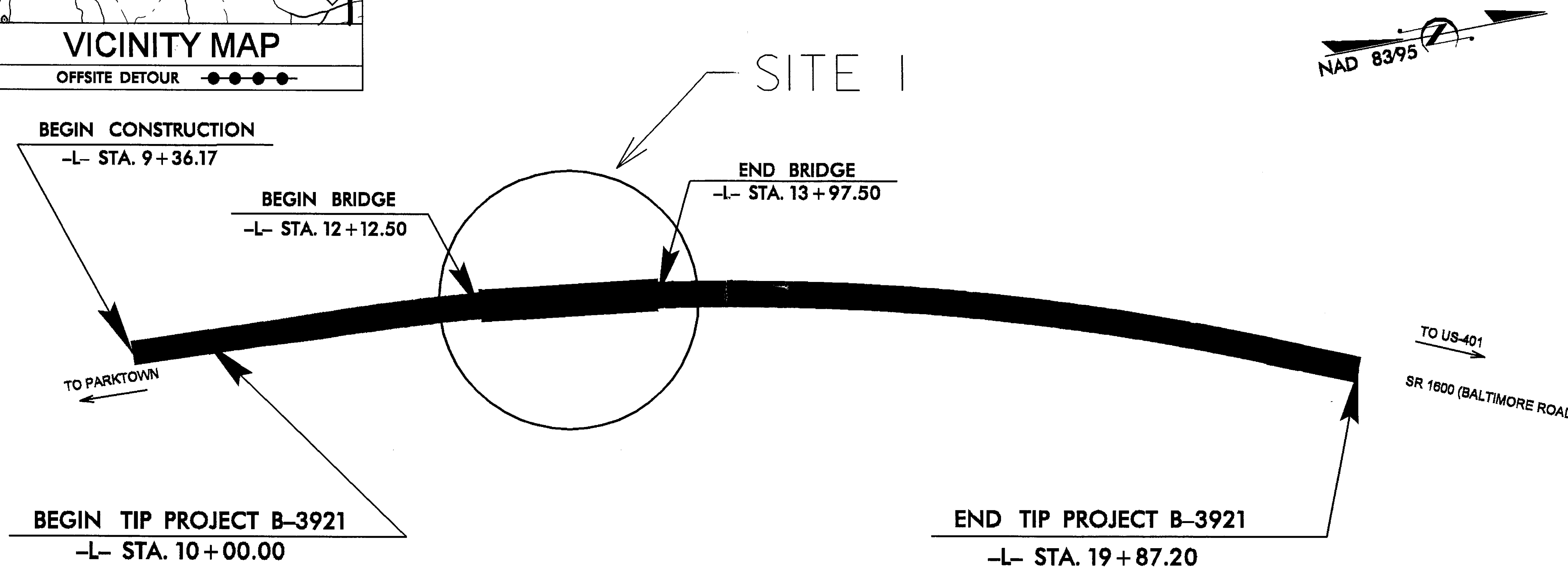
WARREN COUNTY

LOCATION: BRIDGE NO. 45 OVER FISHING CREEK AND APPROACHES ON SR 1600 (BALTIMORE ROAD)

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

Buffer Drawing Sheet 1 of 7

BUFFER PERMIT DRAWINGS



* VERTICAL ALIGNMENT DESIGN EXCEPTION REQUIRED
THIS PROJECT IS NOT WITHIN MUNICIPAL BOUNDARIES

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: B-3921

CONTRACT:

GRAPHIC SCALES

50 0 50 100 — PLANS

50 0 50 100 — PROFILE (HORIZONTAL)

10 0 10 20 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 950
ADT 2030 = 1450
DHV = 14 %
D = 60 %
T = 3 % **
V = 60 MPH *
** TTST 1 % & DUAL 2 %
FUNC CLASS = RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3921 = 0.152 MI
LENGTH STRUCTURES TIP PROJECT B-3921 = 0.035 MI
TOTAL LENGTH TIP PROJECT B-3921 = 0.187 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 20, 2008 — GLENN W. MUMFORD, PE, PROJECT ENGINEER

LETTING DATE: JUNE 16, 2009 — SUSAN C. LANCASTER, PE, PROJECT DESIGN ENGINEER

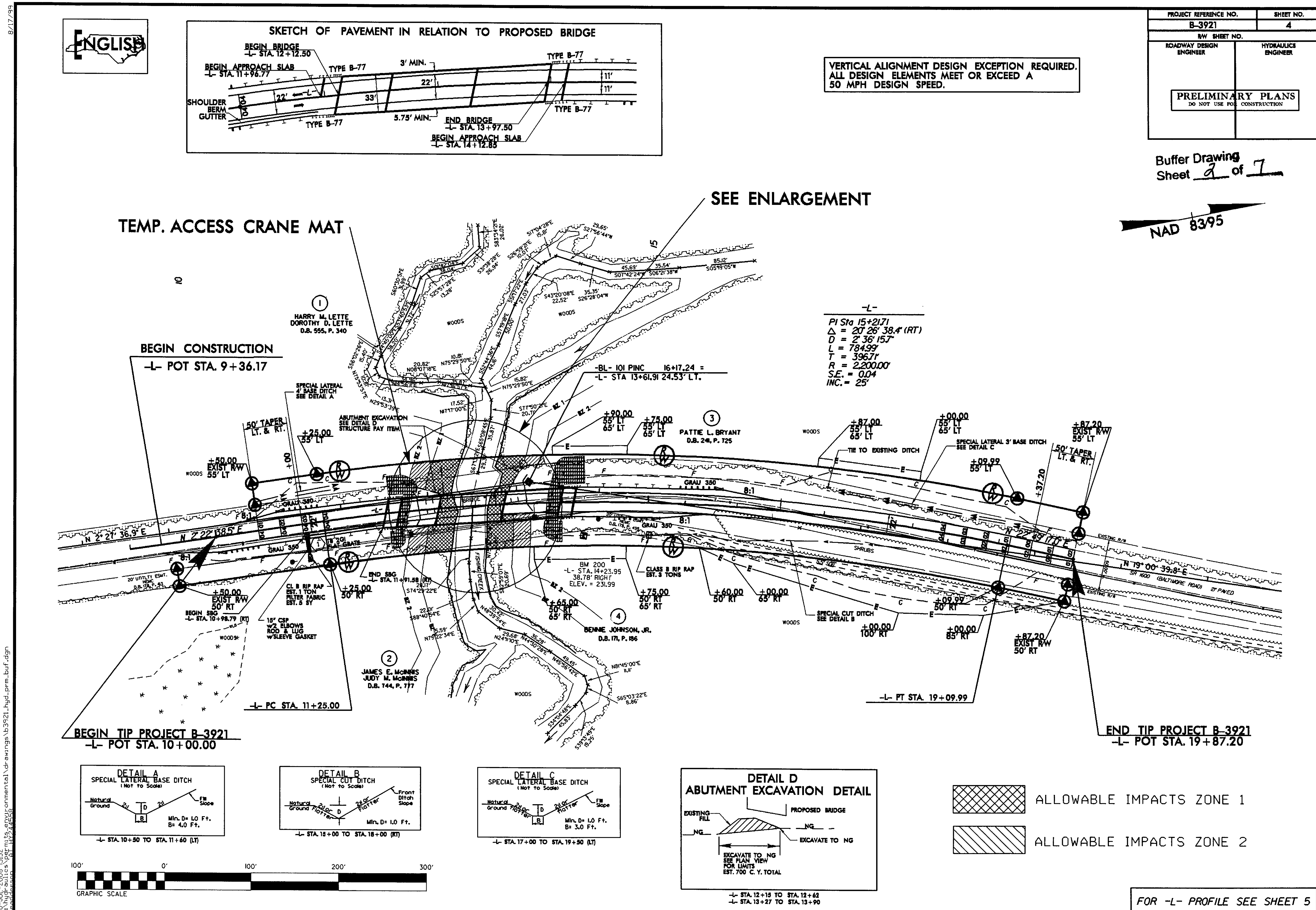
HYDRAULICS ENGINEER
P.E.
SIGNATURE:

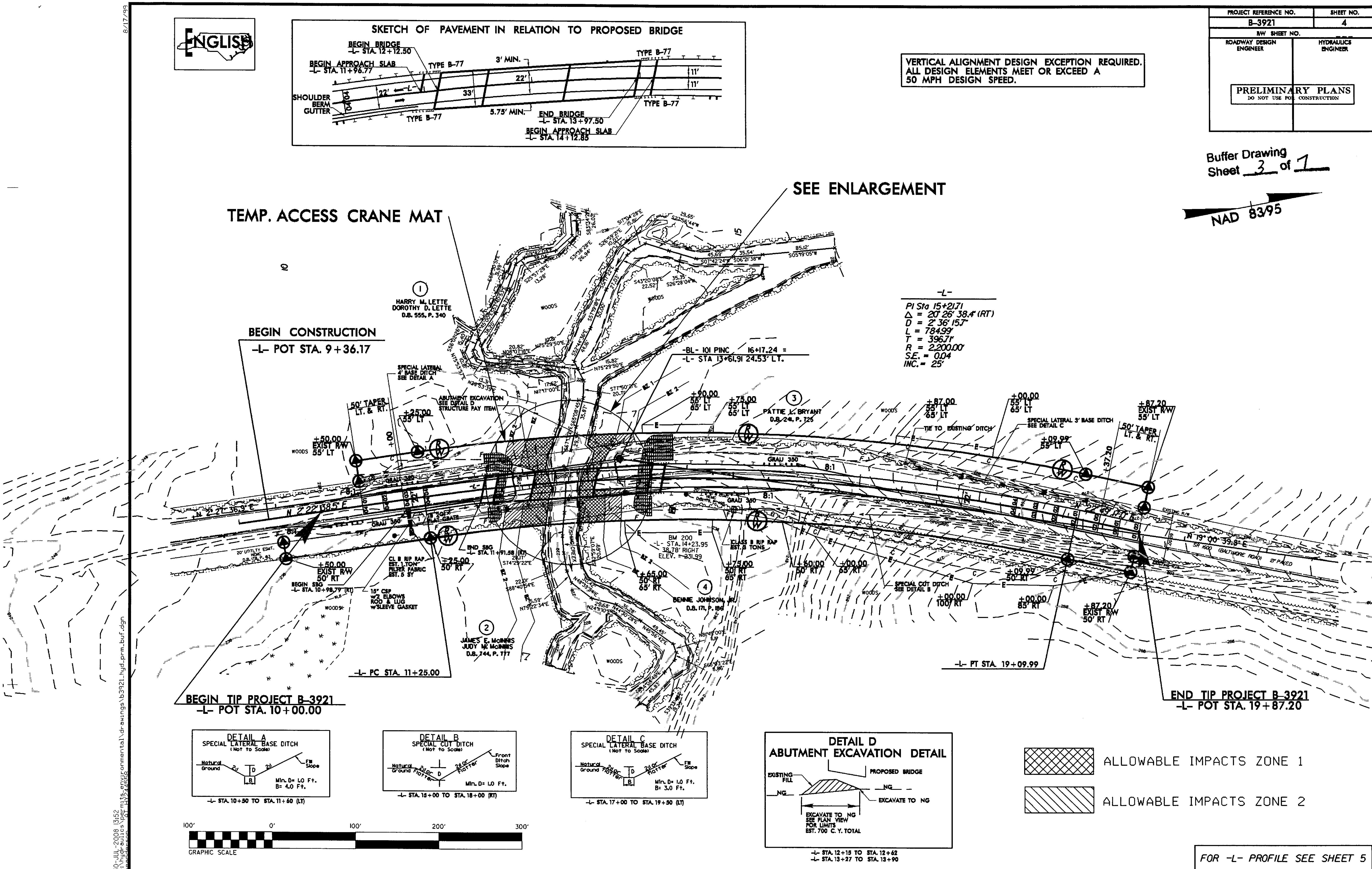
ROADWAY DESIGN ENGINEER
P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
P.E.
STATE HIGHWAY DESIGN ENGINEER

09/08/99

29-JUL-2008 13:11
r:\hydraulics\permits_environmental\drawings\b3921_hyd_prm_buf.dgn
beanderson AT HY244558


ENGLISH
SKETCH OF PAVEMENT IN RELATION TO PROPOSED BRIDGE
BEGIN BRIDGE -L- STA. 12+12.50
BEGIN APPROACH SLAB -L- STA. 11+96.77
TYPE B-77
3' MIN.
22'
33'
11'
SHOULDER BERM GUTTER
5.75' MIN.
END BRIDGE -L- STA. 13+97.50
BEGIN APPROACH SLAB -L- STA. 14+12.85
PROJECT REFERENCE NO.
SHEET NO.
B-3921
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
VERTICAL ALIGNMENT DESIGN EXCEPTION REQUIRED. ALL DESIGN ELEMENTS MEET OR EXCEED A 50 MPH DESIGN SPEED.
Buffer Drawing Sheet 2 of 7
NAD 83/95
SEE ENLARGEMENT
TEMP. ACCESS CRANE MAT
BEGIN CONSTRUCTION
-L- POT STA. 9+36.17
HARRY M. LETTE
DOROTHY D. LETTE
D.B. 555, P. 340
-L-
PI Sta 15+21.71
Δ = 20° 26' 38.4" (RT)
D = 2° 36' 15.7"
L = 784.99'
T = 396.71'
R = 2,200.00'
S.E. = 0.04
INC. = 25'
-BL- 101 PINC 16+17.24 =
-L- STA 13+61.91 24.53' LT.
PATTIE L. BRYANT
D.B. 241, P. 725
SPECIAL LATERAL 4' BASE DITCH SEE DETAIL A
ABUTMENT EXCAVATION SEE DETAIL D STRUCTURE PAY ITEM
50' TAPER LT. & RT.
+50.00 EXIST R/W 55' LT
+25.00 55' LT
+90.00 55' LT 65' LT
+75.00 55' LT 65' LT
+87.00 55' LT 65' LT
+00.00 55' LT 65' LT
+87.20 EXIST R/W 55' LT
TIE TO EXISTING DITCH
SPECIAL LATERAL 3' BASE DITCH SEE DETAIL C
+09.99 55' LT
N 2° 21' 36.9" E
N 2° 22' 38.5" E
N 22° 45' 17.0" E
N 19° 00' 39.8" E
SR 1600 (BALTIMORE ROAD)
+50.00 EXIST R/W 50' RT
+25.00 50' RT
BEGIN SBG -L- STA. 10+98.79 (RT)
END SBG -L- STA. 11+91.58 (RT)
CL B RIP RAP EST. 1 TON FILTER FABRIC EST. 5 SY
15" CSP W/2 ELBOWS ROD & LUG W/SLEEVE GASKET
BM 200 -L- STA. 14+23.95 38.78' RIGHT ELEV. = 231.99
CLASS B RIP RAP EST. 3 TONS
+65.00 50' RT 65' RT
+75.00 50' RT 65' RT
+60.00 50' RT
+00.00 65' RT
SPECIAL CUT DITCH SEE DETAIL B
+00.00 100' RT
+09.99 50' RT
+00.00 85' RT
+87.20 EXIST R/W 50' RT
BENNIE JOHNSON, JR.
D.B. 171, P. 186
JAMES E. McINNIS
JUDY M. McINNIS
D.B. 744, P. 777
-L- PC STA. 11+25.00
-L- PT STA. 19+09.99
BEGIN TIP PROJECT B-3921
-L- POT STA. 10+00.00
END TIP PROJECT B-3921
-L- POT STA. 19+87.20
WOODS
DETAIL A
SPECIAL LATERAL BASE DITCH (Not to Scale)
Min. D= 1.0 Ft. B= 4.0 Ft.
-L- STA. 10+50 TO STA. 11+60 (LT)
DETAIL B
SPECIAL CUT DITCH (Not to Scale)
Min. D= 1.0 Ft.
-L- STA. 18+00 TO STA. 18+00 (RT)
DETAIL C
SPECIAL LATERAL BASE DITCH (Not to Scale)
Min. D= 1.0 Ft. B= 3.0 Ft.
-L- STA. 17+00 TO STA. 19+50 (LT)
DETAIL D
ABUTMENT EXCAVATION DETAIL
EXISTING FILL
PROPOSED BRIDGE
NG
EXCAVATE TO NG
EXCAVATE TO NG SEE PLAN VIEW FOR LIMITS EST. 700 C. Y. TOTAL
-L- STA. 12+15 TO STA. 12+62
-L- STA. 13+27 TO STA. 13+90
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
GRAPHIC SCALE
100' 0' 100' 200' 300'
FOR -L- PROFILE SEE SHEET 5
30-JUL-2008 13:52
8/17/99



PROJECT REFERENCE NO. B-3921
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
SKETCH OF PAVEMENT IN RELATION TO PROPOSED BRIDGE
BEGIN BRIDGE -L- STA. 12+12.50
BEGIN APPROACH SLAB -L- STA. 11+96.77
TYPE B-77
3' MIN.
22'
33'
11'
SHOULDER
BERM
GUTTER
5.75' MIN.
END BRIDGE -L- STA. 13+97.50
BEGIN APPROACH SLAB -L- STA. 14+12.85
VERTICAL ALIGNMENT DESIGN EXCEPTION REQUIRED. ALL DESIGN ELEMENTS MEET OR EXCEED A 50 MPH DESIGN SPEED.
Buffer Drawing Sheet 3 of 7
NAD 83/95
SEE ENLARGEMENT
TEMP. ACCESS CRANE MAT
BEGIN CONSTRUCTION -L- POT STA. 9+36.17
HARRY M. LETTE
DOROTHY D. LETTE
D.B. 555, P. 340
-L-
PI Sta 15+21.71
Δ = 20° 26' 38.4" (RT)
D = 2° 36' 15.7"
L = 784.99'
T = 396.71'
R = 2,200.00'
S.E. = 0.04
INC. = 25'
-BL- 101 PINC 16+17.24 = -L- STA 13+61.91 24.53' LT.
PATTIE L. BRYANT
D.B. 24, P. 725
BM 200
-L- STA. 14+23.95
38.78' RIGHT
ELEV. = 231.99
BENNIE JOHNSON, JR.
D.B. 171, P. 186
JAMES E. McINNIS
JUDY M. McINNIS
D.B. 744, P. 777
-L- PC STA. 11+25.00
-L- PT STA. 19+09.99
BEGIN TIP PROJECT B-3921 -L- POT STA. 10+00.00
END TIP PROJECT B-3921 -L- POT STA. 19+87.20
SR 1600 (BALTIMORE ROAD)
WOODS
DETAIL A
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D= 1.0 Ft.
B= 4.0 Ft.
-L- STA. 10+50 TO STA. 11+60 (LT)
DETAIL B
SPECIAL CUT DITCH
(Not to Scale)
Min. D= 1.0 Ft.
-L- STA. 18+00 TO STA. 18+00 (RT)
DETAIL C
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D= 1.0 Ft.
B= 3.0 Ft.
-L- STA. 17+00 TO STA. 19+50 (LT)
DETAIL D
ABUTMENT EXCAVATION DETAIL
PROPOSED BRIDGE
EXISTING FILL
NG
EXCAVATE TO NG
EXCAVATE TO NG SEE PLAN VIEW FOR LIMITS EST. 700 C.Y. TOTAL
-L- STA. 12+15 TO STA. 12+62
-L- STA. 13+27 TO STA. 13+90
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
GRAPHIC SCALE
100' 0' 100' 200' 300'
FOR -L- PROFILE SEE SHEET 5
30-JUL-2008 13:52

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-3921	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 4 of 7

ENGLISH

* VERTICAL ALIGNMENT DESIGN EXCEPTION REQUIRED
ALL DESIGN ELEMENTS MEET OR EXCEED A
50 MPH DESIGN SPEED

PROPOSED 27" PRESTRESSED
CONCRETE BOX BEAM BRIDGE
1 SPAN @ 45'
1 SPAN @ 75'
1 SPAN @ 55'
℄ -L- STA 13+05.00
SKEW = 105°

STRUCTURE HYDRAULIC DATA		
DESIGN DISCHARGE	= 4700	CFS
DESIGN FREQUENCY	= 10	YR
DESIGN HW ELEVATION	= 2349	FT
BASE DISCHARGE	= 9400	CFS
BASE FREQUENCY	= 100	YR
BASE HW ELEVATION	= 2391	FT
OVERTOPPING DISCHARGE	= 8400	CFS
OVERTOPPING FREQUENCY	= 25+/-	YR
OVERTOPPING ELEVATION	= 2363	FT

-L-

BM #200 RAILROAD SPIKE IN 18" ELM
38.78' RT. OF -L- STA. 14+23.95
ELEV. = 231.99'
N 950238 E 2251858

END GRADE
-L- STA. 19+87.20
EL = 271.76'

BEGIN BRIDGE
-L- STA. 12+12.50

END BRIDGE
-L- STA. 13+97.50

BEGIN GRADE
-L- STA. 10+50.00
EL = 236.39'

PI = 15+55.00
EL = 238.05'
K = 96*
VC = 720'

(+)10.3300%
(-)0.6200%
(+)10.3300%
(+)7.3800%
(+)8.9000%
(+)7.7986%
(+)7.1800%

BEGIN DITCH GRADE LT
-L- STA. 10+60
ELEV = 230.06'

END DITCH GRADE LT
-L- STA. 11+60
ELEV = 229.38'

1.5:1 NORMAL

WINGWALL

3.5' KEY-IN (TYP.)

ABUTMENT
EXCAVATION
STRUCTURE PAY ITEM

BEGIN DITCH GRADE LT
-L- STA. 15+00
ELEV = 230.79'

BEGIN DITCH GRADE LT
-L- STA. 17+00
ELEV = 246.12'

END DITCH GRADE RT
-L- STA. 18+00
ELEV = 254.93'

END DITCH GRADE LT
-L- STA. 19+60
ELEV = 266.58'

FOR -L- PLAN VIEW
SEE SHEET 4

280 270 260 250 240 230 220 210 200

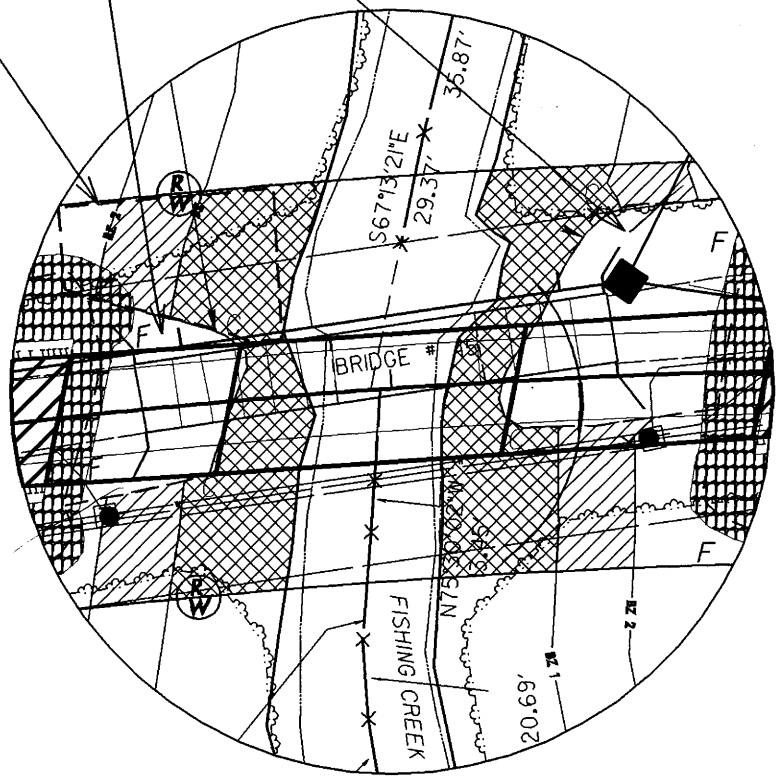
10 11 12 13 14 15 16 17 18 19 20

29-JUL-2008 11:11
r:\hydraulics\Permits\environmental\drawings\b3921_hyd_prm_wet.dgn

BUFFER IMPACT ENLARGEMENT

ABUTMENT EXCAVATION SEE DETAIL D ON ROADWAY PLANS

TEMP. ACCESS CRANE MAT



50' 0' 50' 100' 150'

GRAPHIC SCALE

ENGLISH

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

PROJECT: 33355.1.1 (B-3921)

BRIDGE NO. 45 OVER
FISHING CREEK AND
APPROACHES ON SR 1600

SHEET 5 OF 7

Property Owner Contact Report

TIP # *B-3921*

Owner Last Name/ Business	*Owner First Name*	*Address*	*City/Town*	*State*	*Zip Code*	*Contact/ Relationship*		*Home Phone*	*Contacted By*	*Contact Date*	*How Contacted*	*Comments*
Bryant	Pattie L.	3611 N. Rogers Ave.	Baltimore	MD	21207	Same	Self		J.S. Coats	8/13/2004	Letter	Telephone # (410) 597-8485
Falkner Heirs	Betsy	311 E. 19th Street	Patterson	NJ	07524	Same	Self		J. S. Coats	8/13/2004	Letter	Tax map only source of information
Johnson, Jr.	Bennie	311 E. 19th Street	Patterson	NJ	07524	Same	Self		J. S. Coats	8/13/2004	Letter	
Leete	Harry M.	1203 Wise Forks Road	Macon	NC	27551	Same	Self		J.S. Coats	8/13/2004	Letter	
McInnis	James E.	11359 Robert Bost Road	Midland	NC	28107	Same	Self		J.S. Coats	8/13/2004	Letter	

Buffer Drawing Sheet 6 of 7

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	BRIDGE	12+15 to 13+81 -L-		X		5300	2194	7494					
TOTAL:						5300	2194	7494	0	0	0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WARREN COUNTY
PROJECT: 33355.1.1 (B-3921)

7/28/2008
SHEET 7 OF 7

Rev. May 2006

UTILITIES BY OTHERS

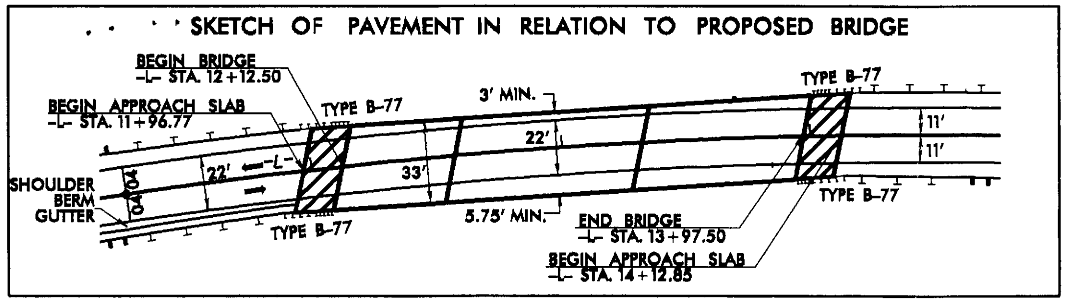
NOTE: ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

PERMIT DRAWINGS

Buffer Drawing
Sheet 1 of 1

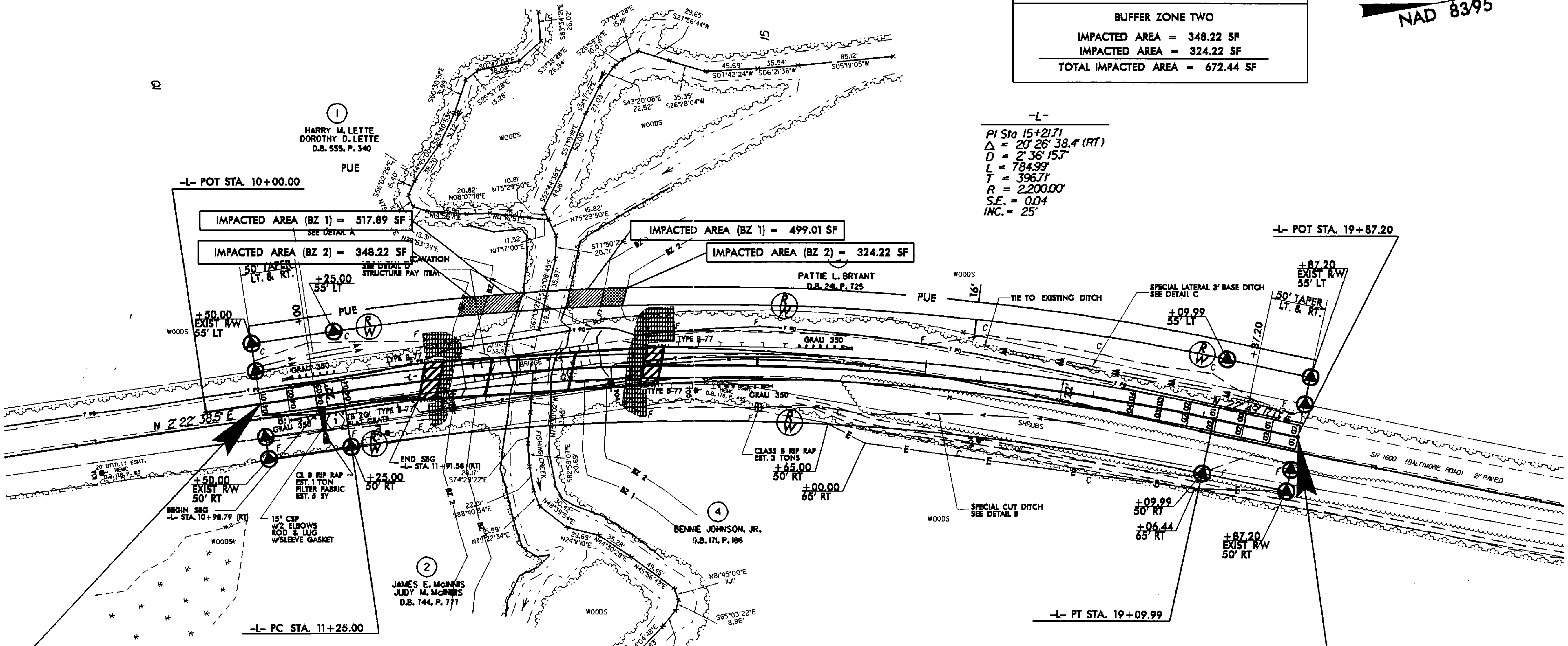
NAD 83/95

VERTICAL ALIGNMENT DESIGN EXCEPTION REQUIRED. ALL DESIGN ELEMENTS MEET OR EXCEED A 50 MPH DESIGN SPEED.



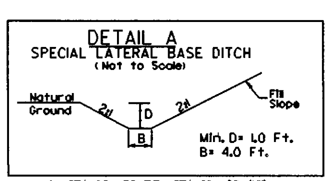
IMPACTED AREA SUMMARY	
BUFFER ZONE ONE	
IMPACTED AREA =	517.89 SF
IMPACTED AREA =	499.01 SF
TOTAL IMPACTED AREA =	1,016.90 SF
BUFFER ZONE TWO	
IMPACTED AREA =	348.22 SF
IMPACTED AREA =	324.22 SF
TOTAL IMPACTED AREA =	672.44 SF

-L-
PI Sta 15+21.71
Δ = 20° 26' 38.4" (RT)
D = 2° 36' 15.7"
L = 784.99'
T = 396.71'
R = 2,200.00'
S.E. = 0.04
INC. = 25'

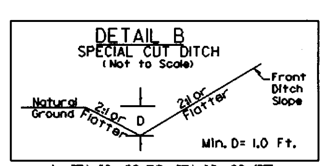


-L- POT STA. 10+50.00
BEGIN TIP PROJECT B-3921

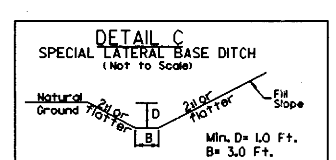
-L- POT STA. 19+87.20
END TIP PROJECT B-3921



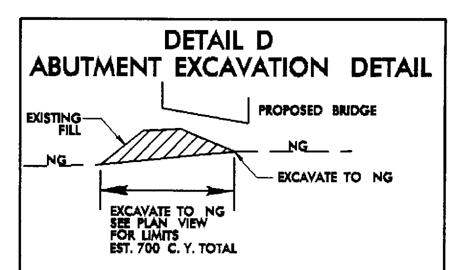
-L- STA. 10+50 TO STA. 11+60 (LT)



-L- STA. 15+00 TO STA. 18+00 (RT)



-L- STA. 17+00 TO STA. 19+50 (LT)



-L- STA. 12+15 TO STA. 12+62
-L- STA. 13+27 TO STA. 13+90

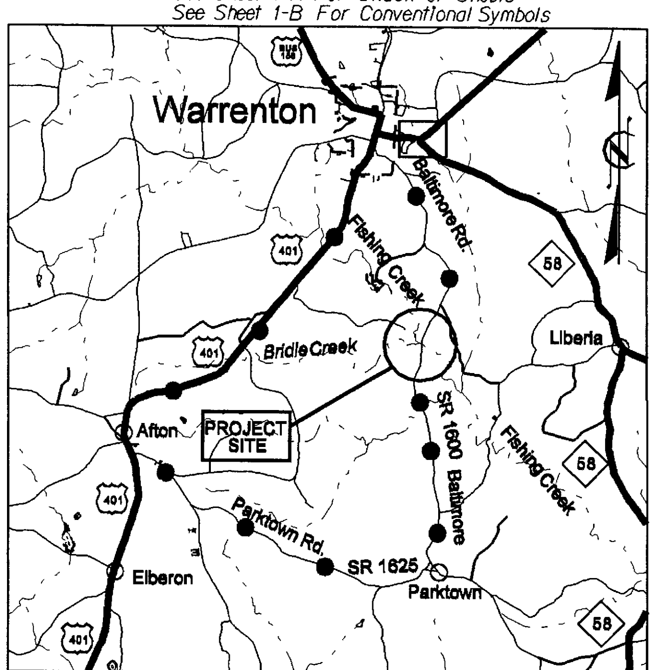
FOR -L- PROFILE SEE SHEET 5

5/14/99
02-OCT-2008 15:23
b3921_rdy_psh_04_permit.dgn

TIP PROJECT: B-3921

CONTRACT:

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



VICINITY MAP

OFFSITE DETOUR ●●●●

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

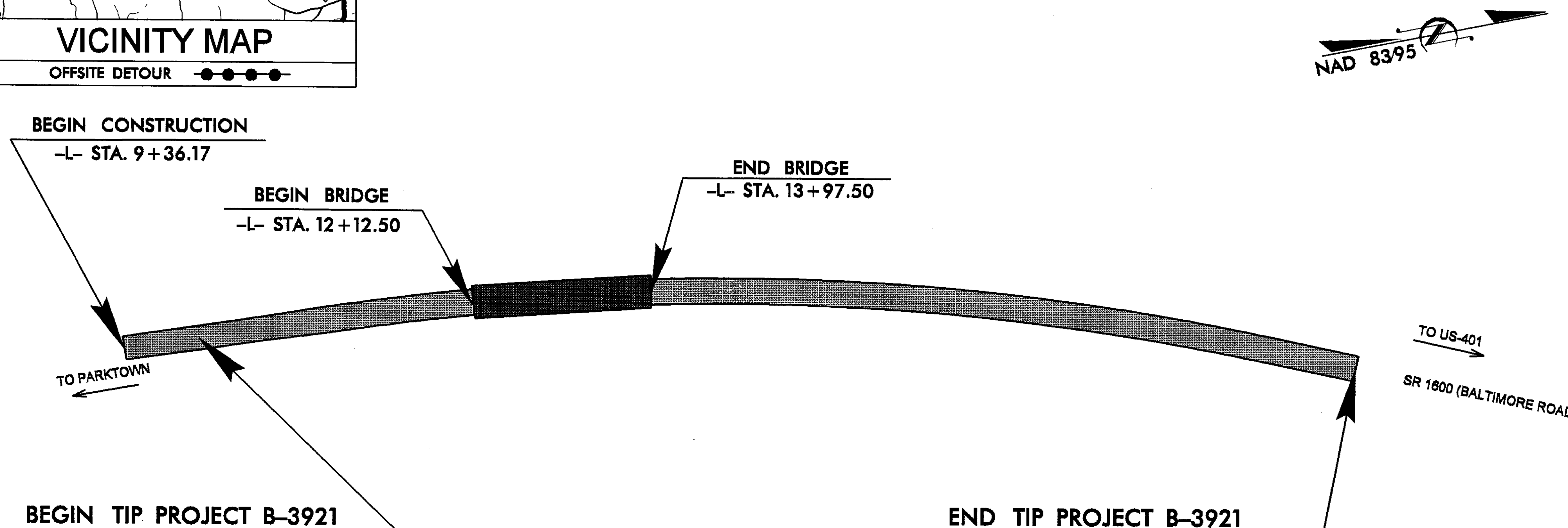
WARREN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3921	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33355.1.1	BRZ-1600(7)	PE
33355.2.2	BRZ-1600(7)	R/W & UTIL.

LOCATION: BRIDGE NO. 45 OVER FISHING CREEK AND APPROACHES ON SR 1600 (BALTIMORE ROAD)

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



* VERTICAL ALIGNMENT DESIGN EXCEPTION REQUIRED
THIS PROJECT IS NOT WITHIN MUNICIPAL BOUNDARIES

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 0 50 100
PLANS

50 0 50 100
PROFILE (HORIZONTAL)

10 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 950
ADT 2030 = 1450
DHV = 14 %
D = 60 %
T = 3 % **
V = 60 MPH *
** TTST 1 % & DUAL 2 %
FUNC CLASS = RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3921 = 0.152 MI
LENGTH STRUCTURES TIP PROJECT B-3921 = 0.035 MI
TOTAL LENGTH TIP PROJECT B-3921 = 0.187 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 20, 2008
GLENN W. MUMFORD, PE
PROJECT ENGINEER

LETTING DATE: JUNE 16, 2009
SUSAN C. LANCASTER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.
ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

05-AUG-2008 11:21
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$$$$USERNAME$$$$

09/08/99

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-3921	1-B

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 — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access — CA
- 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
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

6/2/99

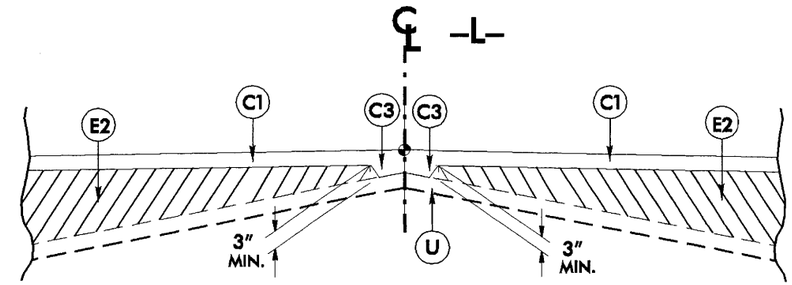
PROJECT REFERENCE NO.	SHEET NO.
B-3921	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

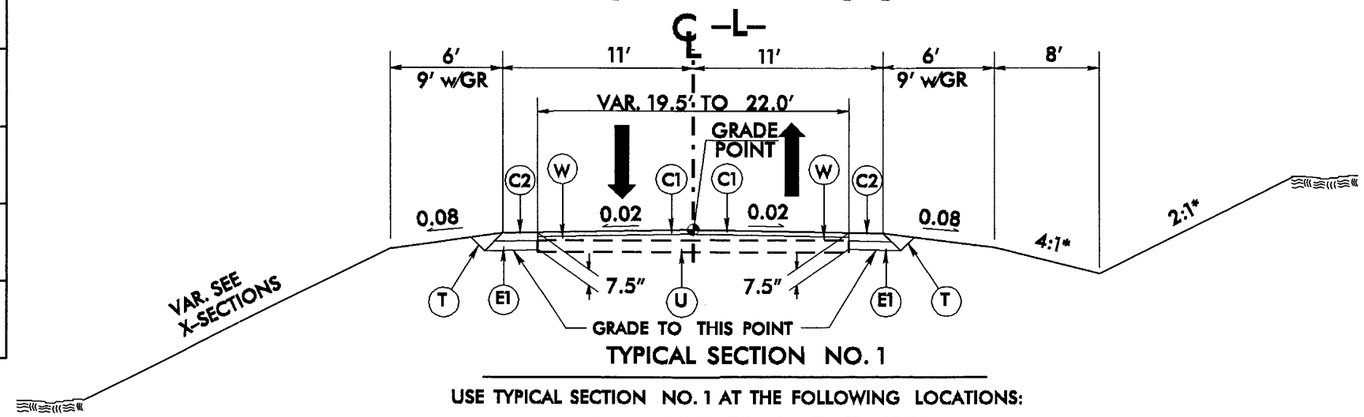
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.50 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.50 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING).

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



Detail Showing Method of Wedging

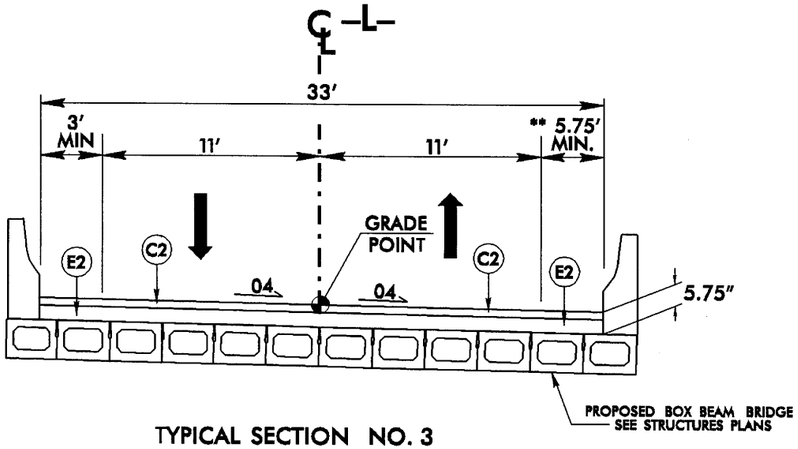


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:
–L– STA. 11+00.00 TO –L– STA. 11+35.00
–L– STA. 18+25.00 TO –L– STA. 19+37.20

TRANSITION FROM EXISTING @ –L– STA. 10+50.00 TO TO TYPICAL SECTION NO.1 @ –L– STA. 11+00.00

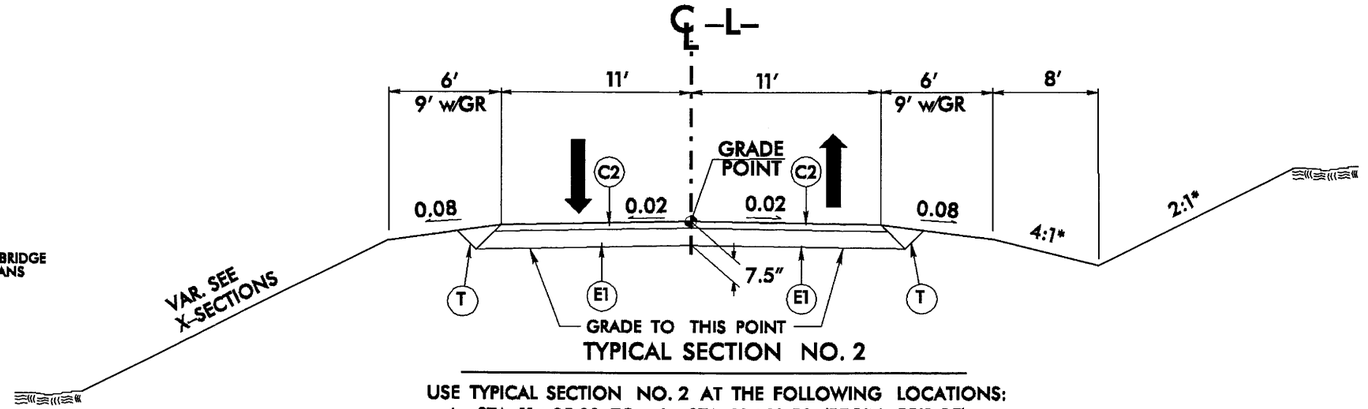
TRANSITION FROM TYPICAL SECTION NO. 1 @ –L– STA. 19+37.20 TO EXISTING @ –L– STA. 19+87.20



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATION:
–L– STA. 12+12.50 TO –L– STA. 13+97.50

**WIDEN FOR HYDRAULIC DESIGN



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:
–L– STA. 11+35.00 TO –L– STA. 12+12.50 (BEGIN BRIDGE)
–L– STA. 13+97.50 (END BRIDGE) TO –L– STA. 18+25.00

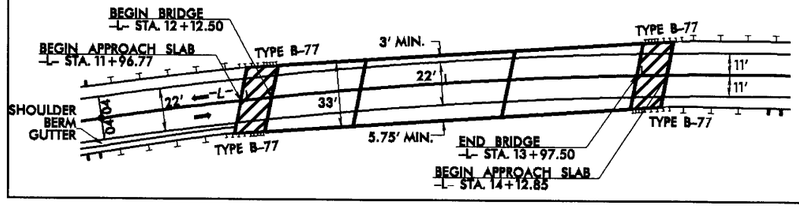
* USE 2:1 OR FLATTER ON FRONT AND BACK DITCH SLOPES
–L– STA. 15+00.00 TO –L– STA. 18+00.00 RT
–L– STA. 17+00.00 TO –L– STA. 19+50.00 LT

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3921	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

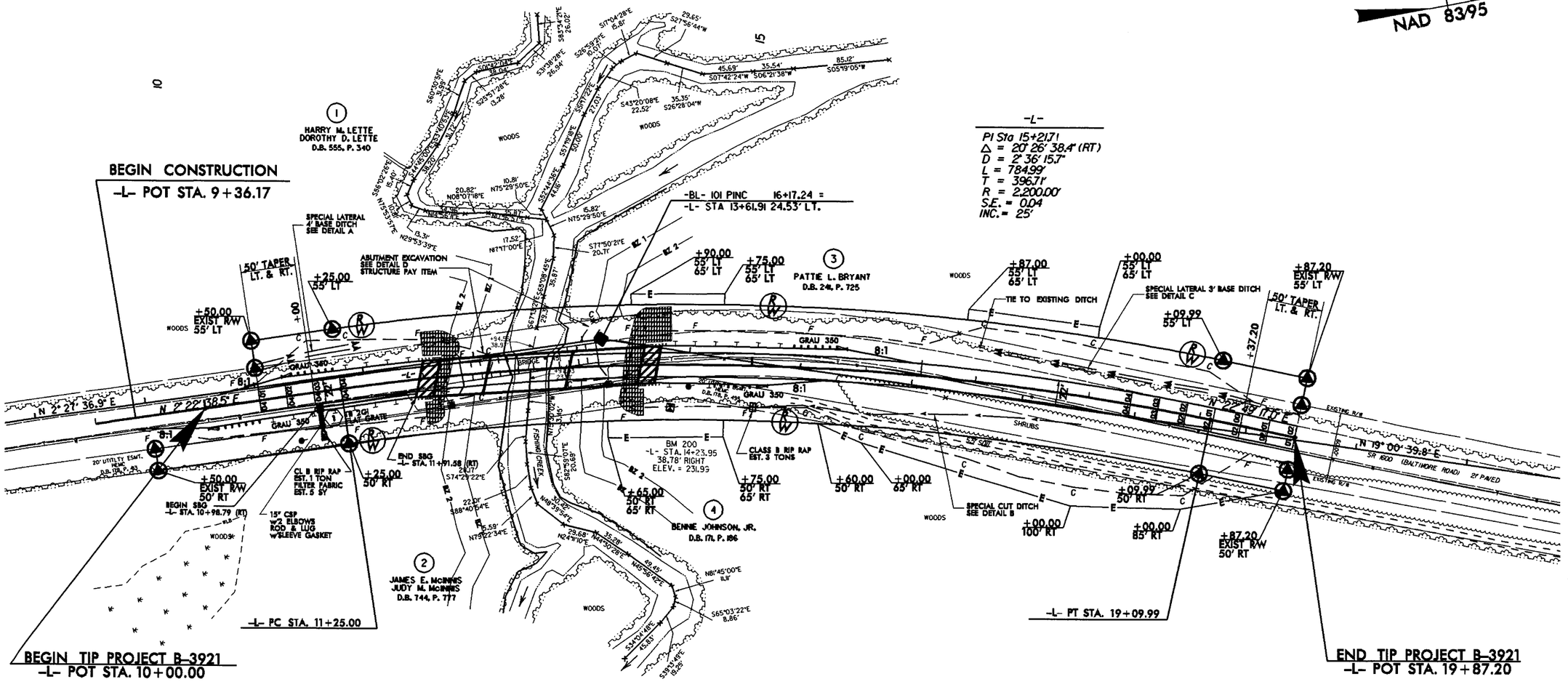
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SKETCH OF PAVEMENT IN RELATION TO PROPOSED BRIDGE



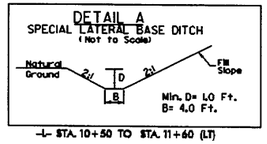
VERTICAL ALIGNMENT DESIGN EXCEPTION REQUIRED.
ALL DESIGN ELEMENTS MEET OR EXCEED A
50 MPH DESIGN SPEED.

NAD 83/95



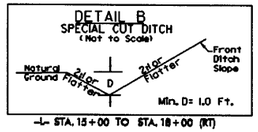
-L-
PI Sta 15+21.71
Δ = 20° 26' 38.4" (RT)
D = 2° 36' 15.7"
L = 784.99'
T = 396.71'
R = 2,200.00'
S.E. = 0.04
INC. = 25'

DETAIL A
SPECIAL LATERAL BASE DITCH
(Not to Scale)



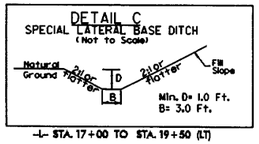
-L- STA. 10+50 TO STA. 11+60 (LT)

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



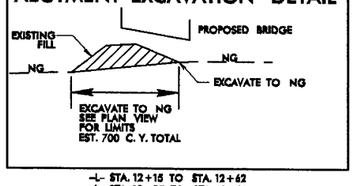
-L- STA. 15+00 TO STA. 18+00 (RT)

DETAIL C
SPECIAL LATERAL BASE DITCH
(Not to Scale)



-L- STA. 17+00 TO STA. 19+50 (LT)

DETAIL D
ABUTMENT EXCAVATION DETAIL



-L- STA. 12+15 TO STA. 12+62
-L- STA. 13+27 TO STA. 13+90

FOR -L- PROFILE SEE SHEET 5

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*****MICROSTATION*****

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-3921	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

• VERTICAL ALIGNMENT DESIGN EXCEPTION REQUIRED ALL DESIGN ELEMENTS MEET OR EXCEED A 50 MPH DESIGN SPEED.

PROPOSED 27" PRESTRESSED CONCRETE BOX BEAM BRIDGE
1 SPAN @ 45'
1 SPAN @ 75'
1 SPAN @ 65'
℄ -L- STA 13+05.00
SKEW = 105°

-L-

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 4,700	CFS
DESIGN FREQUENCY	= 10	YR
DESIGN HW ELEVATION	= 234.9	FT
BASE DISCHARGE	= 9,100	CFS
BASE FREQUENCY	= 100	YR
BASE HW ELEVATION	= 239.1	FT
OVERTOPPING DISCHARGE	= 6,100	CFS
OVERTOPPING FREQUENCY	= 25+/-	YR
OVERTOPPING ELEVATION	= 236.3	FT

END GRADE
-L- STA. 19+87.20
EL = 271.76'

BM #200 RAILROAD SPIKE IN 18" ELM
38.78' RT. OF -L- STA. 14+23.95
ELEV. = 231.99'
N 950238 E 2251858

BEGIN BRIDGE
-L- STA. 12+12.50

END BRIDGE
-L- STA. 13+97.50

BEGIN GRADE
-L- STA. 10+50.00
EL = 236.39'

PI = 15+55.00
EL = 238.05'
K = 96*
VC = 720'

(+)10.3300%
(-)0.6200%
(+)10.3300%
(+)7.3800%
(+)8.7900%
(+)7.7986%
(+)7.2800%

BEGIN DITCH GRADE LT
-L- STA. 10+50
ELEV = 230.06'

END DITCH GRADE LT
-L- STA. 11+40
ELEV = 229.38'

BEGIN DITCH GRADE LT
-L- STA. 15+00
ELEV = 232.79'

BEGIN DITCH GRADE LT
-L- STA. 16+30
ELEV = 234.01'

END DITCH GRADE LT
-L- STA. 17+00
ELEV = 234.72'

END DITCH GRADE RT
-L- STA. 18+50
ELEV = 254.05'

END DITCH GRADE LT
-L- STA. 19+30
ELEV = 266.56'

3.5' KEY-IN (TYP.)

ABUTMENT EXCAVATION STRUCTURE PAY ITEM

FOR -L- PLAN VIEW SEE SHEET 4

280 270 260 250 240 230 220 210 200

10 11 12 13 14 15 16 17 18 19 20

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-3921	X-1

245 240 235 230 225

65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85

0.0300 0.0400 236.36 2:1 2:1 229.75

11+00.00

0.0100 0.0400 236.18 2:1

10+50.00

236.15 2:1

10+00.00

BEGIN PROJECT -L- STA. 10+00.00

236.34 VAR.

9+50.00

BEGIN CONSTRUCTION -L- STA. 9+36.17

236.58

9+00.00

-L-

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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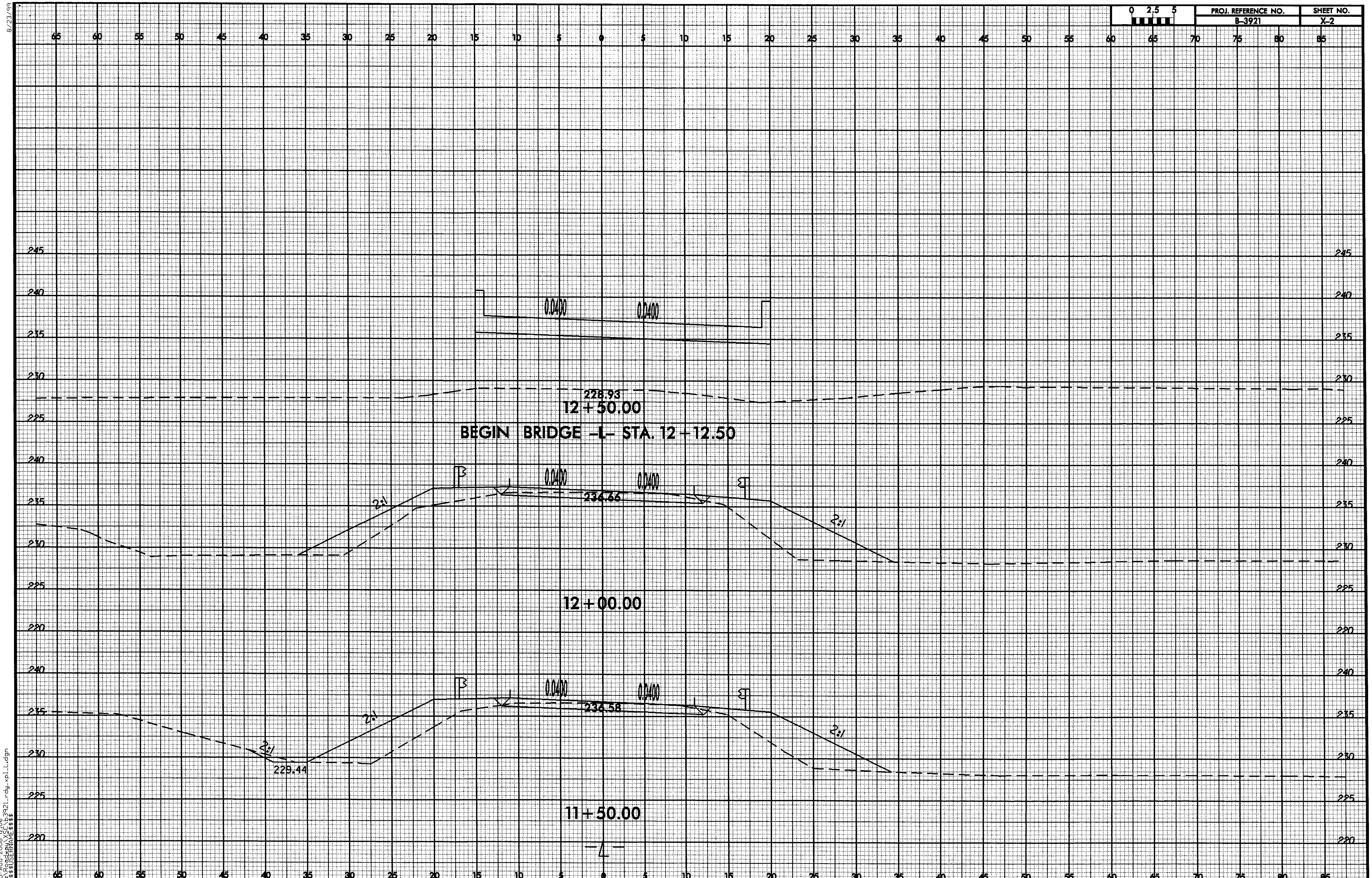

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8/23/99

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	B-3921	X-3

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245 240 235 230 225 220 240 235 230 225 220

0.0400 0.0400 2% 2% 234.79

14+00.00

END BRIDGE -L- STA. 13+97.50

0.0400 0.0400

230.20

13+50.00

0.0400 0.0400

219.74

13+00.00

-L-

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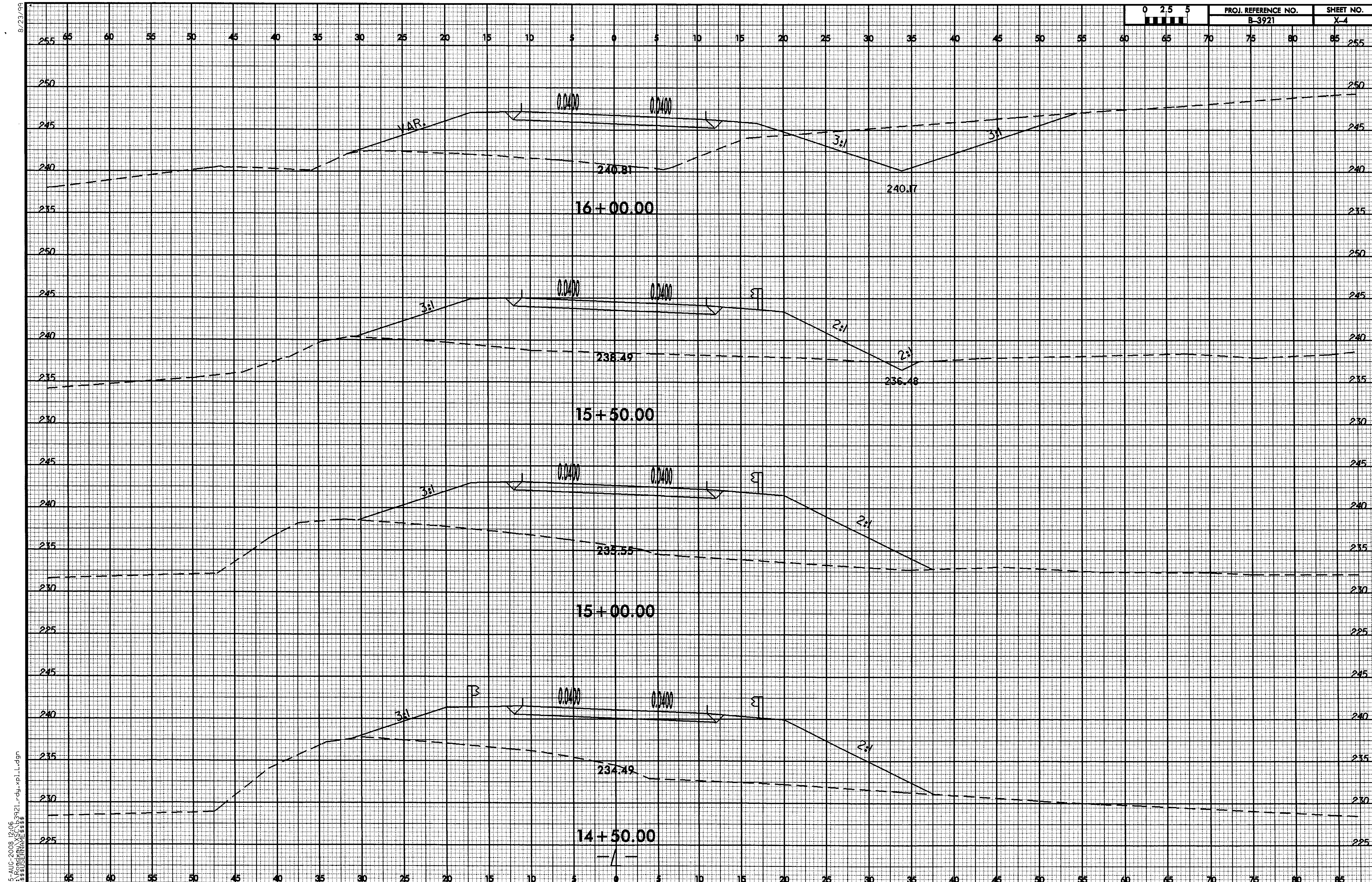
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PROJ. REFERENCE NO.
B-3921
SHEET NO.
X-4
8/23/99
VAR.
0.0400
0.0400
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3:1
240.81
240.17
16+00.00
3:1
2:1
2:1
238.49
236.48
15+50.00
3:1
2:1
235.55
15+00.00
3:1
2:1
234.49
14+50.00
-L-
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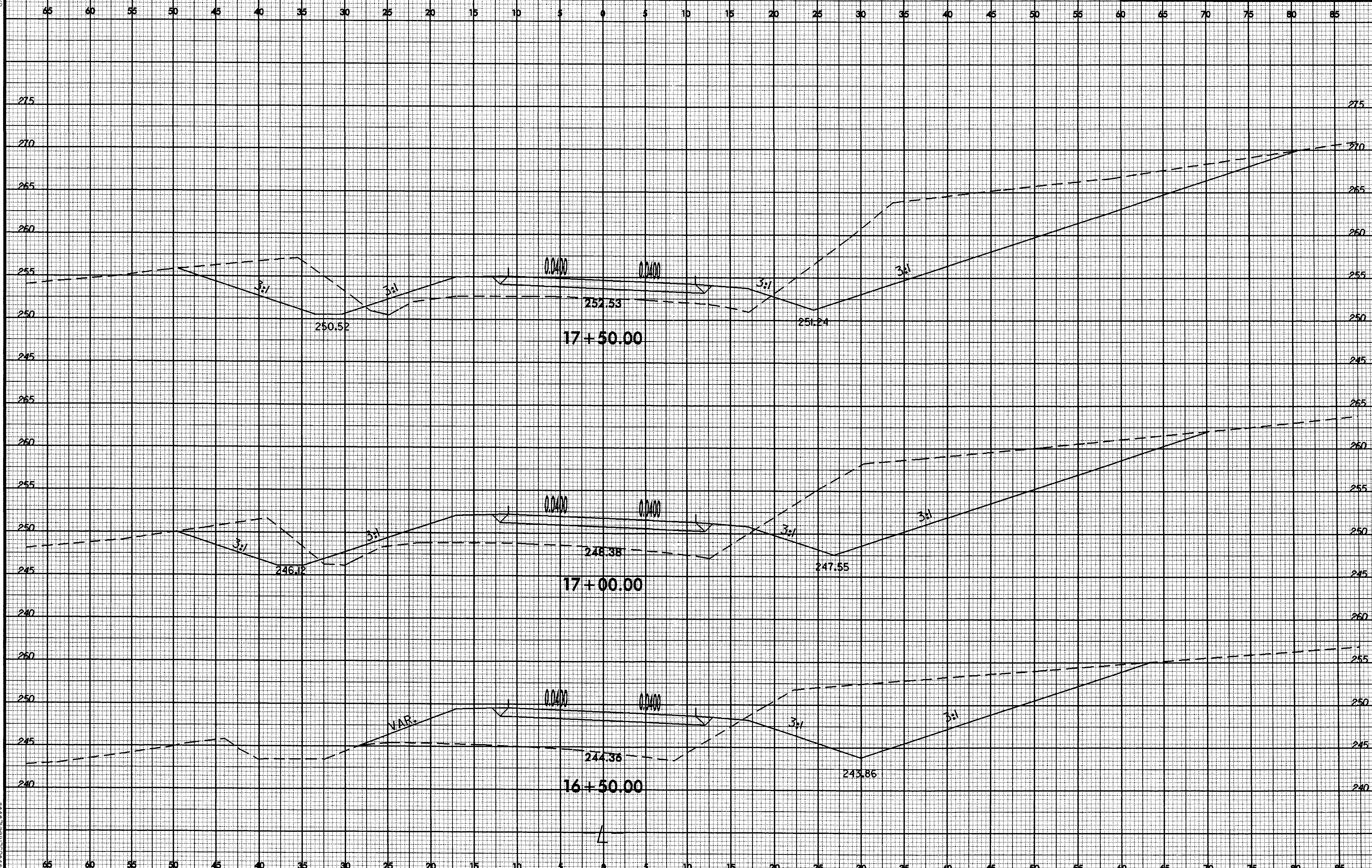
PROJ. REFERENCE NO.	SHEET NO.
B-3921	X-5



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	B-3921	X-6

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264.50

262.69 262.27

19+00.00

3:1 3:1 0.0349 0.0349 3:1 3:1

260.49

258.80 258.42

18+50.00

3:1 3:1 0.0400 0.0400 3:1 3:1

256.59

254.91 254.93

18+00.00

8/23/94

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
B-3921	X-7

END PROJECT -L- STA. 19+87.20

EXIST
271.56
19+87.20

0.00%

0.00%

268.64

VAR.

19+50.00

-L-

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Warren County
Bridge No. 45 on SR 1600 (Baltimore Road)
over Fishing Creek
Federal Aid Project No. Brz-1600(7)
W.B.S. No. 33355.1.1
State Project No. 8.2410901
T.I.P. No. B-3921

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

10/22/07
DATE

for Gregory J. Thorpe, PhD,
Environmental Management Director, PDEA

11/05/2007
DATE

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

Warren County
Bridge No. 45 on SR 1600 (Baltimore Road)
over Fishing Creek
Federal Aid Project No. Brz-1600(7)
W.B.S. No. 33355.1.1
State Project No. 8.2410901
T.I.P. No. B-3921

CATEGORICAL EXCLUSION

Documentation Prepared in
Project Development and Environmental Analysis Branch By:

10/22/07
DATE

Tracy A. Walter
Project Development Engineer

10/22/07
DATE

Bryan D. Kluchar, PE, Project Engineer
Bridge Project Development Unit

PROJECT COMMITMENTS

Warren County
Bridge No. 45 on SR 1600
Over Fishing Creek
Federal Project Brz-1600 (7)
State Project 8.2410901
WBS No. 33355.1.1
TIP No. B-3921

Roadside Environmental Unit
Sedimentation and erosion control measures shall adhere to Design Standards in Sensitive Watersheds.

Division 5 Construction
The division should contact the Transportation Director for Warren County Schools at least 30 days prior to closing the road to coordinate the possible need for bus turnarounds.

The division should contact Warren County Emergency Services at least 30 days prior to closing the road so temporary reassignments to primary response routes can be made.

Warren County
Bridge No. 45 on SR 1600 (Baltimore Road)
over Fishing Creek
Federal Aid Project No. Brz-1600(7)
W.B.S. No. 33355.1.1
State Project No. 8.2410901
T.I.P. No. B-3921

INTRODUCTION: Bridge No. 45 is included in the latest approved North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and is eligible for the Federal-Aid Bridge Replacement and Rehabilitation Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED STATEMENT

NCDOT Bridge Maintenance Unit records indicate Bridge No. 45 has a sufficiency rating of 22.1 out of a possible 100 for a new structure. The bridge is considered structurally deficient due to substructure rating of 4 out of 9 according to Federal Highway Administration (FHWA) standards and therefore eligible for FHWA's Bridge Replacement Program. In addition, the structure is considered functionally obsolete due to a deck geometry rating of 2 out of a possible 9.

Bridge No. 45 has a fifty-six year old timber substructure with a typical life expectancy between 40 to 50 years due to the natural deterioration rate of wood. Rehabilitation of a timber structure is generally practical only when a few members are damaged or prematurely deteriorated. However, past a certain degree of deterioration, timber structures become impractical to maintain and upon eligibility are programmed for replacement. Bridge No. 45 has reached the end of its useful life.

II. EXISTING CONDITIONS

The project is located a few miles south of the town of Warrenton in Warren County (see Figure 1). The surrounding area is primarily forested.

SR 1600 is classified as a Rural Local Route in the Statewide Functional Classification System and it is not a National Highway System Route. This route is not a designated bicycle route and there is no indication that an unusual number of bicyclists and/or pedestrians use this roadway. Therefore, bicycle and pedestrian accommodations have not been provided.

In the vicinity of the bridge, SR 1600 has a 20-foot pavement width with grass shoulders that vary between four and six feet in width. The roadway grade is in a sag vertical curve throughout the project area. The roadway to the north is in a horizontal curve which becomes tangent at the bridge. The roadway is approximately 17 feet above the creek bed.

Bridge No. 45 is an eleven span structure constructed in 1951. The superstructure of this bridge consists of a timber floor on timber joists and I-beams. The substructure is composed of timber piles with concrete caps. All components of the bridge will be removed without dropping any portion into Waters of the United States. The bridge is 124 feet long with a clear roadway width of 19.3 feet. There are two lanes of traffic on the bridge. Presently the bridge is posted with weight restrictions of 16 tons for single vehicles and 19 tons for truck-tractor semi-trailers.

Overhead power lines and underground telephone line are located on the east side of SR 1600. The underground telephone line goes aerial to cross the creek. Utility impacts are considered to be low.

The current traffic volume of 700 vehicles per day (VPD) is expected to increase to 1300 VPD by the year 2025. The projected volume includes 1% truck-tractor semi-trailer (TTST) and 2% dual-tired vehicles (DT). There is no posted speed limit in the vicinity of the bridge, a statutory 55 mph speed limit applies.

The Traffic Engineering Branch indicates that two accidents have been reported during a recent 3-year period in the vicinity of the project. One was a result of Hurricane Floyd flood waters and resulted in two fatalities. The other was due to narrow bridge width.

According to the Transportation Director for Warren County, this road has 6 school bus trips per day. They can re-route if they have a place for the bus to turn around on each side of the bridge.

III. ALTERNATIVES

A. Project Description

The replacement structure will consist of a bridge approximately 130-foot long. The bridge length is based on preliminary design information and is set by hydraulic requirements. The bridge will be of sufficient width to provide for two 11-foot lanes with 3-foot offsets on each side. The roadway grade of the new structure will be approximately the same as the existing grade.

The existing roadway will be widened to a 22-foot pavement width to provide two 11-foot lanes. Six-foot shoulders will be provided on each side; nine-foot paved shoulders with guardrail. This roadway will be designed as a major collector.

B. Reasonable and Feasible Alternatives

Four alternatives for replacing Bridge No. 45 that were studied in detail are described below.

Alternate 1 – consists of replacing the existing structure with a new structure, approximately 140 feet in length, in the same location and elevation as the existing while using an off-site detour to maintain traffic.

Alternate 2 – consists of replacing the existing structure with a new structure, approximately 140 feet in length, in the same location and elevation as the existing while using a temporary on-site detour located to the east of the existing bridge during construction. The temporary structure will be approximately 105 feet in length.

Alternate 3 – (preferred) consists of replacing the structure in its existing location, incorporating a skew to improve the sight distance on the North end of the bridge. Improvements to the approach roadways will be required for a distance of approximately 600 feet north and 180 feet south of the proposed structure. Traffic will be maintained using an offsite detour during construction.

Alternate 4 – consists of replacing the structure with a new structure, approximately 140 feet in length, to the east at approximately the same elevation as the existing bridge. Traffic will be maintained using the existing structure during construction.

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 US 401, SR 1613, and SR 1625. The detour for the average road user would result in 10 minutes additional travel time (8 miles additional travel). Up to a seven-month duration of construction is expected on this project. Based on the guidelines, the criteria above require evaluation of alternatives including onsite and offsite detours to determine what is appropriate.

C. Alternatives Eliminated From Further Consideration

The "do-nothing" alternative will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by SR 1600.

"Rehabilitation" of the existing structure is not practical due to being composed of timber, and the natural deterioration of timber.

Alternate 1 - replacing the structure in the same location and elevation as the existing while using an off-site detour was studied and eliminated due to the need to improve sight distance to the north of the existing structure.

Alternate 2 - replacing the structure in the same location and elevation as the existing while using a temporary detour structure to the east to maintain traffic onsite was studied and eliminated due to the amount of environmental impact and cost.

Alternate 4 - replacing the structure to the east with a structure at approximately the same low chord elevation was studied and eliminated due to the cost of realignment and environmental impact.

D. Preferred Alternative

Alternate 3 – (preferred) consists of replacing the structure in its existing location, incorporating a skew to improve the sight distance on the north end of the bridge.

Improvements to the sight distance of the structure will make both approaching and departing the structure safer to the north.

NCDOT Division 5 concurs with the selection of Alternative 3 as the preferred alternative.

IV. ESTIMATED COSTS

The estimated costs for the preferred alternate are as follows:

Table 1: Estimated costs

	Alternate 3 **Preferred**
Structure	$ 347,000
Roadway Approaches	$ 212,000
Structure Removal	$ 29,000
Misc. & Mob.	$ 101,000
Eng. & Contingencies	$ 111,000
Total Construction Cost	$ 800,000
Right-of-way Costs	$ 29,000
Total Project Cost	$ 829,000

V. NATURAL ENVIRONMENT

PHYSICAL RESOURCES

The project study area is located in the piedmont physiographic province of North Carolina. The topography in the project study area is generally characterized as gently sloping to nearly level. Elevations in the project study area range from 230 to 270 feet above sea level (USGS 1971). The project study area consists of existing maintained rights-of-way, piedmont/low mountain alluvial forest, mesic mixed hardwood forest, mixed pine/hardwood forest and successional areas.

The project vicinity is rural in nature and surrounding land use includes a mixture of residential, agricultural, and silvicultural use. Important products from this area include tobacco and timber.

III. Soils

Soils information for the project study area is currently not available. The soils in the project study area have not been mapped at this time. Warren County NRCS personnel stated that limited areas of the county are mapped and the project study area is not included in these areas (Personal Communication, USDA 2001).

Water Resources

The project study area is located within sub-basin 030304 of the Tar-Pamlico River Basin (DWQ 1998) and is part of USGS hydrologic unit 03020102 (USGS 1974). Fishing Creek is the only water resource likely to be impacted by the proposed bridge replacement project. This stream has been assigned Stream Index Number (SIN) 28-79-(1) by the DWQ (DEM 1993). Fishing Creek originates from northeast of Brookston in Vance County and flows east/ southeast to its confluence with the Tar River near Tarboro in Edgecombe County, North Carolina, southeast of the project study area.

Fishing Creek is a perennial stream with moderate flow over substrate consisting of sand, silt, and gravel. Piedmont/low mountain alluvial forest (Schafale and Weakly 1990) occurs along the edges of Fishing Creek. The channel ranges from approximately 25 to 60 feet wide and depths range from approximately 1 foot to greater than 4 feet within the project study area. Preliminary observations indicate that this particular section of Fishing Creek may represent an "F" type stream pursuant to Rosgen (1996). F" type streams have a gently sloped, relatively wide and shallow, highly entrenched channel with moderate sinuosity. "F" type streams are characterized by a lack of a developed floodplain, a meandering channel, and terraces consisting of abandoned floodplains.

Fishing Creek has been assigned a best usage classification of C NSW (DEM 1993). The C designation indicates waters designated for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. The NSW designation indicates a nutrient sensitive water which requires limitations on nutrient inputs. Point source discharges of treated wastewater are permitted in these waters, pursuant to Rules .0104 and .0211 of 15A NCAC 2B; however, local programs to control nonpoint source and stormwater discharge of pollution are required. Fishing Creek is rated as "Fully Supporting" from its source to its confluence with the Tar River. Fully supporting is a rating given to a water body that fully supports its designated uses (DWQ 1999).

No Outstanding Resource Waters (ORW), High Quality Waters (HQW), WS I, or WS-II Waters occur within 3.0 miles upstream or downstream of the project study area (DWQ 1999). Fishing Creek is not designated as a North Carolina Natural and Scenic River, nor as a national Wild and Scenic River.

Portions of Fishing Creek 1.2 miles upstream and 1.5 miles downstream of the project study area are Significant and Registered Natural Heritage Aquatic Habitat Areas (NHP records). Registered sites represent the best examples of the natural diversity of the state, and therefore

have priority for protection (DWQ 1999). Coordination with NHP may be required during the review phase.

The Endangered Tar spinymussel (*Elliptio steinstansana*)] is known to occur in Fishing Creek; therefore, it is considered to be Significant Aquatic Endangered Species Habitat (CGIA 2001). NCWRC recommends that all headwater areas that flow into these occupied habitats receive special management (NCWRC 2001).

Since the project study area is within the Tar-Pamlico River Drainage Basin, jurisdictional surface waters are subject to the Tar-Pamlico River Riparian Buffer Rules. The Buffer Rules apply to a 50-foot wide riparian buffer directly adjacent to surface waters in the Tar-Pamlico River Drainage Basin. This includes intermittent streams, perennial streams, lakes, ponds, and estuaries that are depicted on either USGS topographic maps or county soil survey maps, but does not include jurisdictional wetlands (non-surface waters) regulated under Section 404 of the Clean Water Act. Fishing Creek is mapped on the USGS map and is subject to the Buffer Rules.

BIOTIC RESOURCES

Biotic resources located in the project area include terrestrial and aquatic communities. The observed communities consist of existing vegetation patterns, piedmont/low mountain alluvial forest, mesic mixed hardword forest (piedmont subtype), mixed pine/hardwood forest, successional land, and maintained/disturbed land.

The plant communities within the project study area were mapped on aerial photo base and field verified. A summary of the coverage of each plant community within the project study area is presented in Table 2. The open water area attributed to the Fishing Creek channel (0.11 acres) and impervious road surface (0.55 acres) are not included in this plant community assessment.

Table 2: Plant Communities within the Project Study Area

Plant Community	Area (acres)	% of Project Study Area
Piedmont/Low Mountain Alluvial Forest	0.68	25
Mixed Mesic Hardwood Forest	0.04	1.5
Mixed Pine/Hardwood Forest	0.06	2.2
Successional Land	0.11	4
Maintained/Disturbed Land	1.17	43
Totals:	2.06	75.7

Project Study Area includes open water area attributed to the Fishing Creek channel (0.11 acres – 4.0 percent) and impervious road surface (0.55 acres – 20.3 percent) not included in this plant community assessment.

Terrestrial Communities

The replacement of Bridge No. 45 is expected to involve minor impacts to the terrestrial communities located within the project study area. The replacement of the existing structure will reduce permanent impacts to plant communities and limit community fragmentation. Impacts resulting from bridge replacement are generally limited to narrow strips adjacent to the existing bridge structure and roadway approach segments. Plant communities within the project study area are presented in Table 2; however, actual impacts will be limited to the designed right-of-way and permitted construction limits (Table 3). Due to the anticipated lack of, or limited, infringement on natural communities, the proposed bridge replacement should not result in significant loss or displacement of known terrestrial animal populations. Wildlife movement corridors should not be significantly impacted by the proposed project. Wildlife known to utilize the project study area are generally acclimated to fragmented landscapes, and the bridge replacement should not create any additional detrimental conditions within the project study area.

Table 3. Plant Communities within Each Alternative

Plant Community	Area Bridge (acres)
Piedmont/Low Mountain Alluvial Forest	0.12
Mixed Mesic Hardwood Forest	0
Mixed Pine/Hardwood Forest	0
Successional Land	0.07
Maintained/Disturbed Land	0.49
Total:	0.68

Totals do not include open water area attributed to the Fishing Creek channel or impervious road surface.

JURISDICTIONAL TOPICS

Wetlands and Surface Waters

Wetlands subject to review under Section 404 of the CWA (33 U.S.C. 1344) are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 %) of the growing season (DOA 1987).

No jurisdictional wetlands occur within the project study area. The surface water of Fishing Creek is classified as a lower perennial riverine system (R2) (Cowardin 1979) and is the only jurisdictional area that occurs within the project study area. R2 systems are identified as those areas contained within a channel that are not dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, contain less than 0.5 parts per thousands (ppt) ocean derived salts, have no tidal influence, and generally have slow flowing water all year (Cowardin *et al.* 1979). These communities are generally associated with well-developed floodplains. R2

systems account for 0.11 acres (4%) within the project study area. Delineation of the jurisdictional extent of the surface water was based on current methodology, and the areas were subsequently mapped with Trimble ™ Global Positioning System (GPS) units.

Permits

Impacts to jurisdictional surface waters are not anticipated from the proposed project. However, construction activities resulting in impacts will require permits and certifications from various regulatory agencies in charge of protecting the water quality of public water resources. Surface water systems and wetlands receive similar treatment and consideration with respect to most regulatory permits. These permits are authorized under the Clean Water Act and under separate state laws regarding significant water resources.

Section 404 Permits

In accordance with provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344), a permit will be required from the U.S. Army Corps of Engineers (COE) for the discharge of dredged or fill material into "Waters of the United States." The proposed project may not require impacts to Fishing Creek if the stream channel is bridged, no disturbance to the stream during construction activities, and bridge demolition does not result in material falling into the stream.

Given the limited nature of potential impacts, a Nationwide Permit (NWP) 23 (33 CFR 330 Appendix A) is likely to be applicable at the stream crossing found in the project study area. NWP #33 may be needed if temporary structures, work and discharges, including cofferdams are necessary for this project. However, final decisions concerning applicable permits for the proposed project rest with the COE.

Water Quality Certification

This project will also require a 401 Water Quality General Certification from the DWQ prior to the issuance of a Section 404 Nationwide Permit. Section 401 of the Clean Water Act requires that the state issue or deny water quality certification for any federally permitted or licensed activity that may result in a discharge into the Waters of the United States. Section 401 Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulation. Issuance of a 401 Certification from the DWQ is a prerequisite to the issuance of a Section 404 Permit.

Anticipated impacts to open water areas will be limited to the actual right-of-way width and will be determined by NCDOT during the design phase of this project. Impacts to open water areas of Fishing Creek are not expected due to the use of channel-spanning structures. During bridge removal procedures, NCDOT's BMP's will be utilized; sediment and erosion control measures shall adhere to Design Standards in Sensitive Watersheds. Floating turbidity curtains are also recommended to minimize the amount of turbid water flowing offsite.

IV. Rare and Protected Species

The Endangered Species Act of 1973, as amended, requires that any action likely to adversely affect a species listed as a federally protected threatened or endangered species be subject to review by the U.S. Fish and Wildlife Service (USFWS). Other species (such as state-listed threatened or endangered species) may receive additional protection under separate state laws.

Federally-Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Sections 7 and 9 of the Endangered Species Act (ESA) of 1973, as amended. As of March 13, 2006, the USFWS website lists the following federally-protected species for Warren County (Table 5). A brief description of each species' characteristics and habitat follows. Biological conclusions of "May Affect, Not Likely to Adversely Affect" for each of these species were given.

Table 5: Federally Protected Species Listed for Warren County, NC.

Common Name	Scientific Name	Status
Dwarf wedgemussel	*Alasmidonta heterodon*	Endangered
Tar River spinymussel	*Elliptio steinstansana*	Endangered

Dwarf wedgemussel

Biological Conclusion: May Affect: Not Likely to Adversely Affect

The dwarf wedgemussel rarely exceeds 1.5 inches in length. The outer shell is brown or yellowish brown with faint green rays, and the nacre is bluish or silvery white. The shells of the females are somewhat wider that those of males.

This mussel species typically inhabits streams with moderate flow velocities and substrates varying in texture from gravel and coarse sand to mud with little silt deposition (FWS 1993). It is generally found in association with other mussels but is never very numerous. As with other mussel species, the dwarf wedge mussel has suffered from excess siltation in streams and rivers and from the toxic effects of various pollutants entering waterways.

Survey results in the project area have failed to demonstrate this species occurs within the area immediately adjacent to the project. Avoidance and minimization measures are designed to avoid habitat alteration that can result from construction activities in order to ensure that aquatic species occurring downstream of the construction project will not be affected.

Tar River spinymussel

Biological Conclusion: May Affect: Not Likely to Adversely Affect

The Tar River spinymussel is a small, subrhomboidal mussel that grows to approximately 2.5 inches in length. The external shell of the adult is smooth, orange-brown to dark brown, and ornamented by one or two rows of short spines up to 0.2 inch long. The shell is thicker on the anterior end and thinner on the posterior end. Preferred habitat of the spinymussel includes relatively fast-flowing, well-oxygenated, circumneutral water over a silt-free, noncompacted, gravel/coarse sand substrate (FWS 1992).

Survey results in the project area have failed to demonstrate this species occurs within the area immediately adjacent to the project. Avoidance and minimization measures are designed to avoid habitat alteration that can result from construction activities in order to ensure that aquatic species occurring downstream of the construction project will not be affected.

Federal Species of Concern and State Listed Species

The March 8, 2006 USFWS list also includes a category of species designated as "Federal Species of Concern" (FSC). The FSC designation provides no federal protection under the ESA for the species listed. The presence of potential suitable habitat (Amoroso 1999, LeGrand and Hall 1999) within the project study area has been evaluated for the FSC species listed for Warren County (Table 6).

Table 6: Federal Species of Concern Listed for Warren County, NC.

Common Name	Scientific Name	State Status[a]	Potential Habitat
Bachman's sparrow	Aimophila aestivalis	SC	No
Pinewoods Shiner	Lythrurus matutinus	SR	Yes
Atlantic pigtoe	Fusconaia masoni	T(PE)*	Yes
Yellow lance	Elliptio lanceolata	T(PE)*	Yes
Heller's trefoil	Lotus helleri	C	Yes

[a] E - Endangered, T - Threatened, SC - Special Concern, C - Candidate, W - Watch List, P –Proposed, SR – Significantly Rare.

*Atlantic pigtoe and yellow lance will receive a State Endangered status effective 1 July, 2002 (NCWRC 2001).

No FSC were observed during the field investigation. NHP files document five occurrences of FSC species within 3.0 miles of the project study area. In 1999 the yellow lance was documented in four locations within Fishing Creek: one within the project study area, two upstream (1.3 miles and 2.6 miles), and one downstream (1.5 miles). In 1999 the Atlantic pigtoe was documented approximately 1.5 miles downstream of the project study area.

State Listed Species

Plant and animal species which are on the North Carolina state list as Endangered (E), Threatened (T), or Special Concern (SC) receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.)* and the North Carolina Plant Protection Act of 1979 (G.S. 106-202 *et seq.).*

Three State listed species, in addition to those listed as FSC, have been documented within the project study area. They are the Neuse River waterdog (*Necturus lewisi*) (SC), least brook lamprey (*Lampetra aepyptera*) (SC/PT) and North Carolina spiny crayfish (*Oronectes carolinensis*) (SR/PSC).

VI. HUMAN ENVIRONMENT

Section 106 Compliance Guidelines

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

Historic Architecture

The State Historic Preservation Office (SHPO) reviewed the subject project. There are no known historic architecture structures located within the area of potential effect, and no architectural investigation needed to be conducted (see letter dated January 22, 2001).

Archaeology

The State Historic Preservation Office (SHPO) reviewed the subject project. There are no known archaeological sites within the proposed project area, and no archaeological investigation needed to be conducted (see letter dated January 22, 2001).

Community Impacts

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

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

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

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisition and construction projects. All construction will take place along existing alignment. There are no soils classified as prime, unique, or having state or local importance in the vicinity of the project. Therefore, the project will not involve the direct conversion of farmland acreage within these classifications.

The project will not have a disproportionately high and adverse human health and environmental effect on any minority or low-income population.

Noise & Air Quality

This project is exempt from the requirement to determine conformity per 40 CFR 93.126 (reconstructing bridges (no additional travel lanes)). This project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the no-build alternative. Therefore, FHWA has determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special MSAT concerns. Consequently, this effort is exempt from analysis for MSATs. Any burning of vegetation shall be performed in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality compliance with 15 NCAC 2D.0520.

Noise levels may increase during project construction; however, these impacts are not expected to be substantial considering the relatively short-term nature of construction noise and the limitation of construction to daytime hours. The transmission loss characteristics of nearby natural elements and man-made structures are believed to be sufficient to moderate the effects of intrusive construction noise.

VII. GENERAL ENVIRONMENTAL EFFECTS

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

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

Section 4(f) of the USDOT Act of 1966 protects the use of publicly owned parks, recreational areas, wildlife and waterfowl refuges, and historic properties.

The proposed project will not require right-of-way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303). An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Environmental Management, Groundwater Section and the North

Carolina Department of Human Resources, Solid Waste Management Section revealed no underground storage tanks or hazardous waste sites in the project area.

VIII. COORDINATION & AGENCY COMMENTS

NCDOT has sought input from the following agencies as a part of the project development: U.S. Army Corps of Engineers, NC Department of Natural Resources, U.S. Fish & Wildlife Service, N.C Wildlife Resource Commission, N.C. Division of Parks & Recreation, North Carolina State Historic Preservation Office, Warren County Planning Department.

The N.C. Wildlife Resource Commission and U.S. Fish & Wildlife Service in standardized letters provided a request that they prefer any replacement structure to be a spanning structure.

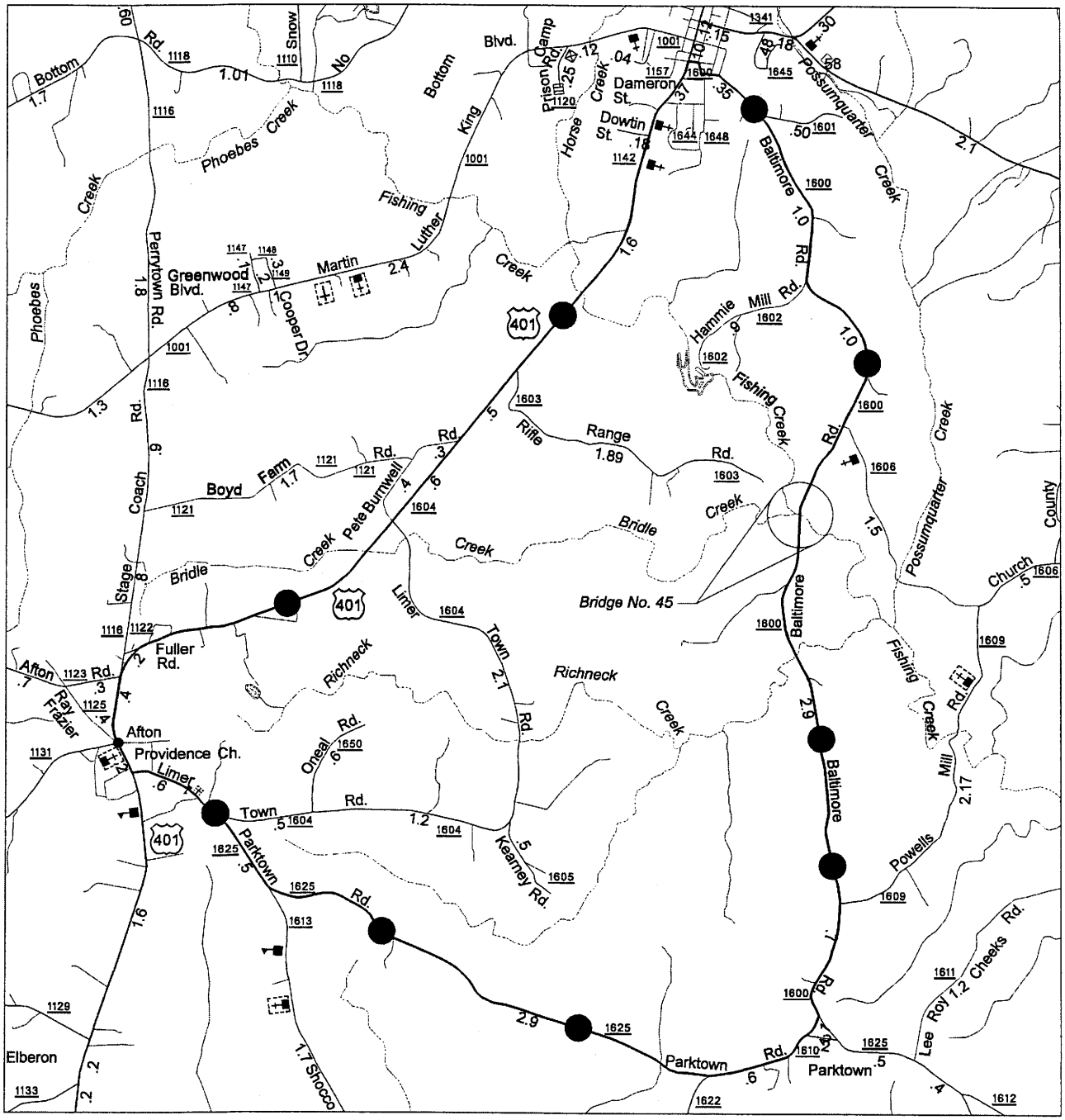
IX. PUBLIC INVOLVEMENT

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

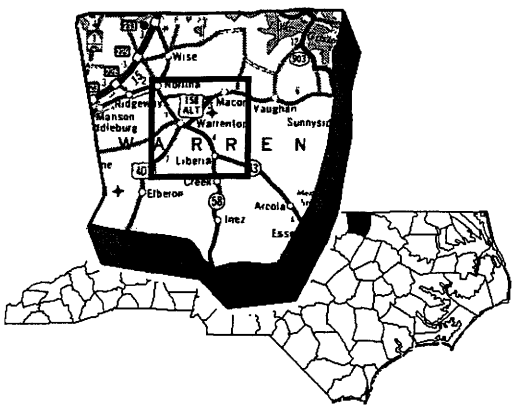
There is not substantial controversy on social, economic, or environmental grounds concerning the project.

X. CONCLUSION

On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from implementation of the project. The project is therefore considered to be a federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.



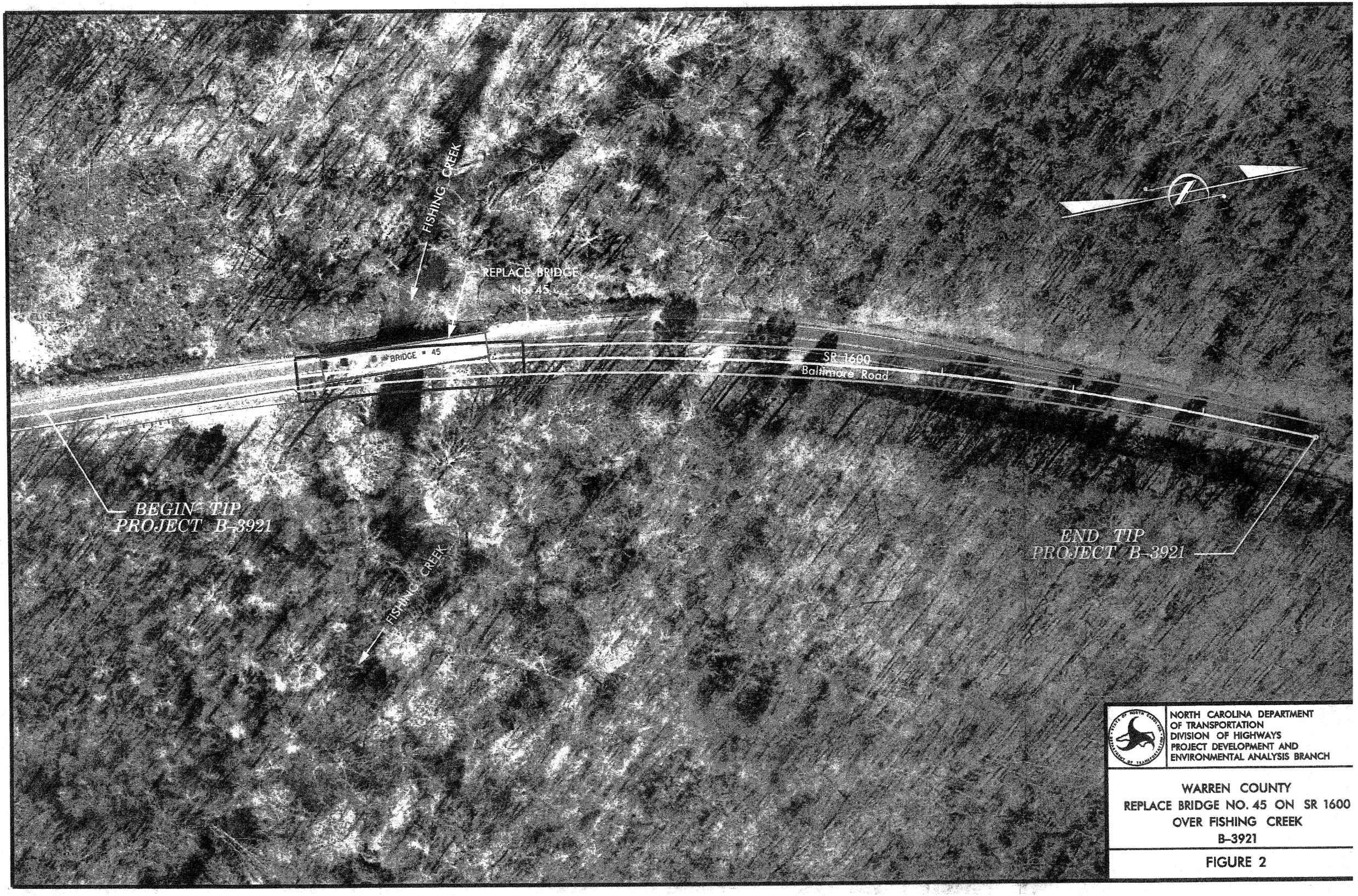
Denotes off-site detour



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

WARREN COUNTY
REPLACE BRIDGE NO. 45 ON SR 1600
OVER FISHING CREEK
B-3921

Figure 1



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

WARREN COUNTY
REPLACE BRIDGE NO. 45 ON SR 1600
OVER FISHING CREEK
B-3921

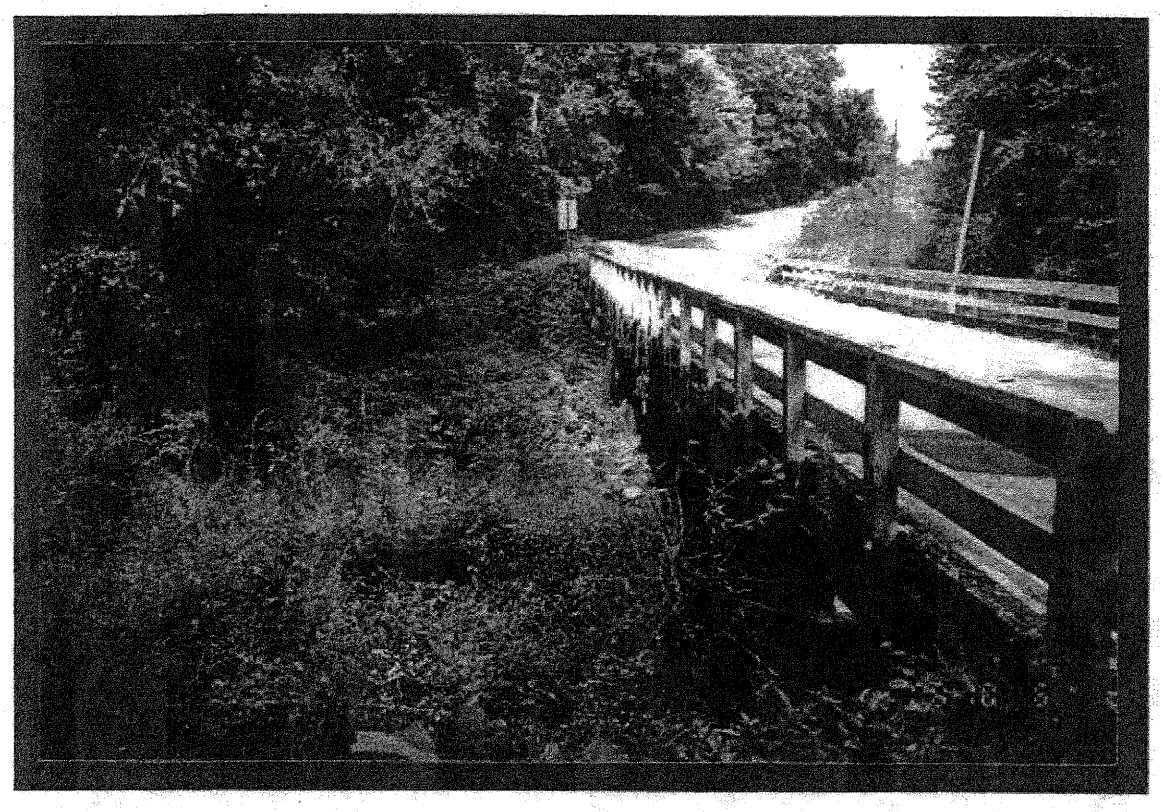
FIGURE 2

Looking North from the Bridge

Looking South from the Bridge

B-3921

FIGURE 3A



West Face of Bridge

East Face of Bridge

B-3921

FIGURE 3B

K. Young

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

Michael F. Easley, Governor

Division of Archives and History
Jeffrey J. Crow, Director

January 22, 2001

MEMORANDUM

To: William D. Gilmore, PE, Manager
Project Development and Environmental Analysis Branch

From: David Brook DB for David Brook
Deputy State Historic Preservation Officer

Re: Replace Bridge 45 on SR 1600 over Fishing Creek, TIP No. B-3921, Warren County, ER 01-7925

We regret that a member of or staff was unable to attend the December 7, 2000, meeting of the minds for the project. However, on December 15, 2000, April Montgomery of our staff met with Karen Orthner with the North Carolina Department of Transportation (NCDOT) concerning the project. She reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. Ms. Orthner provided project area photographs and aerial photographs. Based upon our review of the photographs and the information discussed at the meeting, we offer our preliminary comments regarding this project.

In terms of historic architectural resources we are aware of no historic structures located within the area of potential effect. We recommend that no historic architectural survey be conducted for this project.

There are no known archaeological sites within the proposed project area. Based on our present knowledge of the area, it is unlikely that any archaeological resources which may be eligible for inclusion in the National Register of Historic Places, will be affected by the project construction. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

Having provided this information, we look forward to the receipt of either a Categorical Exclusion or Environmental Assessment, which indicates how NCDOT addressed our comments.

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

Thank you for your cooperation and consideration. If you have any questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919 733-4763.

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