



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 30, 2004

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

ATTN: Mr. Steve Lund
NCDOT Coordinator

Dear Sir:

SUBJECT: Nationwide 23 and 33 Permit Applications. Replacement of Bridge No. 264 over Branch of Irish Buffalo Creek on SR 1745 (Oakwood Avenue), Cabarrus County. Federal Aid Project No. BRSTP-1745(2), State Project No. 8.2663101, TIP Project No. B-3424.

The NC Department of Transportation (NCDOT) proposes to replace existing Bridge No. 264 over Branch of Irish Buffalo Creek on SR 1745 (Oakwood Avenue). The project involves replacing Bridge No. 264 in-place with a two-barrel, 10-foot wide by 8-foot high (3.0 meter by 2.4 meter) reinforced box culvert over Branch of Irish Buffalo Creek (DWQ Index # 13-17-9(2), Class "C"). The proposed culvert design also contains a 3-foot (0.9-meter) sill in the right barrel. SR 1745 will be widened to a 24-foot (7.2-meter) pavement width to provide two 12-foot (3.6 meter) lanes and an 8-foot (2.4 meter) shoulder on each side with 4-feet (1.2 meters) of the shoulder paved. Improvements will be required for a distance of approximately 275-feet (84 meters) to the north and 450-feet (138 meters) to the south of the structure.

The project involves replacing Bridge No. 264 along the existing roadway alignment. Traffic will be detoured off-site along existing roadways SR 1625, SR 1008, SR 1790 and SR 1778 during construction.

IMPACTS TO WATERS OF THE UNITED STATES

The replacement of Bridge No. 264 over Branch of Irish Buffalo Creek will result in permanent impacts of 0.03 acres of fill and 115-feet (35.1-meters) of linear impacts of the existing stream channel due to the installation of the proposed culvert.

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

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

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

BRIDGE DEMOLITION

The existing Bridge No. 264 is a one-span structure totaling 36-feet (11.0-meters) with a clear roadway width of 19.2-feet (5.9-meters). The superstructure consists of a timber deck on steel I-beams. The abutments consist of timber caps, piles, and bulkheads. The depth from roadway crown to the streambed is approximately 10-feet (3.0-meters). Potential adverse effects will be minimized through the use of the NCDOT Best Management Practices for Protection of Surface Waters and the use of Erosion and Sediment Control Guidelines for Contract Construction.

BRIDGE CONSTRUCTION

Bridge No. 264 will be replaced with a two-barrel 10-foot by 8-foot (3.0-meter by 2.4-meter) reinforced concrete box culvert with a 3-foot (0.9-meter) sill in the right barrel. Construction of the culvert will require dewatering of a natural stream channel.

DEWATERING

There will be 0.03 acres of surface water impacts in Branch of Irish Buffalo Creek from the construction of the proposed culvert for the replacement of Bridge No. 264. The area of permanent impacts will result from fill from the installation of the two-barrel 10-foot by 8-foot (3.0 meter by 2.4 meter) reinforced concrete box culvert in the existing stream channel. Refer to the enclosed construction sequence.

In addition, 115-feet (35.1-meters) of linear existing stream channel will be impacted due to the installation of the proposed culvert.

It is assumed that the contractor will begin construction of the proposed culvert shortly after the date of availability for the project. The Let date is July 20, 2004 with a date of availability of August 23, 2004.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under Endangered Species Act §§7 and 9. As of February 5, 2003, the US Fish and Wildlife Service (USFWS) lists two federally protected species for Cabarrus County (Table 1). Biological conclusions of "No Effect" were reached for all listed.

Table 1. Federally Protected Species for Cabarrus County

SCIENTIFIC NAME	COMMON NAME	STATUS	BIOLOGICAL CONCLUSION
<i>Helianthus schweinitzii</i>	Schweinitz's sunflower	E	No Effect
<i>Lasmigona decorata</i>	Carolina heelsplitter	E	No Effect

KEY: "E" Denotes Endangered (a species that is in danger of extinction throughout all or a significant portion of its range).

A preconstruction survey will be required for Schweinitz's sunflower (*Helianthus schweinitzii*).

REGULATORY APPROVALS

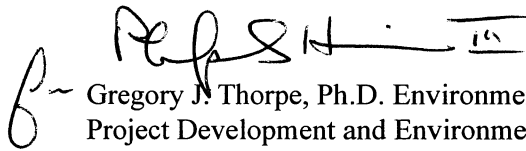
Section 404 Permit: Aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit, but propose to proceed under a Nationwide 23 and 33 as authorized by a Nationwide Permit 23 and 33 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certifications number 3361 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their records.

A copy of this permit application will be posted on the DOT website at: <http://www.ncdot.org/planning/pe/naturalunit/Permit.html>.

If you have any questions or need additional information, please contact Mr. Chris Underwood at (919) 715-1451 or csunderwood@dot.state.nc.us.

Sincerely,



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

Mr. John Hennessy, Division of Water Quality (2 copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, III, FHWA
Mr. B. G. Payne, P.E., Division Engineer
Mr. Larry Thompson, DEO
Mr. David Franklin, USACE, Wilmington (Cover Letter only)
Ms. Stacy Baldwin, P.E.

Office Use Only:

Form Version May 2002

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

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

I. Processing

1. Check all of the approval(s) requested for this project:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Section 404 Permit | <input type="checkbox"/> Riparian or Watershed Buffer Rules |
| <input type="checkbox"/> Section 10 Permit | <input type="checkbox"/> Isolated Wetland Permit from DWQ |
| <input type="checkbox"/> 401 Water Quality Certification | |

2. Nationwide, Regional or General Permit Number(s) Requested: **NWPs 23 and 33**

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

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

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

II. Applicant Information

1. Owner/Applicant Information

Name: **NCDOT/Project Development & Environmental Analysis Branch/ Greg Thorpe**

Mailing Address: **1548 Mail Service Center, Raleigh, NC 27699-1548**

Telephone Number: **919-733-3141**

Fax Number: **919-733-9794**

E-mail Address: _____

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

Name: _____

Company Affiliation: _____

Mailing Address: _____

Telephone Number: _____

Fax Number: _____

E-mail Address: _____

III. Project Information

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

1. Name of project: Replacement of Bridge No. 264 over Branch of Irish Buffalo Creek on SR 1745
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3424
3. Property Identification Number (Tax PIN): _____
4. Location
County: Cabarrus Nearest Town: Kannapolis
Subdivision name (include phase/lot number): _____
Directions to site (include road numbers, landmarks, etc.): I-85 S from Raleigh to SR 1790 to SR 1778 to SR 1745 crossing
5. Site coordinates, if available (UTM or Lat/Long): 35°27.23'N, 80°38.47'W
(Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
6. Property size (acres): _____
7. Nearest body of water (stream/river/sound/ocean/lake): Branch of Irish Buffalo Creek (Class C)
8. River Basin: Yadkin-Pee Dee
(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: Highway corridor with roadway shoulders

10. Describe the overall project in detail, including the type of equipment to be used: Replace Bridge No. 264 with a culvert. Heavy duty excavation equipment such as trucks, dozers, cranes, and other equipment necessary for roadway equipment.

11. Explain the purpose of the proposed work: Public Transportation

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.

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.

No

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

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

1. Provide a written description of the proposed impacts:

2. Individually list wetland impacts below:

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

- * List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.
- ** 100-Year floodplains are identified through the Federal Emergency Management Agency’s (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at <http://www.fema.gov>.
- *** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

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

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

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
1	Riprap/culvert	115	Br. Irish Buffalo Cr.	3.5 ft	Perennial

- * List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.
- ** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site: 115

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

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

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

5. Pond Creation

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

Pond to be created in (check all that apply): uplands stream wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): N/A

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

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

VII. Impact Justification (Avoidance and Minimization)

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

Standard NCDOT Construction Practices

VIII. Mitigation

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

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

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

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

Stream mitigation is not proposed for this project. No stream impacts exceed 150 ft of a single crossing or multiple crossings of the same stream.

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

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

IX. Environmental Documentation (required by DWQ)

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

Yes No

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

Yes No

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

Yes No

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

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

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

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

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

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

2		1.5	
Total			

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

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

N/A

XI. Stormwater (required by DWQ)

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

N/A

XII. Sewage Disposal (required by DWQ)

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

N/A

XIII. Violations (required by DWQ)

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

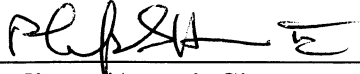
Yes No

Is this an after-the-fact permit application?

Yes NoX

XIV. Other Circumstances (Optional):

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



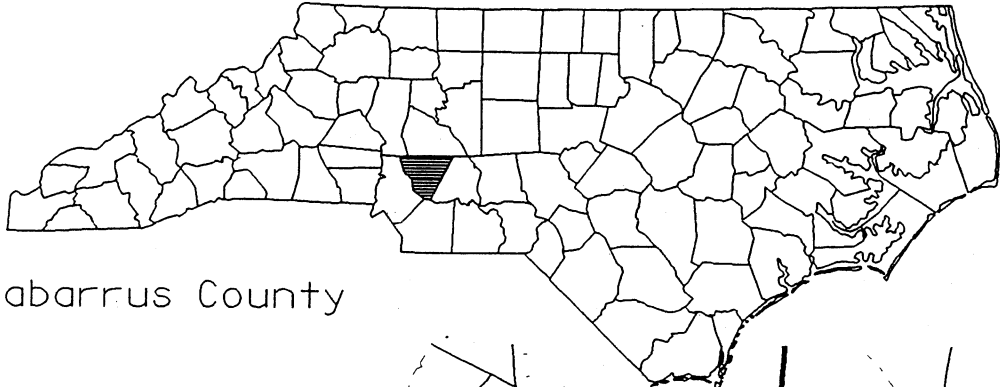
3/29/04

Applicant/Agent's Signature

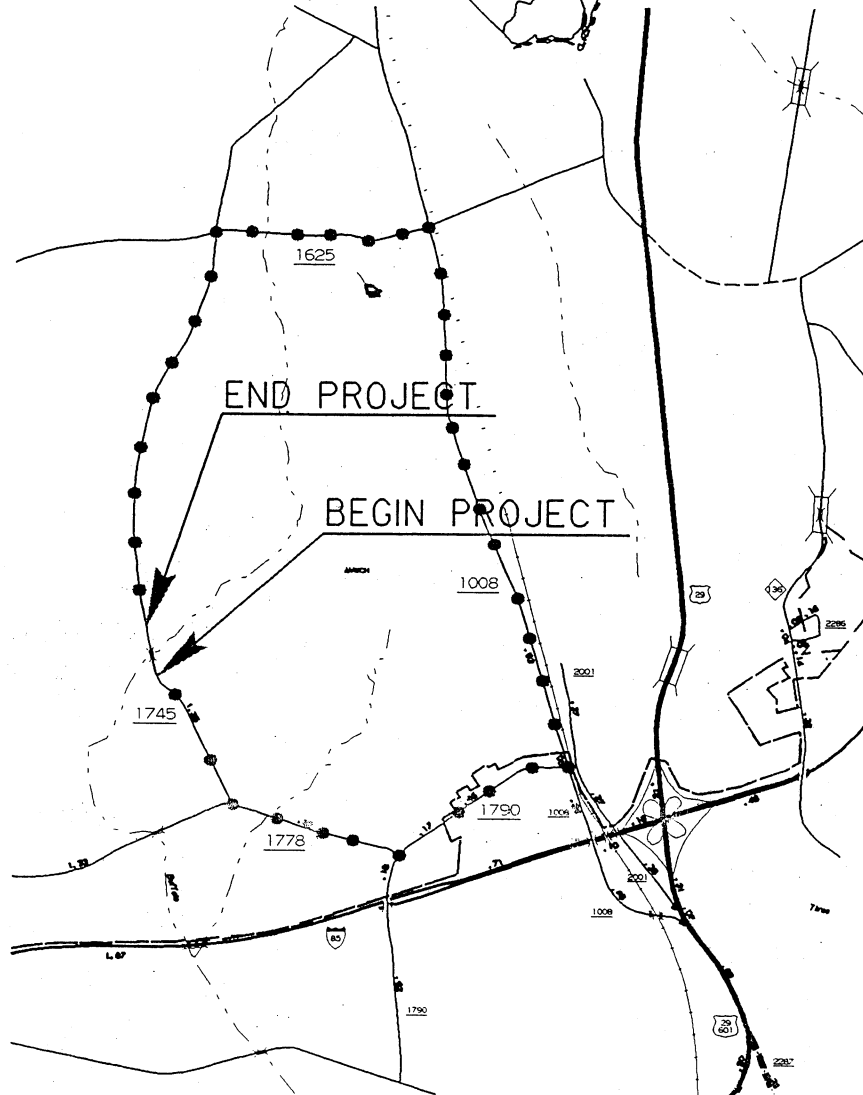
Date

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

NORTH CAROLINA



Cabarrus County



VICINITY MAP

LEGEND:

—●—●—●—●— OFF-SITE DETOUR ROUTE

NCDOT

DIVISION OF HIGHWAYS
CABARRUS COUNTY

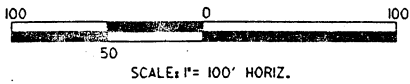
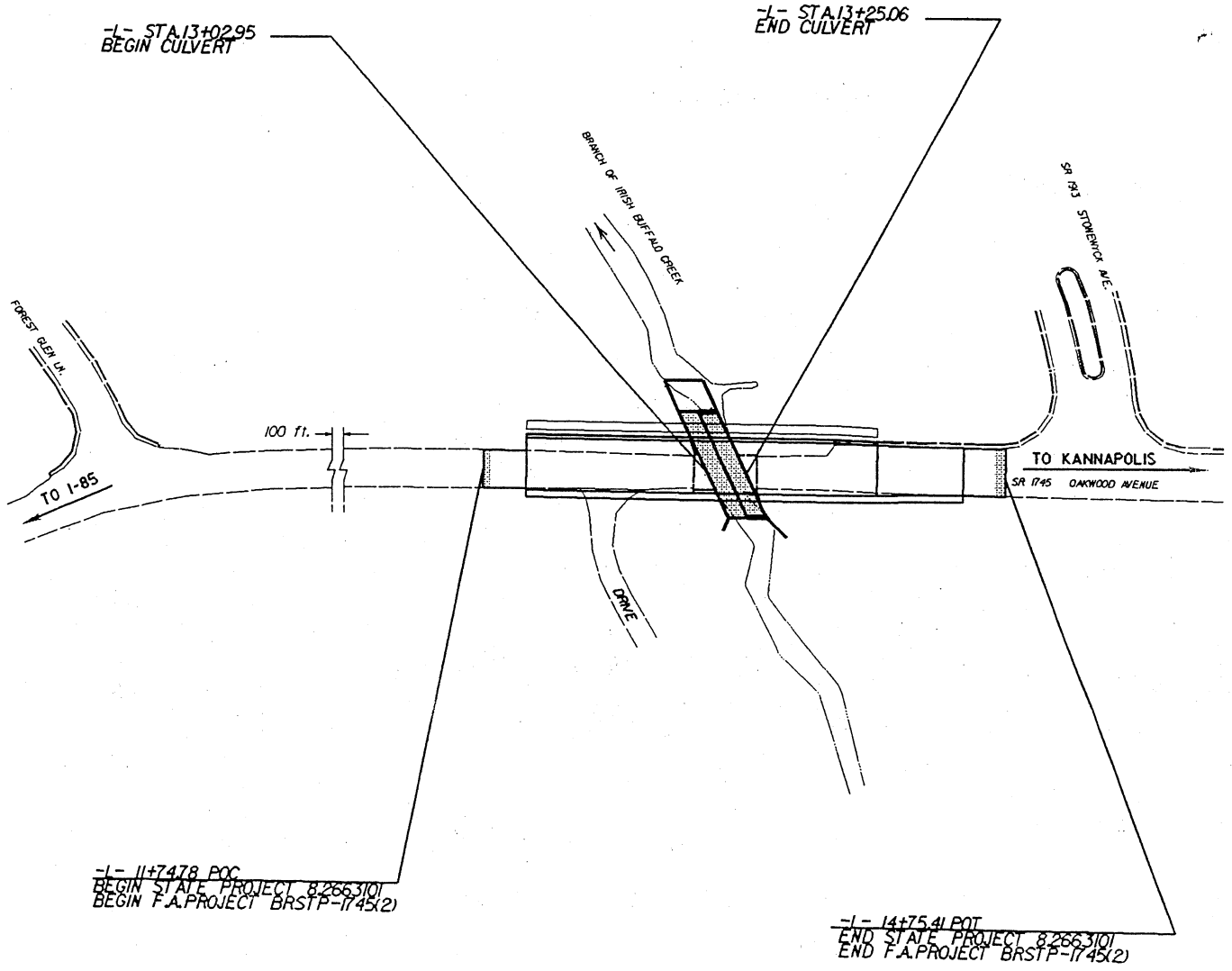
PROJECT: 33050.1.1 (B-3424)

BRIDGE 264 ON SR 1745

OVER BRANCH IRISH

BUFFALO CREEK

PLAN VIEW

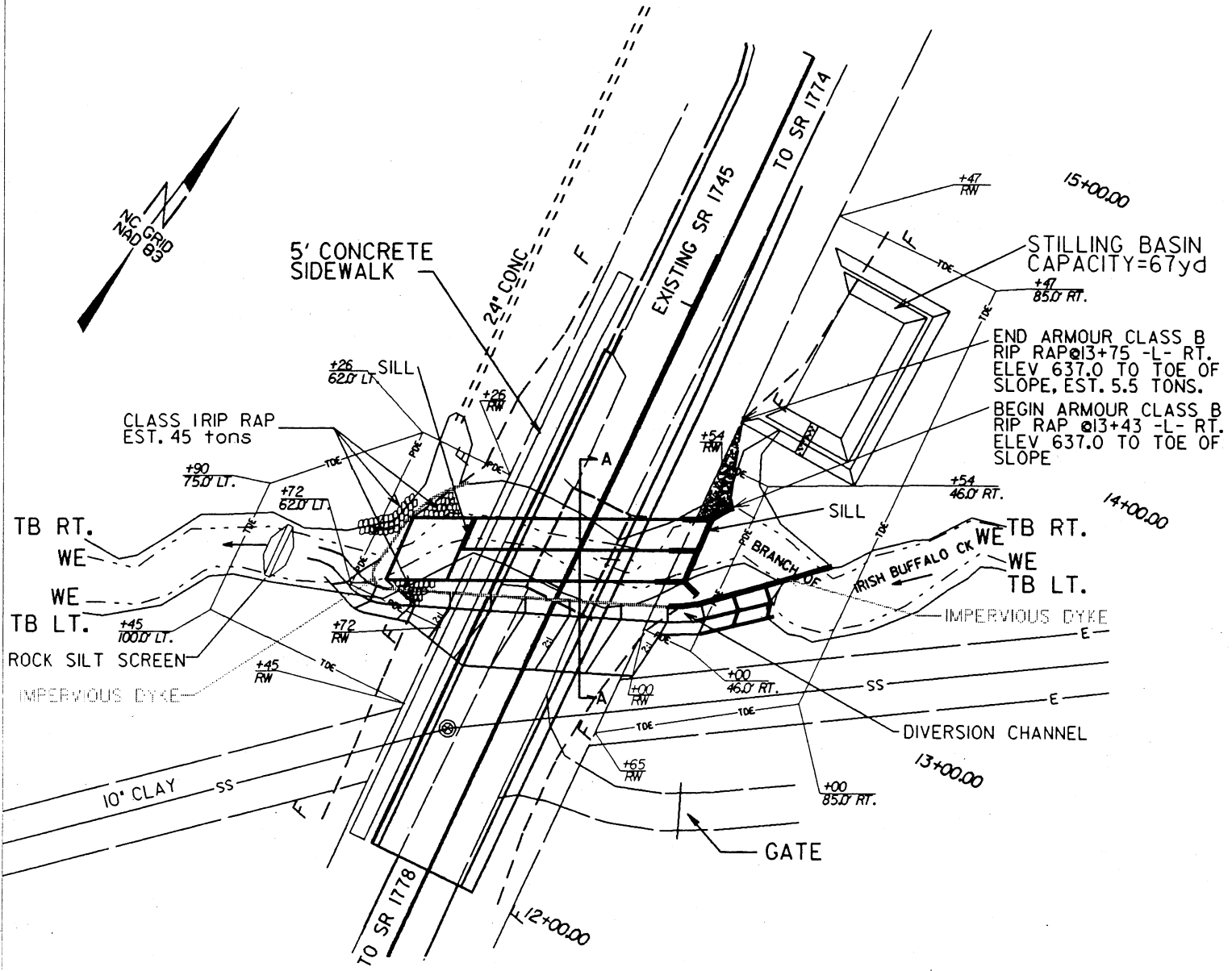


NCDOT
DIVISION OF HIGHWAYS
CABARRUS COUNTY
PROJECT: 33050.1.1 (B-3424)
BRIDGE 264 ON SR 1745
OVER BRANCH IRISH
BUFFALO CREEK

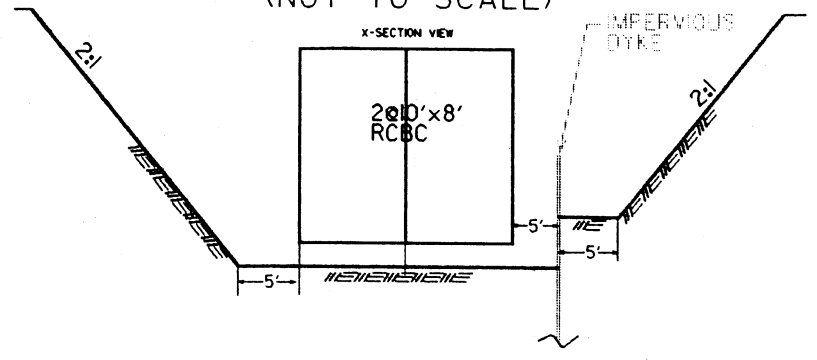
SHEET 2 OF 3

12 / 07 / 03

REVISED 5/30/01
 B-3424 CABARRUS COUNTY
 CONSTRUCTION SEQUENCE
 (2@10'x8'RCBC)



SECTION A-A
 (NOT TO SCALE)



KEY:	
	IMPERVIOUS DYKE
	PROPOSED
	REVISED 05/30/01

CONSTRUCTION SEQUENCE FOR B-3424, CABARRUS COUNTY

1. Install Rock Silt Screen.
2. Construct Stilling Basin (min capacity = 67 cub. Yds.)
3. Remove Existing Structure.
4. Construct Diversion Channel with Impervious Dikes.
5. Excavate for Culvert.
6. Construct Proposed Culvert.
7. Remove Impervious Dikes.
8. Construct Proposed Road.
9. Remove all Erosion Control Devices.

QUANTITIES

Culvert Excavation = 940 Cubic Yds. +/-

Diversion Channel Excavation = 575 Cubic Yds. +/-

Length of Impervious Dike = 192ft. +/-

Height above Excavated Culvert = 6ft. +/-

EXCAVATION FOR DIVERSION CHANNEL AND CULVERT

DIVERSION CHANNEL EXCAVATION

ROADWAY

CROSS SECTION AREA: 146 ft.

LENGTH: 65 ft.

TOTAL: 9490 sqft

NATURAL GROUND

CROSS SECTION AREA: 74 ft.

LENGTH: 80 ft.

TOTAL: 5920 sqft

TOTAL EXCAVATION $9490 + 5920 = 15410$ sqft.

CONVERT TO YARDS = 575 cubic yards

CULVERT EXCAVATION

CROSS SECTION AREA: 320 ft.

LENGTH: 60 ft.

TOTAL: 19200 sqft

NATURAL GROUND

CROSS SECTION AREA: 240 ft.

LENGTH: 65 ft.

TOTAL: 6000 sqft

TOTAL EXCAVATION $19200 + 6000 = 25200$ sqft.

CONVERT TO YARDS = 940 cubic yards

Cabarrus County
Bridge No. 264 on SR 1745 (Oakwood Ave.)
over Branch of Irish Buffalo Creek
Federal Aid Project No. BRSTP-1745(2)
State Project No. 8.2663101
T.I.P. No. B-3424

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

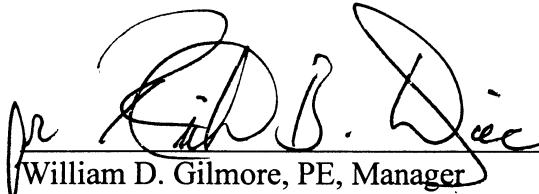
AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

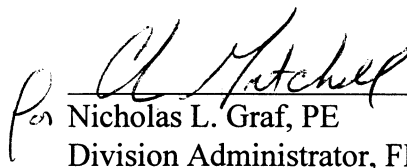
2/18/00
DATE



William D. Gilmore, PE, Manager

Project Development and Environmental Analysis Branch, NCDOT

2/22/2000
DATE



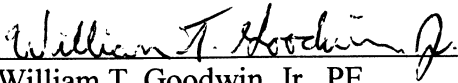
For Nicholas L. Graf, PE
Division Administrator, FHWA

Cabarrus County
Bridge No. 264 on SR 1745 (Oakwood Ave.)
over Branch of Irish Buffalo Creek
Federal Aid Project No. BRSTP-1745(2)
State Project No. 8.2663101
T.I.P. No. B-3424

CATEGORICAL EXCLUSION

February 2000

Documentation Prepared by:
Barbara H. Mulkey Engineering, Inc.

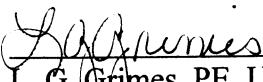


William T. Goodwin, Jr., PE
Project Manager

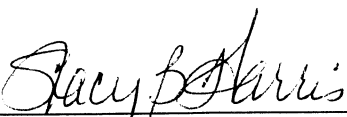
2-14-00
Date



for the North Carolina Department of Transportation



L. G. Grimes, PE, Unit Head
Consultant Engineering Unit



Stacy B. Harris, PE
Project Manager
Consultant Engineering Unit

PROJECT COMMITMENTS

Cabarrus County
Bridge No. 264 on SR 1745 (Oakwood Ave.)
over Branch of Irish Buffalo Creek
Federal Aid Project No. BRSTP-1745(2)
State Project No. 8.2663101
T.I.P. No. B-3424

Programming and TIP Branch and Roadway Design Unit

The project will be let so that the construction period falls during the summer months to reduce the impact of detouring traffic off-site on school bus operations.

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INTRODUCTION: Bridge No. 264 is included in the 2000-2006 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and in the Federal-Aid Bridge Replacement Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal “Categorical Exclusion”.

I. PURPOSE AND NEED STATEMENT

Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 42.8 out of a possible 100 for a new structure. The bridge is considered to be structurally deficient and functionally obsolete. The replacement of this inadequate structure will result in safer traffic operations.

II. EXISTING CONDITIONS

The project is located just outside the city limits of Kannapolis in Cabarrus County, approximately 0.3 miles (0.5 kilometers) north of the intersection of SR 1745 and SR 1778 (see Figure 1). Development in the area is residential in nature.

SR 1745 is classified as an urban collector in the Statewide Functional Classification System and as a Federal-Aid Highway. This route is not a designated bicycle route.

In the vicinity of the bridge, SR 1745 is a 2-lane roadway with a 16-foot (4.8-meter) pavement width with 4-foot (1.2-meter) grass shoulders (see Figures 3 and 4). The roadway grade is in a sag vertical curve through the project area. The existing bridge is on a tangent which extends approximately 800 feet (245 meters) north and approximately 200 feet (60 meters) south from the structure. There is a curve with a design speed of approximately 30 miles per hour just south of the existing structure. The roadway is situated approximately 10.0 feet (3.0 meters) above the creek bed.

Bridge No. 264 is a one-span structure that consists of a timber deck on steel I-beams. The abutments consists of timber caps, piles, and bulkheads. The existing bridge (see Figure 3) was constructed in 1955. The overall length of the structure is 36 feet (11 meters). The clear roadway width is 19.2 feet (5.9 meters) which provides for two through lanes. The posted weight limit on this bridge is 15 tons for single vehicles and 19 tons for TTST's.

There are no utilities attached to the existing structure, but there are overhead power, CATV, and telephone lines located just west of the bridge. There is also an underground gas line along the west side of SR 1745, and a waterline along the east side of the road. A sanitary sewer line crosses SR 1745 just south of the existing bridge. Utility impacts are anticipated to be medium.

The current traffic volume of 6,300 vehicles per day (VPD) is expected to increase to 12,000 VPD by the year 2025. The projected volume includes 1 percent truck-tractor semi-trailer (TTST) and 2 percent dual-tired vehicles (DT). The posted speed limit is 45 miles (70 kilometers) per hour in the project area.

Six accidents have been reported in the vicinity of Bridge No. 264 during the period from January 1995 to December 1997. Four of the accidents resulted in property damage only, while two of them involved non-fatal injuries as well.

Twenty-two school buses cross the bridge daily on their morning and afternoon routes. The Cabarrus County School Bus Transportation Coordinator has indicated that maintaining traffic on-site would be preferred, but an off-site detour would be acceptable for a short period of time.

III. ALTERNATIVES

A. Project Description

The recommended replacement structure will be a triple (3) barrel 11-foot wide by 7-foot high (3.3 meter by 2.1 meter) reinforced concrete box culvert. This structure will be of sufficient length to provide two 12-foot (3.6-meter) lanes with an 11-foot (3.3-meter) shoulder on each side across the creek.

The roadway grade of the new structure will be approximately the same as the grade of the existing bridge. The design speed for the roadway will remain approximately 30 miles (50 kilometers) per hour.

SR 1745 will be widened to a 24-foot (7.2-meter) pavement width to provide two 12-foot (3.6-meter) lanes and an 8-foot (2.4-meter) shoulder on each side with 4-feet (1.2-meters) of the shoulder paved. Improvements to the approach roadways will be required for a distance of approximately 275 feet (84 meters) to the north and 450 feet (138 meters) to the south of the structure. Typical sections of the proposed roadway are included as Figure 4 and 5.

B. Reasonable and Feasible Alternatives

Two reasonable and feasible alternatives for replacing Bridge No. 264 were considered.

Alternative 2 involves replacing Bridge No. 264 along the existing roadway alignment. A temporary on-site detour will be provided during the construction period east (upstream) of the existing structure. The temporary detour will require three 72-inch corrugated metal pipes with a road grade approximately the same as the existing bridge. The on-site detour will be about 625 feet (191 meters) in length. Alternative 2 is not recommended because it is more economical to detour traffic off-site, than to maintain traffic on-site, and it has a greater impact on the environment than the recommended alternative.

Alternative 4 (preferred) involves replacing Bridge No. 264 along the existing roadway alignment. Traffic will be detoured off-site along existing roadways during construction. See Figure 1 for studied detour route.

C. Alternatives Eliminated From Further Study

Alternative 1 involves replacing Bridge No. 264 on new alignment upstream (east) of the existing structure. Existing Bridge No. 264 will continue to maintain traffic on-site during construction. The new alignment would have a design speed of 40 miles (65 kilometers) per hour and would be approximately 2,100 feet (642 meters) in length. Alternative 1 is not recommended because it costs considerably more than the other alternatives (see table on page 4) and does not meet the recommended design speed of 50 miles (80 kilometers) per hour.

Alternative 3 involves replacing Bridge No. 264 on new alignment downstream (west) of the existing structure. Existing Bridge No. 264 will continue to maintain traffic on-site during construction. The new alignment would have a design speed of 30 miles (50 kilometers) per hour and would be approximately 1,350 feet (413 meters) in length. Alternative 3 is not recommended because it would relocate one residence, have proximity damages to one additional residence and does not improve the design speed for the facility.

The “do-nothing” alternative will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by SR 1745.

“Rehabilitation” of the old bridge is not feasible due to its age and deteriorated condition.

D. Preferred Alternative

Alternative 4, replacing the existing bridge in-place is the preferred alternative. Alternative 4 was selected because it replaces Bridge No. 264 by the most economical and least environmentally damaging method.

A road user cost analysis indicates that detouring traffic off-site during the construction period will generate a cost to road users of approximately \$300,000 by requiring local road users to travel an average of 1.4 miles out of their way for a period of three months. An average vehicle operating cost of \$0.36 per mile was used for this calculation. This assumes a precast culvert is used at a cost increase of \$15,000 over the cost of a conventional culvert. This increase in construction cost will reduce construction time by approximately one month and reduce the cost to road users by approximately \$100,000.

The NCDOT Division 10 Engineer concurs with the recommendation of Alternative 4 as the preferred alternative.

The Cabarrus County School Transportation Director indicated that detouring traffic off-site during the construction period is acceptable as long as the majority of the detour period were during the summer months.

IV. ESTIMATED COSTS

The estimated costs for the four alternatives are as follows:

	Alternative 1	Alternative 2	Alternative 3	Alternative 4 Preferred
Structure	\$ 140,000	\$ 140,000	\$ 155,000	\$ 155,000
Roadway Approaches	\$ 709,750	\$ 256,250	\$ 307,250	\$ 220,250
Detour Structure and Approaches	- 0 -	\$ 425,000	- 0 -	- 0 -
Structure Removal	\$ 5,750	\$ 5,750	\$ 5,750	\$ 5,750
Misc. & Mob.	\$ 406,000	\$ 186,000	\$ 228,000	\$ 185,000
Eng. & Contingencies	\$ 188,500	\$ 87,000	\$ 104,000	\$ 84,000
Total Construction Cost	\$1,450,000	\$1,100,000	\$ 800,000	\$ 650,000
Right-of-way Costs	\$ 54,100	\$ 44,000	\$ 268,500	\$ 29,450
Total Project Cost	\$1,504,100	\$1,144,000	\$1,068,500	\$ 679,450

The estimated cost of the project shown in the 2000-2006 NCDOT Transportation Improvement Program is \$375,000, including \$50,000 spent in prior years, \$25,000 for right-of-way, and \$300,000 for construction.

V. NATURAL RESOURCES

A. Methodology

Information sources used to prepare this report include: United States Geological Survey (USGS) Kannapolis, NC 7.5 minute series topographic map (1993); Natural Resources Conservation Service (NRCS) Soil Survey of Cabarrus County, NC (September, 1988); United States Fish and Wildlife Service (USFWS) National Wetlands Inventory map (Kannapolis, NC, 1991); USFWS Endangered, Threatened, and Candidate Species and Federal Species of Concern in North Carolina; North Carolina Natural Heritage Program (NCNHP) computer database, via the Internet, of rare species and unique habitats; and NCDOT aerial photography of the study area. Research using these resources was undertaken prior to the field investigation.

A general field survey was conducted along the proposed project corridor on October 20, 1998. Plant communities and their associated wildlife were identified using a variety of observation techniques including active searching, and identifying characteristic signs of wildlife such as sounds, tracks, scats, and burrows.

Impact calculations were based on the worst-case scenario using the full right-of way limits for each individual alternate, the width of the replacement structure, and the length of the project approaches. The actual construction impacts should be less, but without specific replacement structure design information the worst case was assumed for the impact calculations.

B. Physiography and Soils

The proposed project lies within the Piedmont Physiographic Province, which includes all of North Carolina west of the Fall Line and east of the Blue Ridge Escarpment. This province is underlain by igneous, crystalline metamorphic, or occasionally, sedimentary rocks. The topography of the project vicinity can be characterized as gently rolling, with more steeply sloped areas along drainageways. Elevations in the project vicinity range from approximately 630 to 700 feet (193 to 214 meters) above mean sea level (msl). The elevation in the project area is approximately 640 to 660 feet (196 to 202 meters) above msl.

According to the soil survey for Cabarrus County, the Enon-Mecklenburg-Poindexter soil association dominates the project area (USDA-NRCS, 1988). This soil series consists of gently sloping to very steep, well drained soils that have a clayey or loamy subsoil, formed in residuum from mixed acidic and basic igneous and metamorphic rock. Field conditions generally conformed to the soil survey mapping in the project area. Individual soil types found in the project area are described below.

Chewacla sandy loam, frequently flooded is located in the floodplain north and south of the stream. This soil is somewhat poorly drained. Wehadkee soils are sometimes found in this soil type in depressions. Both the Chewacla and Wehadkee soils are listed as hydric (USDA-NRCS, 1991). During the field investigation, it was noted that soils in this soil type within the project area did not exhibit hydric characteristics such as low chroma colors, mottling, or organic streaking.

Poindexter loam, 8 to 15 percent slopes is located south of the bridge adjacent to the Chewacla soils. This soil is well drained, and permeability is moderate. It is often found on convex side slopes and erosion is a severe hazard if the soil is unprotected. Included in this soil type are small areas of Enon, Mecklenburg, and Pacolet soils. Neither Poindexter nor any of its inclusions are listed as hydric (USDA-NRCS, 1991).

Enon-Urban land complex, 2 to 10 percent slopes is on both sides of the southern approach, adjacent to and south of the Poindexter loam. Enon soils make up 50 to 70 percent of the acreage in this soil type and Urban land is 15 to 35 percent. Enon soils are well drained and erosion is a hazard where the ground cover has been removed. Mecklenburg and Poindexter soils are found as inclusions within this soil type. Urban land consists of areas that have closely spaced houses, paved streets and parking lots, apartments, and various commercial structures. Runoff from rooftops and paved surfaces increases the hazard of low-lying areas downstream.

A very small area of Cecil sandy clay loam, 8 to 15 percent slopes, eroded is located west of the northern approach adjacent to the Chewacla soils. This soil is well drained and if the soil is left unprotected, runoff is very rapid and erosion is a very severe hazard. Appling, Cullen, Pacolet, and Vance soils are listed as inclusions within this soil type. Cecil is not listed as hydric, nor are any of its inclusions (USDA-NRCS, 1991).

Cecil sandy clay loam, 2 to 8 percent slopes, eroded covers the remainder of the project area on both sides of the northern approach. This soil is well drained and runoff is rapid. Inclusions found in this soil type consist of Appling, Cullen, and Mecklenburg soils. There are no hydric soils found within this soil type (USDA-NRCS, 1991).

C. Water Resources

1. Stream Characteristics

The proposed project falls within the Yadkin-Pee Dee River Basin, with a subbasin designation of YAD12 (03-07-12) and a federal hydrologic unit designation of 03040105. The unnamed tributary within the project area discharges into Irish Buffalo Creek approximately 0.4 miles (0.6 kilometers) southwest of the bridge.

Within the project vicinity, Irish Buffalo Creek has a Class C rating from the North Carolina Department of Environment and Natural Resources (NCDENR). A Class C designation indicates the creek's suitability for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. The Classification Date and Index for this area of the creek is 9/1/74, 13-17-9-(2).

Point-source discharges located throughout North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) program. A search within the project vicinity, [0.5 miles (0.8 kilometers)] was conducted for NPDES permitted discharges and no permitted discharges were found in the area.

Non-point source refers to runoff that enters surface waters through storm water flow or no defined point of discharge. In the project study area, storm water runoff from SR 1745 as well as surrounding developed areas may contribute to water quality degradation.

Benthic macroinvertebrates are organisms that live in and on the bottom substrates of rivers and streams. The North Carolina Division of Water Quality (DWQ) uses data on these organisms as a tool to monitor water quality since benthic macroinvertebrates are sensitive to subtle changes in water quality. Formerly, the DWQ used the Benthic Macroinvertebrate Ambient Network (BMAN) as a primary tool for water quality assessment, but phased this method out approximately six years ago and has converted to a basin wide assessment sampling protocol. Each river basin in the state is sampled once every five years and the number of sampling stations has been increased within each basin. Each basin is sampled for biological, chemical and physical data. The DWQ includes the North Carolina Index of Biotic Integrity (NCIBI) as another method to determine general water quality in the basin wide sampling. The NCIBI is a modification of the Index of Biotic Integrity initially proposed by Karr (1981) and Karr, et al. (1986). The NCIBI method was developed for assessing a stream's biological integrity by examining the structure and health of its fish community. The Index incorporates information about species richness and composition, trophic composition, fish abundance, and fish condition. The NCIBI summarizes the effects of all classes of factors influencing aquatic faunal communities (water quality, energy source, habitat quality, flow regime, and biotic interactions).

The DWQ was contacted on October 16, 1998 (DWQ, 1998) regarding sampling information relevant to the unnamed tributary of Irish Buffalo Creek in the project vicinity. No information was available for the project area. The closest DWQ sampling station is at SR 1132, which is below Concord.

2. Anticipated Impacts

a. General Impacts

Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watershed, or WS-II: predominately undeveloped watersheds) nor Outstanding Resource Waters (ORW) occur within 1.0 mile (1.6 kilometers) of project study area. In the short term, construction of the culvert and approach work will increase sediment loads. The removal of trees which provide shade along the banks will likely result in an increase in water temperature. Construction related sedimentation can be harmful to local populations of invertebrates, which are an important part of the aquatic food chain. Potential adverse effects will be minimized through the use of the NCDOT Best Management Practices for Protection of Surface Waters (BMPs) and the use of Erosion and Sediment Control Guidelines for Contract Construction, as applicable.

b. Impacts Related to Bridge Demolition and Removal

In order to protect the water quality and aquatic life in the area affected by this project, the NCDOT will follow the NCDOT Best Management Practices for Bridge Demolition and Removal. Best Management Practices (BMPs) followed for Bridge Demolition and Removal are in addition to those implemented for the NCDOT Best Management Practices for Protection of Surface Waters.

Dropping any portion of the structure to be removed into “Waters of the United States” will be allowed only if no other practical method of removal is feasible. The existing bridge has a superstructure which consists of a timber deck on steel I-beams. The substructure consists of timber caps, piles, and bulkheads at both abutments. The superstructure and substructure for this bridge are such that it is anticipated the bridge will be removed by a method other than dropping it into “Waters of the United States”. This project is classified as a Case 3 situation. Should in-water work be necessary, no special restrictions are required other than those outlined in the NCDOT BMPs for Protection of Surface Waters. General BMPs for Bridge Demolition and Removal will be followed for this project as well as those specific to removing the piles.

D. Biotic Resources

Living systems described in the following sections include communities of associated plants and animals in the project area. These descriptions refer to the dominant flora and fauna in each community and the relationship of these biotic components. Classification of natural plant communities is based on the system used by the NCHNP (Schafale and Weakley 1990). Scientific nomenclature and common names (when applicable) are used for the plant and animal species described. Subsequent references to the same species include the common name only. Vascular plant names follow nomenclature found in Radford et al. (1968) unless more current information is available. Terrestrial and aquatic wildlife were determined through field observations, evaluation of habitat, and review of field guides and other documentation.

1. Terrestrial Communities

Terrestrial communities found in the project area include Man-Dominated, Piedmont Alluvial Forest, Basic Oak-Hickory Forest, and Modified/Disturbed Forested. Dominant faunal components associated with these areas will be discussed in the community description below.

a. Man-Dominated Community

This modified community includes a sewer line easement, a power line easement, residential areas, and road shoulders. All of the project area north of the stream and west of the northwest approach is Man-Dominated. This area is dominated by residential properties and maintained lawns. Only the road shoulder east of the northwest approach area is included within this community. The shoulder is approximately 6 feet (1.8 meters) wide and is mostly maintained grass.

A residential neighborhood is included within the Man-Dominated community south of the stream on the south side of the southeastern approach. There is also a sewer line here that extends through a forested area. Part of the road shoulder consists of maintained grass, however there is a large strip of exposed soil along SR 1745 that extends approximately 25 feet (7.5 meters) from the edge of the pavement in this area. It appears that construction work has recently been conducted here, possibly on a portion of the sewer system. Adjacent to the exposed soil, weedy herbaceous vegetation such as aster (*Aster* sp.), goldenrod (*Solidago* sp.), and various grasses are present.

The Man-Dominated community east of the southeast approach includes maintained grass along the road shoulder, and an embankment where a power line is located. The embankment slopes upward from the road and contains 1 to 2 foot (0.3 to 0.6 meter) tall saplings of sweetgum (*Liquidambar styraciflua*) and eastern red cedar (*Juniperus virginiana*). Exposed soil is present in many places on the embankment.

The only wildlife observed in this community on the day of the site investigation was a common crow (*Corvus brachyrhynchos*). Most of the residential properties within the project area appeared to be fairly new, so the planted trees were not very old. Roadside habitat is not very diverse or abundant in this area and overall the Man-Dominated community at this site does not provide extensive cover or food. Birds that frequent areas such as this would probably be the most abundant wildlife found in this community.

b. Piedmont Alluvial Forest

This community is located adjacent to the stream east of SR 1745 and also west of the road on the south side of the stream. Dominant vegetation includes green ash (*Fraxinus pennsylvanica*), elm (*Ulmus* sp.), boxelder (*Acer negundo*), sycamore (*Platanus occidentalis*), sweetgum, tag alder (*Alnus serrulata*), pecan (*Carya illinoensis*), river birch (*Betula nigra*), mockernut hickory (*Carya tomentosa*), paw paw (*Asimina triloba*), Chinese privet (*Ligustrum sinense*), poison ivy (*Toxicodendron radicans*), and black willow (*Salix nigra*).

The floodplain of this stream is small and aerial photography verifies that residential development is extensive in the project vicinity. Parts of the Piedmont Alluvial Forest, as well as natural communities that it would grade into away from the stream have in many instances been removed. However, there are still some species of wildlife that could exploit this habitat. On the day of the site investigation raccoon (*Procyon lotor*) tracks were noted in the stream bed. Investigators heard a mixed flock of birds, possibly starlings (*Sturnus vulgaris*) and blackbirds (Icteridae family) while investigating this community. Birds such as the American goldfinch (*Carduelis tristis*), which could nest in this community and forage here as well as in the surrounding disturbed areas might utilize this habitat. Reptiles like the worm snake (*Carphophis amoenus*) could reside here, feeding on earthworms, and the ringneck snake (*Diadophis punctatus*) could be found here hunting for earthworms and salamanders.

c. Basic Oak-Hickory Forest

This community is located in a sloping area east of the southeast approach. Dominant vegetation includes white oak (*Quercus alba*), post oak (*Quercus stellata*), southern red oak (*Quercus falcata*), mockernut hickory, eastern red cedar, ash (*Fraxinus americana*), and redbud (*Cercis canadensis*). The Basic Oak-Hickory Forest in the project area is small and surrounded by development. Aerial photography provided by NCDOT dated April 6, 1998 does not show a housing development that is currently under construction adjacent to and upslope of this community.

Several gray squirrels (*Sciurus carolinensis*) were observed in this community on the day of the site investigation. Good habitat is available for them due to the mast producing species and appropriate cover. Other wildlife that might utilize this community include red-eyed vireo (*Vireo olivaceus*), which might nest here and feed upon insects, and summer tanager (*Piranga rubra*), which could find suitable nesting habitat and various insects to consume.

d. Modified/Disturbed Forested

East of the northwest approach, this community is adjacent to the Piedmont Alluvial Forest. Dominant vegetation here includes shortleaf pine (*Pinus echinata*), eastern red cedar, and sweet gum. This forested area is small and the northern edge is adjacent to maintained lawns of residential properties.

No wildlife was observed in this community on the day of the site investigation, however it could be useful to some species that rely upon pine seeds and the berry-like fruit of cedars for a portion of their diet. Some species that may be found in this community include purple finch (*Carpodacus purpureus*), red crossbill (*Loxia curvirostra*), and gray squirrel.

2. Aquatic Communities

The aquatic community in the project study area exists within an unnamed tributary of Irish Buffalo Creek. The stream flows southwest through the project area and is approximately 25 feet (7.5 meters) wide east of the bridge and 6 to 10 feet (1.8 to 3.0 meters) wide west of the bridge. On the day of the site investigation the water was very low, covering only about 2 to 5 feet (0.6 to 1.5 meters) of the width of the stream bed. Depth of the water ranged from about 3 to 12

inches (8 to 30 centimeters). The stream banks were eroded, with many exposed roots. Stream bank height east of the bridge was approximately 6 to 7 feet (1.8 to 2.0 meters) and west of the bridge approximately 3 to 6 feet (0.9 to 1.8 meters). The water was clear and slow flowing and the substrate was coarse sand.

A cursory search of the shoreline was conducted for evidence of mussel and clam species. No shells were observed along the shore. The stream bed was visible in all areas near the bridge and no shells were observed in the water or in areas where the bottom was exposed due to low flow. A few unidentified minnows were observed in small pool areas and raccoon tracks were observed in the sand of the stream bed.

The District 6 Fisheries Biologist for the NCDER Wildlife Resources Commission (WRC) was contacted on October 22, 1998 (WRC, 1998) for information on species that might be found in the project area. He confirmed that no data is available for the stream, however he suspects that various minnows and sunfish may inhabit the area. He recommended good soil erosion practices for the protection of downstream waters, mitigation for stream culverting if culverts are used, and the placement of culverts to allow for fish and wildlife migration.

3. Anticipated Impacts to Biotic Communities

Biotic community impacts resulting from project construction are addressed separately as terrestrial impacts and aquatic impacts. However, impacts to terrestrial communities, particularly in locations exhibiting slopes, can result in the aquatic community receiving heavy sediment loads as a consequence of erosion; construction impacts may not be restricted to the communities in which the construction activity occurs. Efforts will be made to ensure that no sediment leaves the construction site by implementing the Division of Highways Erosion and Sedimentation Control Guidelines for Contract Construction and the NCDOT Best Management Practices for Protection of Surface Waters, as applicable.

a. Terrestrial Communities

Impacts to terrestrial communities will be greatest for Alternative 1 due to the proposed new alignment. The majority of the impacts are associated with the Man-Dominated community. Anticipated impacts to terrestrial communities are documented in Table 1.

Bridge No. 264 Replacement Impacts	Man-Dominated Community acre (ha)	Piedmont Alluvial Forest acre (ha)	Oak-Hickory Forest acre (ha)	Modified / Disturbed Forested acre (ha)	Aquatic Community acre (ha)	Combined Total acre (ha)
Alternative 1	1.14 (0.46)	0.12 (0.05)	0.51 (0.21)	0.15 (0.06)	0.03 (0.01)	1.95 (0.79)
Alternative 2	0.56 (0.23)	0.03 (0.01)	0.00	0.00	0.03 (0.01)	0.62 (0.25)
Alternative 2 Temporary Detour	0.60 (0.24)	0.13 (0.05)	0.10 (0.04)	0.01 (<0.01)	0.02 (<0.01)	0.86 (0.35)
Alternative 3	0.93 (0.38)	0.07 (0.03)	0.00	0.00	0.03 (0.01)	1.03 (0.42)
Alternative 4	0.56 (0.23)	0.03 (0.01)	0.00	0.00	0.03 (0.01)	0.62 (0.25)

NOTES:

- Impacts are based on individual right-of-ways for each alternative.
- Actual construction impacts may be less than those indicated above; calculations were based on the worst case scenario.
- Existing roadways were not considered as part of the total impact where alternatives overlapped existing pavement.

b. Aquatic Communities

The aquatic community in the project study area exists within an unnamed tributary of Irish Buffalo Creek. The replacement of Bridge No. 264 will result in up to 0.03 acres (0.01 ha) of aquatic impacts. This represents worst case conditions; actual disturbed area will likely be less. Additional downstream impacts beyond the project study area are possible. Impacts to the adjacent terrestrial communities can have a direct impact on aquatic communities. Construction of the bridge and approach work as well as the removal of trees will likely result in an increase in sediment loads and water temperature, and a decrease in dissolved oxygen in the short term. Construction activities can also increase the possibility of toxins, such as engine fluids and particulate rubber, entering the waterways and impacting aquatic organisms. These factors can potentially cause the displacement and mortality of fish and local populations of invertebrates which inhabit these areas. The NCDOT BMPs for Protection of Surface Waters will be implemented, as applicable to minimize potential adverse impacts due to construction.

E. SPECIAL TOPICS

1. “Waters of the United States”: Jurisdictional Issues

Wetlands and surface waters fall under the broad category of "Waters of the United States" as defined in 33 CFR §328.3 and in accordance with provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344). “Waters of the United States” are regulated by the United States Army Corps of Engineers (USACE).

Investigation into wetland occurrence in the project study area was conducted using methods of the 1987 USACE Wetland Delineation Manual. No wetland areas were found within the project study area.

Project construction cannot be accomplished without infringing on jurisdictional surface waters. Anticipated surface water impacts fall under the jurisdiction of the USACE. Up to 60.0 linear feet (18.0 meters) or 0.03 acres (0.01 ha) of jurisdictional surface waters impacts may occur due to the proposed replacement of Bridge No. 264. Estimated jurisdictional stream impacts are derived from assuming a 60 foot (18 meter) right-of-way.

2. Permits

In accordance with the provisions of Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344), a permit is required from the USACE for the discharge of dredged or fill material into “Waters of the United States”. Nationwide Permit No. 23 authorizes any activities, work and discharges undertaken, assisted, authorized, regulated, funded or financed, in whole or in part, by

another federal agency for an action that is “categorically excluded” from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the environment. The Categorical Exclusion is submitted to the USACE to document that the terms and conditions of the Nationwide Permit No. 23 are met. However, final permit decisions are left to the discretionary authority of the USACE.

If no practical alternative exists to remove the existing bridge other than to drop it into the water, prior to removal of debris off-site, fill related to demolition procedures will be considered during the permitting process. Permitting will be coordinated such that any permit needed for bridge construction will also address issues related to bridge demolition. Since this bridge has timber piles and a timber deck, removal should be possible without dropping any components into the water.

If wetlands or waters are impacted by fill from a proposed project, a Section 401 Water Quality Certification may be required from the North Carolina Division of Water Quality. North Carolina has developed General Certifications (GC) that will satisfy Section 401 of the CWA and correspond to the USACE’s Nationwide Permits. An application must be made if there are any impacts to “waters of the United States”.

3. Mitigation

Compensatory mitigation is not anticipated to be required for this project since estimated impacts to wetlands and/or “Waters of the United States” total less than the minimum requirement by the USACE and the DWQ. However, a final determination regarding mitigation requirements rests with the agencies noted above.

F. Rare and Protected Species

Some populations of plants and animals have been or are in the process of decline due either to natural forces or their inability to coexist with human disturbance. Rare and protected species listed for Cabarrus County, and any likely impacts to these species as a result of the proposed project construction, are discussed in the following sections.

1. Federally Protected Species

Plants and animals with federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. The United States Fish and Wildlife Service lists two federally protected species for Cabarrus County as of the September 15, 1999 listing (Table 2). Information pertinent to these species and the possibility of impact due to the proposed project is listed below.

TABLE 2 FEDERALLY PROTECTED SPECIES FOR CABARRUS COUNTY		
Scientific Name	Common Name	Status
<i>Helianthus schweinitzii</i>	(Schweinitz's sunflower)	E
<i>Lasmigona decorata*</i>	(Carolina heelsplitter)	E

NOTES:

E Denotes Endangered (a species that is in danger of extinction throughout all or a significant portion of its range).

* Obscure record - the date and/or location of observation is uncertain.

Species: *Helianthus schweinitzii* (Schweinitz's sunflower)
 Family: Asteraceae
 Date Listed: 5/7/91

Schweinitz's sunflower is a rhizomatous perennial herb approximately 3.3 to 6.6 feet (1.0 to 2.0 meters) tall with a tuberous root. Stems are usually solitary, branching only at or above the mid-stem, pubescent, and often purple in color. The leaves are opposite on the lower stem, changing to alternate above. They are lanceolate, pubescent, and have a rough, thick texture. The yellow flowers have small heads and bloom from September until frost. The nutlets are approximately 0.13 to 0.14 inches (3.3 to 3.5 mm) long and are glabrous with rounded tips.

Schweinitz's sunflower is endemic to the Piedmont region of the Carolinas. It occurs in open habitats such as edges of upland woods, roadside ditches and shoulders, and pastures. Soils are usually moist to somewhat dry clays, clay loams, or sandy clay loams with a high gravel content.

BIOLOGICAL CONCLUSION: NO EFFECT

Potential habitat exists for this species in the Man-Dominated community of the project area. Field work was conducted in October, which is during the flowering time for this species. All areas of potential habitat were thoroughly searched and Schweinitz's sunflower was not located. In addition, no *Helianthus* spp. were observed during the site investigation and the NCNHP reports no recorded occurrences of Schweinitz's sunflower in the project area vicinity. This project will not affect Schweinitz's sunflower.

Species: *Lasmigona decorata* (Carolina heelsplitter)
 Family: Unionidae
 Date Listed: 7/30/93

The Carolina heelsplitter has an ovate, trapezoid-shaped shell that is greenish-brown to dark brown. The nacre is pearly-white to bluish-white with a small amount of orange, which in older specimens may mottle the entire surface. The host fish for this species is unknown.

Potential habitat for this species may include small to large streams and rivers, as well as possibly mill ponds. Currently the Carolina heelsplitter is known only from three small streams

and one small river. Substrate consists of mud, muddy sand, or muddy gravel, along with stable well-shaded stream banks.

BIOLOGICAL CONCLUSION: NO EFFECT

Information on this species suggests that stream bank stability is very important. Stream banks in the project area are very eroded with many exposed roots. The substrate in the project area is coarse sand, which according to information published by the USFWS, is not appropriate for this species. The species account for the Carolina heelsplitter in Cabarrus County indicates that records of the species occurring in the county are obscure, with the date and/or location of the records uncertain. The water was very low and clear on the day of the site investigation and no shells of any type were visible in the water or along the shore. In addition, the NCNHP has no recorded occurrence of this species within the project area or vicinity. This project will not affect the Carolina heelsplitter.

2. Federal Species of Concern

Federal Species of Concern (FSC) are not legally protected under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. Species designated as FSC are defined as taxa which may or may not be listed in the future. These species were formerly Candidate 2 (C2) species or species under consideration for listing for which there is insufficient information to support listing. Some of these species are listed as Endangered, Threatened, or Special Concern by the NCNHP database of rare plant and animal species and are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979. Table 3 provides the Federal Species of Concern in Cabarrus County and their state classifications.

Scientific Name	(Common Name)	North Carolina Status	Habitat Present
<i>Dactylocythere peedeensis</i> *	(Pee Dee crayfish ostracod)	SR	Yes**
<i>Etheostoma collis collis</i> ◆	(Carolina darter)	SC	Yes
<i>Villosa vaughaniana</i> ■	(Carolina creekshell)	SC	No
<i>Lotus helleri</i>	(Carolina birdfoot-trefoil)	C	Yes

NOTES:

- C Denotes Candidate (species for which population monitoring and conservation action is recommended).
- SC Denotes Special Concern (species which are afforded protection by state laws).
- SR Denotes Significantly Rare (species for which population monitoring and conservation action is recommended).
- * Historic record - the species was last observed in the county more than 50 years ago.

- ** NCNHP records state that habitat for this species is unknown, however it has been documented as occurring in Coddle Creek, which is approximately 3 miles west of the project area.
- Listed by the NCNHP but not the USFWS.
- ◆ Listed by the USFWS but not the NCNHP.

3. Summary of Anticipated Impacts

Open habitat similar to that preferred by the federally protected species Schweinitz's sunflower is present within the project area. All areas of potential habitat were thoroughly searched and no *Helianthus* spp. were located. The NCNHP reports no recorded occurrences of Schweinitz's sunflower within the project vicinity. A small amount of open habitat exists in a weedy roadside area near the bridge for Carolina birdfoot-trefoil, which is an FSC. Potential habitat is also present for the Carolina darter, which is an FSC. The NCNHP database shows no occurrences of these species in the project area or vicinity.

VI. Cultural Resources

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 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.

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted on August 6, 1998. All structures within the APE were photographed, and later reviewed by the State Historic Preservation Office (SHPO). In a concurrence form dated December 30, 1998 the SHPO concurred that there are no historic architectural resources either listed in or eligible for listing in the National Register of Historic Places within the APE. A copy of the concurrence form is included in the Appendix.

C. Archaeology

The State Historic Preservation Office (SHPO), in a memorandum dated November 20, 1998 stated that "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." A copy of the SHPO memorandum is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

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

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

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

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

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

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

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.

This project has been coordinated with the United States Natural Resources Conservation Service. 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. Right-of-way acquisition will be minimal and 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.

This project is an air quality “neutral” project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required.

Noise levels could increase during construction but will be temporary. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise of Title 23, Code of Federal Regulation (CFR), Part 772 and for air quality (1990 Clean Air Act Amendments and the National Environmental Policy Act) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Water Quality, 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.

Cabarrus County is a participant in the National Flood Insurance Regular Program. The approximate 100-year floodplain in the project area is shown in Figure 6. There are no practical alternatives to crossing the floodplain area. Any shift in alignment will result in a crossing of about the same magnitude. All reasonable measures will be taken to minimize any possible harm. The project is not anticipated to increase the level and extent of upstream flood hazard. No substantial floodway modifications will be required.

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

VIII. AGENCY COMMENTS

A. Wildlife Resources Commission

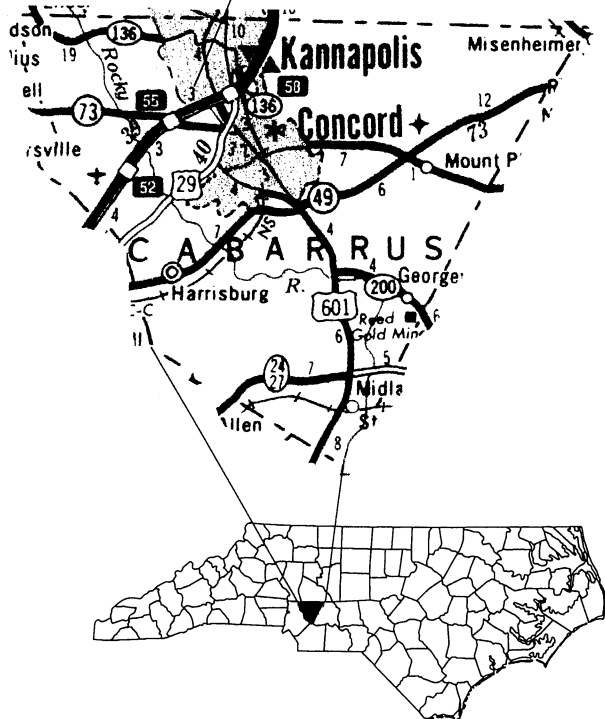
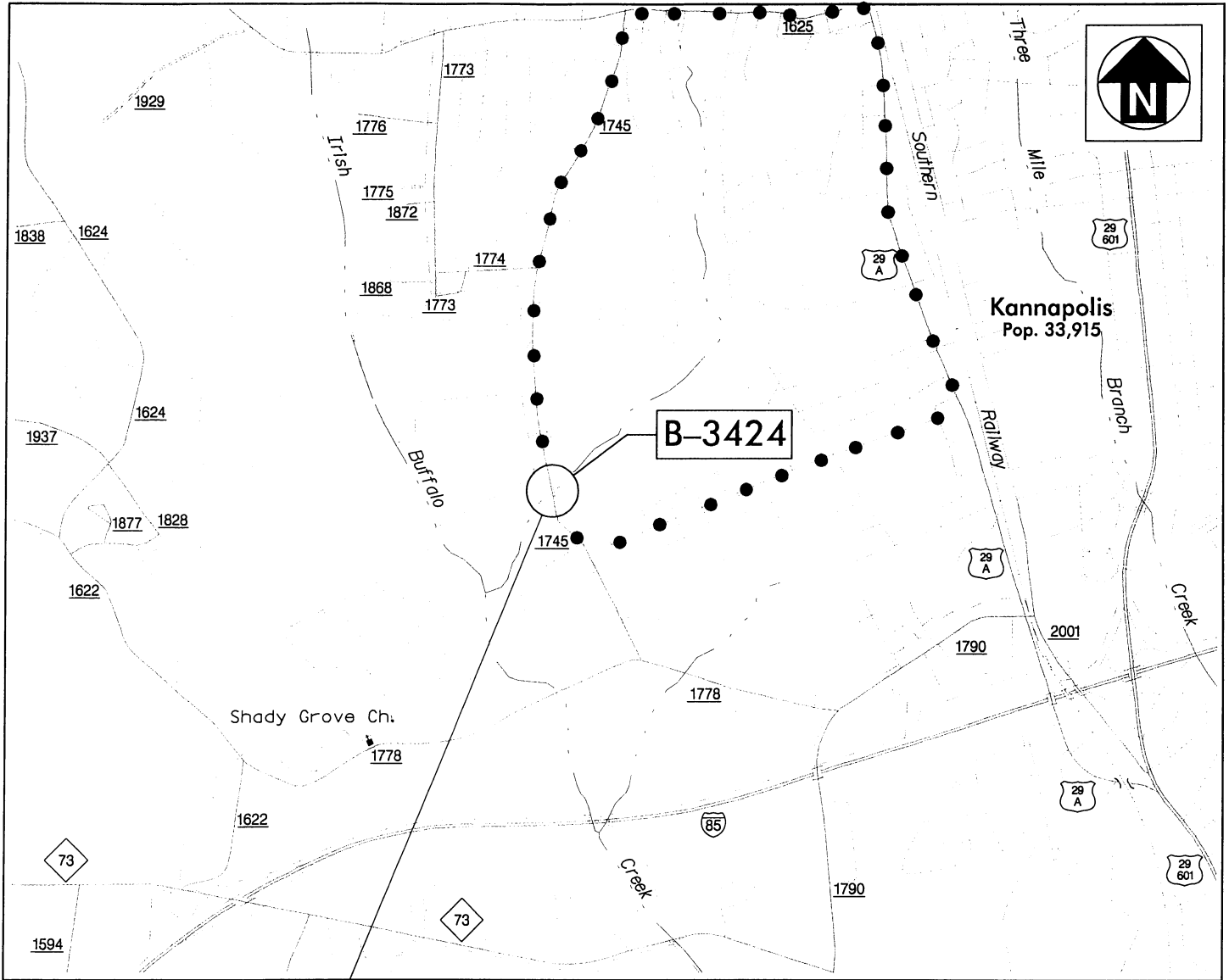
In a January 12, 1999 letter to NCDOT the Wildlife Resources Commission, in a general comment, requested that the existing bridges be replaced with spanning structures, in most cases.

Response: Standard NCDOT practice dictates that a replacement bridge be considered in the preliminary hydraulic evaluation for all bridge replacement projects. At smaller stream crossing it is more economical to replace bridges with box 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 box culverts to replace bridges.

The proposed culvert will be designed according to current NCDOT design practices which include such measures as buried box bottoms to facilitate fish passage, dry cell(s) to allow wildlife passage, and placement to minimize channel widening and realignment.


B. Other Comments

All other comments from federal and state regulatory and resource agencies and local government are addressed elsewhere in this document.



LEGEND

● ● ● Studied Detour Route


 North Carolina Department Of
 Transportation
 Project Development &
 Environmental Analysis

CABARRUS COUNTY
BRIDGE NO. 264 ON SR 1745 OVER
BRANCH IRISH BUFFALO CREEK
B-3424

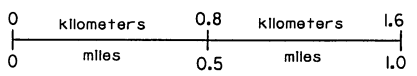
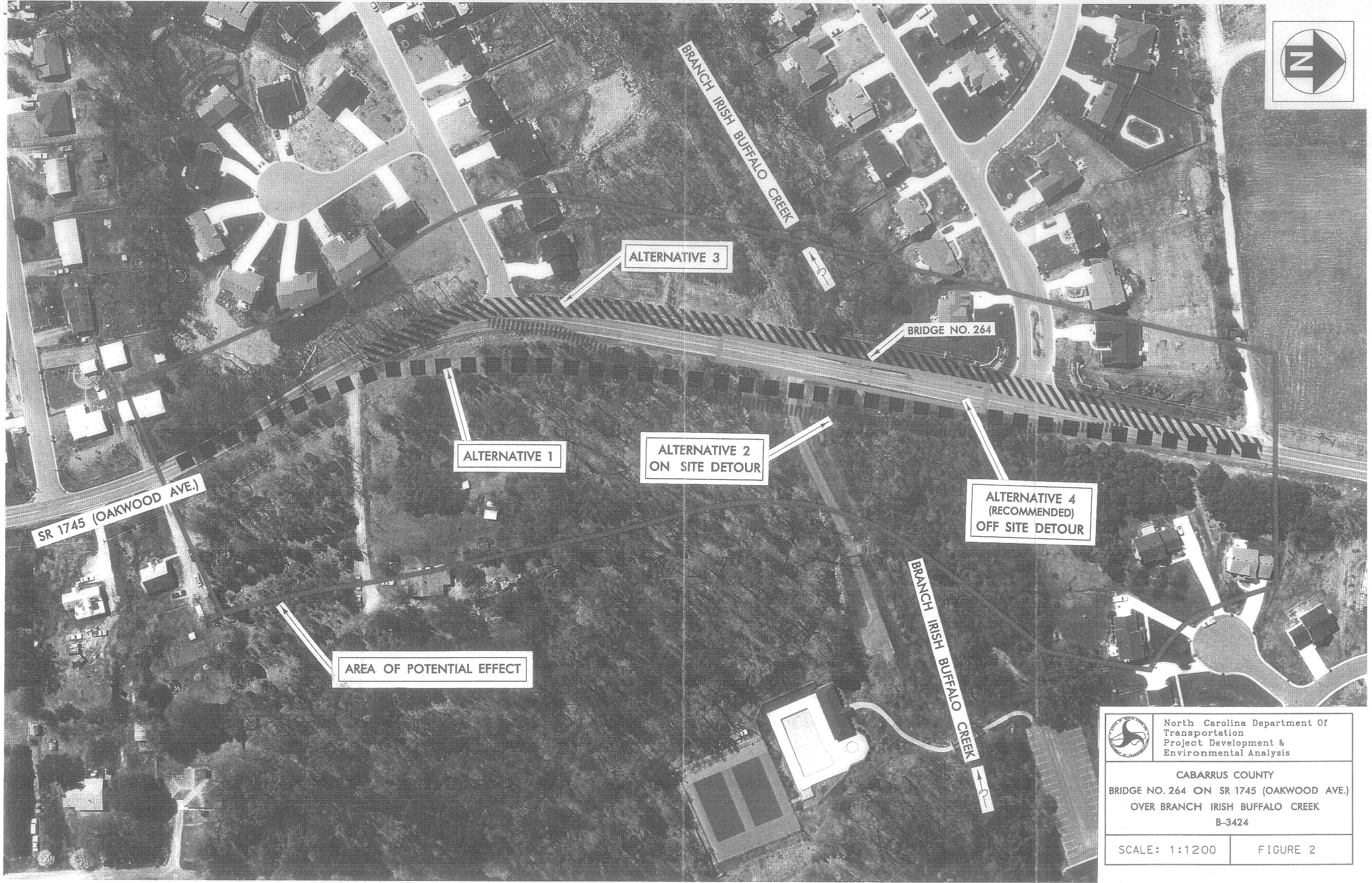
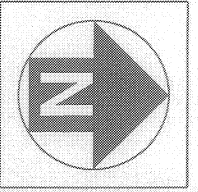



FIGURE 1



	North Carolina Department Of Transportation Project Development & Environmental Analysis
	CABARRUS COUNTY BRIDGE NO. 264 ON SR 1745 (OAKWOOD AVE.) OVER BRANCH IRISH BUFFALO CREEK B-3424
SCALE: 1:1200	FIGURE 2

CABARRUS COUNTY
BRIDGE NO. 264 ON
SR 1745 (OAKWOOD AVE.)
OVER BRANCH IRISH
BUFFALO CREEK
B-3424

SIDE VIEW
LOOKING EAST



NORTH APPROACH
LOOKING SOUTH



SOUTH APPROACH
LOOKING NORTH

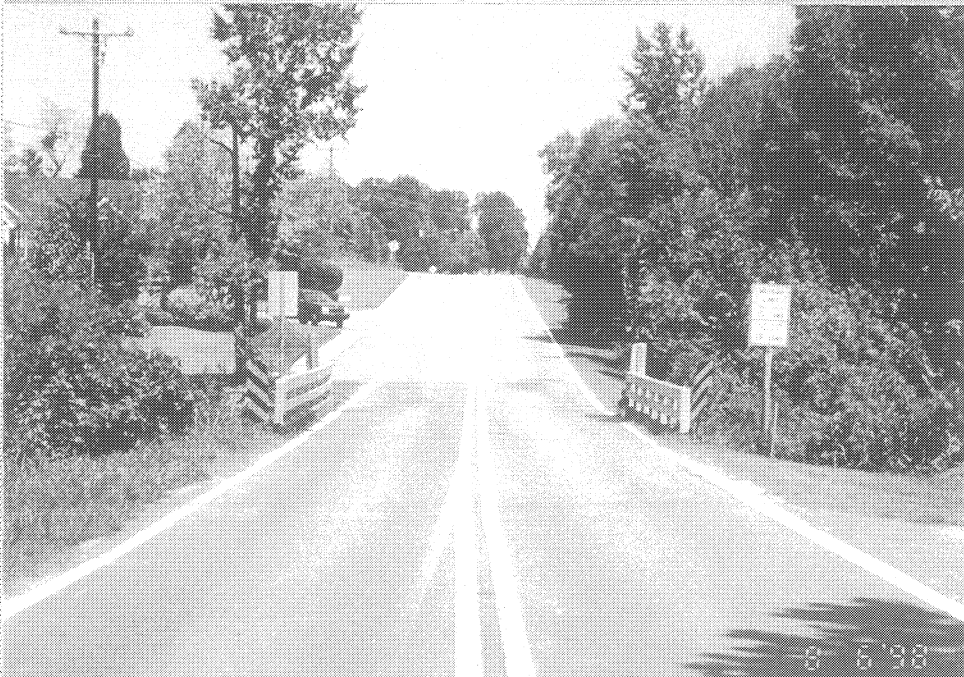
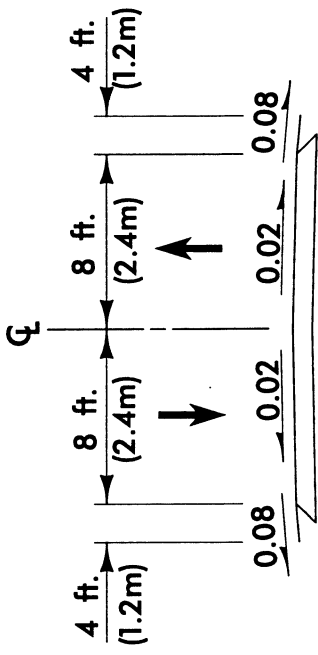
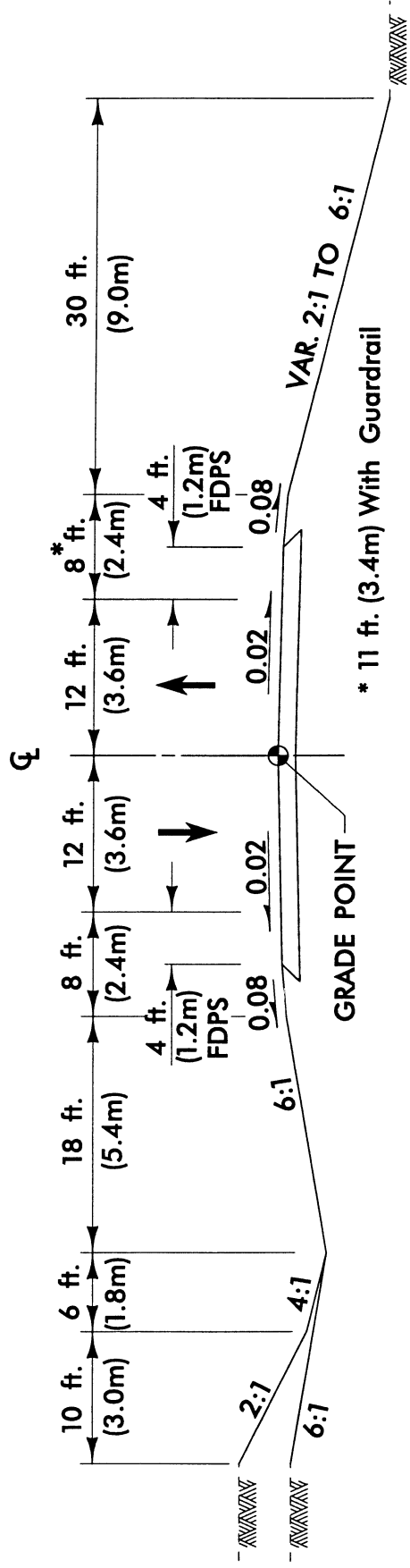


FIGURE 3



TYPICAL APPROACH SECTION
(EXISTING)



TYPICAL APPROACH SECTION
(PROPOSED)

FUNCTIONAL CLASSIFICATION : URBAN MINOR COLLECTOR

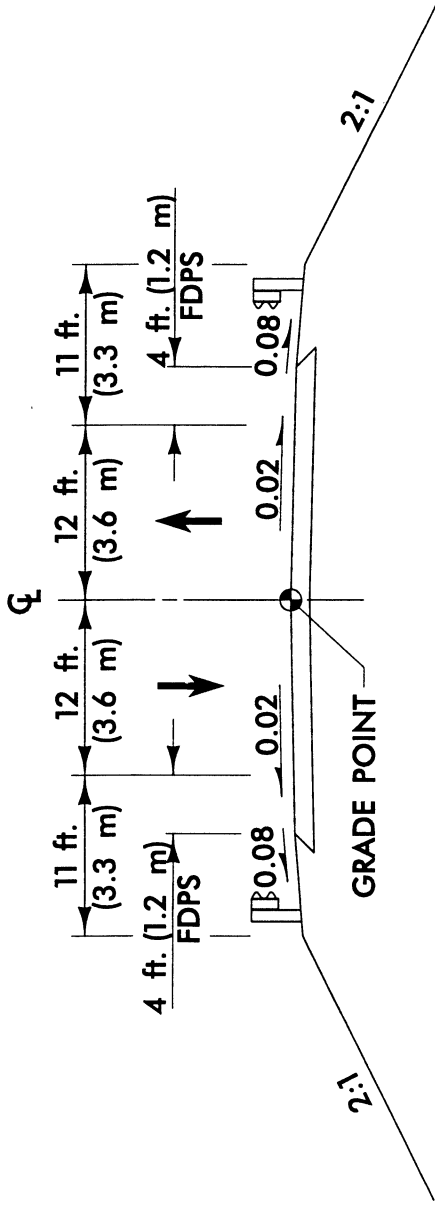
AVERAGE DAILY TRAFFIC

(EXISTING) 1999 = 6,340
 (CONST. YR.) 2002 = 6,990 (LOS C)
 (DESIGN YR.) 2025 = 12,000 (LOS D)



North Carolina Department
 Of Transportation
 Project Development &
 Environmental Analysis

CABARRUS COUNTY
 BRIDGE NO. 264 ON SR 1745
 (OAKWOOD AVE.)
 OVER BRANCH IRISH BUFFALO CREEK
 B-3424



TYPICAL SECTION @ CULVERT

FUNCTIONAL CLASSIFICATION : URBAN MINOR COLLECTOR

AVERAGE DAILY TRAFFIC

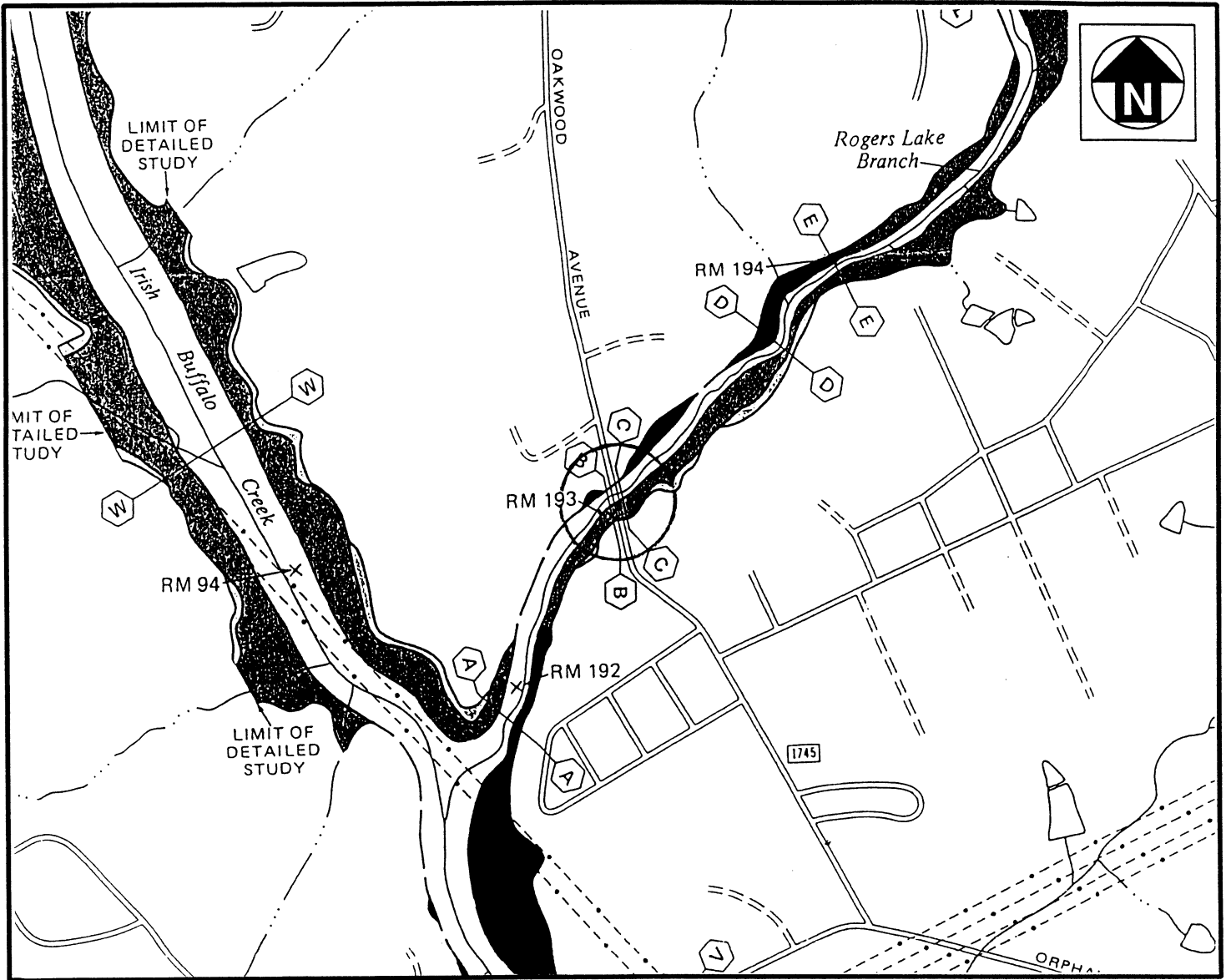
(EXISTING)	1999 =	6,340
(CONST. YR.)	2002 =	6,990 LOS C
(DESIGN YR.)	2025 =	12,000 LOS D



North Carolina Department
Of Transportation
Project Development &
Environmental Analysis

CABARRUS COUNTY
BRIDGE NO. 264 ON SR 1745
OAKWOOD AVE.
OVER BRANCH IRISH BUFFALO CREEK
B-3424

FIGURE 5



FEMA Floodway Map


	North Carolina Department Of Transportation Project Development & Environmental Analysis		
	CABARRUS COUNTY BRIDGE NO. 264 ON SR 1745 OVER BRANCH IRISH BUFFALO CREEK B-3424		
0 kilometers 1.6 kilometers 3.2			
0 miles 1.0 miles 2.0			

FIGURE 6



APPENDIX

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APPENDIX

11/26/98



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

December 2, 1998

Mr. William D. Gilmore, P.E., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
Division of Highways
P.O. Box 25201
Raleigh, NC 27611-520



Dear Mr. Gilmore:

Thank you for your letter of November 2, 1998, requesting information from the U.S. Fish and Wildlife Service (Service) for the purpose of evaluating the potential environmental impacts of the following proposed bridge replacement projects:

1. B-3157, Davidson County, Replace Bridge Nos. 74 and 76 on US 29, 64, 70 and I-85 Bus. over SR 1242 and Michael Creek;
2. B-3174, Guilford County, Replace Bridge No. 306 on US 29, 70, 220 and 421 over NC 6;
3. B-3422, Cabarrus County, Replace Bridge No. 47 on SR 1002 (Cabarrus Ave.) over Three Mile Branch;
4. B-3424, Cabarrus County, Replace Bridge No. 264 on SR 1745 (Oakwood Ave.) over Branch Irish Buffalo Creek;
5. B-3447, Davidson County, Replace Bridge No. 420 on SR 2031 over Southern Railroad;
6. B-3505, Randolph County, Replace Bridge No. 434 on SR 2261 (Old Liberty Road) over Deep River; and,
7. B-3509, Rockingham County, Replace Bridge No. 75 on NC 700 over Smith River.

This report provides scoping information and is provided in accordance with provisions of the Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 661-667d) and Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543). This report also serves as initial scoping comments to federal and state resource agencies for use in their

permitting and/or certification processes for these projects. The following is applicable only to items 2, 6, and 7. Items 1, 3, 4, and 5 are in areas of the state under the jurisdiction of the Service's Asheville Office. They should be contacted for resource information pertinent to these projects.

The mission of the Service is to provide leadership in the conservation, protection, and enhancement of fish and wildlife, and their habitats, for the continuing benefit of all people. Due to staffing limitations, we are unable to provide you with detailed site-specific comments at this time. However, the following recommendations are provided to assist you in your planning process and to facilitate a thorough and timely review of the project.

Generally, the Service recommends that wetland impacts be avoided and minimized to the maximum extent practical as outlined in Section 404 (b)(1) of the Clean Water Act Amendments of 1977. In regard to avoidance and minimization of impacts, we recommend that proposed highway projects be aligned along or adjacent to existing roadways, utility corridors, or previously developed areas in order to minimize habitat fragmentation and encroachment. Areas exhibiting high biodiversity or ecological value important to the watershed and/or region should be avoided. Crossings of streams and associated wetland systems should use existing crossings and/or occur on a structure wherever feasible. Where bridging is not feasible, culvert structures that maintain natural water flows and hydraulic regimes without scouring, or impeding fish and wildlife passage, should be employed. Highway shoulder and median widths should be reduced through wetland areas. Roadway embankments and fill areas should be stabilized by using appropriate erosion control devices and/or techniques. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons.

The National Wetlands Inventory (NWI) maps of the appropriate 7.5 Minute Quadrangles for each site should be consulted to determine if wetlands may be impacted by the respective projects. However, while the NWI maps are useful for providing an overview of a given area, they should not be relied upon in lieu of a detailed wetland delineation by trained personnel using an acceptable wetland classification methodology.

We reserve the right to review any required federal or state permits that may be required for these projects at the public notice stage. We may have no objection, provide recommendations for modification of the project, or recommend denial. Therefore, it is important that resource agency coordination occur early in the planning process in order to resolve any conflicts that may arise and minimize delays in project implementation.

In addition to the above guidance, we recommend that the environmental documentation for each project include the following in sufficient detail to facilitate a thorough review of the action:

1. A clearly defined purpose and need for each proposed project, including a discussion of the projects' independent utility;

2. A description of the proposed action with an analysis of all alternatives being considered, including the upgrading of existing bridges, new bridges on existing alignments, new bridges on new alignments, and a “no action” alternative;
3. A description of the fish and wildlife resources, and their habitats, within the project impact areas that may be directly or indirectly affected;
4. The extent and acreage of waters of the U.S., including wetlands, that are to be impacted by filling, dredging, clearing, ditching, and/or draining. Acres of wetland impact should be differentiated by habitat type based on the wetland classification scheme of the National Wetlands Inventory (NWI). Wetland boundaries should be determined by using the 1987 Corps of Engineers Wetlands Delineation Manual and verified by the U.S. Army Corps of Engineers (Corps);
5. The anticipated environmental impacts, both temporary and permanent, that would be likely to occur as a direct result of the proposed project. The assessment should also include the extent to which the proposed project would result in secondary impacts to natural resources, and how this and similar projects contribute to cumulative adverse effects;
6. Design features and/or construction techniques which would be employed to avoid or minimize the fragmentation or direct loss of wildlife habitat value;
7. Design features, construction techniques, and/or any other mitigation measures which would be employed at wetland crossings and stream channel relocations to avoid or minimize impacts to waters of the United States; and,
8. If unavoidable wetland impacts are proposed, we recommend that every effort be made to identify compensatory mitigation sites in advance. Project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts. Opportunities to protect mitigation areas in perpetuity, preferably via conservation easement, should be explored at the outset.

The attached pages identify the federally-listed endangered, threatened, and candidate species that are known to occur in the respective Counties. Habitat requirements for any federally-listed species that occur in the project impact areas should be compared with the available habitat at the project site. If suitable habitat is present within the action area of the project, field surveys for the species should be performed. A listed species, the smooth coneflower (*Echinacea laevigata*), is known to occur in the vicinity B-3509 at the City of Eden, Rockingham County.

Habitat for smooth coneflower is open woods, cedar barrens, roadsides, clearcuts, dry limestone bluffs, and power line rights-of-way, usually on magnesium- and calcium-rich soils associated with gabbro or diabase in North Carolina. Optimal sites are characterized by abundant sunlight and

little competition in the herbaceous layer.

Environmental documentation should include survey methodologies and results. In addition to this guidance, the following information should be included in the document regarding protected species:

1. A map and description of the specific area used in the analysis of direct, indirect, and cumulative impacts;
2. A description of the biology and status of the listed species and the habitat of the species that may be affected by the action, including the results of any onsite inspections;
3. An analysis of the “effects of the action” on the listed species and associated habitat which includes consideration of:
 - a. The environmental baseline which is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species and its habitat;
 - b. The impacts of past and present federal, state, and private activities in the project area and cumulative impacts area;
 - c. The direct and indirect impacts of the proposed action. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur;
 - d. The impacts of interrelated actions (those that are part of a larger action and depend on the larger action for their justification) and interdependent actions (those that have no independent utility apart from the action under consideration); and,
 - e. The cumulative impacts of future state and private activities (not requiring federal agency involvement) that will be considered as part of future Section 7 consultation;
4. A description of the manner in which the action may affect any listed species or associated habitat including project proposals to reduce/eliminate adverse effects. Direct mortality, injury, harassment, the loss of habitat, and/or the degradation of habitat are all ways in which listed species may be adversely affected;
5. A summary of evaluation criteria to be used as a measure of potential effects. Criteria may include post-project population size, long-term population viability, habitat quality, and/or habitat quantity; and,

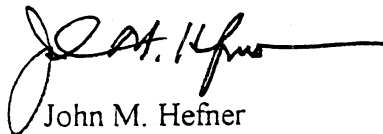
6. Based on evaluation criteria, a determination of whether the project is not likely to adversely affect or may affect threatened and endangered species.

Candidate species are those plant and animal species for which the Service has sufficient information on their biological status and threats to their survival to propose them as endangered or threatened under the ESA. Although candidate species receive no statutory protection under the ESA, Federal agencies are required to informally confer with the Service on actions likely to jeopardize the continued existence of these species or that may destroy or modify proposed critical habitat.

Federal species of concern (FSC) include those species for which the Service does not have enough scientific information to support a listing proposal or species which do not warrant listing at the present time. These species receive no statutory protection under the ESA, but could become candidates in the future if additional scientific information becomes available indicating that they are endangered or threatened. Formal listing places the species under the full protection of the ESA, and necessitates a new survey if its status in the project area is unknown. Therefore, it would be prudent for the North Carolina Department of Transportation (NCDOT) to avoid any adverse impacts to candidate species or their habitat. The North Carolina Natural Heritage Program should be contacted for information on species under state protection.

The Service appreciates the opportunity to comment on these projects. Please continue to advise us during the progression of the planning process, including your official determination of the impacts of this project. If you have any questions regarding these comments, please contact Tom McCartney at 919-856-4520, ext. 32.

Sincerely,



John M. Hefner
Ecological Services Supervisor

Enclosures

FWS/R4:TMcCartney:TM:12/1/98:919/856-4520 extension 32:\7-bridge.rpl

cc:

Eric Alsmeyer, COE, Raleigh, NC
David Cox, DNR, Creedmoor, NC
Cyndi Bell, NCDWQ, Raleigh, NC
Nicholas Graf, FHWA, Raleigh, NC
Ted Bisterfield, EPA, Atlanta, GA



North Carolina Wildlife Resources Commission



512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Stacy Baldwin, Project Planning Engineer
Planning & Environmental Branch, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program *David Cox*

DATE: January 12, 1999

SUBJECT: NCDOT Group XV Bridge Replacements in Cabarrus, Davidson,
Guilford, Randolph and Rockingham counties, North Carolina. TIP Nos.
B-3157, B-3174, B-3422, B-3424, B-3447, B-3505, and B-3509.

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended: 16 U.S.C. 661-667d).

On bridge replacement projects of this scope our standard recommendations are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.
2. Bridge deck drains should not discharge directly into the stream.
3. Live concrete should not be allowed to contact the water in or entering into the stream.
4. If possible, bridge supports (bents) should not be placed in the stream.

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.
6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.
7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.
8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.
9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.
10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

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

1. The culvert must be designed to allow for fish passage. Generally, this means that the culvert or pipe invert is buried at least 1 foot below the natural stream bed. If multiple cells are required the second and/or third cells should be placed so that their bottoms are at stream bankfull stage (similar to Lyonsfield design). This will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, baffle systems are required to trap gravel and provide resting areas for fish and other aquatic organisms.
2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.
3. Culverts or pipes should be situated so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.
4. Riprap should not be placed on the stream bed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to

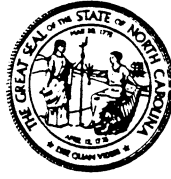
avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-3157 – Michael Creek is small and degraded at this site. NCDOT should use Best Management Practices to protect downstream resources.
2. B-3174 – No comment.
3. B-3422 – No specific concerns. NCDOT should use Best Management Practices to protect downstream resources.
4. B-3424 - No specific concerns. NCDOT should use Best Management Practices to protect downstream resources.
5. B-3447 – No comment.
6. B-3505 – The bridge crossing is in the upper section of the Cox Lake Hydroelectric impoundment. We have no specific fishery concerns at this site.
7. B-3509 – This section of the Smith River supports a diverse fish population. Due to the size of the river and the good population of fish, we request that no in-water work be performed from April 1 to June 30.

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

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (919) 528-9886. Thank you for the opportunity to review and comment on these projects.



63424

North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

November 20, 1998

MEMORANDUM

TO: William D. Gilmore, P.E., Manager
Planning and Environmental Branch
Division of Highways
Department of Transportation

FROM: David Brook *David Brook*
Deputy State Historic Preservation Officer

SUBJECT: Bridge Group XV, Bridge 264 on SR 1745
over branch of Irish Buffalo Creek,
Cabarrus County, ER 99-7714

Thank you for your letter of November 2, 1998, concerning the above project.

We have conducted a search of our files and are aware of no structures of historical or architectural importance located within the planning area. We look forward to meeting with an architectural historian from the North Carolina Department of Transportation to review the aerial and photographs of the project so we can make our survey recommendation.

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.

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

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

DB:slw

cc: N. Graf
B. Church
T. Padgett

OX

Federal Aid = BRSTP-1745(2) TIP # B-3424 County Cabarrus

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

Brief Project Description Replace Bridge # 264 on SR 1745 over
Branch Irish Buffalo Creek Br. Group XV

On Nov. 12, 1998, representatives of the

- North Carolina Department of Transportation (NCDOT)
- Federal Highway Administration (FHWA)
- North Carolina State Historic Preservation Office (SHPO)
- Other _____

reviewed the subject project at

- A scoping meeting
- Historic architectural resources photograph review session/consultation
- Other _____

All parties present agreed

- there are no properties over fifty years old within the project's area of potential effects.
- there are no properties less than fifty years old which are considered to meet Criterion Consideration G within the project's area of potential effects.
- there are properties over fifty years old (list attached) within the project's area of potential effects, but based on the historical information available and the photographs of each property, properties identified as _____ are considered not eligible for National Register and no further evaluation of them is necessary.
- there are no National Register-listed properties within the project's area of potential effects.

Signed:

Mary Pope
Representative, NCDOT

11-13-98
Date

Mindy S. Sastige
FHWA, for the Division Administrator, or other Federal Agency

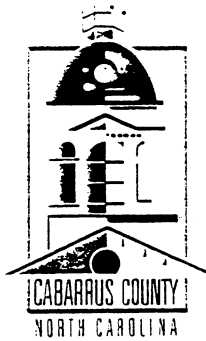
11/25/98
Date

Delva K. Bewin
Representative, SHPO

11/13/98
Date

David M. ... Deputy
State Historic Preservation Officer

12/30/98
Date



November 10, 1998

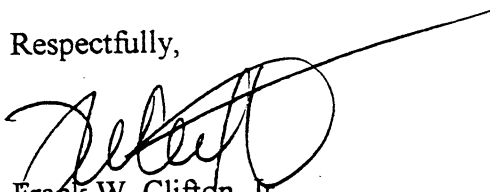
Mr. William D. Gilmore, P. E., Manager
Planning and Environmental Branch
State of North Carolina
Department of Transportation
P. O. Box 25201
Raleigh, NC 27611-5201

Dear Mr. Gilmore:

In response to your written request dated November 2, 1998, the attached internal County memorandum is provided. Mr. Byrd's comments reflect on the importance of the projects and issues associated with their completion.

If you have additional comments or questions, please advise.

Respectfully,

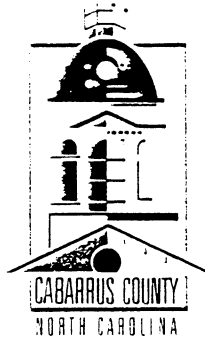


Frank W. Clifton, Jr.
County Manager

FWC/lsg

Attachments

Cc: Board of Commissioners
Fletcher Hartsell
Brian Hiatt, Concord City Manager
David Hales, Kannapolis City Manager
Jonathan Marshall



TO: Frank W. Clifton/County Manager
FROM: Mike Byrd/Planning Services *MLB*
DATE: November 6, 1998
SUBJECT: Replacement bridge projects

As you requested, I hope the following provides some additional information for bridges on the attached letter.

Bridge #47 (Cabarrus Avenue at Three Mile Branch) TIP Project B-3442

- As we discussed this is a major east-west route through Concord.
- To improve through traffic and signalization, the bridge needs to include a left-turn lane, possibly four lanes to accommodate future improvements of Cabarrus Avenue.
- Considering the heavy daily use of Cabarrus Avenue (1997 ADT 9,000) a short construction period is preferable.

Bridge #264 (Oakwood Avenue at a branch of Irish Buffalo Creek) TIP Project B-3424

- Oakwood Avenue acts as a major cut-through route for the western side of Kannapolis to access I-85 via Boy Scout Camp Road and Trinity Church Road at the Highway 73 interchange (1997 ADT 5800).
- Several large residential developments are just north of the bridge on Oakwood Avenue.
- A sharp curve is just south of this bridge, and would hopefully be realigned as a portion of this project.

The State ADT counts are most likely from calendar year 1996, since there is approximately 1 year turn around time between an actual count in the area by NCDOT and our receipt of the compiled information.

These projects are both included in the 1997 State TIP, with Bridge #47 scheduled for construction in FY 2002, and bridge #264 scheduled for 2002 also.

If you need any additional information, please let me know.

B3424

City of Kannapolis



POST OFFICE BOX 1199 □ KANNAPOLIS, NORTH CAROLINA 28082-1199

Mr. William D. Gilmore, P.E. Manager
Planning and Environmental Branch
NC DOT
PO Box 25201
Raleigh, NC 27611-5201



December 11, 1998

Subject: Replacement of Bridge No. 264, Oakwood Avenue

Dear Mr. Gilmore:

We are pleased to learn of the upcoming replacement of Bridge 264. Our public works crews and the Kannapolis Police Department have assisted DOT crews on several occasions with railing repairs primarily due to the present bridge width relative to the pavement approach sections.

Oakwood Avenue is carrying increasing traffic as southwestern Kannapolis develops and continues to serve as the major southern access to Kannapolis from I-85.

We believe that the replacement of bridge 264 will be a significant benefit to the citizens of Kannapolis and the public in general. If we can assist in any way, please call.

Yours truly,

Melvin Rape
Melvin Rape, P.E.,
Public Works Director

MR: jb

c.c. David Hales, City Manager
Ray Moss, Mayor



See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CABARRUS COUNTY

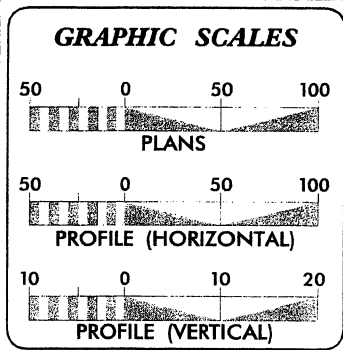
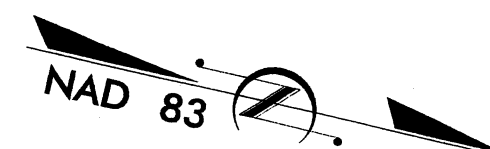
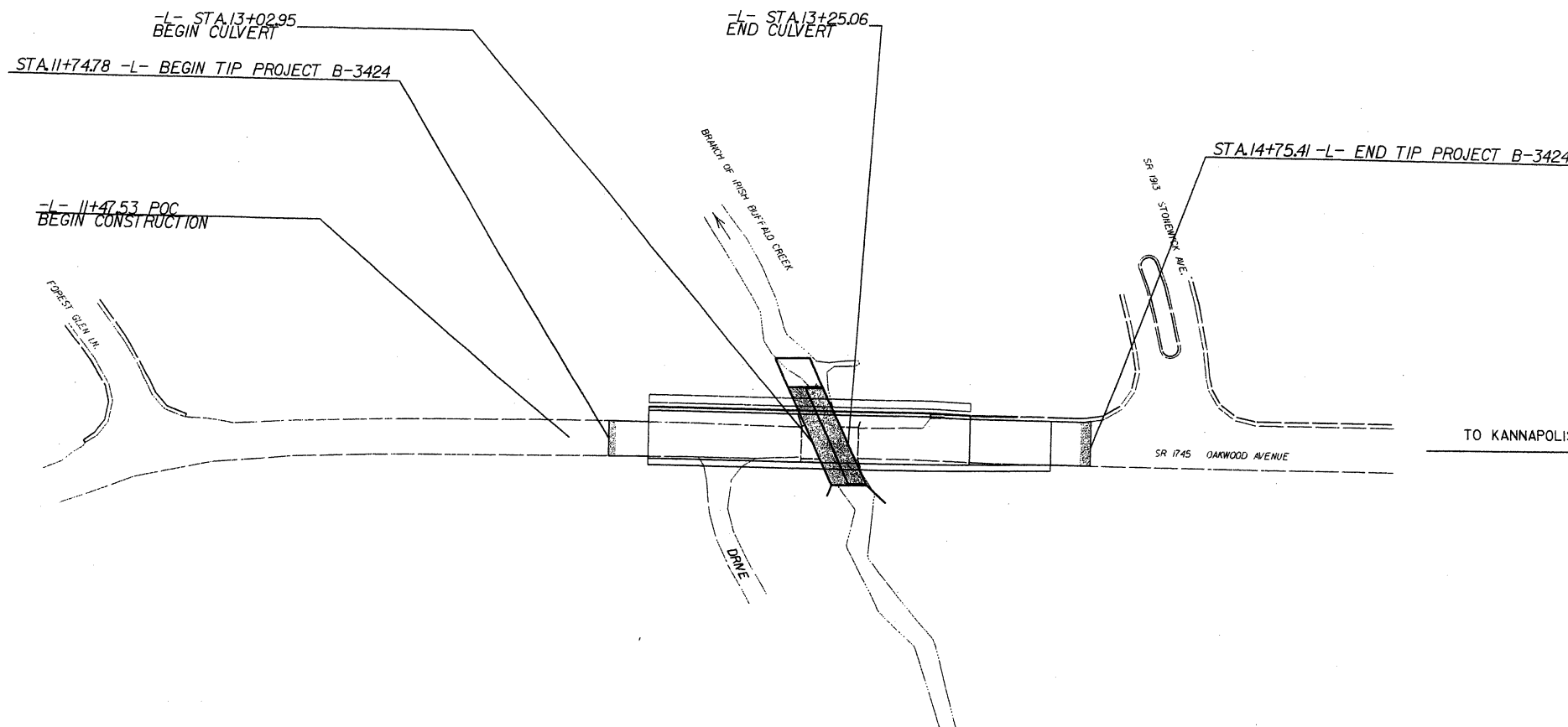
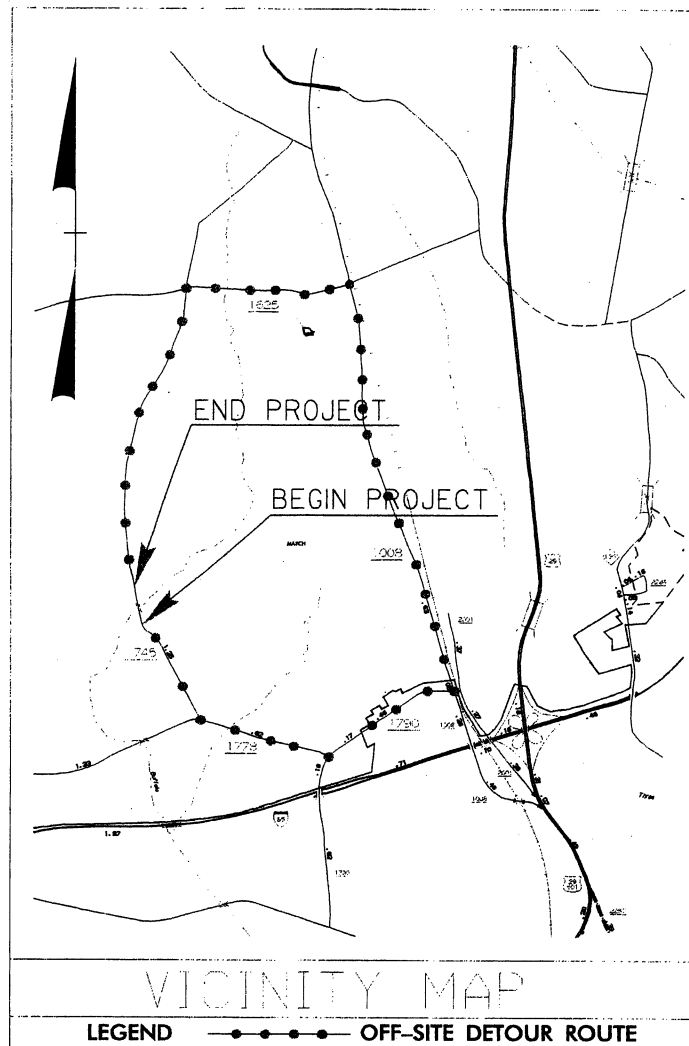
LOCATION: BRIDGE 264 OVER BRANCH OF IRISH BUFFALO CREEK ON SR 1745 (OAKWOOD AVENUE)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3424	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33050.1.1	BRSTP-1745(2)	PE	
33050.2.2	BRSTP-1745(2)	R /W	
33050.3.2	BRSTP-1745(3)	CONST.	

TIP PROJECT: B-3424

CONTRACT: C200713



DESIGN DATA

ADT 2002 =	6,990
ADT 2025 =	12,000
DHV =	9 %
D =	55 %
T =	3 % *
V =	45 MPH
* TTST	1 % DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3424 =	0.053 MILE
LENGTH STRUCTURE TIP PROJECT B-3424 =	0.004 MILE
TOTAL LENGTH OF TIP PROJECT B-3424 =	0.057 MILE

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

2002 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: MAY 15, 2002	CATHY S. HOUSER, PE PROJECT ENGINEER
LETTING DATE: FEBRUARY 17, 2004	ROBERT J. STROUP, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *DAVID A. WOODIE* 11-14-03 P.E.

ROADWAY DESIGN

SIGNATURE: *ROBERT J. STROUP* 11-14-03 P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED DIVISION ADMINISTRATOR DATE

3-10-04-2003 09:45
M:\TIP PROJECTS\B-3424\PROJ\CURR_PLANS\1002_PLANS\B-3424-1-51
STRUP AT 15:20:36

