Wayne County

SR 1006

Replace Bridge No. 88 Over Falling Creek

Federal-Aid Project No. BRZ-1006(11)

State Project No. 8.2331501

T.I.P. No. B-3712

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

10-8-01
DATE

for [signature]
William D. Gilmore, P.E., Manager
Project Development and Environmental
Analysis Branch, NCDOT

10-9-01
DATE

[signature]
Nicholas L. Graf, P.E.
Division Administrator, FHWA

Wayne County

SR 1006

Replace Bridge No. 88 Over Falling Creek

Federal-Aid Project No. BRZ-1006(11)

State Project No. 8.2331501

T.I.P. No. B-3712

CATEGORICAL EXCLUSION

October 2001

Document Prepared by:
Wang Engineering Company, Inc.

Greg S. Purvis

Greg S. Purvis, P.E.
Project Manager

NORTH CAROLINA PROFESSIONAL SEAL 22958 ENGINEER GREG S. PURVIS

10/5/01

James Wang

James Wang, Ph.D., P.E.
Principal

For the North Carolina Department of Transportation

Stacy B. Harris

Stacy B. Harris, P.E.
Project Manager
Consultant Engineering Unit

PROJECT COMMITMENTS

Wayne County
SR 1006
Replace Bridge No. 88 Over Falling Creek
Federal-Aid Project No. BRZ-1006(11)
State Project No. 8.2331501
T.I.P. No. B-3712

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

Division Engineer

The Stream Crossing Guidelines for Anadromous Fish Passage will be implemented, as applicable.

An in-stream moratorium will be in effect between February 15 and June 1 of any year.

Roadway Design, Hydraulic Unit, and Division Engineer

The Neuse River Buffer Rules will be implemented during the design, construction and maintenance of this project.

Wayne County
SR 1006
Replace Bridge No. 88 Over Falling Creek
Federal-Aid Project No. BRZ-1006(11)
State Project No. 8.2331501
T.I.P. No. B-3712

INTRODUCTION: The replacement of Bridge No. 88 is included in the 2002-2008 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) and 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

Bridge Maintenance Unit records indicated the bridge has a sufficiency rating of 18.3 out of a possible 100 for a new structure. The bridge is considered functionally obsolete and structurally deficient. The replacement of bridge No. 88 will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

SR 1006 (Grantham School Road) is classified as a rural minor collector. Land use in the project area is primarily woodland and wetlands.

Bridge No. 88 was constructed in 1954. The existing structure is 70 feet (21.0 meters in length) and consists of four spans with the maximum span at approximately 18 feet (5.4 meters). The clear roadway width is 24.0 feet (7.2 meters), providing two nine foot (2.7 meter) travel lanes with three foot (0.9 meter) shoulders. The superstructure consists of a reinforced concrete floor on timber joists with an asphalt-wearing surface. The substructure is a timber abutment design. The interior bents consist of timber caps on timber piles. The bed to crown height is 14 foot (4.2 meters). The posted weight limit is 17 tons (15.4 metric tons) for single vehicles (SV) and 25 tons (22.7 metric tons) for truck-tractors semi-trailers (TTST).

The existing bridge and approaches on SR 1006 are tangent. SR 1006 consists of two nine foot (2.7 meter) travel lanes with nine foot (2.7 meter) grass shoulders. There is a three degree (585 meter radius) curve with a downward vertical grade approximately 640 feet (192 meters) from the south end of the structure and a 0.75 degree (2330 meter radius) curve approximately 335 feet (100.5 meters) from the north end of the structure.

The estimated 2001 average daily traffic volume is 2,500 vehicles per day (vpd). The projected traffic volume is expected to increase to 3,800 vpd by the design year 2025. The volumes include one percent truck-tractors semi-trailers (TTST) and two percent dual tired vehicles.

The posted speed limit is 55 miles per hour (mph) (90 kilometers per hour [km/h]).

This section of SR 1006 is not a designated bicycle route and there are no indications that an unusual number of bicyclists are using this route.

Southwestern Wayne Sanitary District owns a waterline on the east side of the project north of the bridge. The waterline does not continue across Falling Creek. Underground telephone cables, owned by BellSouth, exist on the east and west side of the project north and south of the bridge. The telephone cable on the east side of the project is attached to the structure while the cable on the west side is aerial across the creek. Power lines owned by CP&L are aerial and on the west side of the project. There are underground cable television lines, owned by Johnston County Cable of Smithfield, on the east and west side of the project north of the structure. Utility impacts are anticipated to be low.

There was one accident reported for the three-year period of January 1, 1997 to December 31, 1999.

Three school buses cross this bridge twice daily.

III. ALTERNATIVES

A. Project Description

The proposed structure will provide a 40-foot (12 meter) clear roadway width to allow for two 12 foot (3.6 meter) travel lanes with eight foot (2.4 meter) shoulders (Figure 4). The proposed right-of-way width varies from 80 feet (24 meters) to 120 feet (36 meters). The proposed approach roadway will consist of a 24 feet (7.2 meters) travel-way providing for two 12-foot (3.6 meter) travel lanes with eight foot (2.4 meter) shoulders. The length of approach roadway will be 790 feet (237 meters). The design speed will be 60 mph (100 km/h).

Based on a preliminary hydraulic analysis, Bridge No. 88 will be replaced with a cored slab bridge approximately 100 feet (30 meters) in length with a spill through design. The elevation of the new structure will be approximately the same as the existing structure. The length and opening size of the proposed bridge may increase or decrease as necessary to accommodate peak flows as determined from a more detailed hydraulic analysis, to be performed during the final design phase of the project.

B. Reasonable and Feasible Alternatives

Two (2) reasonable and feasible alternatives studied for replacing the existing bridge are described below.

Alternate A (Preferred) replaces the bridge at the existing location with a new structure. During construction, traffic will be maintained by an off-site detour (Figure 1). The available off-site detour route along SR 1106, SR 1105, and US 13 is approximately 8.2 miles (13.7 kilometers) in length.

A road user analysis was performed based on 2,600 vpd for construction year 2003 and an average of 8.2 miles (13.7 kilometers) of indirect travel. The cost of additional travel will be approximately $2.5 million dollars during a twelve-month construction period.

Alternate B replaces the bridge at the existing location. During construction, traffic will be maintained by an on-site temporary detour. The temporary detour structure will be a temporary bridge approximately 100 feet (30 meters) in length and located east of the existing structure.

C. Alternatives Eliminated From Further Study

The "Do-Nothing" Alternative will eventually necessitate removal of the bridge. This is not desirable due to the traffic service provided by SR 1006.

Investigation of the existing structure by the Bridge Maintenance Unit indicates the rehabilitation of the old bridge is not feasible due to its age and deteriorated condition.

D. Preferred Alternative

Alternate A, replacing the bridge at the existing location with a new structure while maintaining traffic with an off-site detour, was selected as the preferred alternate. Alternate A has comparatively lower construction cost and environmental impacts than Alternate B.

The detour route will need improvements to provide an acceptable route during construction of this project. SR 1106 will be widened to 20 feet (six meters) and resurfaced with one inch (2.54 centimeters) of asphalt. SR 1105 will also be resurfaced with one inch (2.54 centimeters) of asphalt. No environmental impacts are anticipated with the widening of the detour route.

The Division Engineer concurs with Alternate A as the preferred alternate.

IV. ESTIMATED COST

The estimated costs, based on current 2001 prices, are as follows:

	Alternate A (Preferred)	**Alternate B**
Structure Removal (existing)	**$ 13,400**	$ 13,400
Structure (proposed)	**260,000**	260,000
Detour Structure and Approaches	**0**	402,600
Off-site Detour Rehabilitation/Upgrade	**252,000**	0
Roadway Approaches	**194,300**	194,300
Miscellaneous and Mobilization	**210,300**	391,700
Engineering and Contingencies	**122,000**	238,000
ROW/Const. Easements/Utilities	**24,500**	28,900
TOTAL:	**$1,076,500**	$1,528,900

The estimated cost of the project, as shown in the 2002-2008 Transportation Improvement Program, is $385,000 including $35,000 for right-of-way and $350,000 for construction.

V. NATURAL RESOURCES

A. Methodology

Materials and research data in support of this investigation have been derived from a number of sources including applicable U.S. Geological Survey (USGS) topographic

mapping (Grantham, NC 7.5 minute quadrangle), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping (Grantham, NC 7.5 minute quadrangle), U.S. Department of Agriculture Soils Conservation Service soils mapping (USDA 1974), and mapping depicting proposed construction impacts for each alternative (scale 1:1200).

The site was visited on December 5, 2000. Weather during the site visit was cool and sunny. The project corridor was walked and visually surveyed for significant features. For purposes of this evaluation, the project corridor was assumed to be approximately 1100 feet (330 meters) in length and 200 feet (60 meters) in width to encompass all alternates. For this report, impact calculations are based on right-of-way widths varying from 80 feet (24 meters) to 120 feet (36 meters). Actual impacts will be limited to cut-fill boundaries and are expected to be less than those shown for right-of-way. Special concerns evaluated in the field include 1) potential habitat for protected species and 2) wetlands and water quality protection in and adjacent to Falling Creek.

Plant community descriptions are based on a classification system utilized by the North Carolina Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford *et al.* (1968) with exceptions for updated nomenclature. Jurisdictional areas were evaluated using the three-parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Habitat used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through field observations, evaluation of available habitat, and supportive documentation (Martof *et al.* 1980, Webster *et al.* 1985, Menhinick 1991, Potter *et al.* 1980, Hamel 1992, Palmer and Braswell 1995, Rohde *et al.* 1994). Water quality information for area streams and tributaries was derived from the NC Division of Water Quality (DWQ). Quantitative sampling was not undertaken to support existing data.

B. Physiography and Soils

The project corridor is located within the upper Coastal Plain physiographic province of North Carolina. Topography in this region is characterized as gently undulating with wide floodplains and broad, flat interstream divides. The project corridor is located in, and adjacent to the floodplain of Falling Creek where elevations are relatively level. Elevations range from a low of 117 feet (35.1 meters) National Geodetic Vertical Datum (NGVD) in Falling Creek at the bridge to a high of approximately 125 feet (37.5 meters) NGVD as elevations rise away from the channel (USGS Grantham, NC quadrangle).

Two soil series have been mapped in the project corridor: Johnston soils (*Cumulic Humaquepts*) and Rains soils (*Typic Paleaquults*). The majority of the project corridor consists of Johnston soils, which are mapped throughout the floodplain of Falling Creek; while a small portion along the northern edge of the project corridor consists of Rains soils. The Johnston loam is a very poorly drained soil occurring on broad floodplains along major drainageways. Permeability is moderate, however, this soil is prone to seasonal flooding for long periods. Seasonal high water table is at the surface (USDA 1974).

Rains sandy loam is a poorly drained soil typically found in oval depressions and on smooth flats in broad areas between streams. The Rains series has moderate permeability. This soil type is typically cultivated but may be subject to surface ponding. Rains sandy loam is

mapped along the adjacent side slopes to the Falling Creek floodplain as elevations ascend away from the main channel. Both the Johnston loam and Rains sandy loam are listed as hydric in Wayne County (USDA 1997).

C. Water Resources

1. Surface Waters

The project corridor is located within sub-basin 03-04-12 of the Neuse River Basin (DWQ 1998b), which is part of USGS hydrologic unit 03020201 of the Mid-Atlantic/Gulf Region. Waters within this river basin are subject to riparian buffer rules, which are discussed in section E.3. The drainage area is approximately 29.4 square miles (76.1 square kilometers). The structure targeted for replacement (Bridge No.88) spans the main channel of Falling Creek with no direct involvement of additional streams or tributaries. This section of Falling Creek has been assigned Stream Index Number 27-77 by DWQ. No other streams or tributaries exist within the project corridor.

2. Stream Characteristics

Falling Creek is described as a blackwater, regularly flooded, coastal swamp system. The headwaters to this palustrine system originate approximately 7.2 miles (11.6 kilometers) to the east. This system is seasonally to semipermanently flooded, and was at flood stage during field investigations, so stream banks were difficult to discern. Falling Creek averages approximately 55 feet (16.5 meters) in width and seven foot (2.1 meters) from the water surface to the bottom of the bridge. During field investigations, water depth was approximately six feet (1.8 meters) at the center of the bridge and flow velocity was moderate to slow. Water in the channel was transparent with a brownish tint possibly from tannic acid from upstream organic deposition (typical in blackwater systems). The Falling Creek floodplain extends throughout most of the project corridor, contains hydric soils, supports hydrophytic vegetation, and during field investigations was flooded.

3. Best Usage Classifications and Water Quality

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. A best usage classification of **C Sw NSW** has been assigned to Falling Creek upstream from the bridge and **WS-IV NSW** downstream from the bridge (DWQ 1998a). The designation Class **C** uses include aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation refers to human body contact with waters on an infrequent or incidental basis. The supplemental classification **Sw**, for Swamp Waters, refers to waters that have low velocities and other natural characteristics that are different from adjacent streams. The **NSW** classification refers to nutrient sensitive waters that require limitations on nutrient inputs. **WS-IV** indicates Water Supply **IV**. These are waters used for drinking and food processing. These waters are used when a **WS-I**, **II**, or **III** is not feasible. No designated High Quality Waters (**HQW**), Outstanding Resource Waters (**ORW**), Water Supply I (**WS-I**), or Water Supply II (**WS-II**) waters occur within one mile (1.6 kilometer) of the project corridor.

DWQ has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed project corridor is summarized in

the basinwide water quality plan (DWQ 1998b). Water quality for individual streams is based on chemical, benthic, and fish monitoring stations spread throughout the basin. Falling Creek received a waterbody use support rating of **Fully Supporting** by the DWQ which means this system is currently fully supporting the designated best usage classification. One of the 46 ambient monitoring stations placed along the Neuse River, is located on Thoroughfare Swamp, which flows adjacent to and converges with Falling Creek approximately six miles (9.6 kilometers) downstream. DWQ regularly monitors benthic and fish populations at this station to compare stream health. Thoroughfare Swamp received a bioclassification of **Fair**. No monitoring stations are located directly on Falling Creek.

This sub-basin (03-04-12) supports two major point-source dischargers and no minor dischargers. Both of the major point-source municipal facilities are located along the Neuse River in Goldsboro approximately 8.6 miles (13.9 kilometers) northeast of the project corridor. Total permitted flow for the two major dischargers is 11.5 million gallons per day (MGD) (43.5 million liters per day) (DWQ 1998b) however both are located well downstream from the project corridor. Major non-point sources of pollution for the coastal plain region of the Neuse River Basin include forestry and agriculture (DWQ 1998b). Sedimentation and nutrient inputs are major problems associated with non-point source discharges and often result in fecal coliform, heavy metals, oil from roads and parking lots, and increased nutrient levels in surface waters. Within this rural sub-basin, the major non-point source appears to be agriculture. Several hog farming operations have been identified upstream within the Falling Creek watershed (DWQ 1998b).

4. Anticipated Impacts to Water Resources

a) Impacts Related to Water Resources

Erosion and sedimentation from temporary construction impacts will be minimized through implementation of a stringent erosion control schedule and the use of best management practices. The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled "Control of Erosion, Siltation, and Pollution" (NCDOT, Specifications for Roads and Structures). These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff; elimination of construction staging areas in floodplains and adjacent to waterways; re-seeding of herbaceous cover on disturbed sites; management of chemicals (herbicides, pesticides, de-icing compounds) with potential negative impacts on water quality; and avoidance of direct discharges into steams by catch basins and roadside vegetation.

The proposed bridge replacement will allow for continuation of pre-project stream flows in Falling Creek, thereby protecting the integrity of these waterways. Long-term impacts to adjacent reaches resulting from construction are expected to be minimal. In order to minimize impacts to water resources, NCDOT Best Management Practices (BMPs) for the Protection of Surface Waters will be strictly enforced during the entire life of the project.

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 and all potential contractors will follow appropriate guidelines for bridge demolition and removal. These guidelines are presented in three NCDOT documents entitled "Pre-Construction Guidelines for Bridge Demolition and Removal", "Policy: Bridge Demolition and Removal in Waters of the United States", and "Best Management Practices for Bridge Demolition and Removal" (all documents dated 9/20/99). Guidelines followed for bridge demolition and removal are in addition to those implemented for Best Management Practices for the Protection of Surface Waters.

Dropping any portion of the structure into waters of the United States will be avoided unless there is no other practical method of removal. In the event that no other practical method is feasible, a worst-case scenario is assumed for calculations of fill entering waters of the United States. There is potential for components of bridge No. 88 to be dropped into waters of the United States during construction. The resulting potential temporary fill associated with the concrete deck and bents is approximately 34 cubic yards (26.0 cubic meters). NCDOT's Best Management Practices for Bridge Demolition and Removal (BMP-BDR) will be applied for the removal of this bridge.

Under the guidelines presented in the documents noted in the first paragraph of this section, work done in the water for this project will fall under Case 2, which states that no work will be performed in the water during moratorium periods (February 15 to June 1) associated with fish migration, spawning, and larval recruitment into nursery areas. This conclusion is based upon the classification of the waters within the project area and vicinity, the Stream Crossing Guidelines for Anadromous Fish Passage, and comments received from the North Carolina Wildlife Resources Commission (NCWRC).

D. Biotic Resources

1. Plant Communities

Three distinct plant communities were identified within the project corridor: cypress-gum swamp forest, roadside/disturbed land, and an early successional shrub/scrub assemblage. These plant communities are described below.

a) Cypress-Gum Swamp Forest (Blackwater Subtype)

A cypress-gum swamp forest occurs throughout the floodplain and along stream margins of Falling Creek and makes up the majority of the project corridor. This type of community is common along blackwater streams in the Coastal Plain and approximates a Cypress–Gum Swamp based on the classification system used by NHP (Schafale and Weakley 1990). This community has a well developed canopy and a poorly developed understory due to regular flooding. Regular flooding by Falling Creek deposits sediment and limited nutrients throughout this community. Denser undergrowth is found farther away from the stream channel where elevations slowly rise above flood levels. The canopy is dominated by swamp tupelo (*Nyssa biflora*), black gum (*Nyssa sylvatica*), bald cypress (*Taxodium distichum*), sweetgum

(*Liqiudambar styraciflua*), river birch (*Betula nigra*), and laurel oak (*Quercus laurifolia*). The understory contains sub-canopy/shrub species such as red maple (*Acer rubrum*), tag alder (*Alnus serrulata*), giant cane (*Arundinaria gigantea*), Chinese privet (*Ligustrum sinense*), titi (*Cyrilla racemiflora*), and sweet bay (*Magnolia virginiana*). Herb species identified in this community include lizard's tail (*Saururus cernuus*), greenbriar (*Smilax laurifolia*), microstegium (*Microstegium vimineum*), netted chain-fern (*Woodwardia areolata*), and rush (*Juncus* sp.). As elevations along adjacent side slopes increase, characteristics of a more bottomland hardwood are exhibited. Additional species include tulip poplar (*Liriodendron tulipifera*) and loblolly pine (*Pinus taeda*) in the canopy, as well as greenbrier, American holly (*Ilex opaca*), and Japanese honeysuckle (*Lonicera japonica*) in the understory.

b) Roadside/disturbed Land

Roadside/disturbed land is defined as the margins associated with roadside shoulders and surrounding development. This community is located along the existing roadside margins throughout the project corridor and averages approximately 25 feet (7.5 meters) in width. Most of the roadside/disturbed land is regularly maintained and is dominated by herbs; however, an approximately ten foot (three meter) wide shrub strip exists where fill slopes along roadside shoulders drop into the swamp forest. This strip is not regularly maintained but is included in the roadside/disturbed plant community. Common herbs found along roadside shoulders and the adjacent maintained yards include English plantain (*Plantago lanceolata*), broom panic grass (*Dicanthelium scoparium*), dayflower (*Commelina* sp.), clover (*Trifolium* sp.), and various grasses. The shrub strip along fill slopes is dominated by Chinese privet with additional herbs and shrubs including trumpet creeper, blackberry (*Rubus* spp.), joe-pye-weed (*Eupatorium maculatum*), giant cane, dog fennel (*Eupatorium capillifolium*), and morning glory (*Ipomoea* sp.).

c) Shrub/Scrub Assemblage

An early successional shrub/scrub assemblage is located along the southwestern border to Grantham School Road. This community was originally a transition between the cypress/gum swamp and bottomland hardwood community that has been timbered within the past three years. This community is regularly flooded by Falling Creek and is dominated by a few shrub and herb species. Those species include plume grass (*Erianthus gigantea*), cat-tail (*Typha latifolia*), Chinese privet, rushes, blackberry, and various sedges (*Carex* spp.). A few tree species from adjacent forested communities have seeded within this community. These species are less than ten foot (three meter) tall and include red maple, sweetgum, and tulip poplar.

d) Plant Communities within the Project Corridor

Plant community areas are estimated based on the amount of each plant community present within the projected right-of way. Permanent impacts are considered to be those impacts that occur within the cut-fill limits. Temporary impacts are those impacts that occur between cut-fill limits and the proposed right-of-way. Portions of a specific plant community, which are to be impacted but returned to pre-project composition, will also be considered a temporary impact. A summary of potential plant community impacts is presented in Table 1.

PLANT COMMUNITY	***TABLE 1*** ESTIMATED AREA (acre [hectare])	
	Alternate A	Alternate B
	Total	Total
Cypress Swamp Forest	0.49 (0.20)	1.24 (0.50)
Shrub/Scrub Assemblage	0.16 (0.06)	0.16 (0.06)
Roadside/ disturbed Land	0	0.30 (0.12)
TOTAL:	0.65 (0.26)	1.7 (0.68)

From an ecological perspective, impacts of upgrading existing road facilities are relatively minimal. Permanent impacts to natural plant communities resulting from both Alternate A and Alternate B are generally restricted to narrow strips adjacent to the existing facility (0.65 acre [0.26 hectare]). However, due to the construction of a temporary detour, as well as an extended temporary easement, temporary impacts to natural plant communities are expected to be larger for Alternate B. For both Alternates A and B, no additional fragmentation of plant communities will be created as the project will result only in alteration of community boundaries. The majority of impacts to natural plant communities for both alternates will be avoided in the long term by restoring temporarily impacted areas to natural contours and planting with natural vegetation.

2. Wildlife

a) Terrestrial

Mammal signs (tracks, scat, *etc.*) within the project corridor were limited to tracks of white-tailed deer (*Odocoileus virginianus*). Opportunistic and characteristic species which are expected to frequent woodlands and fringe areas include the eastern cottontail (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), beaver (*Castor canadensis*), Virginia opossum (*Didelphis virginianus*), raccoon (*Procyon lotor*), muskrat (*Ondatra zibethicus*), mink (*Mustela vison*), and golden mouse (*Ochrotomys nuttalli*).

With a bottomland system, a shrub community, and adjacent upland communities present, several different bird species may frequent the project vicinity. Birds identified during the field investigation include Carolina chickadee (*Poecile carolinensis*), northern mockingbird (*Mimus polyglottos*), red headed woodpecker (*Melanerpes erythrocephalus*), chipping sparrow (*Spizella passerina*), turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), and American robin (*Turdus migratorius*). Other bird species that may occur within the project vicinity include the

Carolina wren (*Thryothorus ludovicianus*), prothonotory warbler (*Protonotaria citrea*), yellow warbler (*Dendroica petechia*), northern cardinal (*Cardinalis cardinalis*), swamp sparrow (*Melospiza georgiana*), and red-tailed hawk (*Buteo jamaicensis).*

No terrestrial reptile species were identified within the project corridor. Common terrestrial reptiles and amphibians which may occur within the project corridor include eastern box turtle (*Terrapene carolina*), Carolina anole (*Anolis carolinensis*), rough green snake *(Opheodrys aestivus*), broadhead skink (*Eumeces laticeps*), five-lined skink (*Eumeces fasciatus*), rat snake (*Elaphe obsoleta*), eastern kingsnake (*Lampropeltis getulus*), and eastern garter snake (*Thamnophis sirtalis*).

b) Aquatic

Limited survey resulted in no documentation of aquatic reptiles or amphibians in the project corridor. Falling Creek provides suitable habitat for aquatic and semi-aquatic reptiles and amphibians. Aquatic or semi-aquatic reptiles and amphibians which may occur within the project corridor include snapping turtle (*Chelydra serpentina*), yellowbelly slider (*Trachemys scripta*), river cooter (*Pseudemys concinna*), brown water snake (*Nerodia taxispilota*), redbelly water snake (*Nerodia erythrogaster*), cottonmouth (*Agkistrodon piscivorus*), eastern newt (*Notophthalmus viridescens*), southern dusky salamander (*Desmognathus auriculatus*), mud salamander (*Pseudotriton montanus*), green frog (*Rana clamitans*), southern cricket frog (*Acris gryllus*), and pickerel frog (*Rana palustris*).

No sampling was undertaken in Falling Creek to determine fishery potential. A visual survey of Falling Creek did reveal the presence of fish; however, no species were identified. Several species of fish have been identified by DWQ in Thoroughfare Swamp. Thoroughfare Swamp and Falling Creek share similar habitat characteristics and are expected to contain similar species composition. Those species identified in Thoroughfare Swamp that are expected to be present include the bowfin (*Amia calva*), American eel (*Anguila rostrata*), pirate perch (*Aphredoderus sayanus*), creek chubsucker (*Erimyzon oblongus*), eastern mosquitofish (*Gambusia holbrooki*), sawcheek darter (*Etheostoma serrifer)*, and swamp darter (*Etheostoma fusiforme)* as well as others (Menhinick 1991, Rohde *et al.* 1994, DWQ Unpublished).

The project corridor is located within the Coastal Plain and includes the crossing of Falling Creek, a tributary to the Neuse River. For Coastal Plain streams, both anadromous and catadromous fish passage will be considered in the timing of any proposed in-stream activities associated with bridge replacement. According to Menhinick (1991), five species of anadromous fish and one species of catadromous fish may migrate through Falling Creek during scheduled bridge activities. While these species have not been identified in Falling Creek, they have been recorded 12.2 miles (19.6 kilometers) downstream of the project corridor near the confluence of Falling Creek and the Neuse River. The anadromous species include striped bass (*Morone saxatilis*), alewife *(Alosa pseudoharengus*), American shad (*Alosa sapidissima*), hickory shad (*Alosa mediocris*), and white perch (*Morone americana*); while the single catadromous fish species is the American eel (*Anguilla rostrata*). Design and scheduling of bridge replacement will avoid the necessity of in-stream activities during the spring migration period for these fish species (February 15 to June 1) within the Neuse River and tributaries including Falling Creek.

c) Anticipated Impacts to Wildlife

Due to the limited extent of infringement on natural communities, the proposed bridge replacements will not result in significant loss or displacement of known terrestrial animal populations. No significant habitat fragmentation is expected since most improvements will be restricted to existing roadside margins. Construction noise and associated disturbances will have short-term impacts on avifauna and migratory wildlife movement patterns. Long-term impacts are expected to be negligible. Potential down-stream impacts to aquatic habitat will be avoided by bridging the systems to maintain regular flow and stream integrity. Short-term impacts associated with turbidity and suspended sediments will affect benthic populations. Temporary impacts to downstream habitat from increased sediment during construction will be minimized by the implementation of stringent erosion control measures.

E. Special Topics

1. Waters of the United States

Surface waters within the embankments of Falling Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as waters of the United States (33 CFR section 328.3). Field investigations indicate that, within the project corridor, Falling Creek is a low-velocity, Coastal Plain swamp with adjacent wetlands. The stream contains limited geomorphological features (sinuosity, defined stream channel, and continuous bed and bank), however, this system provides extensive aquatic value (available habitat, presence of fish, and permanent water) characteristic of jurisdictional streams.

Wetlands surrounding Falling Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as waters of the United States (33 CFR section 328.3). These areas are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987). NWI mapping indicates that the floodplain of Falling Creek exhibits characteristics of a palustrine, broad-leaved, deciduous forest system that is seasonally flooded (PFO1C) (Cowardin *et al.* 1979). Field investigations indicate that floodplain wetlands do occur in the project corridor and do meet this general classification. Field investigations also indicate that the stream, within the project corridor, exhibits characteristics of a riverine, lower perennial system with a unconsolidated bottom consisting of a muck and sandy substrate (R2UB4/5) (Cowardin *et al.* 1979).

The Neuse River Basin Rule applies to 50-foot (15 meter) wide riparian buffers directly adjacent to surface waters in the Neuse River Basin. This rule does not apply to portions of the riparian buffer where a use is existing and ongoing. Any change in land use within the riparian buffer is characterized as an impact. The Nutrient Sensitive Waters Management Strategy for the Protection and Maintenance of Riparian Buffers (15 A NCAC 2B .0233) provides a designation for uses that cause impacts to riparian buffers within the Neuse Basin. Expected activities involved with project development include a roadway crossing for Alternative B, and bridge replacement for both alternatives. These uses are designated **Allowable** within the riparian buffer, assuming

project impacts are below 150 linear foot (45.0 meter) of buffer (measured parallel to the stream) and/or 0.33 acre (0.13 hectare). The **Allowable** designation means that the intended uses may proceed within the riparian buffer provided that there are no practical alternatives, and that written authorization from the DWQ is obtained prior to project development.

The areas (acre [hectare]) of wetland within the alternative right-of-ways, the areas (acre [hectare]) and linear distances (foot [meter]) of stream shaded by proposed bridging, and the areas of riparian buffer (acre [hectare]) within the alternative right-of-ways are shown in Table 2.

TABLE 2
POTENTIAL WETLAND IMPACTS

Jurisdictional Type	Alternate A	Alternate B
Wetland	0.65 (0.26)	1.4 (0.57)
Stream area	0.10 (0.04)	0.02 (.008)
Stream linear distance	40 (12.0)	64 (19.2)
Riparian Buffer area	0.15 (0.06)	0.20 (0.08)

Table 2 Potential wetland, open water (area and linear distance of stream impacts are from bridge shading), and riparian buffer impacts resulting from project alternatives. Areas are depicted in acre (hectare), and linear distances are depicted in foot (meter).

Permanent impacts to vegetated wetlands for both alternates will be restricted to narrow strips adjacent to the existing bridge for both alternatives. However, impacts to vegetated wetlands associated with Alternate B are larger. Upon completion of construction, temporary impacts associated with construction activities and the temporary alignment will be restored to pre-project conditions. Permanent Impacts to the stream are limited to bridge shading; bridging will not result in fill or dredging of wetlands/waters of the United States, and encroachment into the stream will be avoided.

There is potential that components of the existing bridge may be dropped into waters of the United States during construction. The resulting potential temporary fill associated with the construction activities is not expected to exceed 34 cubic yards (26.0 cubic meters). This project can be classified as a Case 2 project under the North Carolina Preconstruction Guidelines for Bridge Demolition and Removal. A case 2 project states that construction is restricted during moratorium periods associated with anadromous fish passage (February 15 - June 1) as well as those outlined in the Best Management Practices of Surface Waters. No threatened or endangered species or protected water resources are expected to be impacted by construction activities. NCDOT will coordinate with the various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

2. Permits

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. The COE has made available Nationwide Permit

(NWP) No.23 (61 FR 65874, 65916; December 13, 1996) for CEs due to minimal impacts expected with bridge construction. DWQ has made available a General 401 Water Quality Certification for NWP No.23. However, authorization for jurisdictional area impacts through use of this permit will require written notice to DWQ. In the event that NWP No.23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031 issued by the Wilmington COE District. Notification to the Wilmington COE office is required if this general permit is utilized.

3. Riparian Buffer Protection Rules for the Neuse River Basin

Since this project is within the Neuse River Basin, it is subject to NCDENR riparian buffer rules (15A NCAC 2B .0233). These rules were developed to protect and preserve existing riparian buffers and are part of larger nutrient reduction strategies for the basin.

The buffer rules require that up to 50 foot (15 meter) in width of riparian area be protected and maintained on the banks of waterways in the basin. The rules do not apply to portions of the riparian buffer where a use is existing and ongoing as of July 22, 1997. Existing uses include transportation facilities. It should be noted that only the portion of the buffer that contains the footprint of the existing use is exempt.

RIPRARIAN BUFFER PROTECTION RULES				
Use	***Exempt***	***Allowable***	***Allowable With Mitigation***	***Prohibited***
Bridges		X		
Road crossings that impact less than or equal to 150 linear foot (45 linear meter) or 0.33 acre (0.13 hectare) of riparian buffer		X		
Road crossings that impact greater than 150 linear foot (45 linear meter) or greater than 0.33 acre (0.13 hectare) of riparian buffer			X	
Temporary roads that disturb less than or equal to 2,500 square foot (225 square meter) provided that vegetation is restored within six months	X			
Temporary roads that disturb greater than 2,500 square foot (225 square meter) provided that vegetation is restored within six months		X		

Activities in the buffer area beyond the footprint of the existing use are classified as either "exempt", "allowable", "allowable with mitigation", or "prohibited". The following list of activities that may be subject to buffer rules within the study area are provided along with their classifications. Depending upon project alternatives, not all of the uses listed may apply, and other uses not listed here, such as utility crossings and roadside drainage ditches, among others, may be regulated under the buffer rules. Guidelines

should be consulted in entirety to review all project related uses subject to the buffer rules.

4. Mitigation

Compensatory mitigation for any unavoidable losses has been requested by the United State Fish and Wildlife Service. Utilization of BMPs will minimize impacts. Temporary impacts to floodplains associated with construction activities could be mitigated by replanting disturbed areas with native wetland species and removal of temporary fill material upon project completion. Fill or alteration of more than 150 linear feet (45 meters) of stream may require compensatory mitigation in accordance with 15 NCAC 2H .0506(h). A final determination regarding mitigation rests with the COE.

F. Protected Species

1. Federally Protected Species

Species with the federal classification of Endangered (E) or Threatened (T), officially proposed (P) for such listing, or Threatened due to Similarity of Appearance (T[S/A]) are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The term "Endangered Species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range", and the term "Threatened Species" is defined as "any species that is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532). The term "Threatened due to Similarity of Appearance" is defined as a species which is not "Endangered" or "Threatened", but "closely resembles and Endangered or Threatened species" (16 U.S.C. 1532).

Only one federally protected species is currently listed for Wayne County (March 22, 2001 FWS list): red-cockaded woodpecker (*Picoides borealis*). The red-cockaded woodpecker is listed as Endangered.

Red-cockaded Woodpecker - This small woodpecker (seven to 8.5 inches [17 to 22 centimeters]) long) has a black head, prominent white cheek patch, and black-and-white barred back. Males often have red markings (cockades) behind the eye, but the cockades may be absent or difficult to see (Potter *et al.* 1980). Primary habitat consists of mature to over-mature southern pine forests dominated by loblolly (*Pinus taeda*), long-leaf (*P. palustris*), slash (*P. elliotii*), and pond (*P. serotina*) pines (Thompson and Baker 1971). Nest cavities are constructed in the heartwood of living pines, generally older than 70 years that have been infected with red-heart disease. Nest cavity trees tend to occur in clusters, which are referred to as colonies (FWS 1985). The woodpecker drills holes into the bark around the cavity entrance, resulting in a shiny, resinous buildup around the entrance that allows for easy detection of active nest trees. Pine flatwoods or pine-dominated savannas that have been maintained by frequent natural fires serve as ideal nesting and foraging sites for this woodpecker. Development of a thick understory may result in abandonment of cavity trees.

> **BIOLOGICAL CONCLUSION**: Plant communities within the project corridor are described as 1) roadside/disturbed, 2) bottomland gum-cypress swamp forest dominated by hardwoods, and 3) shrub/scrub assemblage. None of these plant communities support red-cockaded woodpecker nesting or foraging habitat.

There is no nesting habitat within 0.5 mile (0.8 kilometer) of the project corridor, and NHP records have no documentation of red-cockaded woodpeckers in the vicinity of the project corridor. Based on a NHP record search and habitat surveys conducted during field investigations, this project will not affect the red-cockaded woodpecker. **NO EFFECT**

Federal Species of Concern - The March 22, 2001 FWS list also includes a category of species designated as "Federal Species of Concern" (FSC). A species with this designation is one that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing).

The FSC designation provides no federal protection under the ESA for the species listed. However, NHP files have no documentation of FSC species within the project corridor or within one mile (1.6 kilometer) of the project corridor.

TABLE 3
FEDERAL SPECIES OF CONCERN

Common Name	Scientific Name	Potential Habitat	State Status*
Rafinesque's big-eared bat**	*Corynorhinus rafinesquii*	yes	SC (PT)
Southern hognose snake**	*Heterodon simus*	no	SR (PSC)
Pinewoods shiner	*Lythrurus matutinus*	no	SR
Atlantic pigtoe	*Fusconaia masoni*	yes	T (PE)
Pondspice	*Litsea aestivalis*	no	C

* E = Endangered; T = threatened; SC = Special concern; SR = Significantly Rare; C = Candidate; P = Proposed
** The species was last observed in the county more than 50 years ago.

2. State Protected Species

Plant and animal species which are on the North Carolina state list as Endangered (E), Threatened (T), Special Concern (SC), Candidate (C), Significantly Rare (SR), or Proposed (P) (Amoroso 1999, LeGrand and Hall 1999) receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202 *et seq.*). NHP records indicate that no terrestrial or aquatic State-listed species have been documented within one mile (1.6 kilometer) of the project corridor.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historical Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires that for federally funded, licensed, or permitted projects having an effect on properties listed in or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation be given the opportunity to comment.

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted on February 29, 2000. All structures within the APE were photographed, and later reviewed by the North Carolina State Historic Preservation Office (HPO). In a concurrence form dated October 27, 2000, the HPO concurred that there are no historic architectural resources either listed in or eligible for listing on 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 Officer (SHPO), in a memorandum dated July 28, 2000, stated they "have conducted a review of the project and are aware of no properties of architectural, historic, or archaeological significance which would be affected by the project. Therefore, we have no comment on the project as currently proposed." 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 a Federal "Categorical Exclusion" due to its limited scope and lack of significant environmental consequences.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of current NCDOT 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 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 anticipated. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

There are no publicly owned recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project.

No North Carolina Geodetic Survey control monuments will be impacted during construction of this project.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impacts to prime and important farmland soils by all land acquisition and construction projects. Prime and important farmland soils are defined by the Natural Resources Conservation Service (NRCS). Since there are no prime or important farmlands in the immediate vicinity of the proposed bridge the Farmland Protection Policy does not apply.

This project is an air quality "neutral" project, so it is not required to be included the regional emission analysis (if applicable) and a project level CO analysis is not required.

This project is located in Wayne County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR Part 51 is not applicable, because the proposed project is located in an attainment area. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

The traffic volumes will not increase or decrease because of this project. There are no receptors located in the immediate project area. The project's impact on noise and air quality will not be significant.

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 SIP for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise (23 CFR Part 772) and for air quality (1990 CAAA and NEPA) 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 hazardous waste sites in the project area. No facility with underground storage tanks (UST), hazardous waste sites, regulated landfills, or unregulated dump sites was identified in the project vicinity.

Wayne County is a participant in the National Flood Insurance Regular Program. This site on the Falling Creek is included in a detailed F.E.M.A. flood study. The proposed replacement will not adversely affect the flood plain. The proposed alternatives will not modify flow characteristics and will have minimal impacts on floodplains due to roadway encroachment. The existing drainage patterns and groundwater will not be affected. Attached is a copy of the Flood Insurance Rate Map, on which are shown the approximate limits of the 100-year flood plain in the vicinity of the project (Figure 5).

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

VIII. PUBLIC INVOLVEMENT

Efforts were undertaken early in the planning process to contact local officials to involve them in the project development with scoping letters and newsletters. A Citizens Informational Workshop was held at Carver Elementary School on June 25, 2001, where preliminary alternatives were reviewed and discussed with concerned citizens and local officials. No local citizens attended the Citizens Informational Workshop.

IX. AGENCY COMMENTS

The following are comments received during the scoping process:

1. National Marine Fisheries Service

   Comment: *"No construction or demolition activities shall be allowed in the water between February 15 and June 1 of any year."*

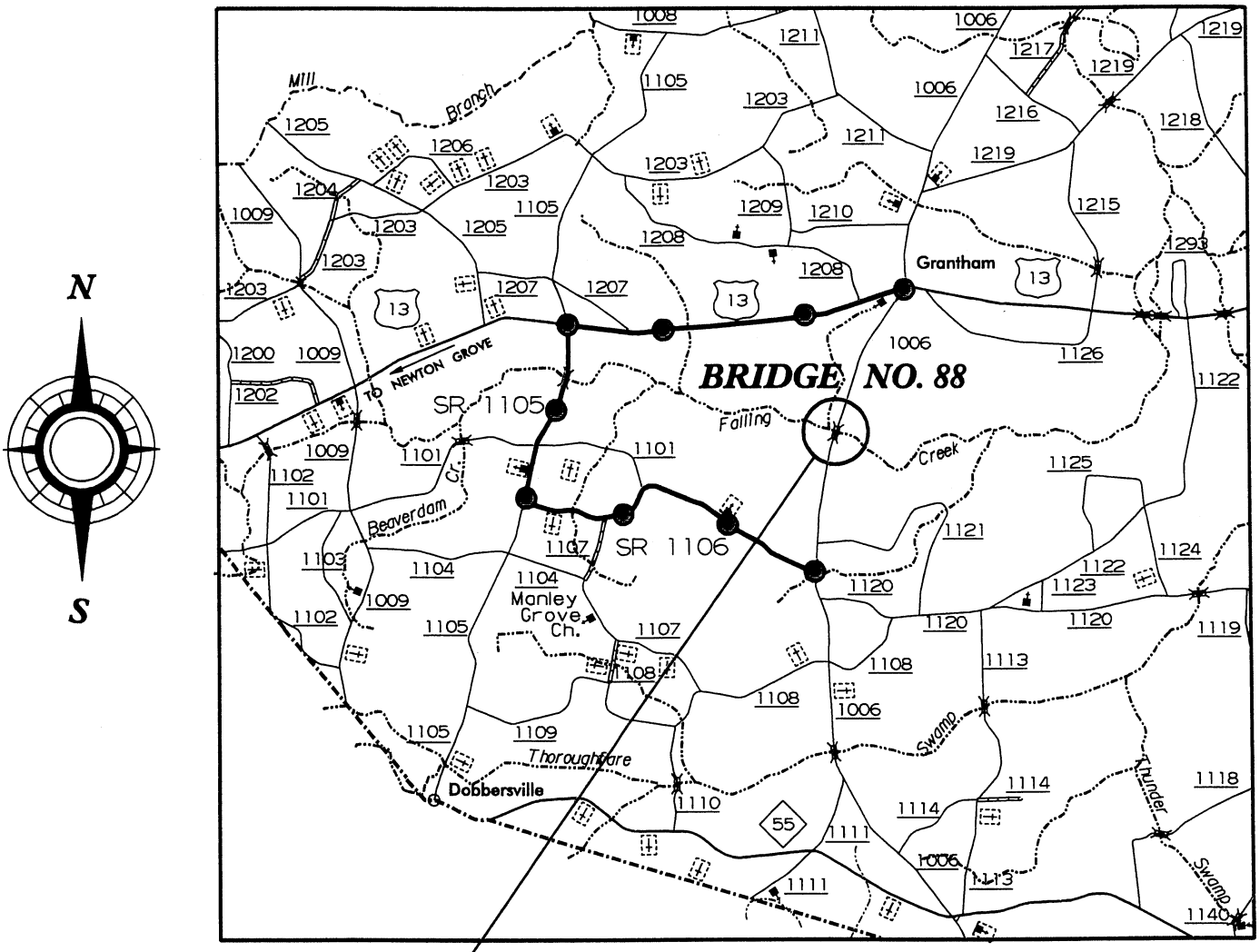
   Response: Construction work will be restricted as noted in the Project Commitments.

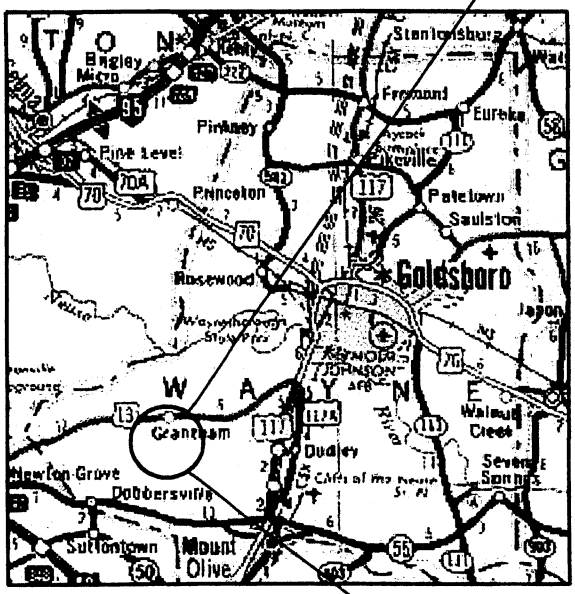
2. North Carolina Wildlife Resource Commission (NCWRC)

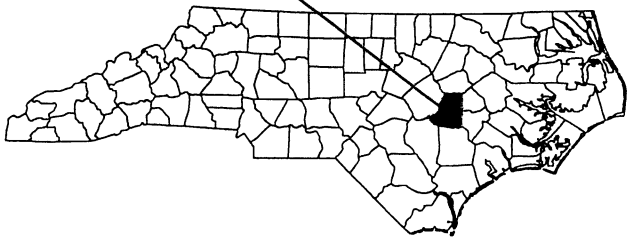
   Comment: *"Bridge deck drains should not discharge directly into the stream."*

   Response: NCDOT has made a commitment to eliminate bridge deck drains entirely over water in the Tar/Pamilco and Neuse River Basins.

FIGURES







1 0 1 2 3 4 MILES
1 0 1 2 3 4 5 KILOMETERS
SCALE

LEGEND

Proposed Detour Route

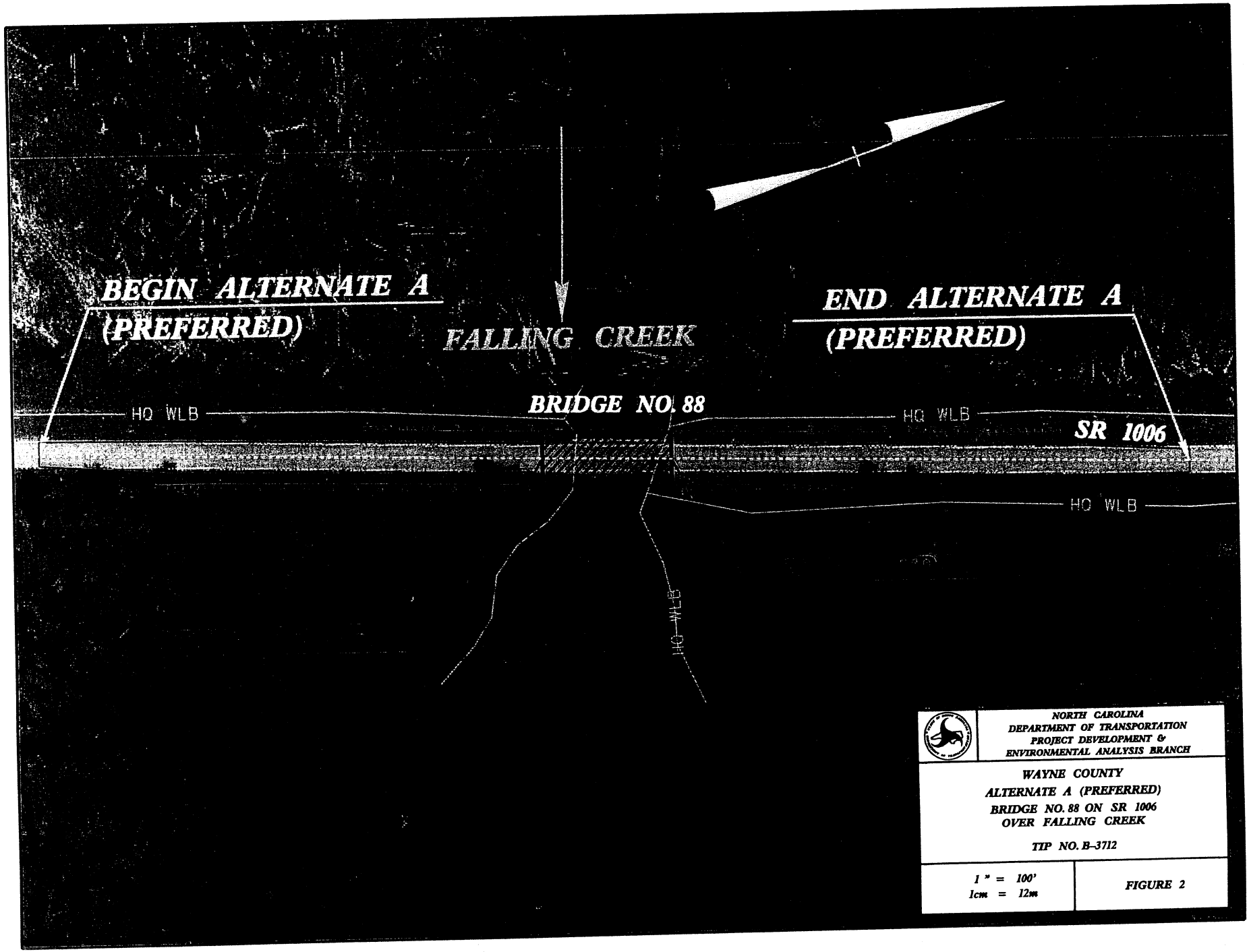
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HYDRAULICS UNIT

WAYNE COUNTY

BRIDGE NO. 88 ON SR 1006
OVER FALLING CREEK

TIP NO. B-3712

FIGURE 1
VICINITY MAP



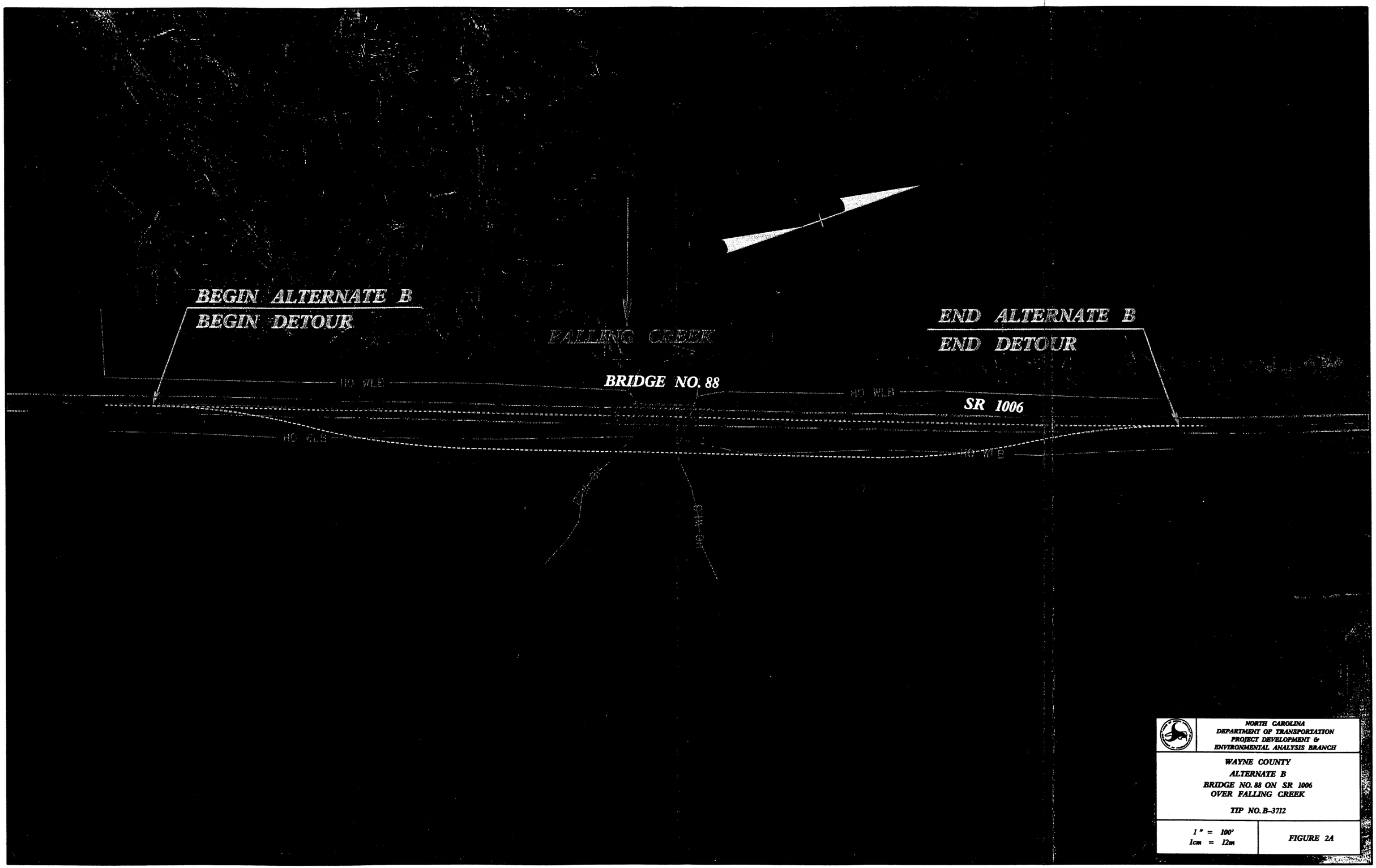
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

WAYNE COUNTY
ALTERNATE A (PREFERRED)
BRIDGE NO. 88 ON SR 1006
OVER FALLING CREEK

TIP NO. B-3712

1 " = 100'
1cm = 12m

FIGURE 2



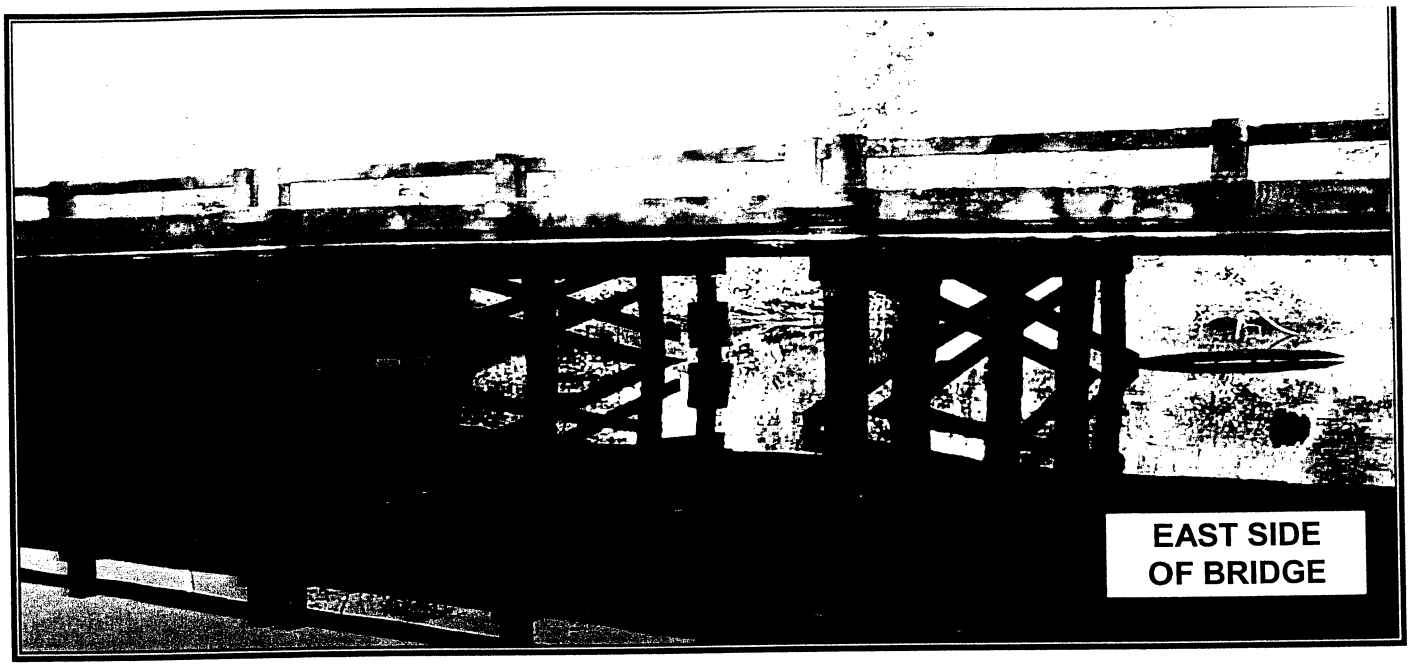
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

WAYNE COUNTY
ALTERNATE B
BRIDGE NO. 88 ON SR 1006
OVER FALLING CREEK

TIP NO. B-3712

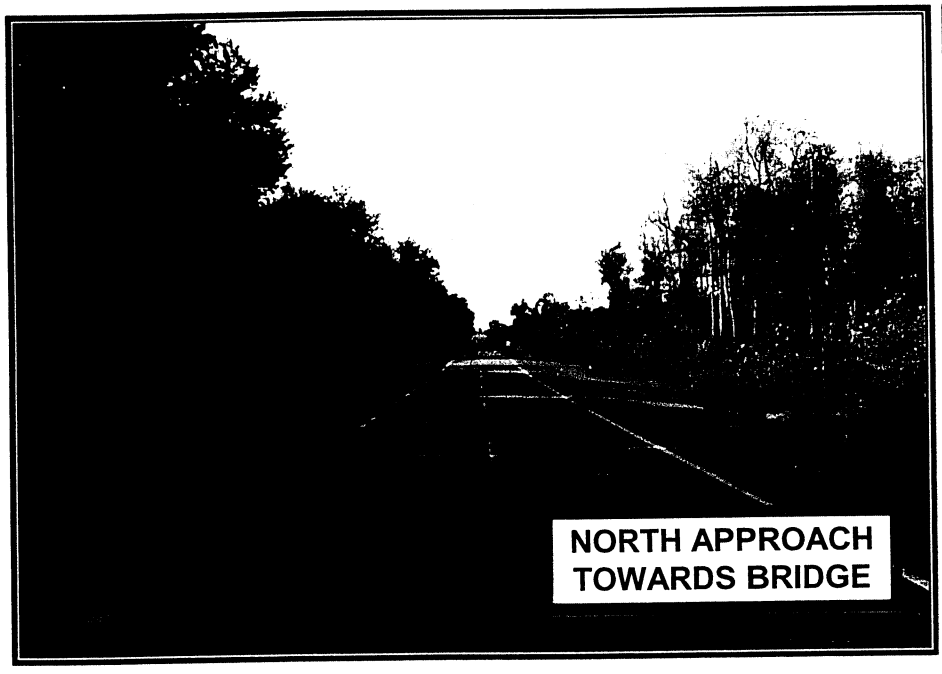
1 " = 100'
1cm = 12m

FIGURE 2A



EAST SIDE
OF BRIDGE

SOUTH APPROACH
TOWARDS BRIDGE

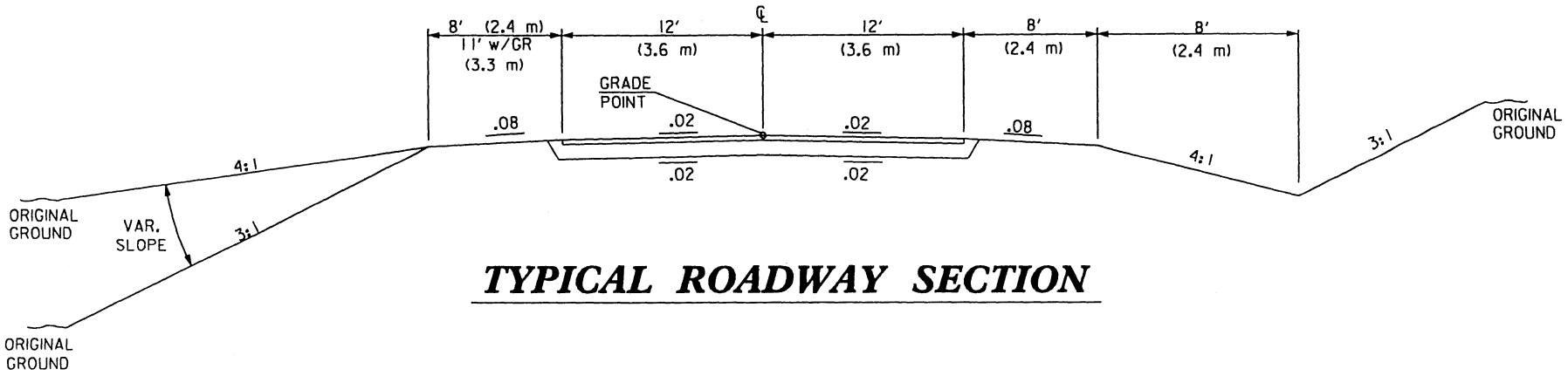


NORTH APPROACH
TOWARDS BRIDGE

B-3712
Replacement of Bridge
No. 88 on SR 1006
Over Falling Creek
Wayne County

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

FIGURE 3

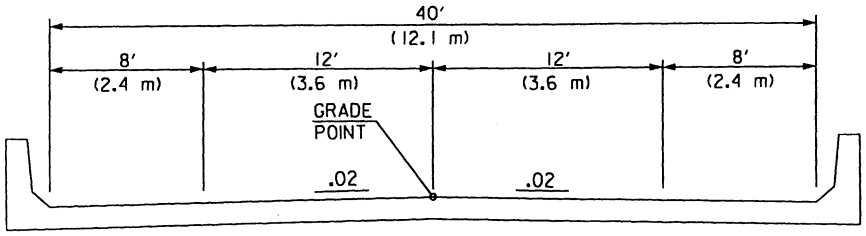


TYPICAL ROADWAY SECTION

TRAFFIC DATA

ADT 2001	2,500
ADT 2003	2,600
ADT 2025	3,800
DUAL	2%
TTST	1%

FUNCTIONAL CLASSIFICATION:
RURAL MINOR COLLECTOR



TYPICAL BRIDGE SECTION

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPEMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

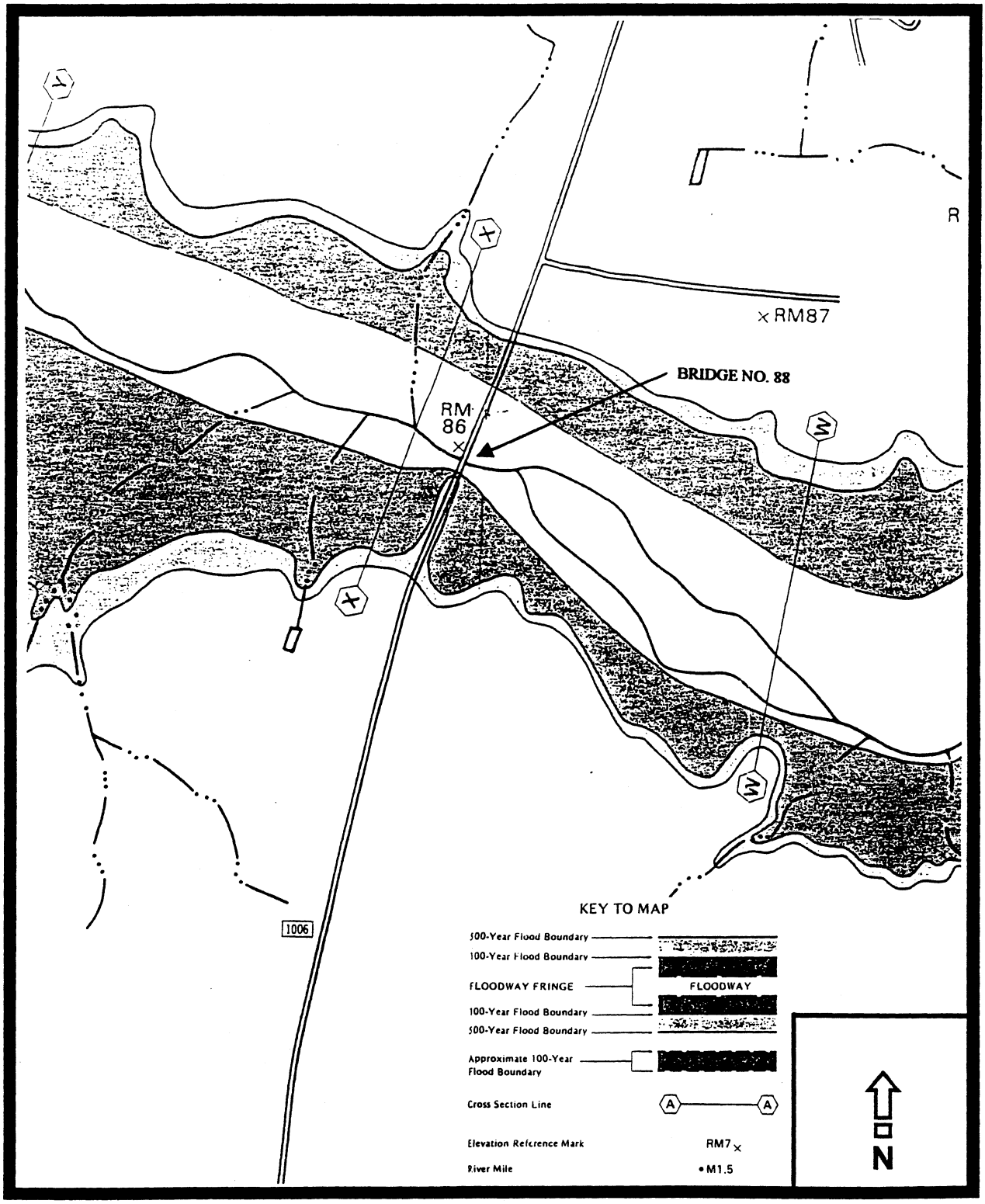
WAYNE COUNTY

BRIDGE NO. 88 ON SR 1006
OVER FALLING CREEK

B-3712

FIGURE 4

B-3712
BRIDGE NO. 88
WAYNE COUNTY



FEMA FLOOD STUDY 100 YEAR FLOOD PLAIN

Panel No. 370254 0090
Date: September 30, 1983
Street Name: SR 1006
Wayne County, North Carolina

1000 ft. 0 1000 ft
305 m Approximate Scale 305 m

FIGURE 5

APPENDIX

RECORD OF CONTACT

DATE: 7/11/01
CONTACT WITH: Mike Bell, Corps of Engineers – Washington Office
SUBJECT: Bridge Group 27 Scoping comments(B-3612, B-3626, B-3640, B-3684, B-3685, B-3711, B-3712, B-3809, B-3810, and B-3871)

VIA: Telephone 1:00 pm

DISCUSSED: He said he agreed with the specific comments for each bridge from David Cox's(from the North Carolina Wildlife Resource Commission) letter dated 6/08/2001(included in appendix) and the general comments from David Franklin's (of the Corps of Engineers) letter dated 8/2/2000 (included in appendix). He will not be sending out a letter.

Signed: Greg Purvis Greg Purvis, Wang Engineering

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

IN REPLY REFER TO

August 2, 2000

Regulatory Division

Action ID No. 200001525, 200001526, 200001527, 200001528, 200001529, 200001530, 200001531.

Mr. William D. Gilmore, P.E., Manager
Project Development & Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, N.C. 27699-1548

Dear Mr. Gilmore:

Reference your letters dated June 7, 2000, June 28, 2000, and July 3, 2000 regarding the following proposed bridge replacement projects, including those of Group XXVII:

1. TIP Project B-3449, Duplin County, Bridge No. 204 on SR 1827 over Northeast Cape Fear River, Action ID 200001525.
2. TIP Project B-3626, Carteret County, Bridge No. 26 on SR 1154 over a branch of the Newport River, Action ID 200001526.
3. TIP Project B-3884, Onslow County, Bridge No. 40 on SR 1308 over Squires Run, Action ID 200001527.
4. TIP Project B-3887, Pender County, Bridge No. 116 on SR 1520 over Shaken Creek, Action ID 200001528.
5. TIP Project B-3516, Scotland County, Bridge No. 59 on SR 1614 over Gum Swamp Creek, Action ID 200001529.
6. TIP Project B-3515, Scotland County, Bridge No. 46 on SR 1612 over Big Shoe Heel Creek, Action ID 200001530.
7. TIP Project B-3613, Bladen/Sampson County, Bridge No. 44 on NC 41 over South River, Action ID 200001531.

Based on the information provided in the referenced letters, it appears that each proposed bridge replacement project may impact jurisdictional wetlands. Department of the Army (DA) permit authorization, pursuant to Section 404 of the Clean Water Act of 1977, as amended, will be required for the discharge of excavated or fill material in waters of the United States or any adjacent wetlands in conjunction with these projects, including

disposal of construction debris. Specific permit requirements will depend on design of the projects, extent of fill work within the waters of the United States, including wetlands, construction methods, and other factors.

Although these projects may qualify as a Categorical Exclusion, to qualify for nationwide permit authorization under Nationwide Permit #23, the project planning report should contain sufficient information to document that the proposed activity does not have more than a minimal individual or cumulative impact on the aquatic environment. Our experience has shown that replacing bridges with culverts often results in sufficient adverse impacts to consider the work as having more than minimal impacts on the aquatic environment. Accordingly, the following items need to be addressed in the project planning report:

a. The report should contain the amount of permanent and temporary impacts to waters and wetlands as well as a description of the type of habitat that will be affected.

b. Off-site detours are always preferable to on-site (temporary) detours in wetlands. If an on-site detour is the recommended action, justification should be provided. On-site detours can cause permanent wetland impacts due to sediment consolidation resulting from the on-site detour itself and associated heavy equipment. Substantial sediment consolidation in wetland systems may in turn cause fragmentation of the wetland and impair the ecological and hydrologic functions of the wetland. Thus, on-site detours constructed in wetlands can result in more than minimal wetland impacts. These types of wetland impacts will be considered as permanent wetland impacts.

For proposed projects and associated on-site detours that cause minimal losses of wetlands, an approved wetland restoration plan will be required prior to issuance of a DA nationwide or general permit. For proposed projects and associated on-site detours that cause significant wetland losses, an individual DA permit and a mitigation proposal for the unavoidable wetland impacts may be required.

In view of our concerns related to onsite detours constructed in wetlands, recent field inspections were conducted at each of the proposed project sites and a cursory determination was made on the potential for sediment consolidation due to an onsite detour. Based on these inspections, potential for sediment consolidation in wetlands exists at several of the proposed projects. Therefore, it is recommended that geotechnical evaluations be conducted at <u>each</u> project site to estimate the magnitude of sediment consolidation that can occur due to an on-site detour and the results be provided in the project planning report.

Based on our field inspections, we strongly recommend that geotechnical evaluations be conducted at the following proposed project sites:

1) TIP Project B-3626, Carteret County, Bridge No. 226 on SR 1154 over a branch of the Newport River, Action ID 200001526.
2) TIP Project B-3884, Onslow County, Bridge No. 40 on SR 1308 over Squires Run, Action ID 200001527.
3) TIP Project B-3887, Pender County, Bridge No. 116 on SR 1520 over Shaken Creek, Action ID 200001528.
4) TIP Project B-3516, Scotland County, Bridge No. 59 on SR 1614 over Gum Swamp Creek, Action ID 200001529.
5) TIP Project B-3515, Scotland County, Bridge No. 46 on SR 1612 over Big Shoe Heel Creek, Action ID 200001530.

c. Project commitments should include the removal of all temporary fills from waters and wetlands and "time-of-year" restrictions on in-stream work if recommended by the NC Wildlife Resources Commission. In addition, if undercutting is necessary for temporary detours, the undercut material should be stockpiled to be used to restore the site.

d. All restored areas should be planted with endemic vegetation including trees, if appropriate.

e. The report should provide an estimate of the linear feet of new impacts to streams resulting from construction of the project.

f. If a bridge is proposed to be replaced with a culvert, NCDOT must demonstrate that the work will not result in more than minimal impacts on the aquatic environment, specifically addressing the passage of aquatic life including anadromous fish. In addition, the report should address the impacts that the culvert would have on recreational navigation.

g. The report should discuss and recommend bridge demolition methods and shall include the impacts of bridge demolition and debris removal in addition to the impacts of constructing the bridge. The report should also incorporate the bridge demolition policy recommendations pursuant to the NCDOT policy entitled "Bridge Demolition and Removal in Waters of the United States" dated September 20, 1999.

Should you have any questions, please call Mr. David L. Timpy at the Wilmington Field office at 910-251-4634.

Sincerely,

E. David Franklin

E. David Franklin
NCDOT Team Leader

U.S. Department of Transportation
United States Coast Guard

Commander
United States Coast Guard
Atlantic Area

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: (Aowb)
Phone: (757)398-6422

16590
15 FEB 01

Mr. William D. Gilmore, P.E.
Manager, Project Development and Environmental
Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Gilmore:

Our Bridge Staff has reviewed your plans and specifications dated July 3, 2000, for the replacement of 14 bridges in 10 different counties of North Carolina.

All of the waterways involved in this project are considered navigable waterways of the United States for Bridge Administration purposes. Must also meet the criteria for advance approval waterway set forth in Title 33, Code of Federal Regulations, Section 115.70, at all of the bridge sites. Advance approval waterways are those that are navigable in law, but not actually navigated by other than small boats. In such cases, the Commandant of the Coast Guard has given his advance approval to the construction of bridges across such waterways. The North Carolina State projects include bridge #143 over Northeast Cape Fear River, bridge #26 over a branch of the Newport River, bridge #16 over Merchants Mill Pond, bridge #30 over Green Mill Run, bridge 42 over Neuse River, bridge #88 over Falling Creek, bridge #64 over Pungo Creek, bridge #272 over Big Swamp, bridge #64 over Dog Branch, bridge #40 over Squires Run and bridge #116 over Shaken Creek which all qualify for the Advance Approval category. Accordingly, individual Coast Guard bridge permits will not be required for the new bridges across these waterways.

The fact that a Coast Guard permit will not be required for these advance approval bridges, does not relieve you of the responsibility for compliance with the requirements of any other Federal, State, or local agency who may have jurisdiction over any aspect of these projects.

Sincerely,

ANN B. DEATON
Chief, Bridge Administration Office
By direction of the Commander
Fifth Coast Guard District

United States Department of the Interior

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

July 25, 2000

Mr. William D. Gilmore, P.E., Manager
NCDOT
Project Development and Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Gilmore:

Thank you for your July 3, 2000 request for information from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of fourteen proposed bridge replacements in various counties in eastern North Carolina. 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 this project.

The North Carolina Department of Transportation (NCDOT) proposes to replace the following bridge structures:

1. B-3449, Bridge No. 204 on SR 1827 over the Northeast Cape Fear River, Duplin County;

2. B-3612, Bridge No. 143 on SR 1123 over Branch of Indian Creek, Bertie County;

3. B-3626, Bridge No. 26 on SR 1154 over Branch of Newport River, Carteret County;

4. B-3640, Bridge No. 16 on SR 1400 over Merchants Mill Pond, Gates County;

5. B-3684, Bridge No. 129 on SR 1565 over the Tar River, Pitt County;

6. B-3685, Bridge No. 30 on SR 1703 over Green Mill Run, Greenville, Pitt County;

7. B-3708, Bridge No. 66 on SR 1325/SR 1583 over Welch Creek, Washington/Martin Counties;

8. B-3711, Bridge No. 42 on NC 111 over the Neuse River Outflow, Wayne County;

9. B-3712, Bridge No. 88 over SR 1006, Falling Creek, Wayne County;

10. B-3809, Bridge No. 64 on NC 99 over Pungo Creek, Beaufort County;

11. B-3810, Bridge No. 272 on SR 1514 over Big Swamp, Beaufort County;

12. B-3871, Bridge No. 64 on SR 1001 over Dog Branch, Martin County;

13. B-3884, Bridge No. 40 on SR 1308 over Squires Run, Onslow County; and,

14. B-3887, Bridge No. 116 on SR 1520 over Shaken Creek, Pender County.

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 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 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 Chinquapin, Grantham,Greenville SW, Grimesland, Merchants Mill Pond, Newport, Old Ford, Ransomville, Richlands, SE Goldsboro, Stag Park, Washington, Williamston, and Woodville 7.5 Minute Quadrangles show wetland resources in the specific work areas. 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. Therefore, in addition to the above guidance, we recommend that the environmental documentation for this project include the following in sufficient detail to facilitate a thorough review of the action.

1. The extent and acreage of waters of the U.S., including wetlands, that are to be impacted by filling, dredging, clearing, ditching, or draining. Acres of wetland impact should be differentiated by habitat type based on the wetland classification scheme of the National Wetlands Inventory. Wetland boundaries should be determined by using the 1987 Corps of Wetlands Delineation Manual and verified by the U.S. Army Corps of Engineers (Corps).

2. 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 enclosed lists identify the federally-listed endangered and threatened species, and Federal Species of Concern (FSC) that are known to occur in Beaufort, Bertie, Carteret, Duplin, Gates, Martin, Onslow, Pender, Pitt, Washington, and Wayne Counties. The Service recommends that habitat requirements for the listed species be compared with the available habitats at the respective project sites. If suitable habitat is present within the action area of the project, biological surveys for the listed species should be performed. Environmental documentation that includes survey methodologies, results, and NCDOT's recommendations based on those results, should be provided to this office for review and comment.

FSC's are those plant and animal species for which the Service remains concerned, but further biological research and field study are needed to resolve the conservation status of these taxa. Although FSC's receive no statutory protection under the ESA, we would encourage the NCDOT to be alert to their potential presence, and to make every reasonable effort to conserve them if found. The North Carolina Natural Heritage Program should be contacted for information on species under state protection.

The Service appreciates the opportunity to comment on this project. 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,

Dr. Garland B. Pardue
Ecological Services Supervisor

Enclosures

cc:
COE, Washington, NC (Michael Bell)
COE, Wilmington, NC (David Timpy)
NCDWQ, Raleigh, NC (John Hennessey)
NCDNR, Northside, NC (David Cox)
FHWA, Raleigh, NC (Nicholas Graf)
EPA, Atlanta, GA (Ted Bisterfield)

FWS/R4:TMcCartney:TM:07/24/00:919/856-4520 extension 32:\14brdgs.var

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive N
St. Petersburg, Florida 33702

July 25, 2000

Colonel James W. DeLony
District Engineer, Wilmington District
Department of the Army, Corps of Engineers
P. O. Box 1890
Wilmington, North Carolina 28402-1890

Attention Dave Timpy/Mike Bell

Dear Colonel DeLony:

Please reference the July 3, 2000, letter (copy enclosed) from the North Carolina Department of Transportation requesting National Marine Fisheries Service's (NMFS) comments on the proposed replacement of eleven highway bridges in eastern North Carolina under the Federal Categorical Exclusion (CE). The letter specifically addresses the potential impacts of demolition and removal of the existing structure and other environmental concerns in the project areas. We have reviewed the information provided with the letter and offer the following comments for consideration.

A. Anadromous Fishery Resources/Wetlands

Project No. 1	B-3449, Duplin County, Replace Bridge No. 204 on SR 1827 over the Northeast Cape Fear River
Project No. 2	B-3612, Bertie County, Replace Bridge No. 143 on SR 1123 over Branch of Indian Creek
Project No. 4	B-3684, Pitt County, Replace Bridge No. 129 on SR 1565 over the Tar River
Project No. 5	B-3708, Washington/Martin Counties, Replace Bridge No. 66 on SR 1325/SR1583 over Welch Creek
Project No. 7	B-3712, Wayne County, Replace Bridge No. 88 on SR 1006 over Falling Creek
Project No. 8	B-3809, Beaufort County, Replace Bridge No. 64 on NC 99 over Pungo Creek
Project No. 11	B-3887, Pender County, Replace Bridge No. 116 on SR 1520 over Shaken Creek

The projects listed above span waters that support anadromous fishery resources for which the NMFS is responsible. Anadromous fish species commonly found through the project area include American shad (*Alosa sapidissima*), hickory shad (*Alosa mediocris*), blueback herring (*Alosa*

aestivalis), alewife (*Alosa pseudoharengus*), striped bass (*Morone saxatilis*), and Atlantic sturgeon (*Acipenser oxyrhynchus*). Each of the above project areas provide spawning and nursery habitat for some subset of these anadromous species. Bridge demolition and construction can result in sediment disturbing activities and discharges of highway construction materials and pollutants that are detrimental to early life history stages of these species. In addition to habitat, wooded wetlands within the project area provide water quality maintenance functions that are important for the production of fishery resources in downstream waters. Any wetland losses associated with these seven projects will add to the cumulative loss of wetlands that are detrimental to the continued production of NMFS trust resources.

Therefore, in order to minimize adverse impacts to fisheries, we recommend that these projects not be processed under the Federal CE unless the following conditions are incorporated:

"No construction or demolition activities shall be allowed in the water between February 15 and June 1 of any year."

"Mitigation shall be provided for any unavoidable wetland losses."

In addition to the above, Project Nos. 1, 2, and 5 are located in river basins that support the endangered shortnose sturgeon (*Acipenser brevirostrum*). Accordingly, we recommend coordination with our Protected Resources Division at the letterhead address or at 727/570-5312.

B. Wetlands

Project No. 6	B-3711, Wayne County, Replace Bridge No. 42 on NC 111 over Neuse River Overflow
Project No. 9	B-3810, Beaufort County, Replace Bridge No. 272 on SR 1514 over Big Swamp
Project No. 10	B-3884, Onslow County, Replace Bridge No. 40 on SR 1308 over Squires Run

Wooded wetlands within these project areas provide water quality maintenance functions that are important for the continued production of fishery resources in downstream waters. Therefore, in order to minimize adverse impacts to fishery resources, we recommend that this work not be processed under the Federal CE unless the following condition is incorporated:

"Mitigation shall be provided for any unavoidable wetland losses."

C. Estuarine Fishery Resources/Wetlands

Project No. 3	B-3626 Carteret County, Replace Bridge No.26 on SR 1154 over Branch of Newport River

Wooded wetlands within the project area provide water quality maintenance functions that are important for the continued production of estuarine dependent fishery resources. Therefore, in order to minimize adverse impacts to estuarine resources, we recommend that this work not be processed under the Federal CE unless the following condition is incorporated:

"Mitigation shall be provided for any unavoidable wetland losses."

Thank you for the opportunity to provide these comments. If we can be of further assistance, please advise.

Sincerely,

Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division

Enclosure

cc: FWS, ATLA, GA
FWS, Raleigh, NC
EPA, ATLA, GA
NCDENR, Raleigh, NC
NCDENR, Morehead City, NC
NCDOT, Raleigh, NC
F/SER4

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

TO: Stacy Harris, PE
Project Engineer, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: June 8, 2001

SUBJECT: NCDOT Bridge Replacements in Duplin, Bertie, Carteret, Gates, Pitt, Wayne, Beaufort, Martin, Onslow, and Pender counties of North Carolina. TIP Nos. B-3449, B-3612, B-3626, B-3640, B-3684, B-3685, B-3711, B-3712, B-3809, B-3810, B-3871, B-3884, and B-3887.

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

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 733-3633 ext. 281 • Fax: (919) 715-7643

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 steam 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.

11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.

12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.

14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.

15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.

16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

If corrugated metal pipe arches, reinforced concrete pipes, 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 bankful stage (similar to Lyonsfield design). This could be accomplished by constructing a low sill on the upstream end of the other cells that will divert low flows to another cell. This will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, notched baffles should be placed in reinforced concrete box culverts at 15 foot intervals to allow for the collection of sediments in the culvert, to reduce flow velocities, and to provide resting places for fish and other aquatic organisms moving through the structure.

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-3449 – Duplin County – Bridge No. 204 over Northeast Cape Fear River. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 1 to June 15 for areas where there is the potential for Shortnose sturgeon, an endangered species. We request that High Quality Sedimentation and Erosion Control Measures be used due to the presence of HQW waters.

2. B-3612 – Bertie County – Bridge No. 143 over a branch of Indian Creek. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. NCDOT should be aware that NCWRC has designated NCWRC gamelands in the vicinity of this bridge. Impacts to gameland properties should be avoided.

3. B-3626 – Carteret County – Bridge No. 26 over a branch of the New Port River. Standard comments apply. We are not aware of any threatened of endangered species in the project vicinity.

4. B-3640 – Gates County – Bridge No. 16 over Merchant's Mill Pond. Standard comments apply. We are not aware of any threatened of endangered species in the project vicinity.

5. B-3684 Pitt County – Bridge No. 129 over Tar River. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

6. B-3685 – Pitt County – Bridge No. 30 over Green Mill Run. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

7. B-3711 – Wayne County – Bridge No. 42 over the Neuse River Overflow. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

8. B-3712 · Wayne County – Bridge No 88 over Falling Creek. Standard comments apply. We are not aware of any threatened of endangered species in the project vicinity.

9. B-3809 - Beaufort County – Bridge No. 64 over Pungo Creek. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

10. B-3810 – Beaufort County – Bridge No. 272 over Big Swamp. Standard comments apply. We are not aware of any threatened of endangered species in the project vicinity.

11. B-3871 – Martin County – Bridge No. 64 over Dog Branch. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

12. B-3884 Onslow County – Bridge No. 40 over Squires Run. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

13. B-3887 Pender County – Bridge No. 116 over Shaken Creek. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened of endangered species in the project vicinity. Standard comments apply.

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.

Federal Aid #BRZ-1006(11) *TIP* #B-3712 *County*: Wayne

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

Project Description: Replace Bridge No. 88 on SR 1006 over Falling Creek

On September 21, 2000, representatives of the

- [X] North Carolina Department of Transportation (NCDOT)
- [ ] Federal Highway Administration (FHWA)
- [X] North Carolina State Historic Preservation Office (SHPO)

Reviewed the subject project at

- [ ] a scoping meeting
- [X] photograph review session/consultation
- [ ] other

All parties present agreed

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

Signed:

Mary Pope Furr — 9.21.2000
Representative, NCDOT — Date

Michael C Dawson — 10/4/00
FHWA, for the Division Administrator, or other Federal Agency — Date

Lisa Montgomery — 9/21/2000
Representative, SHPO — Date

David Brook — 10/27/00
State Historic Preservation Officer — Date

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

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

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

Division of Archives and History
Jeffrey J. Crow, Director

July 28, 2000

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development & Environmental Analysis Branch

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

Re: B-3712, Wayne County, Replace Bridge No. 88
on SR 1006 over Falling Creek, ER 01-7092

Thank you for your memorandum of July 3, 2000, concerning the above project.

We have conducted a review of the project and are aware of no properties of architectural, historic, or archaeological significance which would be affected by the project. Therefore, we have no comment on the project as currently proposed.

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:kgc

cc: B. Church, NC DOT
T. Padgett, NC DOT

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4763 • 733-8653
ARCHAEOLOGY	421 N. Blount St., Raleigh NC	4619 Mail Service Center, Raleigh NC 27699-4619	(919) 733-7342 • 715-2671
RESTORATION	515 N. Blount St., Raleigh NC	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545 • 715-4801

FAX

WAYNE COUNTY PUBLIC SCHOOLS
BUS GARAGE/TIMS OFFICE
1603 SALEM CHURCH RD
GOLDSBORO, N.C. 27530

Date 2-13-01

Number of pages including cover sheet 1

B-3712

To:
Pamela Williams

Phone
Fax Phone
CC:

From:
TIMS OFFICE
STEPHANIE OR SHIRLENE

Phone 919-705-6084
Fax Phone 919-705-6006

REMARKS:

☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

Re: No. of buses on Falling Creek + Neuse River bridges.

Falling Creek - 3 buses AM + PM

Neuse River - 4 buses AM + PM

(tims#13)

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: B-3712 Bridge No 88 over SR 1006 (ESC) Date: 12-5-00
Applicant/Owner: NC DOT County: Wayne
Investigator: Adam V McIntyre State: NC

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse

Community ID: Bottomland
Transect ID: VA04
Plot ID: Wetland

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Taxodium distichum	T	OBL
2. Liquidambar styraciflua	T	FAC+
3. Acer rubrum	T	FAC
4.		
5. Magnolia virginiana	S	FACW+
6. Ilex opaca	S	FAC-
7.		
8. Arundinaria gigantea	H	FACW

Dominant Plant Species	Stratum	Indicator
9. Juncus effusus	H	FACW+
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) > 50%

Remarks:

HYDROLOGY

___Recorded Data (Describe in Remarks):
___Stream, Lake or Tide Gauge
___Aerial Photographs
___Other
X No Recorded Data Available

Field Observations:
Depth of Surface Water: 0 (in.)
Depth to Free Water in Pit: 6 (in.)
Depth to Saturated Soil: 3 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
X Inundated
X Saturated in Upper 12 Inches
X Water Marks
___Drift Lines
___Sediment Deposits
X Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Johnston loam

Drainage Class: VPD

Taxonomy (Subgroup): Cumulic Humaquepts

Field Observations
Confirm Mapped Type: Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1	O	—	—		organic
1+	A	10 YR 2/1	10 YR 3/6	abundant/strong	sandy loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No (Circle)
Wetland Hydrology Present?	(Yes)	No
Hydric Soils Present?	(Yes)	No

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: B-3712, Bridge No 88 over SR 1006 (ESC) Date: 12-5-00
Applicant/Owner: NC DOT County: Wayne
Investigator: Adam V McIntyre State: NC

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse

Community ID: Roadside
Transect ID: VA04
Plot ID: Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Rubus sp	S	—
2.		
3. Arundinaria sigantea	H	FACW
4. Eupatorium capillifolium	H	FAC
5. Trifolium repens	H	FAC
6. Eupatorium fistulosum	H	FAC+
7. Dicanthelium scoparium	H	FACW
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) > 50%

Remarks: Mostly herbs and shrubs associated with disturbed roadside margins

HYDROLOGY

___Recorded Data (Describe in Remarks):
___Stream, Lake or Tide Gauge
___Aerial Photographs
___Other
X No Recorded Data Available

Field Observations:
Depth of Surface Water: > (in.)
Depth to Free Water in Pit: >12 (in.)
Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___Inundated
___Saturated in Upper 12 Inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___Oxidized Root Channels in Upper 12 Inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Rains sandy loam

Drainage Class: PD

Taxonomy (Subgroup): Typic Paleaquults

Field Observations
Confirm Mapped Type: Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	2.5 YR 6/6	—	—	loamy sand
4+	B	2.5 YR 6/4	—	—	loamy sand

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

Wetland Rating Worksheet

Project Name B-3712 **Nearest Road** Grantham School Road

County Wayne **Name of Evaluator** Adam V McEntyre **Date** 12-05-00

Wetland Location

- ____ on pond or lake
- X on perennial stream
- ____ on intermittent stream
- ____ within interstream divide
- ____ other

Soil Series Johnston loam

- ____ predominantly organic humus, muck or peat
- X predominantly mineral, non-sandy
- ____ predominantly sandy

Hydraulic Factors

- ____ steep topography
- ____ ditched or channelized
- X wetland width >/= 50 feet

Adjacent Land Use (within 0.5 mile upstream)

forested/natural vegetation	30
agriculture, urban/suburban	65
impervious surface	5

Dominant Vegetation

1) Taxodium distichum
2) Acer Rubrum
3) Liquidambar styraciflua

Flooding and Wetness

- ____ semi-permanently to permanently or inundated
- X seasonally flooded or inundated
- ____ intermittently flooded or temporary surface water
- ____ no evidence of flooding or surface water

Wetland Type

- ____ bottomland hardwood forest
- ____ headwater forest
- X swamp forest
- ____ wet flat
- ____ pocosin
- ____ pine savanna
- ____ freshwater marsh
- ____ bog/fen
- ____ ephemeral wetland
- ____ other ____

Water storage	5	X	4	=	20
Bank/Shoreline stabilization	1	X	4	=	4
Pollutant removal	3	X	5	=	15
Wildlife habitat	5	X	2	=	10
Aquatic life value	3	X	4	=	12
Recreation/Education	2	X	1	=	2

Total Score 63

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 17, 2003

Division of Water Quality
1621 Mail Service Center
Raleigh, NC 27699

ATTENTION: Mr. John Dorney
NCDOT Coordinator

Dear Mr. Dorney:

Subject: Buffer Certification Application for the replacement of Bridge No. 88 over Falling Creek on SR 1006, Wayne County. Federal Aid Project No. BRZ-1006(11), State Project No. 8.2331501, TIP Project No. B-3712.

Please find enclosed three copies of the project planning report for the above mentioned project. The project's CE states that Bridge No. 88 over Falling Creek on SR 1006 in Wayne County will be replaced with new bridge at approximately the same location. The new bridge will be approximately 100 feet long and have two 12-foot lanes with 8-foot shoulders. The bridge approach will have two 12-foot lanes with 8-foot shoulders. Falling Creek [DWQ Index # 27-77] is a jurisdictional stream under the Neuse Riparian Buffer Rules and is the subject of this application.

Neuse River Basin Buffer Rules

As previously noted, this project is located in the Neuse River Basin (sub-basin 03-04-12, HUC 03020202); therefore, the regulations pertaining to the buffer rules apply. Buffer impacts associated with this project total 2912.5 sq. ft (0.067 ac.) for Zone 1 and 3575.2 sq. ft (0.082 ac.) for Zone 2. All practicable measures to minimize impacts within buffer zones were followed. Measures used to minimize impacts to the buffer zone include using the current alignment. According to the buffer rules, bridges are allowable. Uses designated as allowable may proceed within the riparian buffer provided that there are no practicable alternatives to the requested use pursuant to Item (8) of this Rule. These uses require written authorization from the Division or the delegated local authority. Therefore, NCDOT requests written authorization for a Buffer Certification from the Division of Water Quality.

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

This project has been reviewed for jurisdiction under the Federal Clean Water Act (CWA). There are no impacts to Waters of the US, therefore the actions of this project do not fall under the jurisdiction of the CWA. Therefore, no permits pursuant to the CWA are required. In addition to the planning document, permit drawings and half size plan sheets are included with this application.

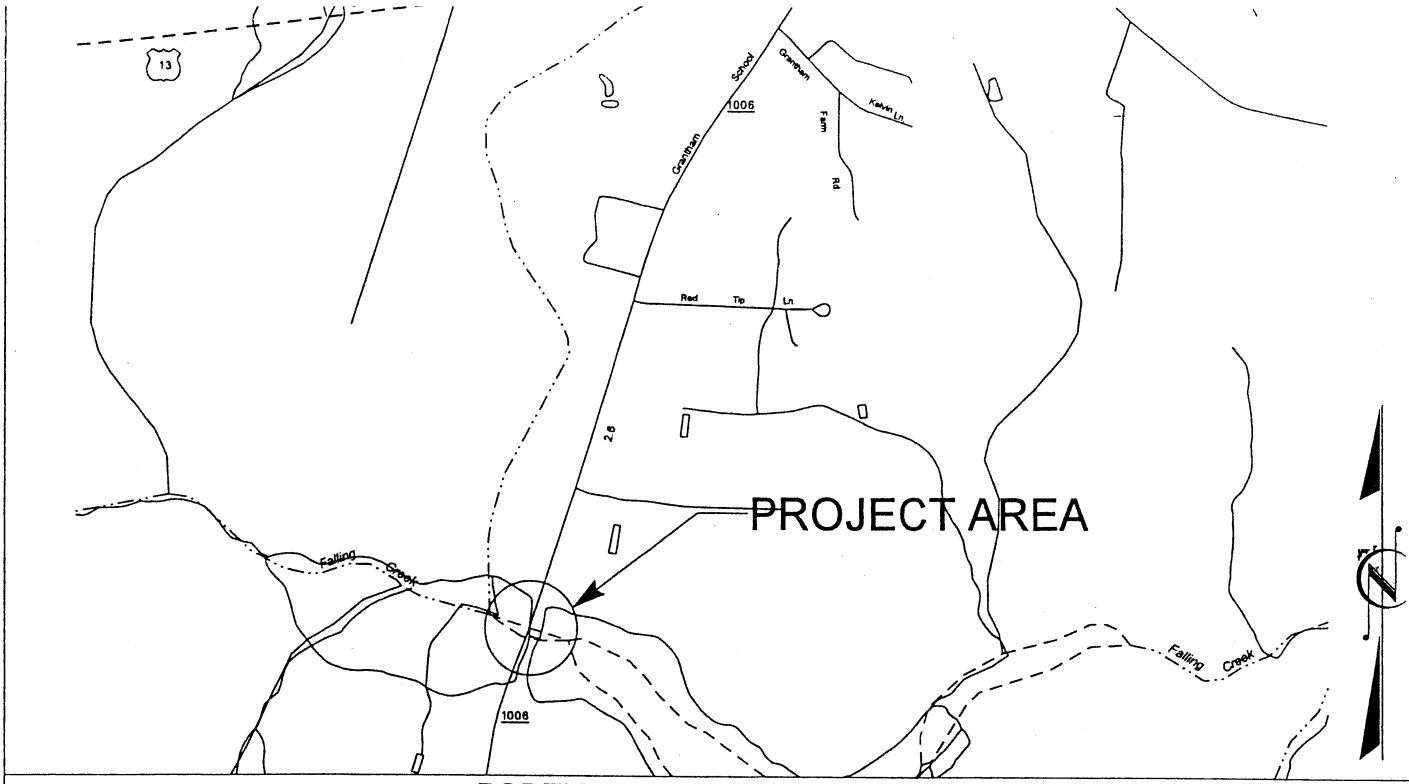
If you have any questions or need additional information, please contact Chris Underwood at (919) 715-1451.

Sincerely,

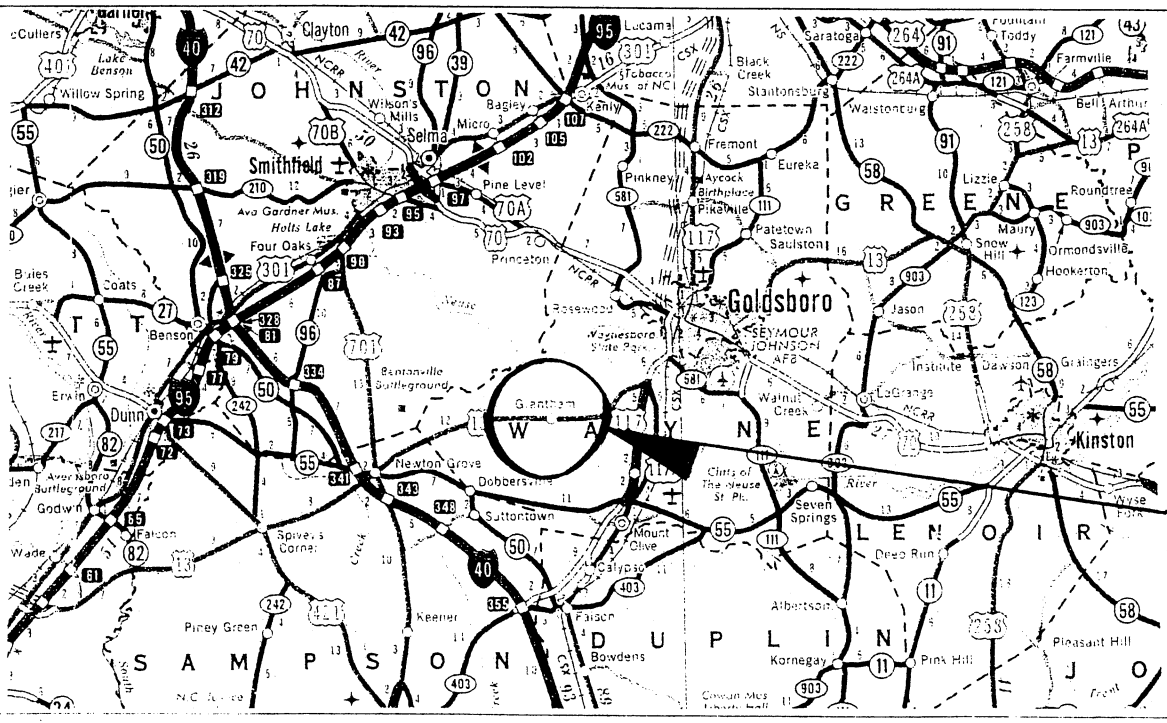
Gregory J. Thorpe, Ph.D. Environmental Management Director
Project Development and Environmental Analysis

w/ attachment:

Mr. Michael Bell, USACE
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Ms. Debbie Barbour, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. John Sullivan, FHWA
Mr. J. H. Trogdon, P.E., Division Engineer
Mr. Jamie Shern, DEO
Mr. David Franklin, USACE, Wilmington
Ms. Stacy Baldwin, Project Planning Engineer



PORTION OF WAYNE COUNTY



PORTION OF STATE MAP

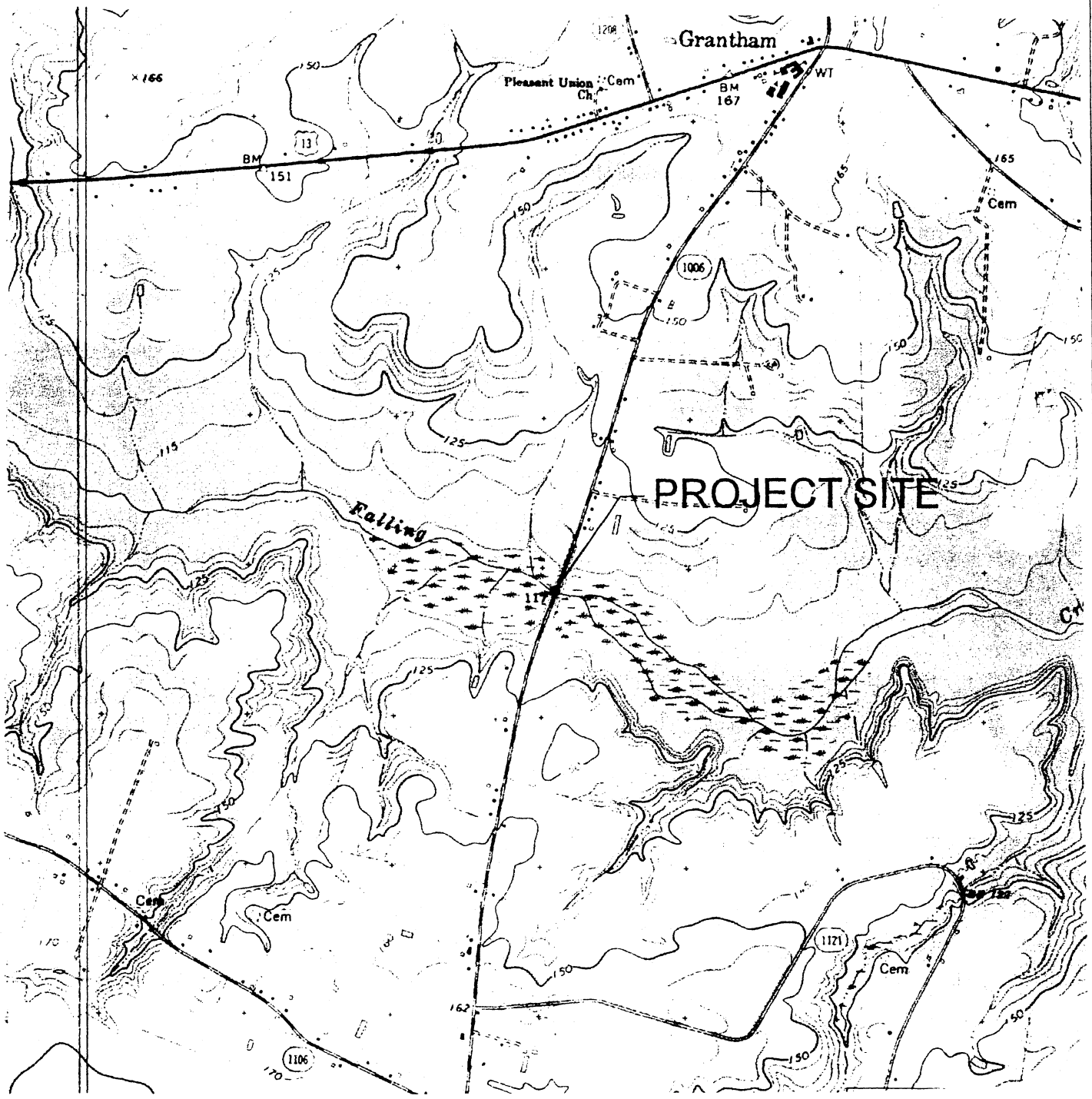
WETLAND IMPACTS

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAYNE COUNTY
8.2331501 (B-3712)
REPLACE BRIDGE NO.88 AND APPROACHES
OVER FALLING CREEK ON SR 1006

SCALE AS SHOWN

SHEET 1 OF 7



QUAD MAP OVERLAY

WETLAND SITE MAP

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAYNE COUNTY
8.2331501 (B-3712)
REPLACE BRIDGE NO.88 AND APPROACHES
OVER FALLING CREEK ON SR 1006

1000 0 2000
SCALE IN FEET

SCALE AS SHOWN

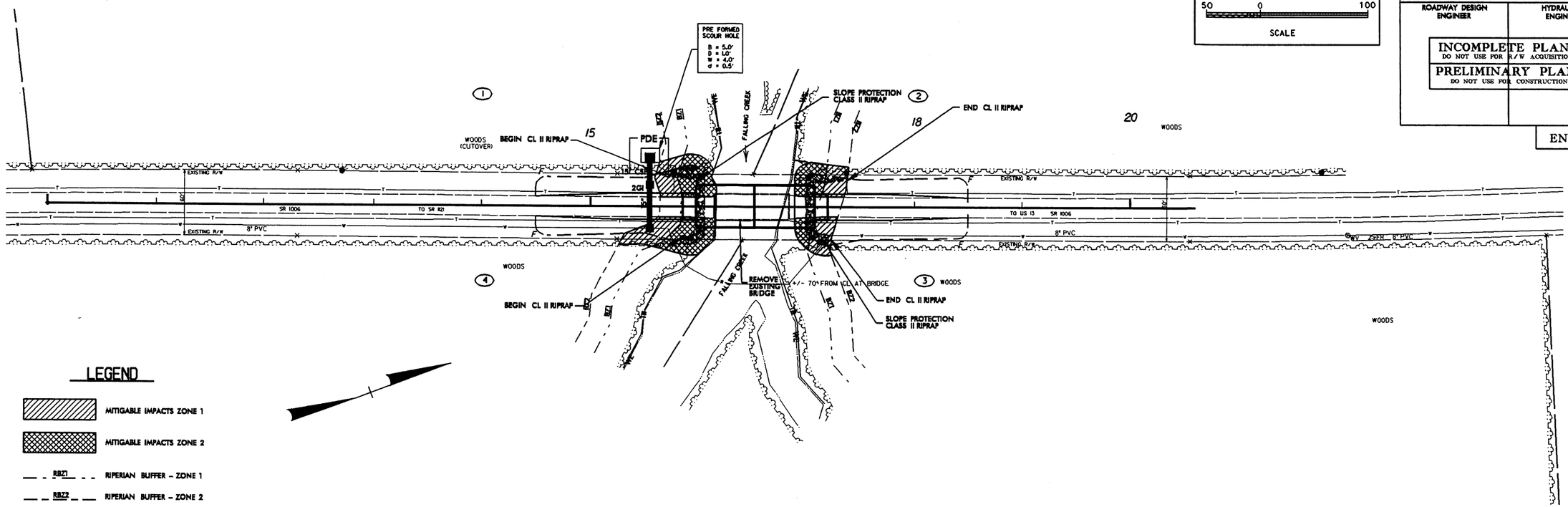
SHEET 2 OF 7

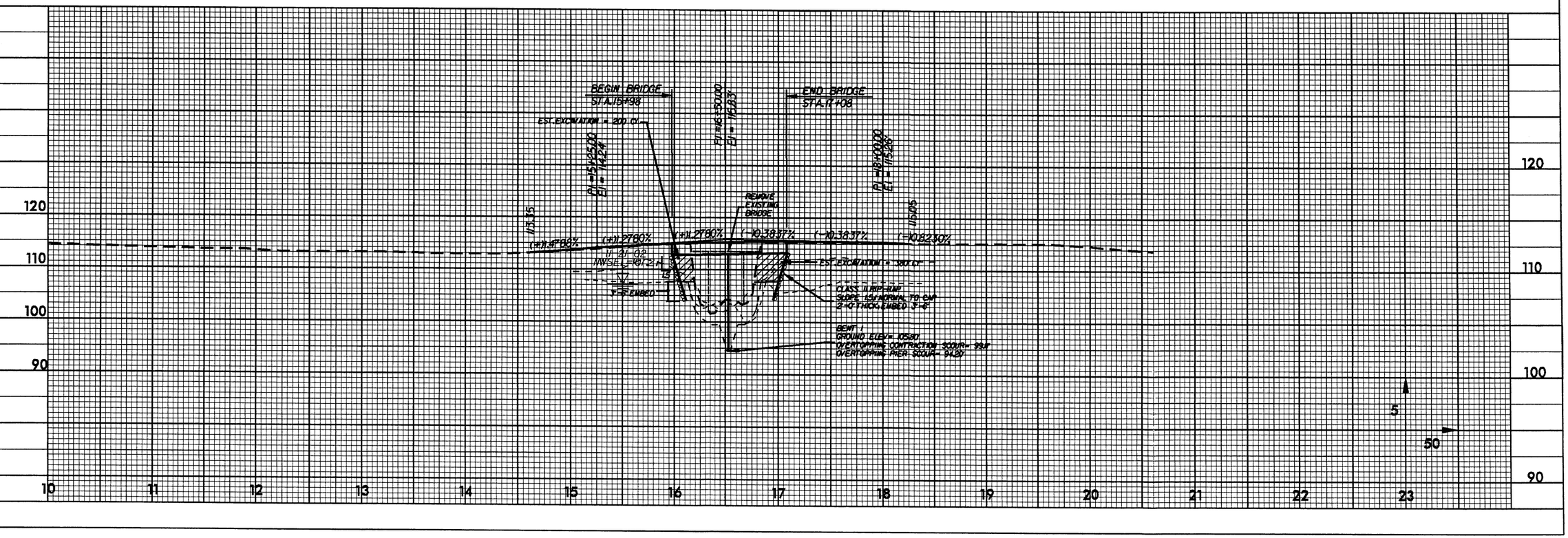
PROJECT REFERENCE NO.	SHEET NO.
B-3712	3 of 7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

50 0 100
SCALE





07-AUG-2003 14:09
R:\Hydraulics\Hydro\b3712_sheet1.psh
dwilliard

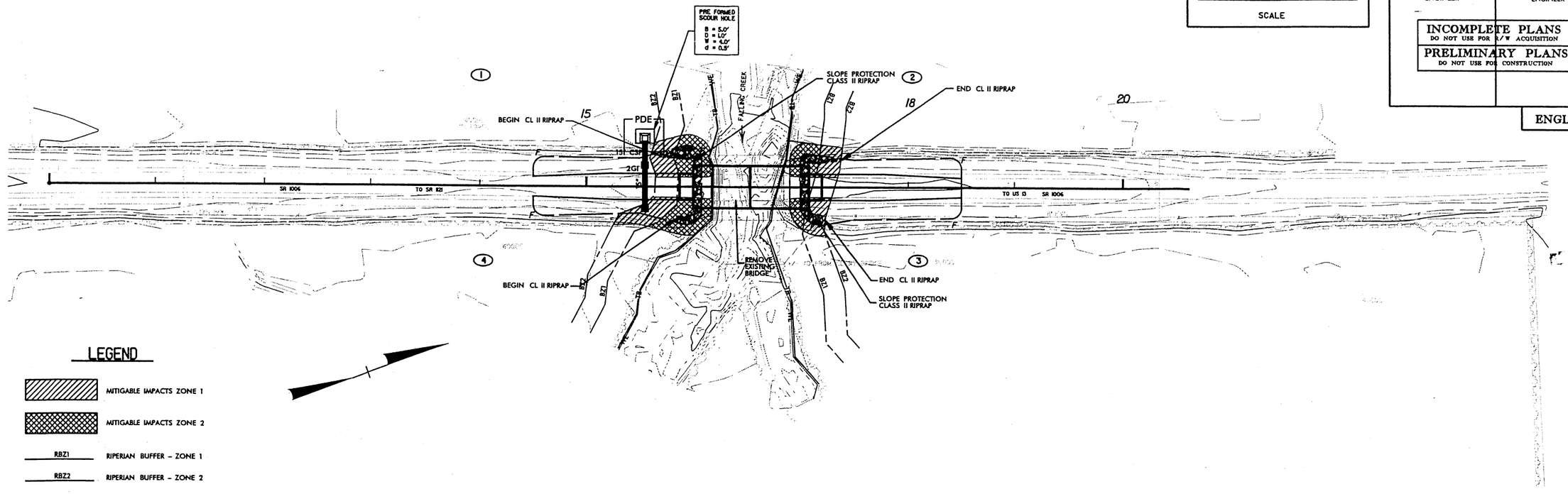
PROJECT REFERENCE NO.	SHEET NO.
B-3712	4 OF 7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

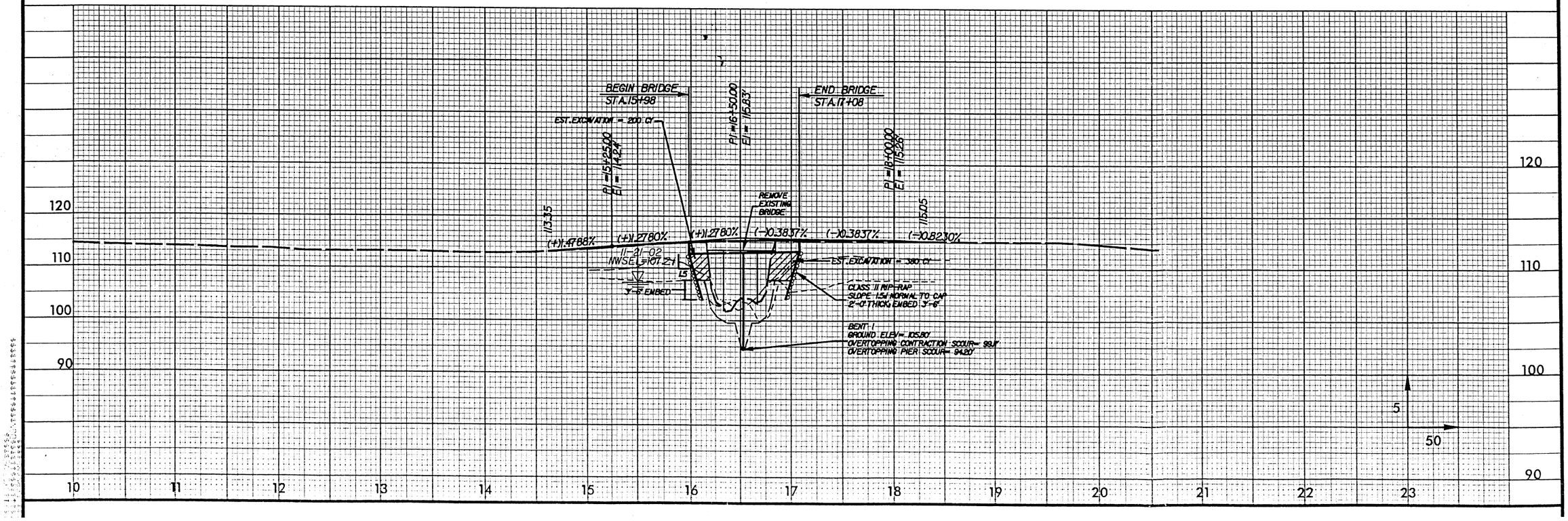
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

50 0 100
SCALE

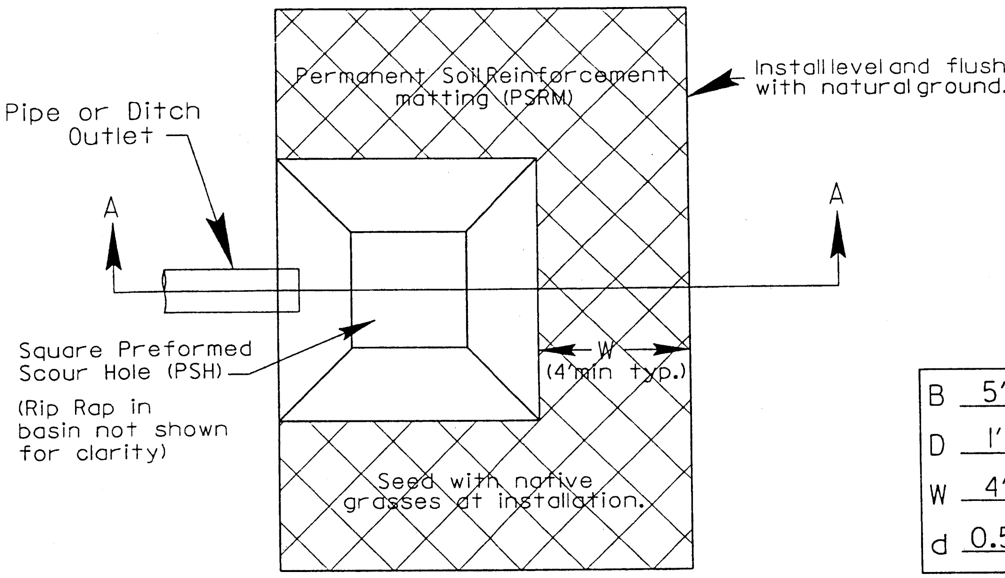




PREFORMED SCOUR HOLE

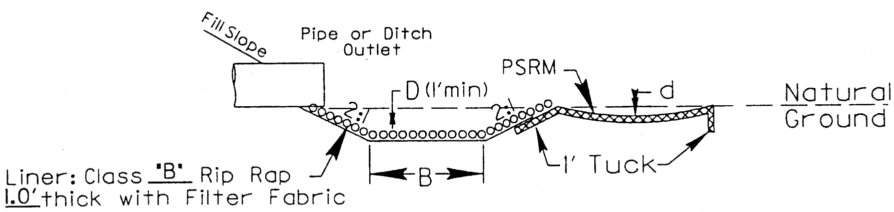
DETAIL_D_

PLAN VIEW



B	5'
D	1'
W	4'
d	0.5'

SECTION A-A



4/4/02

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAYNE COUNTY
8.2331501(B-3712)
REPLACE BRIDGE NO.88 AND APPROACHES
OVER FALLING CREEK ON SR 1006

SCALE AS SHOWN

SHEET 5 OF 7

SUMMARY OF AFFECTED PROPERTY OWNERS

TRACT NO.	PROPERTY OWNER	ADDRESS	SITE NO.
1	A.T HILL & WIFE HILDA L. HILL	485 KERMIT WARREN RD. MT. OLIVE, NC 28365	1
2	MONTY K. GRADY & WIFE HILDA L. HILL	646 GRANTHAM SCHOOL RD. GOLDSBORO, NC 27530	1
3	GRANGER L. BROCK	PO BOX 174 FOUR OAKS, NC 27524	1
4	JOHN K. THORNTON & EDGAR G. THORNTON	931 GRANTHAM SCHOOL RD. MT. OLIVE, NC 28365	1

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAYNE COUNTY
8.2331501 (B-3712)
REPLACE BRIDGE NO.88 AND APPROACHES
OVER FALLING CREEK ON SR 1006

SCALE AS SHOWN

SHEET 6 OF 7

BUFFER IMPACTS SUMMARY

			IMPACT								BUFFER REPLACEMENT	
			TYPE		ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	Bridge	-L- Sta 16+53+/-	X					2912.5	3575.2	6487.7		
TOTAL:					0.0	0.0	0.0	2912.5	3575.2	6487.7		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

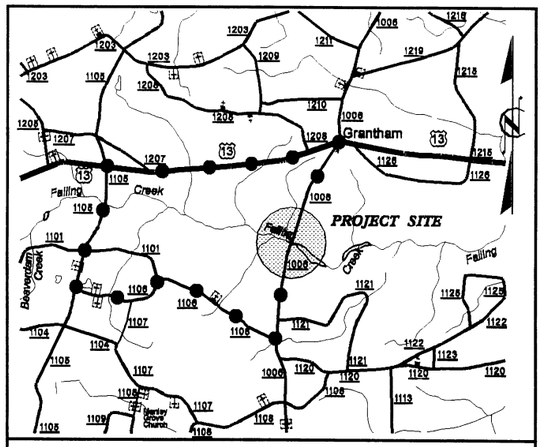
WAYNE COUNTY
PROJECT: 8.2331501 (B-3712)

7/21/2003

09/03/99

B-3712

See Sheet 1-A For Index of Sheets



VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3712	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
8.2331501	BRZ-1006(11)	PE
8.2331502	BRZ-1006(11)	R/W, UTIL., CONST.

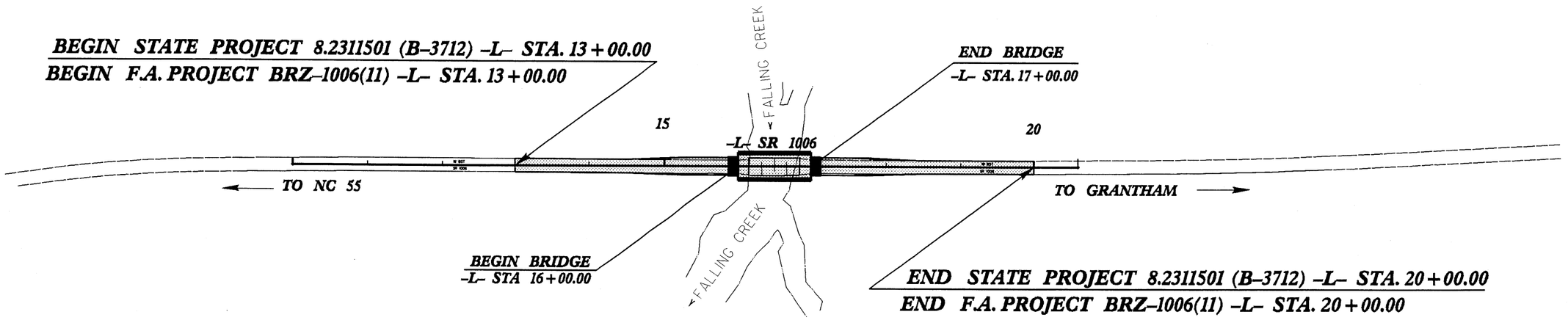
LOCATION: BRIDGE No. 88 OVER FALLING CREEK ON SR 1006

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE

NAD 83

BEGIN STATE PROJECT 8.2311501 (B-3712) -L- STA. 13+00.00
BEGIN F.A. PROJECT BRZ-1006(11) -L- STA. 13+00.00

END BRIDGE
-L- STA. 17+00.00



BEGIN BRIDGE
-L- STA 16+00.00

END STATE PROJECT 8.2311501 (B-3712) -L- STA. 20+00.00
END F.A. PROJECT BRZ-1006(11) -L- STA. 20+00.00

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

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT: 8.2331501

GRAPHIC SCALES

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 10 5 0 10 20

DESIGN DATA

ADT 2003 = 2,615
ADT 2023 = 3,692
DHV = 10 %
D = 60 %
T = 3 % *
V = 60 MPH

* TTST 1 % DUAL 2 %

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT BRZ-1006(11) = 0.114 MILE
LENGTH STRUCTURE F.A. PROJECT BRZ-1006(11) = 0.019 MILE
TOTAL LENGTH STATE PROJECT 8.2331501 = 0.133 MILE

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

TERESA M. BRUTON, PE
PROJECT ENGINEER

DAVIDIAN BYRD
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER *P.E.*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

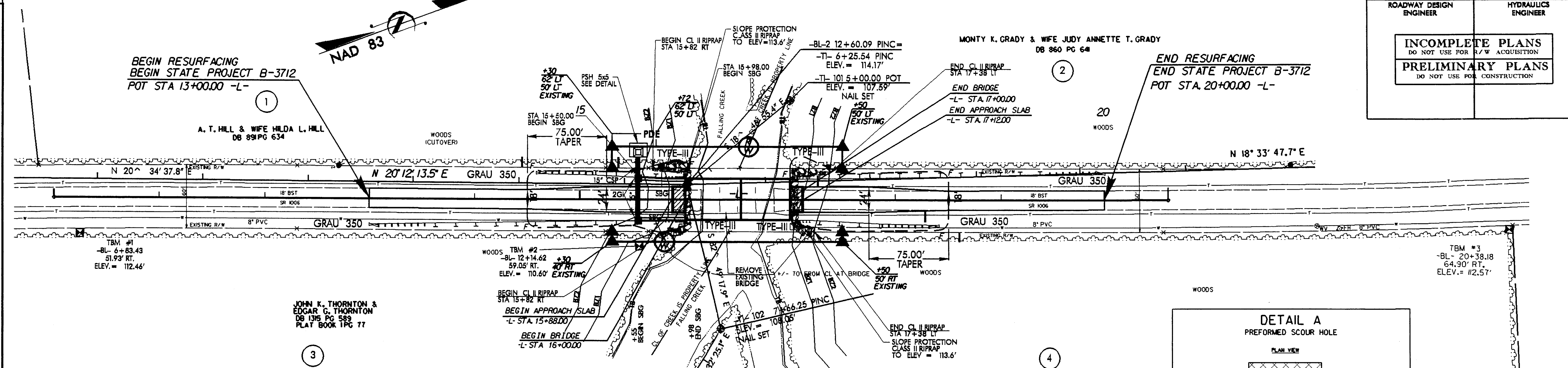
APPROVED
DIVISION ADMINISTRATOR *DATE*

09-JUN-2003 10:11
W:\PROJECTS\Susie's\B3712\Design\Work\B3712.tsh
agamber AI

PROJECT REFERENCE NO.	SHEET NO.
B-3712	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION



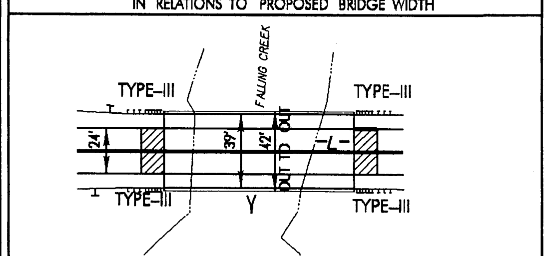
NAD 83
BEGIN RESURFACING
BEGIN STATE PROJECT B-3712
POT STA 13+00.00 -L-
END RESURFACING
END STATE PROJECT B-3712
POT STA. 20+00.00 -L-
A. T. HILL & WIFE HILDA L. HILL
DB 891 PG 634
MONTY K. GRADY & WIFE JUDY ANNETTE T. GRADY
DB 860 PG 641
JOHN K. THORNTON &
EDGAR G. THORNTON
DB 1315 PG 589
PLAT BOOK 1 PG 77
GRANGER L. BROCK
DB 819 PG 259
N 20 12' 13.5" E
N 18° 33' 47.7" E
GRAU 350
FALLING CREEK
75.00' TAPER
TBM #1
-BL- 6+83.43
51.93' RT.
ELEV. = 112.46'
TBM #2
-BL- 12+14.62
59.05' RT.
ELEV. = 110.60'
TBM #3
-BL- 20+38.18
64.90' RT.
ELEV. = 112.57'
BEGIN CL II RIPRAP
STA 15+82 RT
BEGIN APPROACH SLAB
-L- STA. 15+88.00
BEGIN BRIDGE
-L- STA 16+00.00
END CL II RIPRAP
STA 17+38 LT
END BRIDGE
-L- STA. 17+00.00
END APPROACH SLAB
-L- STA. 17+12.00
SLOPE PROTECTION
CLASS II RIPRAP
TO ELEV = 113.6'
REMOVE EXISTING BRIDGE
WOODS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS B3712-1"
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
NORTHING: 553923.863(ft) EASTING: 2245406.382(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987190
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B3712-1" TO -L- STATION 13+00.00 IS N 11°49' 14.22" E 2531.1585 FT.

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

SKETCH SHOWING DIMENSIONS OF PAVEMENT AND SHOULDERS IN RELATIONS TO PROPOSED BRIDGE WIDTH

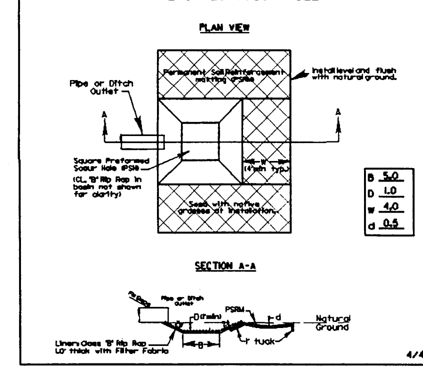


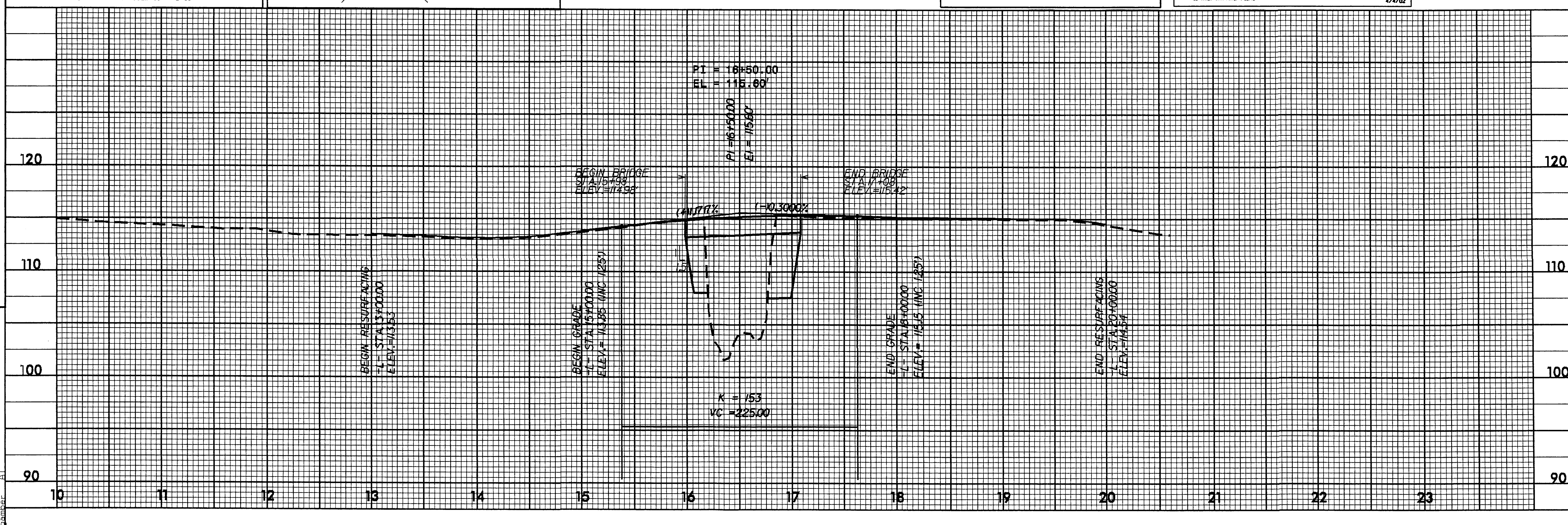
STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2100	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 112.6	FT
BASE DISCHARGE	= 3710	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 114.8	FT
OVERTOPPING DISCHARGE	= 2625	CFS
OVERTOPPING FREQUENCY	= -50	YRS
OVERTOPPING ELEVATION	= 113.2	FT

DETAIL A

PREFORMED SCOUR HOLE





PI = 16+50.00
EL = 115.60'
BEGIN BRIDGE
STA 15+98
ELEV = 114.98'
END BRIDGE
STA 17+08
ELEV = 115.42
K = 153
VC = 225.00
BEGIN RESURFACING
-L- STA 13+00.00
BEGIN GRADE
-L- STA 15+00.00
END GRADE
-L- STA 18+00.00
END RESURFACING
-L- STA 20+00.00
120
110
100
90
10
11
12
13
14
15
16
17
18
19
20
21
22
23

REVISIONS

09-JUN-2003 10:10
W:\PROJECTS\Susie's\B3712\Design\Work\B3712.dsn