STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

April 21, 2004

U. S. Army Corps of Engineers
Regulatory Branch
Post Office Box 1890
Wilmington, NC 28402-1890

ATTENTION: Mr. David Timpy
NCDOT Coordinator

Dear Sir:

SUBJECT: **Nationwide Permit Application 23** for the proposed replacement of Bridge No. 40 over Squires Run on SR 1308 in Onslow County, Division 3. Federal Aid No. BRSTP-1308 (3), State Project No. 8.2261301; WBS Element 33324.1.1; TIP No. B-3884.

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 40 over Squire Run on SR 1308 in Onslow County. The 70 foot existing bridge will be replaced with a longer bridge along the existing horizontal alignment. The proposed bridge replacement will be a spanning structure, thereby eliminating piers in the stream channel. The proposed bridge is approximately 131 feet in length and will facilitate the removal of a total of 65 feet (215 cubic yards) of the old causeway from the end bents of existing structure to the end bents of the new bridge. During construction, traffic will be detoured along existing area roads. Please find enclosed copies of the Categorical Exclusion (CE) Document, permit drawings, and design plan sheets.

PROPOSED IMPACTS

Hand Clearing Activities in Wetlands

Wetlands associated with Squires Run (DWQ Index No. 19-3) Class C NSW will be impacted by the proposed project. The proposed project is considered to be in public trust waters and shoreline and the wetlands are non-coastal. Construction of the proposed project will result in 0.01 acre of hand clearing in wetlands. Clearing will be performed using chain saws and then pulling out trees, no grubbing is proposed. Therefore, these

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

TELEPHONE: 919-715-1500
FAX: 919-715-1501

WEBSITE: www. NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

impacts will not be jurisdictional. The hand clearing in the wetland has been reduced to maximum of 5 feet beyond the construction limits. There will be no construction impacts since Bridge No. 40 will be replaced using top down construction and the pile installation method. To restore navigational clearance, the existing and remnant timber piles will be cut 1 foot below streambed and removed.

Restoration Plan

Upon completion of the new bridge, the area outside of wetland will be graded to adjacent topography and revegetated. The 0.01 acres of temporary impacts for the wetlands are expected to naturally recover while the area at both ends of bridge will be graded to adjacent topography and revegetated.

Removal and Disposal Plan

The old causeway will be removed during construction and placed offsite at an upland location. The contractor will be required to submit a reclamation plan for removal of and disposal of all material off-site at an upland location.

Bridge Demolition

Dropping any portion of the structure into waters of the United States will be avoided unless there is no other practical method of removal. During removal of Bridge No. 40, the bridge rails will be removed without dropping them into waters of the United States. There is potential for components of the deck and interior bents to be dropped into waters of the United States, resulting in a temporary fill of approximately 20 cubic yards. NCDOT's Best Management Practices for Bridge Demolition and Removal will be followed.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of February 25, 2003, the United States Fish and Wildlife Service lists thirteen federally protected species for Onslow County. Of these species, the American alligator (*Alligator mississippiensis*) is listed threatened, due to similarity in appearance, and is not subject to Section 7 consultation. The list includes the twelve original species mentioned in the CE and the West Indian manatee (*Trichechus manatus*). There is potential habitat for the manatee at this project location, but it is unlikely that a manatee will be encountered. However, NCDOT will commit to adhering to the Fish and Wildlife Service Guidelines for Avoiding Impacts to the West Indian Manatee (see attached Guidelines). A biological conclusion of "May Affect, but Not Likely to Adversely Affect" has been rendered for the West Indian manatee. A letter of the concurrence has been received from the FWS on February 18, 2004 (see attached letter). Biological conclusions documented in the CE for the eleven remaining species of "No Effect" given based on the absence of habitat within the project area remain valid. Since the publication of the CE in which we agreed to an anadromous fish moratorium, the North Carolina Wildlife Resource Commission (Fritz Rhode) has stated that no moratorium is required.

REGULATORY APPROVALS

Proposed project activities are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR § 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002). We anticipate a 401 General Certification number 3403 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Division of Water Quality for their review.

In a separate application, NCDOT is requesting a Coastal Area Management Act Major Permit for this project from the North Carolina Division of Coastal Management. Copies of this application as well as the CAMA application will be posted on our website at the following address: (http://www.ncdot.org/planning/pe/naturalunit/Permit.html).

Thank you for your assistance with this project. If you have any questions or need additional information please call Ms. Deanna Riffey at (919) 715-1409.

Sincerely,

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

GJT/drr

Cc:

w/attachment

Mr. John Hennessy, DWQ (2 copies)
Mr. Gary Jordan, USFWS
Mr. Travis Wilson, NCWRC
Ms. Cathy Brittingham, NCDCM
Mr. Bill Arrington, NCDCM
Mr. Greg Perfetti, P.E., Structure Design

w/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Allen Pope, Division 3 Engineer
Mr. Mason Herndon, Division Environmental Officer
Ms. Stacey Baldwin, P.E., PDEA Project Engineer
Mr. David Franklin, USACE, Wilmington (Cover Letter Only)

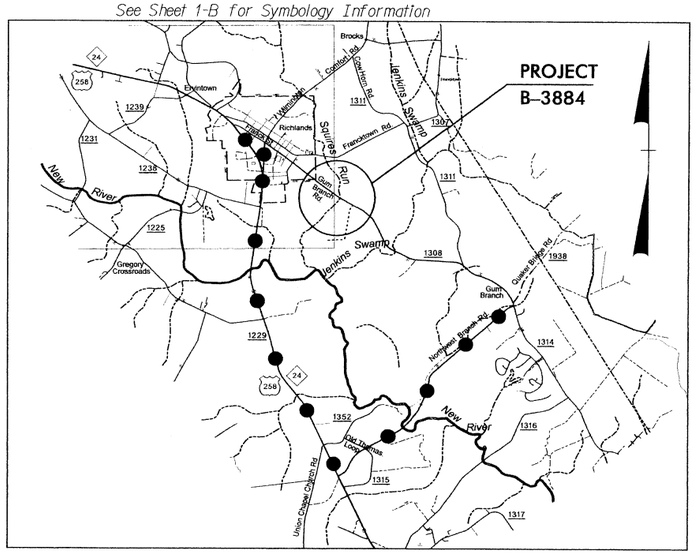
B-3884

PROJECT: 8.2261303

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3884	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
8.2261301	BRSTP-1308(3)	PE/UTIL
8.2261302	BRSTP-1308(3)	R/W
8.2261303	BRSTP-1308(3)	CONST

See Sheet 1-A For Index of Sheets
See Sheet 1-B for Symbology Information



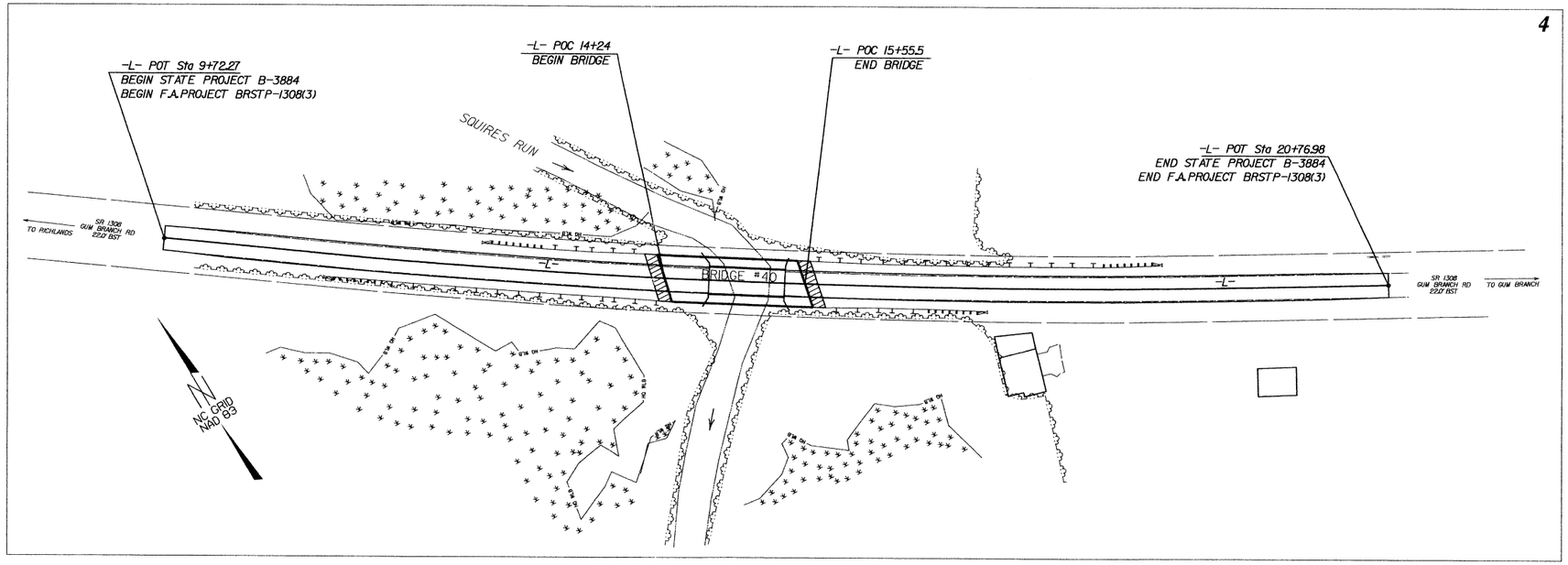
VICINITY MAP
OFFSITE DETOUR ROUTE ●——●——●

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW COUNTY

LOCATION: BRIDGE NO. 40 AND APPROACHES OVER SQUIRES RUN ON SR 1308

TYPE OF WORK: PAVEMENT, GRADING, STRUCTURES, DRAINAGE, AND GUARDRAIL



THIS PROJECT DOES NOT LIE WITHIN THE RICHLANDS CITY LIMITS.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2003 = 8,500
ADT 2023 = 12,400
DHV = 12 %
D = 60 %
T = 3 % *
V = 60 MPH

* TTST 1% DUAL 2%

PROJECT LENGTH

LENGTH OF ROADWAY F.A. PROJECT BRSTP-1308(3) = 0.184 MILE
LENGTH OF STRUCTURE F.A. PROJECT BRSTP-1308(3) = 0.025 MILE
LENGTH OF STATE PROJECT 8.2661303 = 0.209 MILE

NCDOT CONTACT:

CATHY HOUSER, PE
PROJECT ENGINEER - DESIGN SERVICES

Prepared for NCDOT In the Office of:
CH ENGINEERING, PLLC
4601 LAKE BOONE TRAIL, RALEIGH, NC 27607

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 29, 2002

LETTING DATE:
AUGUST 19, 2003

THOMAS R. HEPLER, PE
PROJECT ENGINEER

CAROLYN E. KESLER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3884	1B

*S.U.E = SUBSURFACE UTILITY ENGINEER

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

- Edge of Pavement
- Curb
- Prop. Slope Stakes Cut — C
- Prop. Slope Stakes Fill — F
- Prop. Woven Wire Fence
- Prop. Chain Link Fence
- Prop. Barbed Wire Fence
- Prop. Wheelchair Ramp — WCR
- Curb Cut for Future Wheelchair Ramp — CCFR
- Exist. Guardrail
- Prop. Guardrail
- Equality Symbol
- Pavement Removal

RIGHT OF WAY

- Baseline Control Point
- Existing Right of Way Marker
- Exist. Right of Way Line w/Marker
- Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
- Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
- Exist. Control of Access Line — CA
- Prop. Control of Access Line — CA
- Exist. Easement Line — E
- Prop. Temp. Construction Easement Line — E
- Prop. Temp. Drainage Easement Line — TDE
- Prop. Perm. Drainage Easement Line — PDE

HYDROLOGY

- Stream or Body of Water
- River Basin Buffer — BZ
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Shoreline
- Falls, Rapids
- Prop Lateral, Tail, Head Ditches — FLOW

STRUCTURES

MAJOR

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

MINOR

- Head & End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Boxes — CB
- Paved Ditch Gutter

UTILITIES

- Exist. Pole
- Exist. Power Pole
- Prop. Power Pole
- Exist. Telephone Pole
- Prop. Telephone Pole
- Exist. Joint Use Pole
- Prop. Joint Use Pole
- Telephone Pedestal — T
- U/G Telephone Cable Hand Hold — HH
- Cable TV Pedestal — C
- U/G TV Cable Hand Hold — HH
- U/G Power Cable Hand Hold — HH
- Hydrant
- Satellite Dish
- Exist. Water Valve
- Sewer Clean Out
- Power Manhole — P
- Telephone Booth
- Cellular Telephone Tower
- Water Manhole — W
- Light Pole
- H-Frame Pole
- Power Line Tower
- Pole with Base
- Gas Valve
- Gas Meter
- Telephone Manhole — T
- Power Transformer
- Sanitary Sewer Manhole — S
- Storm Sewer Manhole
- Tank; Water, Gas, Oil
- Water Tank With Legs
- Traffic Signal Junction Box — S
- Fiber Optic Splice Box — F
- Television or Radio Tower
- Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement — TS TS

- Recorded Water Line — W W
- Designated Water Line (S.U.E.*) — W W
- Sanitary Sewer — SS SS
- Recorded Sanitary Sewer Force Main — FSS FSS
- Designated Sanitary Sewer Force Main(S.U.E.*) — FSS FSS
- Recorded Gas Line — G G
- Designated Gas Line (S.U.E.*) — G G
- Storm Sewer — S S
- Recorded Power Line — P P
- Designated Power Line (S.U.E.*) — P P
- Recorded Telephone Cable — T T
- Designated Telephone Cable (S.U.E.*) — T T
- Recorded U/G Telephone Conduit — TC TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC TC
- Unknown Utility (S.U.E.*) — ?UTL ?UTL
- Recorded Television Cable — TV TV
- Designated Television Cable (S.U.E.*) — TV TV
- Recorded Fiber Optics Cable — FO FO
- Designated Fiber Optics Cable (S.U.E.*) — FO FO
- Exist. Water Meter
- U/G Test Hole (S.U.E.*)
- Abandoned According to U/G Record — ATTUR
- End of Information — E.O.I.

BOUNDARIES & PROPERTIES

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Property Line Symbol — PL
- Exist. Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Property Number — 123
- Parcel Number — 6
- Fence Line — WW & ISBW
- Existing Wetland Boundaries — WLB
- High Quality Wetland Boundary — HQ WLB
- Medium Quality Wetland Boundaries — MQ WLB
- Low Quality Wetland Boundaries — LQ WLB
- Proposed Wetland Boundaries — WLB
- Existing Endangered Animal Boundaries — EAB
- Existing Endangered Plant Boundaries — EPB

BUILDINGS & OTHER CULTURE

- Buildings
- Foundations
- Area Outline
- Gate
- Gas Pump Vent or U/G Tank Cap
- Church
- School
- Park
- Cemetery
- Dam
- Sign — S
- Well — W
- Small Mine
- Swimming Pool

TOPOGRAPHY

- Loose Surface
- Hard Surface
- Change in Road Surface
- Curb
- Right of Way Symbol — R/W
- Guard Post — GP
- Paved Walk
- Bridge
- Box Culvert or Tunnel
- Ferry
- Culvert
- Footbridge
- Trail, Footpath
- Light House

VEGETATION

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

RAILROADS

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

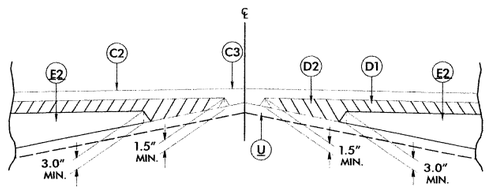
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-3884	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

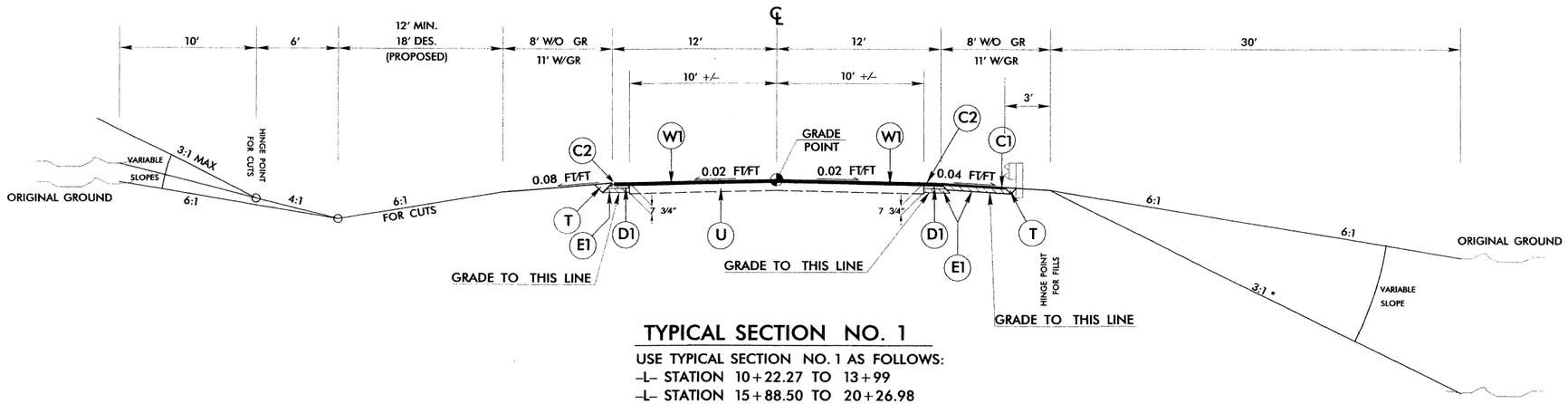
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD.	E2	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" AND NO GREATER THAN 5½" IN DEPTH.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	U	EXISTING PAVEMENT.
C3	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH PLACED IN LAYERS NOT TO EXCEED 1½"	T	EARTH MATERIAL.
D1	PROP. APPROX. 2¼" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 256.5 LBS. PER SQ. YD.	W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
D2	PROP. VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD PER 1" DEPTH PLACED IN LAYERS NOT LESS THAN 1½" AND GREATER THAN 3".		
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.		

NOTE: PAVEMENT SLOPES ARE 1:1 UNLESS OTHERWISE NOTED



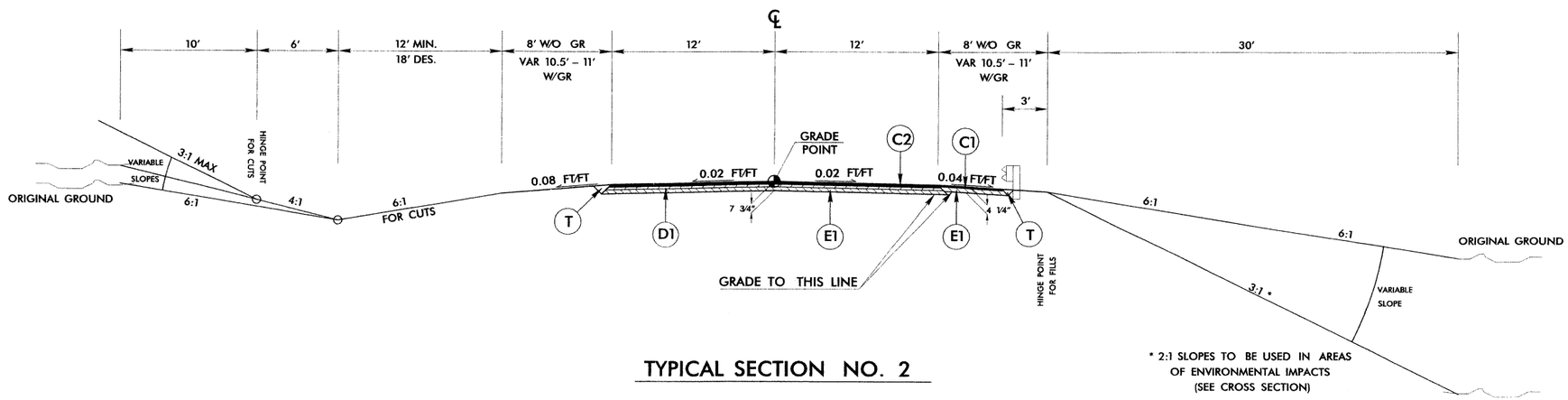
Detail Showing Method of Wedging (W1)



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
–L– STATION 10+22.27 TO 13+99
–L– STATION 15+88.50 TO 20+26.98
TRANSITION FROM EXISTING TO T.S. NO.1 9+72.27 TO 10+22.27
TRANSITION FROM T.S. NO. 1 TO EXISTING 20+26.98 TO 20+76.98

* 2:1 SLOPES TO BE USED IN AREAS OF ENVIRONMENTAL IMPACTS (SEE CROSS SECTION)



TYPICAL SECTION NO. 2

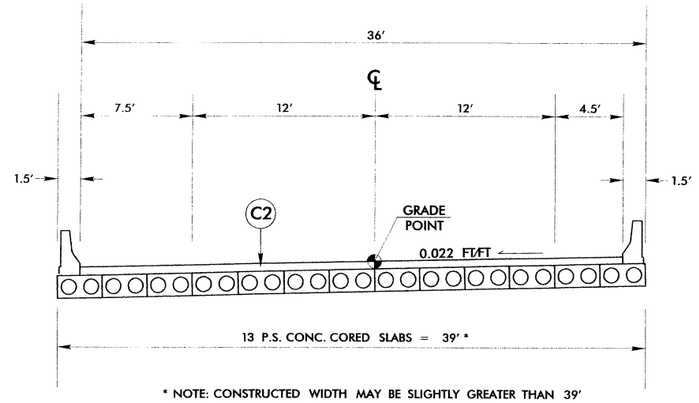
USE TYPICAL SECTION NO. 2 AS FOLLOWS:
–L– STATION 13+99 TO 14+24 (BEGIN BRIDGE)
–L– 15+51.5 (END BRIDGE) TO 15+88.50

* 2:1 SLOPES TO BE USED IN AREAS OF ENVIRONMENTAL IMPACTS (SEE CROSS SECTION)

5/28/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-3884	2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



* NOTE: CONSTRUCTED WIDTH MAY BE SLIGHTLY GREATER THAN 39' DUE TO PRECAST DIMENSION AND JOINTS. WIDTH DEVIATION SHALL BE ACCOUNTED FOR IN THE SHOULDER.

TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:
–L– STATION 14+24 (BEG BRIDGE) TO –L– STATION 15+55.5 (END BRIDGE)

ABBREVIATED PAVEMENT SCHEDULE	
C1	PROP. 1¼" TYPE S9.5B
C2	PROP. 2½" TYPE S9.5B
C3	PROP. VAR. DEPTH TYPE S9.5B
D1	PROP.2¼" TYPE I19.0B
D2	PROP. VAR. DEPTH TYPE I19.0B
E1	PROP. 3" TYPE B25.0B
E2	PROP. VAR. DEPTH TYPE B25.0B
J1	PROP. 4" AGGREGATE BASE COURSE
U	EXISTING PAVEMENT.
T	EARTH MATERIAL.
W1	PROP. VAR. DEPTH ASPHALT PAVING.

NOTE: PAVEMENT SLOPES ARE 1:1 UNLESS OTHERWISE NOTED

6/21/0

COMPUTED BY: CER	DATE: 2-13-03
CHECKED BY: TRH	DATE: 2-13-03

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-3884	3-A

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	CONST. EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.
1	LEE MILLS EST.	266.79 AC	–	183.04 AC	83.75 AC	10,961.9 SF	1469.6 SF	–
2	WILLIAM CUMMINGS EST.	31.56 AC	0.36 AC	14.10 AC	17.10 AC	4,413.0 SF	–	–
3	ELMER J. AND MINNIE E. CUMMINGS	1.98 AC	0.19 AC	1.79 AC	–	553.8 SF	–	–

SUMMARY OF QUANTITIES

SUMMARY					SUMMARY				
DESC.NO.	SECT.NO.	QUANTITY	UNIT	ITEM DESCRIPTION	DESC.NO.	SECT.NO.	QUANTITY	UNIT	ITEM DESCRIPTION

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		D.I. STD. 840.14 OR STD. 840.35	D.I. FRAME & GRATE STD. 840.22	M.D.I. TYPE "A" STD. 840.17 OR 840.26	M.D.I. TYPE "B" STD. 840.18 OR 840.27	M.D.I. TYPE "D" STD. 840.19 OR 840.28	M.D.I. FRAME WITH GRATE STD. 840.22	M.D.I. FRAME WITH TWO GRATES STD. 840.22	M.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	TBDI STD. 840.35	FRAME & NARROW SLOT FLAT GRATE STD. 840.29							CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
13+95	LT	2	1			21.50	N		4'																									1																		1	1											T.B.D.I.
13+95	LT	1	3		21.30	21.10	N		53'																									1																		1	1											
15+75	LT	4	5		22.63	20.59	N		53'																									1																		1	1											T.B.D.I.
TOTAL									110																									3																		3	3											

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
M.D.I.	MEDIAN DROP INLET
M.D.I. (N.S.)	MEDIAN DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUCTION BOX

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	III	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
L	11+18.31	14+18.31	RT	300	–	–	BRIDGE	–	8	11	50'	–	1	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–
L	12+67.65	14+05.15	LT	137.5	–	–	–	BRIDGE	8	11	–	50'	–	1	–	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–
L	15+73.16	17+10.66	RT	137.5	–	–	–	BRIDGE	8	10	–	50'	–	1	–	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–
L	15+60.12	18+60.12	LT	300	–	–	BRIDGE	–	8	11	50'	–	1	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–
			SUBTOTAL	875										SUBTOTAL			4		4											
		MINUS 4	GRAU-350 @ 50' EA	200																										
		MINUS 4	TYPE III @ 18.75' EA	75																										
			TOTAL	600																										

ADDITIONAL GUARDRAIL POSTS 5 EACH

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

\CDOT\b3884\DATASHEET.dgn 03/24/2003 02:06:13 PM

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3884-2" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 418514.098(ft) EASTING: 2439360.630(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998980983
THE NC LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3884-2" TO -L- STATION 9+72.27 IS S 54°34'49.6" E 752.16'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

REVISIONS

8/17/99

DETAIL C
SPECIAL LATERAL "V" DITCH
(Not to Scale)

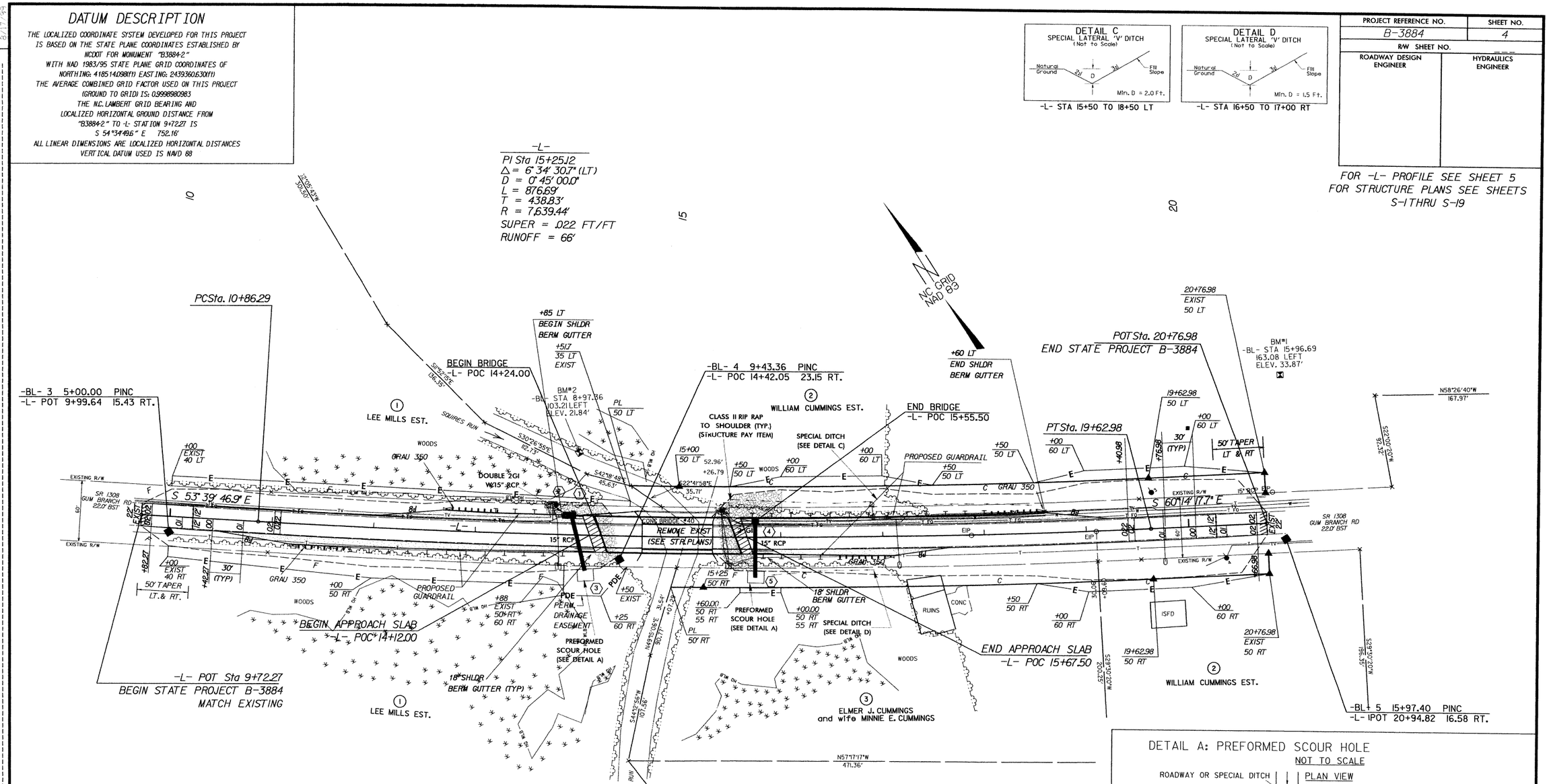
-L- STA 15+50 TO 18+50 LT

DETAIL D
SPECIAL LATERAL "V" DITCH
(Not to Scale)

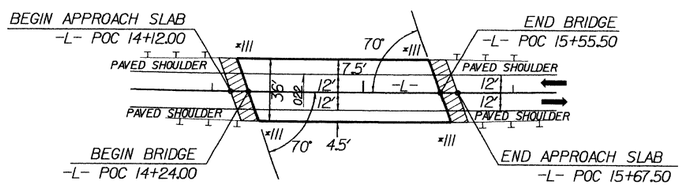
-L- STA 16+50 TO 17+00 RT

PROJECT REFERENCE NO.	SHEET NO.
B-3884	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

FOR -L- PROFILE SEE SHEET 5
FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S-19

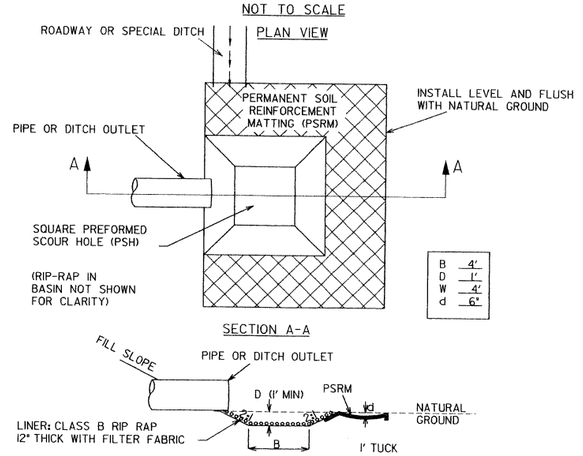


BRIDGE DETAIL SHOWING
PAVEMENT - BRIDGE RELATIONSHIP



* GUARDRAIL ANCHOR TYPE REQUIRED

DETAIL A: PREFORMED SCOUR HOLE
NOT TO SCALE



PROJECT REFERENCE NO.	SHEET NO.
B-3884	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STRUCTURE HYDRAULIC DATA:

DRAINAGE AREA	= 20.31 SQ MI
DESIGN DISCHARGE	= 1,900 CFS
DESIGN HW FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 23.7 FT
BASE DISCHARGE	= 3,090 CFS
BASE HW ELEVATION	= 25.0 FT
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING DISCHARGE	= 3,240 CFS
OVERTOPPING ELEVATION	= 46.8 FT
BASE WATERWAY OPENING (EX)	= 447 SF
BASE WATERWAY OPENING (PR)	= 608 SF

WHITE OAK RIVER BASIN

BM #2
N 417,902.5025
E 2,440,361.7177
ELEV 21.84'
RR SPIKE SET IN 24" CYPRESS
-BL- STA 8+97.4
105.2' LT

BM #1
N 417,598.0
E 2,440,982.6
ELEV 33.87'
RR SPIKE SET IN POWER POLE
-BL- STA 15+96.7
165.1' LT

PI = 13+75.00
EL = 25.15'
K = 179
VC = 75'
DS = 60 MPH

BEGIN BRIDGE
14+24.00

END BRIDGE
15+55.50

PI = 17+00.00
EL = 26.13'
K = 170
VC = 200'
DS = 60 MPH

FEATHER TO EXISTING
10'

FEATHER TO EXISTING
10'

-L- STA 9+82.27
BEGIN GRADE
ELEV = 25.62

(-)0.200%
(+)0.300%
(-)0.300%
24.5%
16.5%
(+)1.478%

BEGIN SPECIAL DITCH LT 15+50
ELEV. 26.25

BEGIN SPECIAL DITCH RT 15+75
ELEV. 26.59

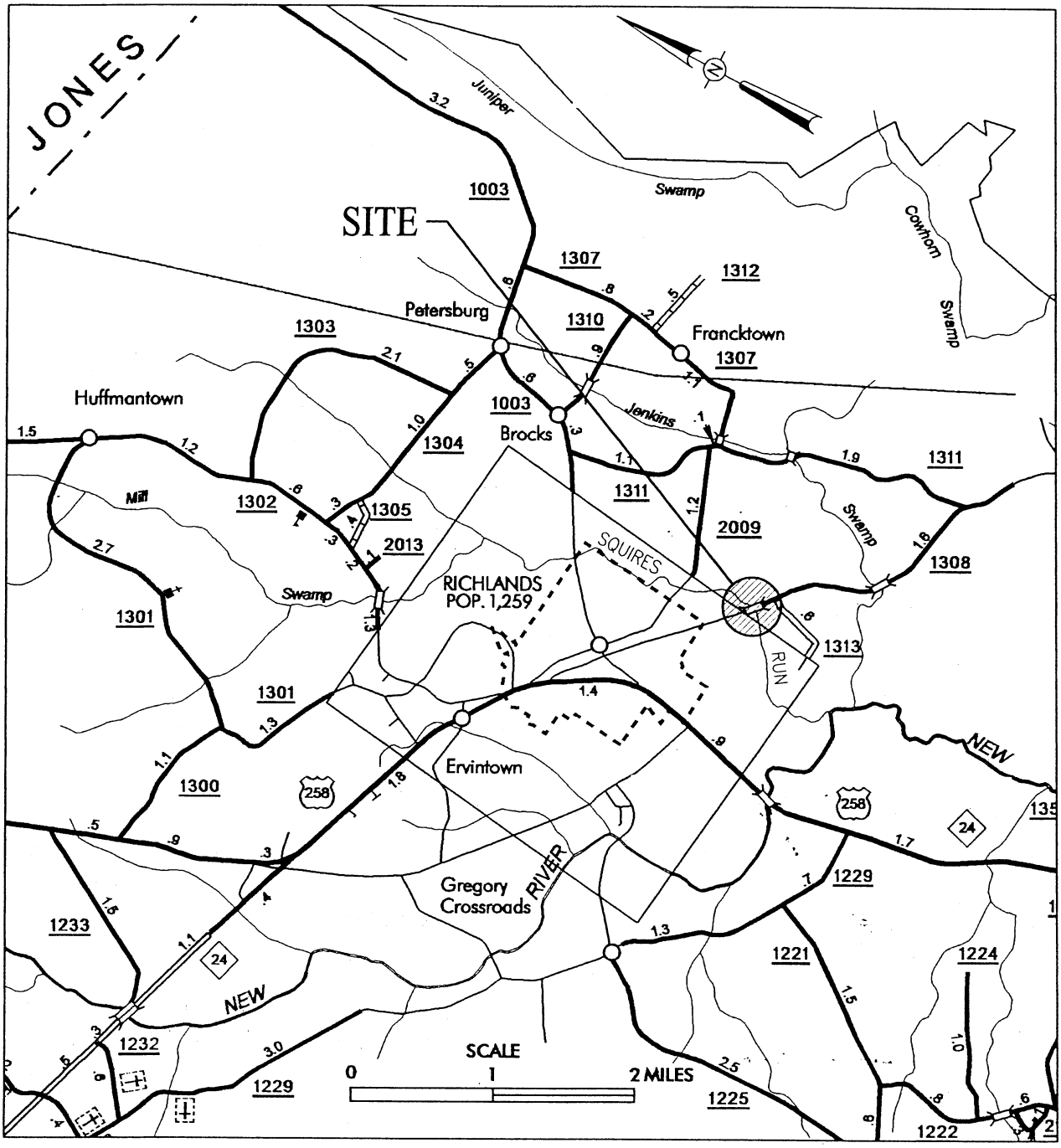
END SPECIAL DITCH RT 17+00
ELEV 28.90

END SPECIAL DITCH LT 16+50
ELEV 25.20

-L- STA 20+66.98
END GRADE
ELEV 31.55

40
30
20
10
0

10 11 12 13 14 15 16 17 18 19 20



VICINITY MAP

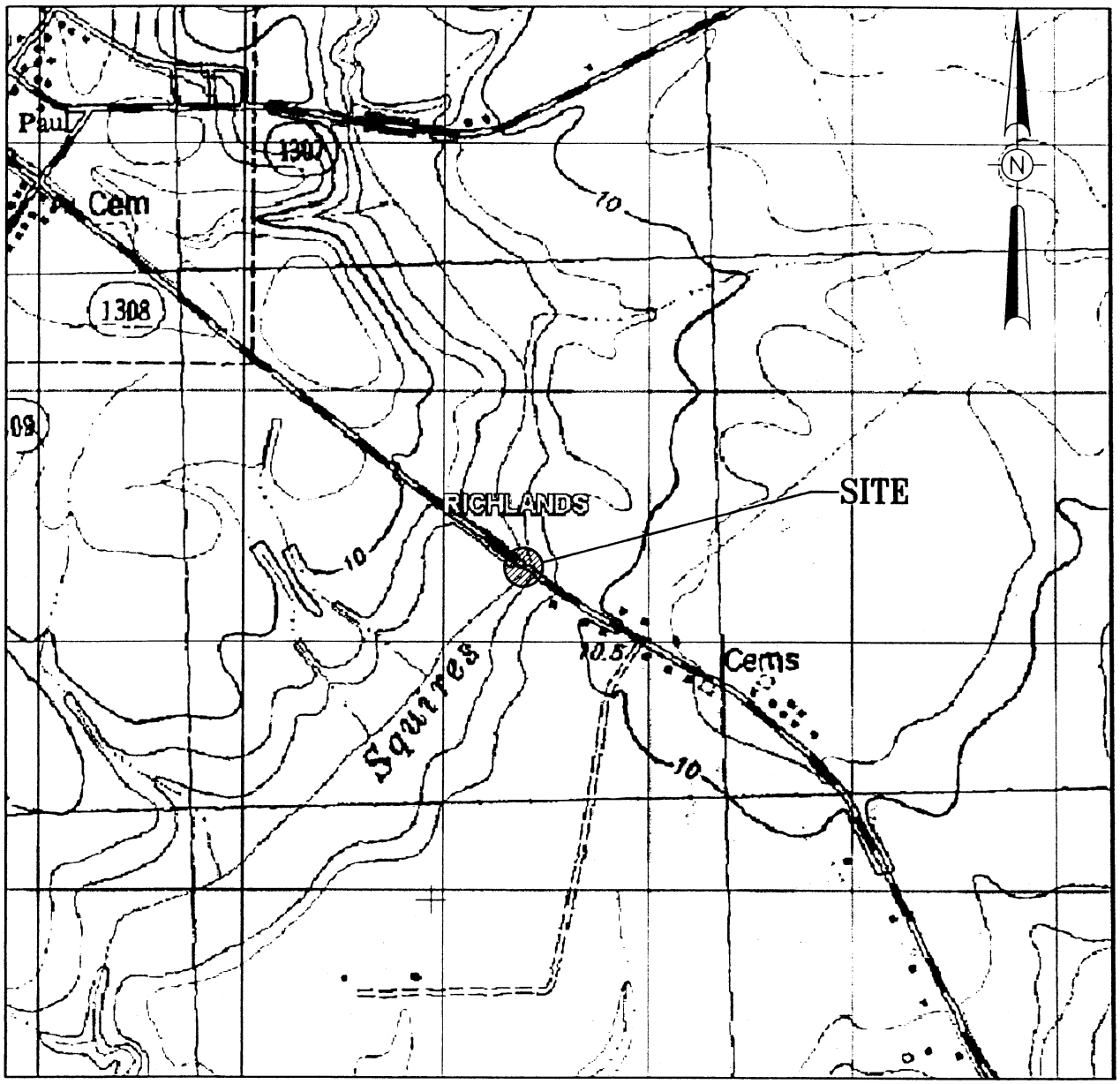
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

ONSLOW COUNTY

PROJECT: 8.2261301 (B-3884)
REPLACE BRIDGE #40 ON SR 1308
OVER SQUIRES RUN

SHEET 1 OF 7

3264



SITE MAP

0 2,500 5,000

(IN FEET)
1 inch = 5,000 ft.

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

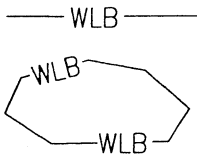
ONSLOW COUNTY

PROJECT: 8.2261301 (B-3884)
REPLACE BRIDGE #40 ON SR 1308
OVER SQUIRES RUN

SHEET 2 OF 7

3/2/04

LEGEND



WETLAND BOUNDARY

WETLAND

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

DENOTES FILL IN SURFACE WATER (POND)

DENOTES TEMPORARY FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TOP OF BANK

EDGE OF WATER

PROP. LIMIT OF CUT

PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NATURAL GROUND

PROPERTY LINE

TEMP. DRAINAGE EASEMENT

PERMANENT DRAINAGE EASEMENT

EXIST. ENDANGERED ANIMAL BOUNDARY

EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

CORE FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

ROOTWAD

RIP RAP

ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

PREFORMED SCOUR HOLE

LEVEL SPREADER (LS)

DITCH / GRASS SWALE

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

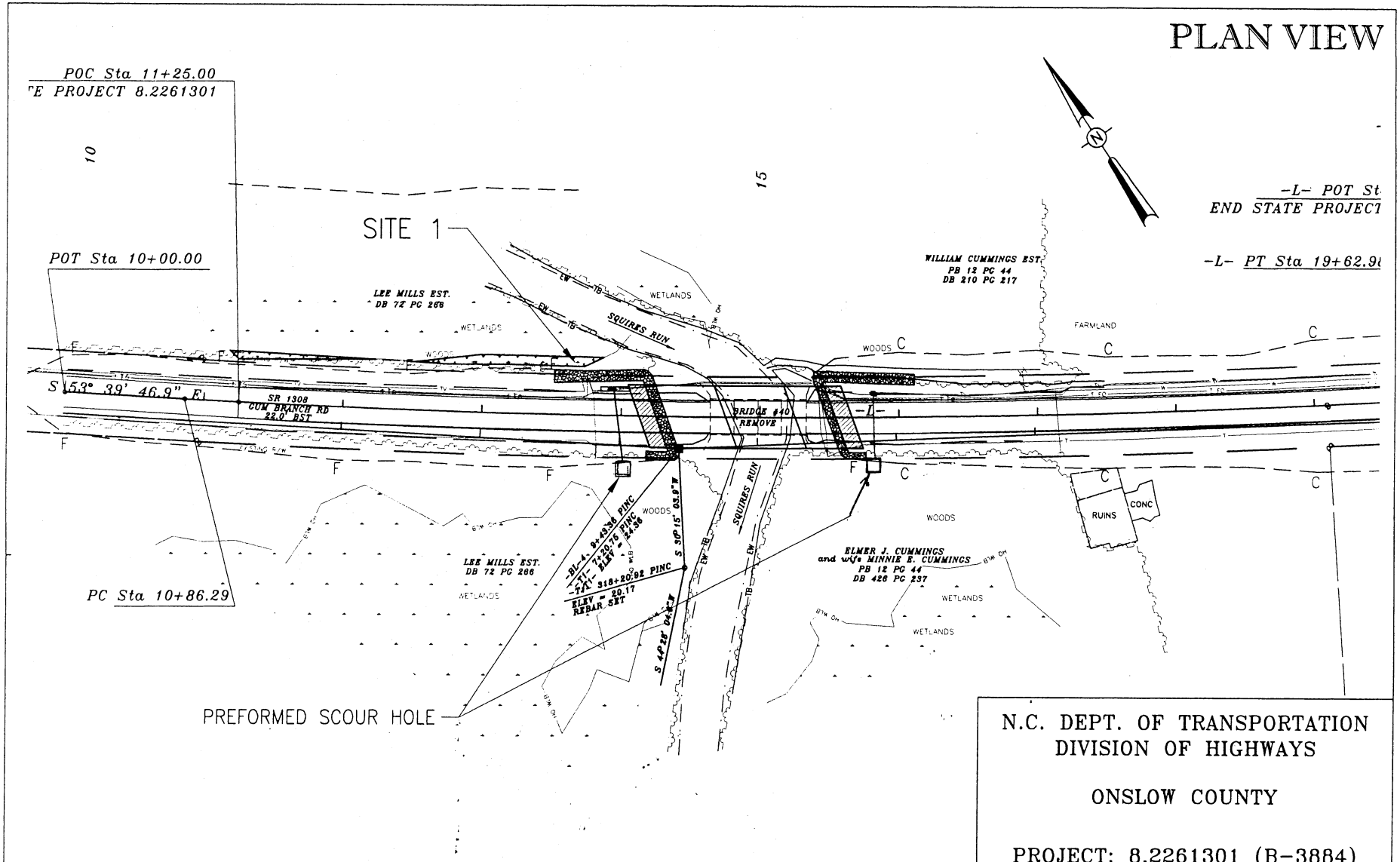
ONSLOW COUNTY

PROJECT: 8.2261301 (B-3884)
REPLACE BRIDGE #40 ON SR 1308
OVER SQUIRES RUN

SHEET 3 OF 7

3/2/04

PLAN VIEW



DENOTES MECHANIZED CLEARING IN WETLANDS

SCALE 1" = 100'

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

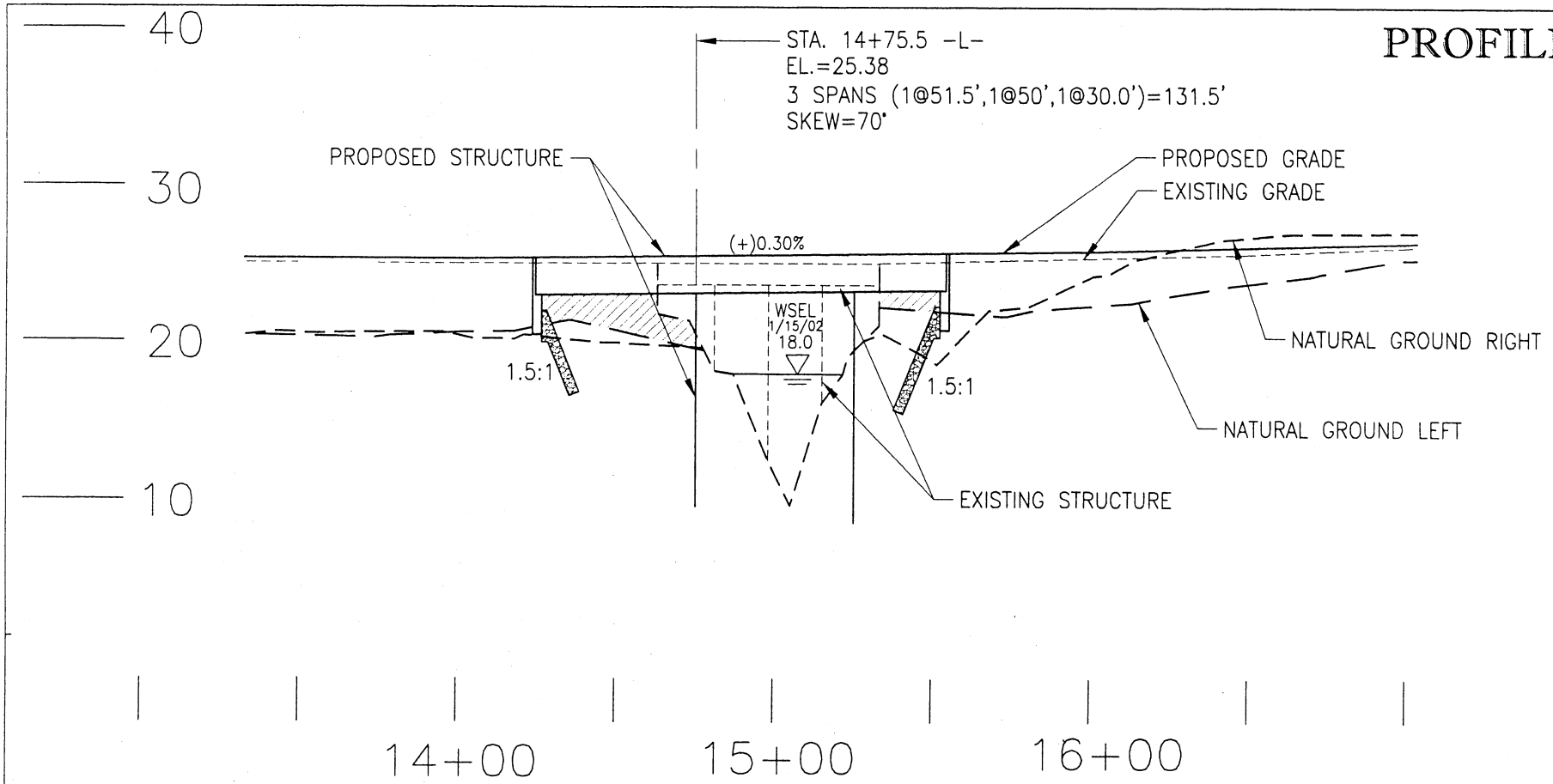
ONSLOW COUNTY

PROJECT: 8.2261301 (B-3884)
REPLACE BRIDGE #40 ON SR 1308
OVER SQUIRES RUN

SHEET 4 OF 7

3/2/04

PROFILE



25 0 50' HORIZONTAL SCALE

5' 0 10' VERTICAL SCALE

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

ONSLOW COUNTY

PROJECT: 8.2261301 (B-3884)
REPLACE BRIDGE #40 ON SR 1308
OVER SQUIRES RUN

SHEET 5 OF 7 3/2/04

PROPERTY OWNERS

SITE	NAME	ADDRESS
1	LEE MILLS EST.	6778 WYSE FORK RD DOVER, N.C. 28526
2	WILLIAM CUMMINGS EST.	C/O ROSA LEE CUMMINGS 9515 RAINBOW FOREST DR. CHARLOTTE, N.C. 28277
2	ELMER J. CUMMINGS	1023 E VANCE ST WILSON, N.C. 27893

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

ONSLOW COUNTY

PROJECT: 8.2261301 (B-3884)
REPLACE BRIDGE #40 ON SR 1308
OVER SQUIRES RUN

SHEET 6 OF 7 3/2/04

IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS						BUFFER IMPACTS		
Site No.	Station (From/To)	Structure Size	Fill In Wetlands (acre)	Temp. Fill In Wetlands (acre)	Excavation In Wetlands (acre)	Hand Clearing (Method III) (acre)	Fill In SW (Natural) (acre)	Fill In SW (Pond) (acre)	Temp. Fill In SW (acre)	Existing Channel Impacted (ft)	Relocated Channel (ft)	Enclosed Channel (ft)	Zone 1 (acre)	Zone 2 (acre)	Mech. Clear (acre)
1	11+16-13+87	-	-	-	-	0.012	-	-	-	-	-	-	-	-	-
TOTALS			0	0	0	0.12	0	0	0	0	0	0	0	0	0

NOTE:

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

ONSLOW COUNTY

PROJECT: 8.2261301 (B-3884)
REPLACE BRIDGE #40 ON SR 1308
OVER SQUIRES RUN

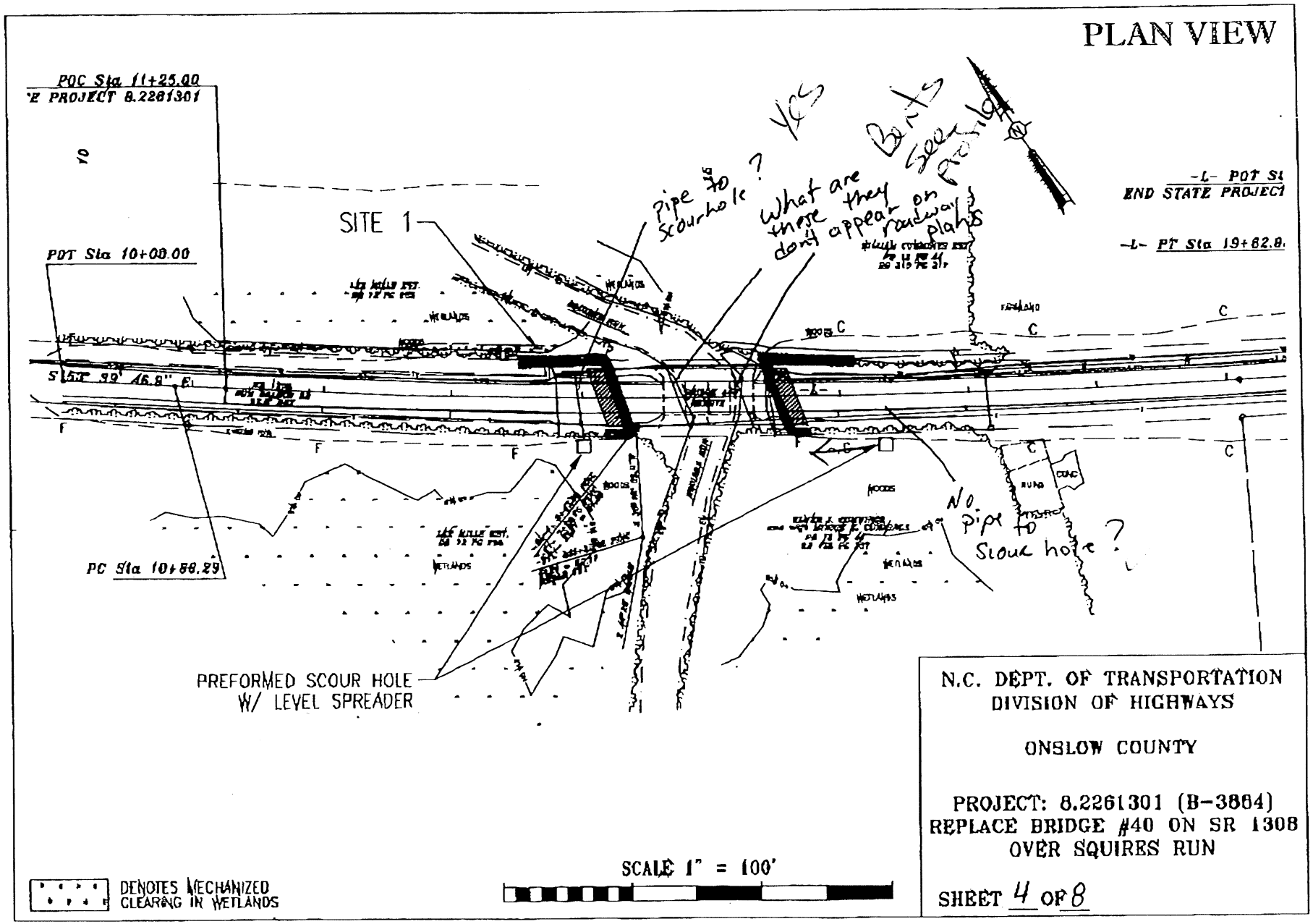
SHEET 7 OF 7 3/2/04

50-4108

TO: ANN Gamber

B-3884

Questions



Onslow County

SR 1308 (Gum Branch Road)

Replace Bridge No. 40 Over Squires Run

Federal-Aid Project No. BRSTP-1308(3)

State Project No. 8.2261301

T.I.P. No. B-3884

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

12·3·01
DATE

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

12-03-01
DATE

for _____
Nicholas L. Graf, P.E.
Division Administrator, FHWA

Onslow County

SR 1308 (Gum Branch Road)

Replace Bridge No. 40 Over Squires Run

Federal-Aid Project No. BRSTP-1308(3)

State Project No. 8.2261301

T.I.P. No. B-3884

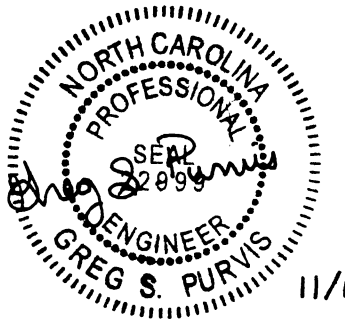
CATEGORICAL EXCLUSION

November 2001

Document Prepared by:
Wang Engineering Company, Inc.

Greg S. Purvis, P.E.
Project Manager

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



11/15/01

For the North Carolina Department of Transportation

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

PROJECT COMMITMENTS

Onslow County
SR 1308
Replace Bridge No. 40 Over Squires Run
Federal-Aid Project No. BRSTP-1308(3)
State Project No. 8.2261301
T.I.P. No. B-3884

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.

A moratorium for no in-stream work or discharges into the river will be in effect from February 15 to June 15, to protect anadromous fish during spawning.

Onslow County
SR 1308
Replace Bridge No. 40 Over Squires Run
Federal-Aid Project No. BRSTP-1308(3)
State Project No. 8.2261301
T.I.P. No. B-3884

INTRODUCTION: The replacement of Bridge No. 40 is included in the 2002-2008 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (T.I.P.) 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 16.8 out of a possible 100 for a new structure. The bridge is considered functionally obsolete and structurally deficient. The replacement of an inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

SR 1308 (Gum Branch Road) is classified as a rural major collector. Land use in the project area is primarily woodland, farmland, and residential.

Bridge No. 40 was constructed in 1964. The existing structure is 70 feet (21.0 meters) in length, consisting of four spans with the maximum span at approximately 18 feet (5.4 meters). The clear roadway width is 26 feet (7.8 meters), providing two ten-foot (three meters) travel lanes with three-foot (0.90 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 17 feet (5.1 meters). The posted weight limit is 18 tons (16.3 metric tons) for single vehicles (SV) and 26 tons (23.6 metric tons) for truck-tractors semi-trailers (TTST).

Bridge No. 40 is in a 0.75 degree (2,328.5 meter radius) curve that starts approximately 240 feet (72 meters) from the west end and ends approximately 480 feet (144 meters) from the east end of the existing structure. The approach roadway for SR 1308 consists of two ten-foot (three meter) lanes with six foot (1.8 meters) grass shoulders.

The estimated 2001 average daily traffic volume is 8,100 vehicles per day (vpd). The projected traffic volume is expected to increase to 12,800 vpd by the design year 2025. The volume includes 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)].

SR 1308 is not part of a designated bicycle route and there are no indications that an unusual number of bicyclists are using this route.

Underground utilities consist of fiber optic, telephone, and cable TV on the north side of

SR 1308. The telephone line goes aerial over Squires Run. A county water line approaches from the east and ends approximately 100-feet (30.0 meters) north of the structure. Utility impacts are anticipated to be low.

There were seven accidents reported for the three-year period of January 1, 1997 to December 1, 1999.

Fourteen school buses cross this bridge twice daily.

III. ALTERNATIVES

A. Project Description

The proposed structure will provide a 39-foot (11.7 meter) clear roadway width to allow for two 12-foot (3.6 meter) travel lanes with 7.5-foot (2.25 meter) shoulders. The proposed approach roadways will consist of two 12-foot (3.6 meter) travel lanes and eight foot (2.4 meter) shoulders, including four foot (1.2 meter) paved shoulders. The design speed will be 60 mph [100 km/h].

Based on a preliminary hydraulic analysis, Bridge No. 40 will be replaced at the existing location with a cored slab bridge approximately 85-feet (25.5 meters) in length. The opening size of the proposed structure 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 route along SR 1314 (Northwest Bridge Rd.) and NC 24/US 258 approximately 7.5 miles (12.1 kilometers) in length. The length of approach work will be approximately 402 feet (120.6 meters) on the west side of the bridge and approximately 404 feet (121.2 meters) on the east side of the bridge. The right-of-way width is 80 feet (24 meters).

Alternate C replaces the bridge at the existing location. During construction, traffic would be maintained by a temporary on-site detour with a temporary detour structure. The length of approach work will be approximately 460 feet (138 meters) on the west side of the bridge and approximately 457 feet (137.11 meters) on the east side of the bridge. The right-of-way width is 80 feet (24 meters). Alternate C has comparatively higher environmental impacts and construction costs.

C. Alternatives Eliminated From Further Study

Alternate B replaces the bridge at the existing location. During construction, traffic will be maintained by a temporary on-site detour with a temporary pipe culvert. The length of approach work will be approximately 476 feet (142.8 meters) on the west side of the bridge and approximately 449 feet (134.7 meters) on the east side of the bridge. The

right-of-way width is 80 feet (24 meters). Alternate B was eliminated because pipe culverts on the detour are not permissible in high quality wetlands.

Alternate D replaces the bridge on new alignment downstream of the existing structure. During construction, traffic would be maintained on the existing structure. The length of approach work will be approximately 806 feet (241.8 meters) on the west side of the bridge and approximately 836 feet (250.8 meters) on the east side of the bridge. The right-of-way width is 80 feet (24 meters). Alternate D was eliminated because of its additional curvature to the alignment and due to its increased wetland impacts. One relocatee is anticipated.

The "Do-Nothing" Alternative will eventually necessitate removal of the bridge. This is not desirable due to the traffic service provided by SR 1308.

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 replaces the bridge at the existing location with a new structure, while maintaining traffic during construction with an off-site detour route approximately 7.5 miles (12.1 kilometers) in length. Alternate A was selected as the preferred alternate because the wetland and stream impacts, project duration, and construction cost are less than Alternate C.

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 C**
Structure Removal (existing)	**$ 14,600**	$ 14,600
Structure (proposed)	**270,000**	270,000
Detour Structure and Approaches	**0**	289,900
Roadway Approaches	**139,800**	159,100
Miscellaneous and Mobilization	**145,600**	251,400
Engineering and Contingencies	**80,000**	165,000
ROW/Const. Easements/Utilities:	**22,800**	25,200
TOTAL	**$672,800**	$1,175,200

The estimated cost of the project, as shown in the 2002-2008 Transportation Improvement Program, is $660,000 including $60,000 for right-of-way and $600,000 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 (Richlands, NC 7.5 minute quadrangle, 1981), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping (USFWS NWI 1994), and project plans.

Bridge No. 40 was visited on December 4, 2000. The study corridor was walked and visually surveyed for significant features. For purposes of field surveys, the study corridor was assumed to be approximately 900-feet (270.0 meters) in length for Alternate A and 1000-feet (300.0 meters) in length for Alternate C. The corridor width is 100-feet (30.0 meters) from centerline to the north of SR 1308 and 150-feet (45.0 meters) from centerline to the south of SR 1308 for both alternatives to ensure proper coverage. Plant community area and wetland area calculations are based on right-of-way boundaries for permanent impacts and construction easements for temporary impacts; jurisdictional area calculations for impacts on streams are based on approximate bridge and stream widths. Actual impacts will be limited to construction limits and are expected to be less than those shown for the right-of-way width of 80 feet (24.0 meters). Special concerns evaluated in the field include 1) potential habitat for protected species and 2) wetlands and water quality protection in Squires Run.

Plant community descriptions are based on a classification system utilized by 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 adjustments made to reflect more current nomenclature (Kartesz 1998). Jurisdictional areas were evaluated using the three-parameter approach following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Wetland 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 (Webster *et al.* 1985, Potter *et al.* 1980, Martof *et al.* 1980, Rohde *et al.* 1994, Menhinick 1991, Palmer and Braswell 1995). Fish and wildlife nomenclature follow current standards. Water quality information for area streams and tributaries was derived from available sources (DWQ 1997a, 1997b). Quantitative sampling was not undertaken to support existing data.

B. Physiography and Soils

The study corridor is located in the Wicomico and Talbot System geologic formation within the Lower Coastal Plain physiographic province of North Carolina. This system is characterized by broad, gently undulating to nearly flat plains and the more distinct topography of barrier island systems and beach ridges. Tributaries of the major streams slope gently from their headwaters to their mouths. Valley slopes are a minor part of the landscape except near major streams as they approach the coastal estuaries. Most streams are only a few yards (meters) below the uplands. Soil systems are dominated by marine sediments, which have formed fine- and coarse-loamy soils of siliceous sand mineralogy. Soils are more than five feet (1.5 meters) thick and are somewhat poorly to poorly drained (Daniels *et al.* 1999). The study corridor is located within the floodplain of Squires Run.

Within the study corridor, the floodplain is shallow and flat. Elevations rise from approximately four feet (1.2 meters) National Geodetic Vertical Datum (NGVD) at streamside to ten feet (three meters) NGVD at the western extreme of the study corridor (USGS Princeton, NC quadrangle).

The Natural Resources Conservation Service (USDA 1992) indicates the following soils within the study corridor: Muckalee loam (coarse-loamy, siliceous, nonacid, thermic *Typic Fluvaquents*), adjacent to and including the riverbed; Norfolk fine sandy loam (fine-loamy. siliceous, thermic *Typic Paleudults*) to the east of the river channel; and Craven fine sandy loam (clayey, mixed, thermic, *Aquic Hapludults*) to the west of the river channel.

The Muckalee series consists of very deep, poorly drained soils on low floodplains, with slopes of zero to two percent. These soils formed in moderately coarse textured recent alluvium. The loamy material is at least 72 inches (180.0 centimeters) deep, with a strongly acid A horizon to approximately ten inches (25.0 centimeters), underlain by an acid to moderately alkaline C horizon.

The Norfolk series consists of well-drained soils on uplands, formed in moderately fine textured sediments. Slopes are typically from zero to six percent. They contain sandy and loamy A, E, and B horizons to a depth of 60 inches (150.0 centimeters) or more. These soils are very strongly to strongly acid throughout the pedon. In the Lower Coastal Plain, the Norfolk series has recently been renamed as the Noboco series, based on slightly higher amounts of active clays typical of soils in this region (Daniels *et al.* 1999).

The Craven series is a moderately well drained series found in uplands. They formed from fine textured marine sediments, with slopes of one to eight percent. They consist of A, B, and C horizons that are very strongly to strongly acid. (USDA 1992).

Of the predominant soil map units in the study corridor, the Natural Resources Conservation Service lists only the Muckalee series as hydric. In addition, the Craven series has hydric soil inclusions of Muckalee soils in narrow drainageways. These hydric soils are saturated or flooded for very long to substantial periods during the growing season, and support woody vegetation under natural conditions (USDA 1996).

Construction of a temporary detour along either side of existing SR 1308 is feasible. No substantial settlement problems due to consolidation of underlying soil are anticipated along the detour. However, placement of soil stabilization fabric probably will be required along the majority of the approaches in order to reestablish the natural ground elevation when the detour embankment is removed.

C. WATER RESOURCES

1. Surface Waters

The study corridor is located within sub-basin 03-05-02 (New River and Tributaries) of the White Oak River Basin (DWQ 1997b). This area is part of USGS accounting unit 03030001 of the South Atlantic-Gulf Coast Region. The drainage area at the project site is approximately 20.3 square miles (52.6 square kilometers). The section of Squires Run crossed by the subject bridge has been assigned Stream Index Number 19-3 by the N.C. Division of Water Quality (DWQ 1997a).

2. Stream Characteristics

Squires Run, approximately ten miles (16.1 kilometers) above Jacksonville, is a third-order blackwater stream in the non-estuarine portion of the New River sub-basin. Above Jacksonville, the New River watershed is characterized by gum-cypress swamps with upland areas used primarily for forestry and agriculture. Within the study corridor, Squires Run is moderately broad and deep, exhibiting moderate sinuosity and no noticeable riffle and pool sequence. Width of the stream was approximately 45 feet (13.5 meters) at the point of the bridge crossing. During the field survey, water depths along the study corridor varied from six to seven feet (1.8 to 2.1 meters). The water level was high, with at most six inches (15.0 centimeters) of unvegetated riverbank above the water surface, and flow was moderate. Persistent emergent aquatic vegetation was not observed. A few clumps of dock (*Rumex* sp.) were observed as emergent herbs along the stream banks, but it is assumed that these are temporary and opportunistic colonizations. The stream was moderately turbid during the field visit, with visibility to approximately 24 inches (60.0 centimeters). The substrate is composed of fine sediments underlain by firm sandy or mineral soil. The stream banks are composed of fine textured soil as they rise gently to the level, sandy to loamy floodplain.

The floodplain contains small stream swamp forest, as well as more disturbed and developed areas. Four areas of hydric soils were located: on the north side of SR 1308, on both sides of Squires Run as it curves to the west; and on the south side of the road on each side of the stream, from 30 to 100 feet (nine to 30.0 meters) away from the road.

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 NSW** has been assigned to Squires Run. The designation **C** denotes water supply waters that are suitable for aquatic life propagation and protection, agriculture, and secondary recreation. Secondary recreation refers to wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis. The supplementary classification **NSW** denotes nutrient sensitive waters, which need additional nutrient management because they are subject to excessive growth of microscopic and macroscopic vegetation (DWQ 1997b). No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters occur within one mile (1.6 kilometers) of the study corridor.

The Division of Water Quality (DWQ) has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed study corridor is summarized in the White Oak River basin management plan. Water quality samples in the freshwater part of the New River sub-basin in 1995 indicated **Good-Fair** water based on macroinvertebrate samples, and **Good** ecological health based on fish samples. Fish tissue samples taken near the mouth of Squires Run in 1995 resulted in a **Fair-Good** rating. The freshwater portion of the New River watershed has been monitored and sampled at four locations and has a use support rating of fully supporting in 35 percent of its reaches. An additional 44 percent is rated as support threatened, nine percent as partially supporting, and 12 percent of its stream miles were not evaluated. The White Oak sub-basin 03-05-02, containing the entire New River catchment from its headwaters to its confluence with the Atlantic Ocean at New River Inlet, supports major point-source discharges from the Jacksonville/Wilson

Bay WWTP, with 4.46 million gallons per day (MGD) (16.9 million liters per day [MLD]) permitted flow. Four more major discharges originate from the US Marine Corps operation at Camp Lejeune, totaling 11.85 MGD (44.9 MLD). No major dischargers are located upstream of Jacksonville. There are 33 minor discharges, none upstream of the study site or in Squires Run, with a total permitted flow of 3.67 MGD (13.9 MLD). Nonpoint source pollution is a major consideration in the New River drainage, which contains 61 registered swine operations. In Onslow County, manure production generates values for phosphate, zinc, and copper that are all in excess of 100 percent of the nutrient requirements of crops in the county (DWQ 1997b).

The New River, upstream of the US 17 Bridge, has been designated as an inland primary nursery area by the NC Wildlife Resources Commission. This designation makes this area eligible for designation as **HQW** (High Quality Waters), a classification that is currently pending internal review. **HQW** is a supplemental classification for waters that require advanced treatment for new or expanded discharges, in addition to stormwater control requirements (DWQ 1997b).

3. Anticipated Impacts

a) Impacts Related to Water Resources

The two proposed project alternatives include bridging of Squires Run to maintain the current water quality, aquatic habitat, and flow regime. Temporary construction impacts due to erosion and sedimentation 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. In addition, in order to protect water quality, deck drains from the proposed bridge will not be allowed to discharge directly into the water.

In each of the two alternatives, the proposed bridge replacement will allow for continuation of pre-project stream flows in Squires Run, thereby protecting the integrity of this waterway. Long-term impacts resulting from construction are expected to be negligible. 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. During removal of the existing bridge, the bridge rails will be removed without dropping them into waters of the United States. There is potential for components of the deck and interior bents to be dropped into waters of the United States, resulting in a temporary fill of approximately 20 cubic yards (15.3 cubic meters). NCDOT's Best Management Practices for Bridge Demolition and Removal (BMP-BDR) will be applied during 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 15) 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 study corridor: Coastal Plain Small Stream Swamp (Blackwater Subtype); urban/disturbed land; and agricultural areas. These plant communities are described below.

a) Coastal Plain Small Stream Swamp (Blackwater Subtype)

Coastal Plain Small Stream Swamp forest occurs on the low floodplain east and west of Squires Run. To the east, it is bordered by an agricultural cotton field north of SR 1308 and by residential lots to the south of the road. To the west, the forest extends outside of the study corridor. This community is described by Schafale and Weakley (1990) as occurring in floodplains of small, blackwater streams in which separate fluvial features and associated vegetation are too small or poorly developed to be distinguished. The ecological differences between different fluvial landforms are reduced, causing a highly variable mixture of the species associated with larger river floodplains. The small, blackwater streams have highly variable flooding regimes, and soils are various alluvial or organic series, most typically Muckalee. At the Squires Run study corridor, the canopy is dominated by bald cypress (*Taxodium distichum*), various oaks including swamp chestnut oak (*Quercus michauxii*), water oak (*Q. nigra*), laurel oak (*Q. laurifolia*), green ash (*Fraxinus pennsylvanica*), and red maple (*Acer rubrum*). The canopy also includes scattered loblolly pine (*Pinus taeda*), blackgum (*Nyssa sylvatica*), sweetgum (*Liquidambar styraciflua*), northern red oak (*Q. rubra*), and tulip poplar (*Liriodendron tulipifera*). The midstory and shrub layer are well-developed in patches of the study corridor where gap openings occur

as a result of hurricane damage. Included are Chinese privet (*Ligustrum sinense*), red maple, blackberry (*Rubus argutus*), boxelder (*Acer negundo*), elderberry (*Sambucus canadensis*), black willow (*Salix nigra*), and wax myrtle (*Myrica cerifera*), with musclewood (*Carpinus caroliniana*), Virginia-willow (*Itea virginica*), and black haw (*Viburnum prunifolium*) common in less disturbed areas. Vines are sparse to common in more open patches, including muscadine (*Vitis rotundifolia*), Japanese honeysuckle (*Lonicera japonica*), Carolina jessamine (*Gelsemium sempervirens*), cross vine (*Bignonia capreolata*), morning glory (*Ipomoea* sp.), and greenbrier (*Smilax rotundifolia*). The understory is sparse, and includes netted chain-fern (*Woodwardia areolata*), dock (*Rumex crispus*), and frost aster (*Aster pilosus*) in more open areas.

b) Urban/Disturbed Land

Urban/disturbed land occurs along the right-of-way of SR 1308, and at a residential lot and old home site in the east side of the study corridor. The roadside area is approximately ten feet (three meters) wide. The roadside margin is sparsely planted with bluegrass (*Poa* sp.) and fescue (*Festuca* sp.). Maintained lawns are also cloaked with planted and naturally occurring grasses. In areas that are not mowed, volunteer species include boxelder, Chinese privet, green ash, elderberry, blackberry, mulberry (*Morus rubra*), and devil's walkingstick (*Aralia spinosa*) in the shrub layer. Herbs include goldenrod (*Solidago* sp.), broomsedge (*Andropogon virginicus*), and verbena (*Verbena bonariensis*).

c) Agricultural Land

An active agricultural field planted in cotton borders the Coastal Plain Small Stream Swamp in the northeast quadrant of the study corridor. This area is buffered from Squires Run by 150 to 300 feet (45.0 to 90.0 meters) of naturally vegetated land, and is not expected to contribute substantial amounts of agricultural nutrients or sediment to the river flow.

d) Plant Communities within the Study Corridor

For Alternates A and C, Plant community areas are estimated based on the amount of each plant community present within the projected right-of-way. Impacts from widening of the existing roadway right-of-way and from construction of temporary detours are considered. The right of way width for this project is 80 feet (24.0 meters) Temporary impacts are calculated from proposed construction easements plus portions of the present bridge and roadway footprint that would be removed and replanted after construction is complete. A summary of potential impacts to individual plant communities at Bridge No. 40 for Alternates A and C are presented in Table 1.

Table 1
Estimated Area Of Potential Impacts
Acres (Hectares)

Alternate		Plant Community			
		Coastal Plain Small Stream Swamp	Urban/ Disturbed Land	Agricultural Land	**TOTAL:**
A	Widening	0.55 (0.22)	0.39 (0.16)	0.12 (0.05)	1.06 (0.43)
C	Widening	0.65 (0.26)	0.50 (0.20)	0.15 (0.06)	1.30 (0.53)
	Detour	0.59 (0.24)	0.16 (0.06)	0	0.75 (0.31)
	Total	1.24 (0.50)	0.66 (0.27)	0.15 (0.06)	2.05 (0.83)

Alternate A involves replacement of the bridge in place, with an off-site detour. Impacts due to widening of the right-of-way are limited to proposed construction widths of 80 feet (24.0 meters). Of the potentially impacted 1.06 acre (0.43 hectare), 52 percent consists of natural communities. Impacts to plant communities are less for Alternate A than for the other Alternate because the off-site detour produces no additional temporary impacts.

Alternate C calls for a temporary detour south (downstream) of Bridge No. 40 with a temporary bridge constructed over Squires Run. Impacts to plant communities resulting from widening of the right-of-way in Alternate C are greater to those in Alternate A. Approximately 60 percent of the total affected area will impact Coastal Plain Small Stream Swamp, with 40 percent affecting the urban and agricultural communities. After completion of the bridge replacement, the temporary detour, including fill, roadbed, and bridge construction, will be removed and the affected area replanted.

From an ecological perspective, impacts of upgrading existing road facilities, called for in Alternate A, are minimal. No new fragmentation of plant communities will be created, as the project will result only in relocation of community boundaries. Alternate C may only claim narrow strips of adjacent natural communities, and may require at least temporary incursion into Coastal Plain Small Stream Swamp, resulting in the removal of a few mature trees. However, on completion of roadway improvements, the temporary detour will be removed and natural communities will be restored.

Roadside-forest ecotones typically serve as vectors for invasive species into local natural communities. An example of an undesirable invasive species utilizing roadsides is kudzu (*Pueria lobata*). The establishment of a hardy groundcover on road shoulders as soon as practicable will limit the availability of construction areas to invasive and undesirable plants.

2. Wildlife

a) Terrestrial

A marsh rabbit (*Sylvilagus palustris*) was observed during the field survey. Tracks of raccoon (*Procyon lotor*) and opossum (*Didelphis virginiana*), as well as signs of beaver (*Castor canadensis*), were noted within the study corridor. Some characteristic mammals that are expected to frequent small swamps in the Lower Coastal Plain include star-nosed mole (*Condylura cristata*), evening bat (*Nycticeius humeralis*), southern flying squirrel (*Glaucomys volans*), cotton mouse (*Peromyscus gossypinus*), gray fox (*Urocyon cinereoargenteus*), and mink (*Mustela vision*).

Bird species that were identified during the field survey are northern flicker (*Colaptes auratus*), red-headed woodpecker (*Melanerpes erythrocephalus*), yellow-bellied sapsucker (*Sphyrapicus varius*), red-shouldered hawk (*Buteo lineatus*), several turkey vultures (*Cathartes aura*), Carolina chickadee (*Poecile carolinensis*), northern cardinal (*Cardinalis cardinalis*), and blue jay (*Cyanocitta cristata*). The streamside habitat might be expected to also support other species, including wood duck (*Aix sponsa*), great blue heron (*Ardea herodias*), American woodcock (*Scolopax minor*), barred owl (*Strix varia*), belted kingfisher (*Megaceryle alcyon*), tufted titmouse (*Baeolophus bicolor*), white-breasted nuthatch (*Sitta carolinensis*), gray catbird (*Dumetella carolinensis*), white-eyed vireo (*Vireo griseus*), yellow-rumped warbler (*Dendroica coronata*), and white-throated sparrow (*Zonotrichia albicollis*).

No terrestrial reptile or amphibian species were observed within the study corridor. Species that might be expected in this habitat are Fowler's toad (*Bufo woodhousei*), northern cricket frog (*Acris gryllus*), five-lined skink (*Eumeces fasciatus*), ringneck snake (*Diadophis punctatus*), rat snake (*Elaphe obsoleta*), rough green snake (*Opheidrys aestivus*), and eastern ribbon snake (*Thamnophis sauritus*).

b) Aquatic

No aquatic amphibian or reptile was observed during the field survey. Squires Run provides suitable habitat for aquatic and semi-aquatic reptiles including eastern musk turtle (*Sternotherus odoratus*), Florida cooter (*Chrysemys floridana*), spotted turtle (*Clemmys guttata*), redbelly water snake (*Nerodia erythrogaster*), and mud snake (*Farancia abacura*). Typical amphibian species for this habitat type include greater siren (*Siren lacertina*), dwarf mudpuppy (*Necturus punctatus*), marbled salamander (*Ambystoma opacum*), southern dusky salamander (*Desmognathus auriculatus*), mud salamander (*Pseudotriton montanus*), eastern spadefoot toad (*Scaphiopus holbrooki*), barking treefrog (*Hyla gratiosa*), and Brimley's chorus frog (*Pseudacris brimleyi*). No mollusks or arthropods were observed, but many crayfish chimneys were found in the study corridor.

No sampling was undertaken in Squires Run to determine fishery potential. Small minnows were seen during visual surveys, but no larger fish were noted. Species which may be present in Squires Run include bowfin (*Amia calva*), American eel (*Anguilla rostrata*), redfin pickerel (*Esox americanus*), creek chubsucker (*Erimyzon oblongus*), tadpole madtom (*Noturus gyrinus*), pirate perch (*Aphredoderus sayanus*), eastern mosquitofish (*Gambusia holbrooki*), striped bass (*Morone saxatilis*), bluespotted sunfish (*Enneacanthus gloriosus*), warmouth (*Lepomis gulosus*),

largemouth bass (*Micropterus salmoides*), and tessellated darter (*Etheostoma olmstedi*).

Since the project is in the Coastal Plain and includes the crossing of a stream delineated on the most recent USGS 7.5 minute topographic quadrangle, anadromous fish passage should be considered in the timing of any proposed in-stream activities associated with bridge replacement. Squires Run is a tributary to the New River, so there is a possibility of shortnose sturgeon among other more common, anadromous species. Design and scheduling of bridge replacement should avoid the necessity of in-stream activities during the spring migration period (February 15 to June 15).

c) Anticipated Impacts to Wildlife

Due to the limited extent of infringement on natural communities, the proposed bridge replacement will not result in substantial loss or displacement of known terrestrial animal populations. No substantial habitat fragmentation is expected since most permanent improvements will be restricted to or adjoining 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 inconsequential for Alternate A, with longer recovery periods expected for Alternate C. After removal of temporary bridge structures and associated fill, the area will be replanted. For Alternates A and C, potential impacts to down-stream aquatic habitats 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 habitats 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 Squires Run are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR section 328.3). Squires Run can be characterized as a perennial stream system with an unconsolidated bottom of sand and mud.

Wetlands adjacent to Squires Run 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 study corridor contains wetlands that exhibit characteristics of a palustrine, broad-leaved, deciduous forest system that is either temporarily or seasonally flooded (PFO1A, PF01C) (Cowardin *et al.* 1979). Also included in the study corridor are palustrine, broad-leaved deciduous/needle-leaved deciduous, semi permanently flooded wetlands (PF01/02F). These map units correspond to the community described in this report as Coastal Plain Small Stream Swamp habitat. Jurisdictional areas delineated and mapped roughly correspond to the NWI map units. Vegetated wetlands occur on both sides of the river. They do not approach the road, which has been built on an embankment, and

they are somewhat separated from the river channel, possibly by a poorly formed natural levee. Wetland and stream areas and reaches proposed to be affected by Alternates A and C are given in Table 2.

Table 2
Jurisdictional Area Within Right-Of-Way

Alternate		Jurisdictional Type		
		Stream linear distance Feet (meters)	Stream area Acres (hectares)	Wetland area Acres (hectares)
A	Widening	40 (12.0)	0.04 (0.02)	0.04 (0.02)
C	Widening	40 (12.0)	0.04 (0.02)	0.04 (0.02)
	Detour	25 (7.50)	0.03 (0.01)	0.18 (0.07)
	Total	65 (19.50)	0.07 (0.03)	0.72 (0.29)

Notes: For Alternates A and C, impacts result from shading by permanent and temporary bridge structures. Temporary impacts result from construction easements and the existing bridge and roadway footprint to be removed.

Linear distance of "stream" impacted by each alternative is obtained from the width of the bridge (40 feet [12.0 meters]). Stream area is bridge width; times stream width at the point of the bridge (45 feet [13.5 meters]), and describes the amount of stream surface that would be impacted by shading.

Each of the two alternatives results in permanent impacts to approximately 0.04 acre (0.02 hectare) of waters of the United States, due to shading. Additional permanent encroachment beyond design plans will be avoided. Alternate C will create additional impacts from construction of temporary detours.

For both alternatives, there is potential that components of the existing bridge may be dropped into "waters of the United States" during demolition. Twenty cubic yards (15.3 cubic meters) of temporary fill is expected to result from bridge removal. In consideration of surface water impacts, this project can be classified as Case 2, where no in-stream work may occur during moratorium periods (February 15 to June 15) due to anadromous fish migration. In addition, restrictions outlined in Best Management Practices for Protection of Surface Waters and the Best Management Practices for Bridge Demolition and Removal (BMP-BDR) will be followed. NCDOT will coordinate with the various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

2. Permits

The proposed project will occur in one (Onslow) of the 20 counties covered by the Coastal Area Management Act (CAMA). The only AEC within the project corridor is Public Trust Waters. No direct impacts are proposed within Public Trust Waters, and indirect impacts to Public Trust Waters are limited to shading. Therefore, the project will essentially avoid AECs, and N.C. Department of Coastal Management (DCM) will review the project application for consistency with the Coastal Management program. This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. The COE has made available Nationwide Permit (NWP) #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. In addition, since this project is in of the counties covered by the Coastal Area Management Act (CAMA) a State Stormwater Permit may be required.

The National Marine Fisheries Service (Appendix) states that wooded wetlands in the project area provide water quality maintenance functions that are important for the continued production of fishery resources in downstream waters. Therefore, the NMFS recommends that the work not be processed under the Federal CE unless mitigation is provided for any unavoidable wetland losses.

The Coast Guard Authorization Act of 1982 exempts bridge projects from Coast Guard bridge permits when the bridge project crosses nontidal waters which are not used, susceptible to use in their natural condition, or susceptible to use by reasonable improvement as a means to transport interstate commerce. Due to this, this bridge project is exempt, and will not require a Coast Guard Bridge Permit (Appendix).

3. Mitigation

Compensatory mitigation may be required for this project due to the scope and nature of project impacts. Required permits must be obtained from the Division of Water Quality prior to project initiation. Utilization of BMPs will be in effect to minimize impacts. Fill or alteration of streams may require compensatory mitigation in accordance with 15 NCAC 2H .0506(h). Final determination regarding mitigation rests with the COE .

F. Protected Species

1. Federally Protected Species

Species with the federal classification of Endangered, Threatened, or officially Proposed for such listing, 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 which 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). Federally protected species listed for Onslow County (March 22, 2001 FWS list) are listed in Table 3.

Table 3 Federally-Protected Species in Onslow County (March 22, 2001 FWS list)		
Common Name	**Scientific Name**	**Federal Status**
Loggerhead Sea Turtle	*Caretta Caretta*	Threatened
Piping Plover	*Charadrius Melodus*	Threatened
American Alligator	*Alligator mississippiensis*	Threatened (S/A)*
Green Sea Turtle	*Chelonia Mydas*	Threatened
Leatherback Sea Turtle	*Dermochelys Coriacea*	Endangered
Eastern Cougar	*Felis Concolor Cougar*	Endangered
Bald Eagle	*Haliaeetus leucocephalus*	Threatened (Proposed for delisting)
Red-Cockaded Woodpecker	*Picoides Borealis*	Endangered
Seabeach Amaranth	*Amaranthus Pumilus*	*Threatened*
Golden Sedge	*Carex Lutea*	*Proposed endangered*
Rough-Leaved Loosestrife	*Lysimachia Asperulaefolia*	*Endangered*
Cooley's Meadowrue	*Thalictrum Cooleyi*	*Endangered*

*Threatened due to similarity of appearance

Loggerhead sea turtle

The loggerhead sea turtle is the most common sea turtle on the coast of the Carolinas. This species averages 31 to 47 inches (77.5 to 117.5 centimeters) in length and weighs from 170 to 500 pounds (77 to 227 kilograms) (Martof *et al.* 1980). The loggerhead is basically temperate or subtropical in nature, and is primarily oceanic, but may also be found in estuarine bays, sounds, and large coastal rivers. This species occurs along the coast of North Carolina from late April to October. Preferred nesting habitat is ocean beaches, generally south of Cape Lookout. Traditionally, the largest concentration of loggerhead nests each year is on Smith Island, at the mouth of the Cape Fear River (Palmer and Braswell 1995).

Although the study corridor lies within a coastal county, it is located approximately 28 miles (45.1 kilometers) from the ocean on a freshwater, nontidal tributary of the New River. NHP records do not document loggerhead sea turtles within five miles (eight kilometers) of the study corridor, and none were observed during the site visit.

BIOLOGICAL CONCLUSION: No suitable habitat exists at the study corridor for loggerhead sea turtles. Based on site surveys, NHP records, and professional judgement, the proposed project will produce **NO EFFECT**.

Piping plover

Piping plovers are the smallest of the plovers found in the Carolinas, measuring only six to eight inches (15 to 20 centimeters) in length (Golder and Parnell 1987). This species is characterized by a white head and back and white breast and belly, yellow legs, narrow black neck band and a narrow band above the eyes, and a black bill in the winter and yellow and black bill in the summer (Potter *et al.* 1980). These small, Nearctic birds occur along beaches above the high tide line, sand flats at the ends of sand spits and barrier islands, gently sloping fore-dunes, blowout areas behind primary dunes, and wash-over areas cut into or between dunes (Dyer *et al.* 1987). Nests are most often on open, wide, sandy stretches of beach similar to those associated with inlets and capes.

The study site contains no saltwater or beach habitat suitable for piping plovers. NHP records do not document piping plovers within five miles (eight kilometers), and none were observed during the site visit.

> **BIOLOGICAL CONCLUSION:** Based on the habitat needs of piping plovers, NHP records, and professional judgement, the proposed project will produce **NO EFFECT**.

American Alligator

American alligator is listed as Threatened based on Similarity in Appearance to other federal-listed crocodilians; however, there are no other crocodilians within North Carolina. American alligators can be found in a variety of freshwater to estuarine aquatic habitats including swamp forests, marshes, large streams and canals, and ponds and lakes. NHP records indicate that American alligators have not been documented within two miles (3.2 kilometers) of the project corridor.

> **BIOLOGICAL CONCLUSION:** T S/A species are not subject to Section 7 consultation and a biological conclusion is not required.

Green sea turtle

The green sea turtle is a medium to large turtle (30 to 60 inches [75 to 150 centimeters]) long, 220 to 650 pounds [100 to 295 kilograms] in weight) with a smooth, heart-shaped shell (Martof *et al.* 1980). Adults are believed to be primarily herbivorous (including jelly fish) while the young are believed to be primarily carnivorous. The green sea turtle is most commonly found in the Caribbean where it breeds, although individuals, usually immatures, are occasionally found as far north as the North Carolina coast. Green sea turtles occasionally come ashore to bask. Preferred nesting habitat is ocean-fronting beaches.

The study site contains no beach or open ocean habitat suitable for green sea turtles. NHP records do not document green sea turtles within five miles (eight kilometers), and none were observed during the site visit.

> **BIOLOGICAL CONCLUSION:** Based on the site surveys, NHP records, and professional judgement, the proposed project will produce **NO EFFECT**.

Leatherback sea turtle

The leatherback turtle is distinguished by its large size 46 to 70 inches [115 to 175 centimeters] carapace, 650 to 1,500 pounds [295 to 682 kilograms]) and a shell of soft, leathery skin. This species is primarily tropical in nature, but the range may extend to Nova Scotia and Newfoundland (Palmer and Braswell 1995, Martof *et al.* 1980). The leatherback is a powerful swimmer, often seen far from land; however, it sometimes moves into shallow bays, estuaries, and even river mouths. Its preferred food is jellyfish, although the diet includes other sea animals and seaweed. The leatherback generally nests on sandy, tropical beaches.

The study site contains no ocean or beach habitat suitable for leatherback turtles. NHP records do not document any occurrences within five miles (eight kilometers), and none were observed during the site visit.

> **BIOLOGICAL CONCLUSION:** Based on the habitat requirements, NHP records, and professional judgement, the proposed project will produce **NO EFFECT**.

Eastern Cougar

The eastern cougar is a possibly extinct eastern subspecies of the widespread mountain lion species. This species was possibly extirpated from North Carolina by the late 1800s although recent sporadic sightings have been reported from remote areas of the Mountains and Coastal Plain (Lee 1987). Mountain lions are large, long-tailed cats; adult males may measure seven to nine feet (2.1 to 2.7 meters) total length with females averaging 30 to 40 percent smaller (Handley 1991). Adult mountain lion tracks measure approximately 3.5 inches (8.8 centimeters) (Lee 1987). Recent specimens of mountain lion taken in North Carolina and elsewhere in mid-Atlantic states have proved to be individuals of other subspecies that have escaped or been released from captivity (Lee 1987, Handley 1991). The eastern cougar would require large tracts of relatively undisturbed habitat that support large populations of white-tailed deer (Webster *et al.* 1985).

The study corridor is located in a fairly developed area. The town of Richlands lies within one mile (1.6 kilometers) to the east, and the city of Jacksonville is approximately 11 miles (17.7 kilometers) south. A large, undisturbed tract is not available to provide eastern cougar habitat. No signs of eastern cougar were observed within the study corridor, and the NHP documents no occurrences of eastern cougar within five miles (eight kilometers) of the study corridor.

> **BIOLOGICAL CONCLUSION:** No suitable habitat for eastern cougar exists in or near the study corridor. No signs were observed during systematic surveys of the study corridor, and the NHP documents no occurrences. Based on habitat studies, NHP records, and professional judgement, the proposed project will have **NO EFFECT** on eastern cougar.

Bald Eagle

The bald eagle is a large raptor with a wingspan greater than six feet (1.8 meters). Adult bald eagles are dark brown with a white head and tail. Immature eagles are brown with whitish mottling on the tail, belly, and wing linings. Bald eagles typically

feed on fish but may also take birds and small mammals. In the Carolinas, nesting season extends from December through May (Potter *et al.* 1980). Bald eagles typically nest in tall, living trees in a conspicuous perching (Hamel 1992). Disturbance activities within a primary zone extending 750 to 1500 feet (225 to 450 meters) from a nest tree are considered to result in unacceptable conditions for eagles (FWS 1987). The FWS recommends avoiding disturbance activities, including construction and tree-cutting within this primary zone. Within a secondary zone, extending from the primary zone boundary out to a distance of one mile (1.6 kilometers) from a nest tree, construction and land-clearing activities should be restricted to the non-nesting period. The FWS also recommends avoiding alteration of natural shorelines where bald eagles forage, and avoiding significant land-clearing activities within 1500 feet (450 meters) of known roosting sites.

The study corridor contains no large bodies of water that might serve as bald eagle habitat. The nearest lake (Catherine Lake) is approximately 5.3 miles (8.5 kilometers) to the southwest. The New River, where it joins Squires Run one mile (1.6 kilometers) to the south, is a narrow, forested stream similar to Squires Run, with overhanging trees obscuring access to the water surface. Tall, old trees, which might serve as perching sites, do grow, near the stream, but lack of access to open water is probably a key limiting factor at the study corridor. NHP records document no occurrences of bald eagle within five miles (eight kilometers) of the study site, and no eagles were observed during the site visit.

> **BIOLOGICAL CONCLUSION:** The Squires Run study corridor contains no suitable open water habitat for bald eagles. No occurrences have been documented by the NHP, and no eagles were seen during the site survey. Based on these factors and professional judgment, the proposed project will have **NO EFFECT** on bald eagle.

Red-cockaded Woodpecker

This small woodpecker (seven to 8.5 inches [17.5 to 21.2 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, long-leaf (*P. palustris*), slash (*P. elliottii*), 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. The woodpeckers utilize pine stands in close proximity to the colony site for foraging. Foraging areas, depending on the quality of habitat, have been found to range from 84 acres (34 hectares) to over 409 acres (165.5 hectares). Food sources include wood-boring insects, grubs, beetles, corn worms and other invertebrates found within 0.5 miles (0.8 kilometers) of the colony site. Stands preferred by foraging birds are

dominated by pines greater than 30 years of age although mixed pine/hardwood stands are also used.

The study area contains scattered loblolly pine trees, including specimens that are possibly old enough to be cavity tree candidates or foraging areas for red-cockaded woodpeckers. However, the Coastal Plain Small Stream Swamp communities in the study corridor have well-developed shrub and midstory layers, which red-cockaded woodpeckers avoid for both nesting and foraging. No evidence of maintenance burning or mowing was seen in the wooded corridor, and hurricane damage has contributed to very thick growth of shrubs, saplings and vines in scattered areas in the study corridor. According to NHP records, red-cockaded woodpeckers have been documented in Onslow County within the last 20 years, but not within five miles (eight kilometers) of the study corridor. No red-cockaded woodpeckers were observed during the field visit.

BIOLOGICAL CONCLUSION: The study corridor contains no suitable foraging or nesting habitat for red-cockaded woodpeckers. NHP records document no occurrences of red-cockaded woodpeckers within five miles (eight kilometers) of the study corridor. Based on NHP records, field observations, and professional judgement, the impact of this project on the red-cockaded woodpecker is **NO EFFECT**.

Seabeach Amaranth

Seabeach amaranth is a low-growing, fleshy, annual herb with pink stems 3.9 to 23.6 inches (9.8 to 59.0 centimeters). The plant eventually forms a clump from one to Three feet (0.3 to 0.9 meter) across, and may be partially buried by blowing sand. The spatula-shaped, rounded leaves are dark green and range from 0.5 to one inch (1.3 to 2.5 centimeters) in diameter. The leaves are clustered near the end of the stem and are notched apically. Flowers and fruits, present from June to frost, are inconspicuous, and occur along the stem. Seed dispersal is apparently by water and wind. This plant is a pioneer species, primarily found on foredunes and sand spits of Atlantic coast barrier beaches and inlets in areas where periodic overwash eliminates vegetative competition. Some of the largest remaining populations of this species occur in North Carolina (FWS 1996).

Seabeach amaranth has been documented in Onslow County by the NHP within the last 20 years, but not within five miles (eight kilometers) of the study corridor. The Squires Run site is a freshwater, inland site 28.0 miles (45.1 kilometers) from the ocean, and contains no bare, open sandy habitat suitable for this seaside annual with poor competitive abilities. Dispersal by wind or water cannot be expected to be effective in establishing this species at this inland site. Although seaside amaranth would be withered and undetectable at the time of the site survey, well after the first few frosts, habitat restrictions for this species are believed to be conclusive.

BIOLOGICAL CONCLUSION: Suitable habitat does not exist within or near the study corridor for Seabeach amaranth. NHP records do not document the occurrence of this species within five miles (eight kilometers) of the study corridor. Based on habitat needs, NHP records, and professional judgement, effects on the proposed bridgework will have **NO EFFECT**.

Golden Sedge

Golden sedge is a tall, slender, yellowish green perennial of the sedge family. Fertile stems may reach three feet (0.9 meter) or more in height, with two to four terminal flowering spikes. Male and female flowers are borne in separate spikes, with the female spikes being much wider and bright yellow in color. The individual female florets have long, pointed tips, with tips on the lowermost flowers pointing downward. Flowering and fruiting occurs from mid-April to mid-June. The grasslike leaves are ten to 25 inches (25.0 to 62.5 centimeters) long. Golden sedge is known from only eight populations in Pender and Onslow counties. It grows in sandy soils overlying coquina limestone deposits, where the soil pH is unusually high for this region, typically between 5.5 and 7.2. Soils are very wet to periodically shallowly inundated. The species prefers the ecotone between pine savanna and adjacent wet hardwood or hardwood/conifer forest, where occasional to frequent fires favor an herbaceous ground layer and suppress shrub dominance. Associated plants are tulip poplar, pond cypress (*Taxodium ascendens*), red maple, wax myrtle, colic root (*Aletris farinosa*), and beakrushes (*Rhynchospora* spp.). Continued survival of golden sedge is threatened by ditching and draining, fire suppression, development, and herbicide use (FWS 1999).

The study corridor contains swamp forest similar to the wet hardwood forest that forms one of the ecotonal boundaries of golden sedge habitat. However, the pine savannah component is missing from the area. Fire suppression has fostered a closed canopy of hardwoods and conifers, with thick, shrubby vegetation dominating canopy gaps. NHP records do not document any occurrences of golden sedge within five miles (eight kilometers) of the study site. Golden sedge is expected to be difficult to identify in December, when the study corridor was visited. No golden sedge was observed during the site visit.

> **BIOLOGICAL CONCLUSION:** The study corridor contains no pine savannah community that is a component of golden sedge habitat. Closed tree canopies and vigorous shrub layers further discourage its establishment. Based on habitat needs, NHP records and professional judgement, the proposed project will have **NO EFFECT** on golden sedge.

Rough-leaved loosestrife

Rough-leaved loosestrife is a rhizomatous perennial with erect stems one to two inches (2.5 to five centimeters) tall. Leaves are sessile in whorls of three or four, broadest at the base, and have three prominent veins. The leaf margins are entire and slightly revolute. Flowers are yellow and bisexual, and usually have five petals. This species blooms from late May to June. Seeds form in August and the small round capsules, surrounded by the persistent calyx, dehisce in October. Rough-leaved loosestrife typically occurs along the ecotone between long-leaf pine savannas and wetter, shrubby areas where lack of canopy vegetation allows abundant sunlight into the herbaceous layer. Rough-leaved loosestrife is endemic to the Coastal Plain and Sandhill regions of the Carolinas. This species is fire maintained, and suppression of naturally occurring fires has contributed to the loss of habitat in our state. Drainage of habitat may also have adverse effects on the plant. (FWS 1994a). Habitats where rough-leaved loosestrife have been found are low and high pocosin, wet pine flatwoods, pine savanna, streamhead pocosins, and sandhill

seeps (Schafale and Weakley 1990), as well as peaty pond margins, and disturbed sites such as roadside depressions, power line right-of-ways, and firebreaks (FWS 1994a).

The study corridor contains Coastal Plain Small Stream Swamp forest and highly maintained agricultural, roadside, and residential areas. None have the acidic soils coupled with open canopy that are important for the establishment and maintenance of rough-leaved loosestrife. The peaty to sandy moist habitat where this species is typically found is very different from the swampy and more fertile ecosystem present in natural areas of the study corridor. No pocosin, pine flat or sandhill habitat, nor any ecotone of these habitats, were noted in the area of the study corridor. Rough-leaved loosestrife is senescent in December, at the time of the field survey, and would not have been detectable. However, it is not expected that this species would be found in this habitat. NHP records do not document rough-leaved loosestrife within five miles (eight kilometers) of the study corridor.

BIOLOGICAL CONCLUSION: Based on the absence of suitable habitat, NHP records, and professional judgement, the proposed project will have **NO EFFECT** on rough-leaved loosestrife.

Cooley's Meadowrue

Cooley's meadowrue is a rhizomatous, perennial herb with a smooth stem; the three foot (0.9 meters) high plant is normally erect in full sun but lax in the shade. Leaves are ternately divided; the leaflets, less than one inch (2.5 centimeters) long, are narrow and lance-shaped, with untoothed margins. The small, petal-less, unisexual flowers appear on an open panicle in June and the fruits, small ellipsoidal achenes, mature in August and September. Moist bogs and savannas are the preferred habitat of Cooley's meadowrue. This species is endemic to the southeastern Coastal Plain of North Carolina (11 locations) and one location in Florida. Some form of disturbance is usually needed to sustain the open quality of the meadowrue's habitat. Consequently, Cooley's meadowrue is sometimes found along utility corridors, roadside margins, or other maintained areas. Tulip poplar with cypress (*Taxodium* sp.) or Atlantic white cedar (*Chamaecyparis thyoides*) are often found in association with this species. Cooley's meadowrue is threatened by fire suppression and land disturbing practices such as silviculture or agriculture (FWS 1994b).

The wet and open habitat required for Cooley's meadowrue is not present within the study corridor. The Coastal Plain Small Stream Swamp community is moist and contains some of the species associated with Cooley's meadowrue (tulip poplar and cypress). But the tree canopy is closed with a predominance of shrubs in treefall areas. Roadside areas do receive sunlight, but the roadbank areas are built up and not as moist as the surrounding swamp. These roadside areas were not delineated as wetlands during the site visit. Cooley's meadowrue is senescent in December, at the time of the site visit. It was not found during the site survey. The NHP documents no occurrences of Cooley's meadowrue within five miles (eight kilometers) of the study corridor.

BIOLOGICAL CONCLUSION: The study corridor contains very little potential as favorable habitat for Cooley's meadowrue. NHP records document no occurrences of this species within five miles (eight kilometers). Based on habitat

needs, NHP records, and professional judgement, the proposed work will have **NO EFFECT**.

2. Federal Species of Concern

The March 22, 2001 FWS list also includes a category of species designated as "Federal species of concern" (FSC) in Onslow County. 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). A list of FSC species occurring in Onslow County is given in Table 4.

Table 4:
Species name, habitat potential within the study corridor, and state status for species federally designated as FSC within Onslow County

Common Name	Scientific Name	Potential Habitat	State Status**
Bachman's Sparrow	*Aimophila Aestivalis*	No	SC
Black Rail	*Laterallus Jamaicensis*	No	SR
Carolina Gopher Frog	*Rana Capito Capito*	No	SC (PT)
Eastern Painted Bunting♦	*Passerina Ciris Ciris*	No	SR
Henslow's Sparrow	*Ammodramus Henslowi*	No	SR
Mimic Glass Lizard	*Ophisaurus Mimicus*	No	SC (PT)
Southern Hognose Snake	*Heterodon Simus*	No	SR (PSC)
Croatan Crayfish	*Procambarus Pluminatus*	No	W3
Awned Meadow Beauty	*Rhexia Aristosa*	No	T
Boykin's Lobelia	*Lobelia Boykinii*	No	C
Carolina Asphodel	*Tofieldia Glabra*	No	C
Carolina Goldenrod	*Solidago Pulchra*	No	E
Carolina Grass-Of-Parnassus	*Parnassia Caroliniana*	No	E
Carolina Spleenwort	*Asplenium Heteroresiliens*	No	E
Chapman's Sedge	*Carex Chapmanii*	Yes	W1
Hirsts Panic Grass	*Panicum Hirstii*	No	E
Loose Watermilfoil	*Myriophyllum Laxum*	No	T
Pondspice	*Litsea Aestivalis*	No	C
Savanna Cowbane	*Oxypolis Ternata*	No	W1
Spring-Flowered Goldenrod	*Solidago Verna*	No	T
Thorne's Beaksedge	*Rhynchospora Thornei*	No	E
Venus Flytrap	*Dionaea Muscipula*	No	C-SC

♦ Historic record – the species was last observed in the county more than 50 years ago.

**State Status Codes:

C - Candidate
E - Endangered
PE - Proposed Endangered
PT - Proposed Threatened
SC - Special Concern
SR - Significantly Rare
T - Threatened
W3 - Watch List: rare, but with uncertain documentation
W1: rare, but relatively secure

The FSC designation provides no federal protection under the ESA for species listed. NHP files do not document any occurrences of FSC species within one mile (1.6 kilometers) of the study corridor.

3. 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.*). No species with these designations are documented within one mile (1.6 kilometers) of the study corridor. However, NHP records document the occurrence of the shadow-witch (*Ponthieva racemosa*) four miles (6.4 kilometers) southwest of the corridor. This aquatic plant has a state status of SR (a significantly rare species that needs monitoring). NHP documents a Significant Natural Heritage Area, the Rock House Cave, four miles (6.4 kilometers) southwest of the study corridor, near Catherine Lake. Significant Natural Heritage Areas are selected on the basis of the occurrence of rare plant and animal species, rare or high quality natural communities and special animal habitats. Rock House Cave has a significance rating of B. This rating denotes statewide significant natural areas that contain examples of natural communities, rare plant or animal populations, or geologic features that are among the highest quality or best of their kind in the state.

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 July 2, 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 in the National Register of Historic Places within the APE. A copy of the concurrence form is included in the Appendix.

C. Archaeology

The State Historic Preservation Officer (SHPO), in a memorandum dated November 16, 2000, stated they "have no comment on the project as currently proposed." Since there is little likelihood of any National Register archaeological sites occurring in the project area, because of the disturbed landforms, HPO recommends no further action. 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 significant 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 Onslow 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), regulated or unregulated landfills, or dumpsites occur in the project vicinity.

Onslow County is a participant in the National Flood Insurance Regular Program. This site on the Squires Run is included in a detailed F.E.M.A. flood study. 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). There are no buildings in the existing 100-year flood plain. The proposed replacement will not adversely affect the floodplain. The structure requirements may be adjusted during the final hydrologic study and hydraulic design as determined appropriate to accommodate design flows. The proposed alternatives will not modify flow characteristics and will have minimal impact on flood plains due to roadway encroachment. The existing drainage patterns and groundwater will not be affected.

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. A Citizens Informational Workshop was held at Richlands High School on July 2, 2001 where preliminary alternatives were reviewed and discussed with concerned citizens and local officials.

Ten local citizens attended the Citizens Informational Workshop. The citizens did not oppose any of the proposed alternates nor did they have a preferred alternate.

IX. COMMENTS RECEIVED

A. Agency Comments

1. North Carolina Wildlife Resource Commission (NCWRC)

   Comment: *"Total moratoriums should be in place on bridge no. 40 due to anadromous fish spawning from February 15 to June 15."*

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

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

   Response: As noted in the preliminary hydraulics study, deck drains will not be allowed to discharge directly into the water.

2. United States Army Corps of Engineers (USACE)

   Comment: *"Off-site detours are always preferable to on-site (temporary) detours in wetlands."*

Response: During construction of the proposed bridge traffic will be maintained off-site.

3. United States Army Corps of Engineers (USACE)

Comment: *"...it is recommended that geotechnical evaluations be conducted at the project site to estimate the magnitude of sediment consolidation that can occur due to an on-site detour."*

Response: Geotechnical analysis indicates that no substantial settlement problems due to consolidation of underlying soil are anticipated along a temporary detour.

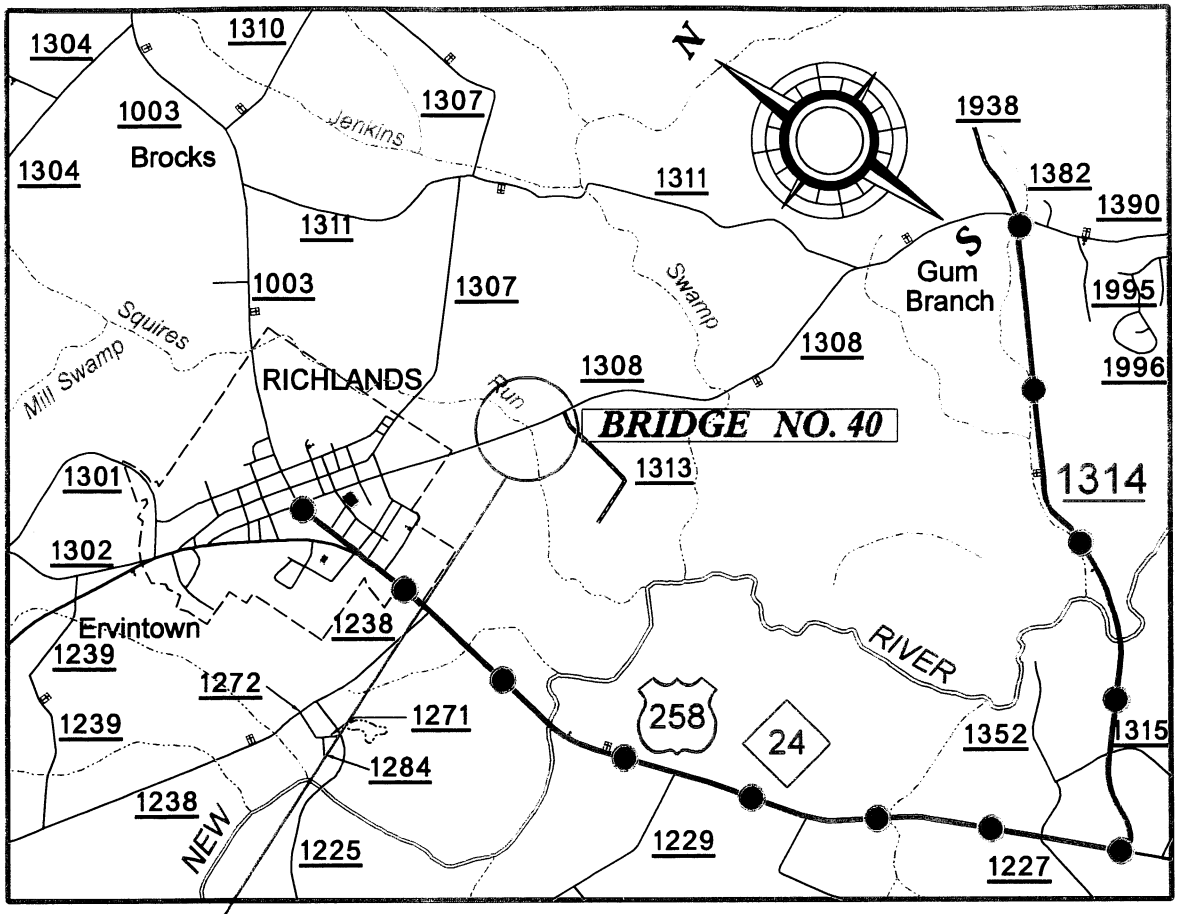
B. Other Comments

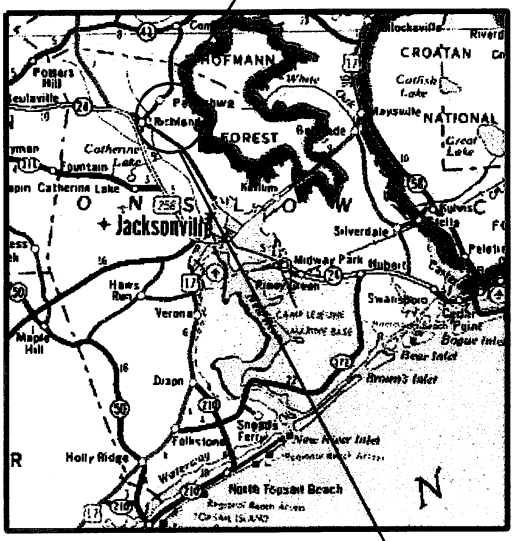
1. Onslow County Schools

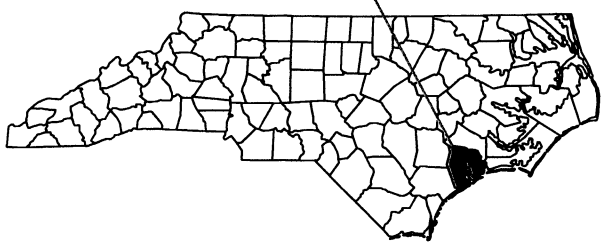
Comment: *"If the suggested detour is in effect for an extended amount of time, this will result in a significant increase in transportation cost, both mileage and driver salary, above our projected costs."*

Response: An in-water moratorium will be in effect from February 15 to June 15. This allows some of the construction to be completed during the summer months, which will minimize the affect on school bus transportation.

FIGURES







LEGEND

Studied Detour Route

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

ONSLOW COUNTY

BRIDGE NO. 40 ON SR 1308
OVER SQUIRES RUN

TIP NO. B-3884

VICINITY MAP

FIGURE 1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

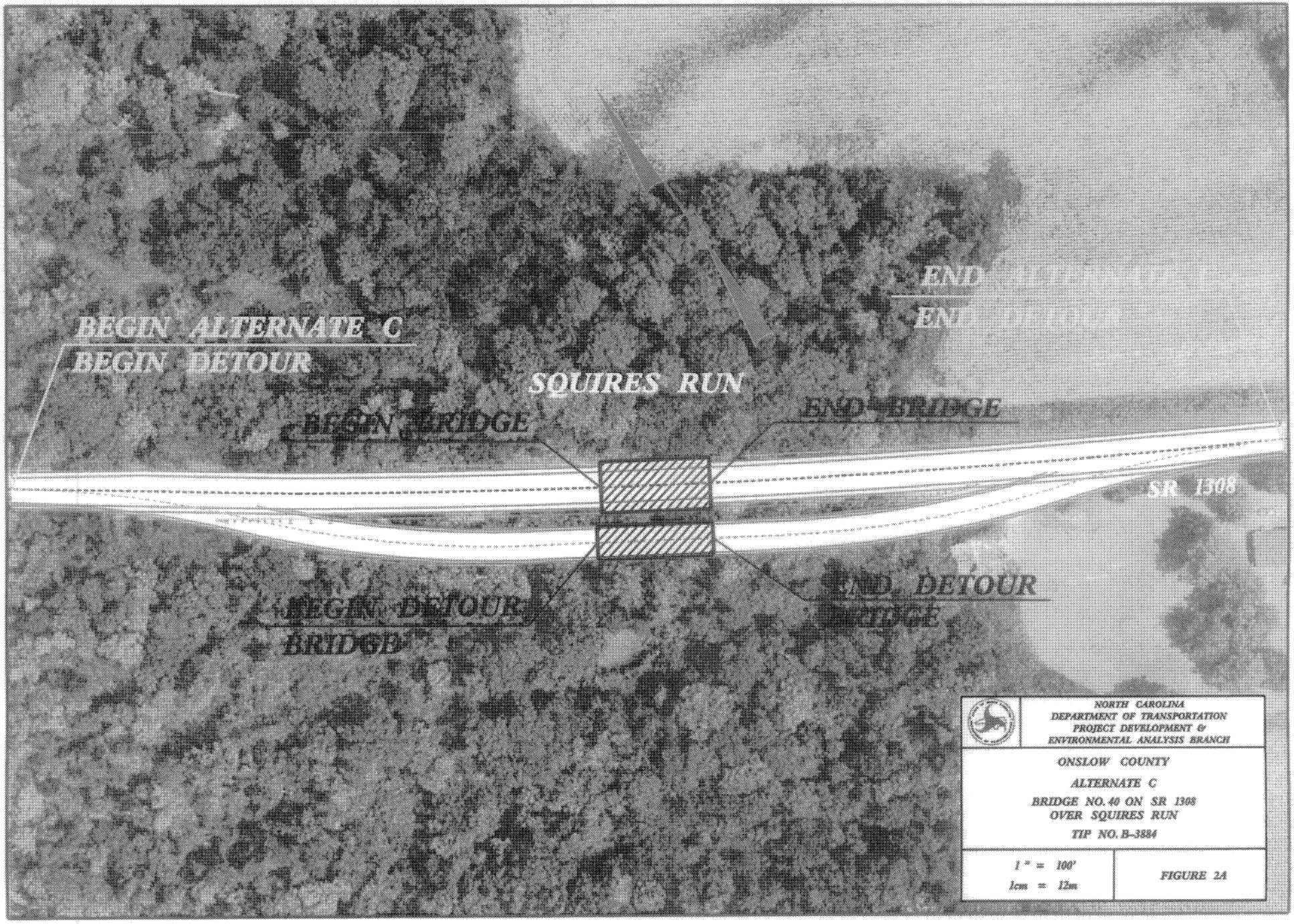
ONSLOW COUNTY

ALTERNATE A (PREFERRED)

BRIDGE NO. 40 ON SR 1308
OVER SQUIRES RUN
TIP NO. B-3884

1" = 100'
1cm = 12m

FIGURE 2



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

ONSLOW COUNTY

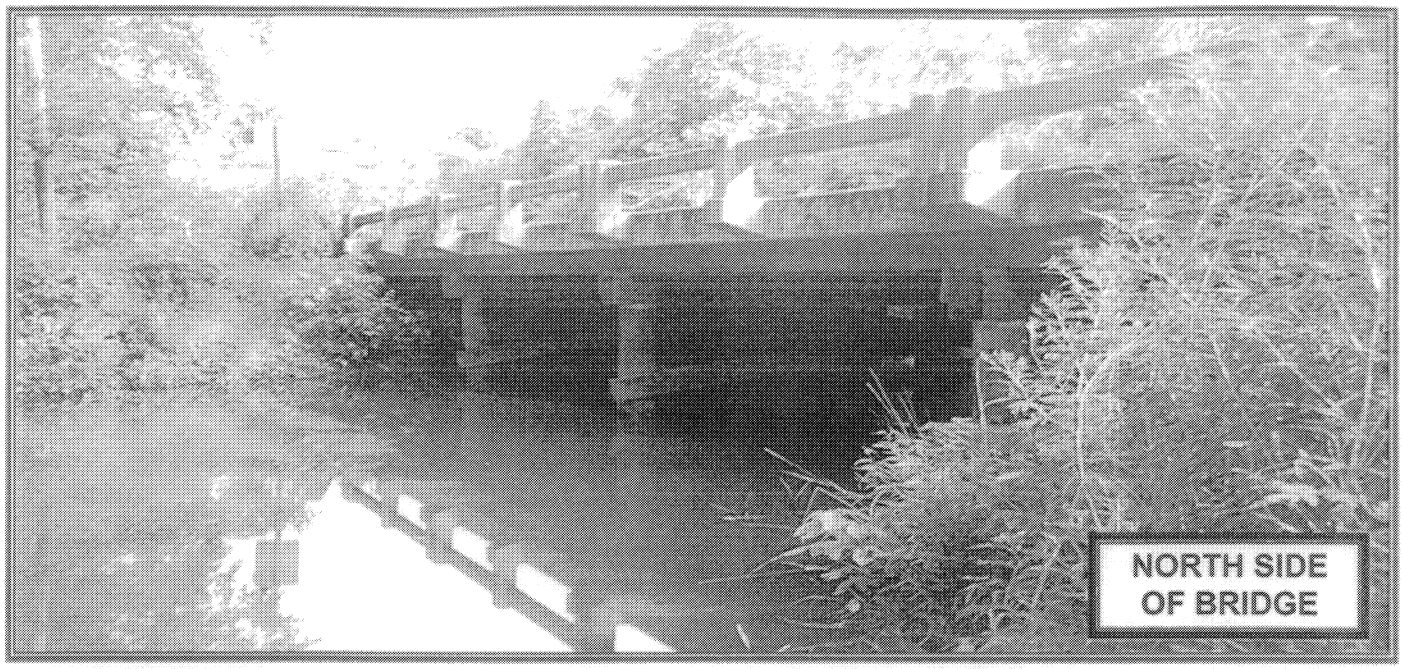
ALTERNATE C

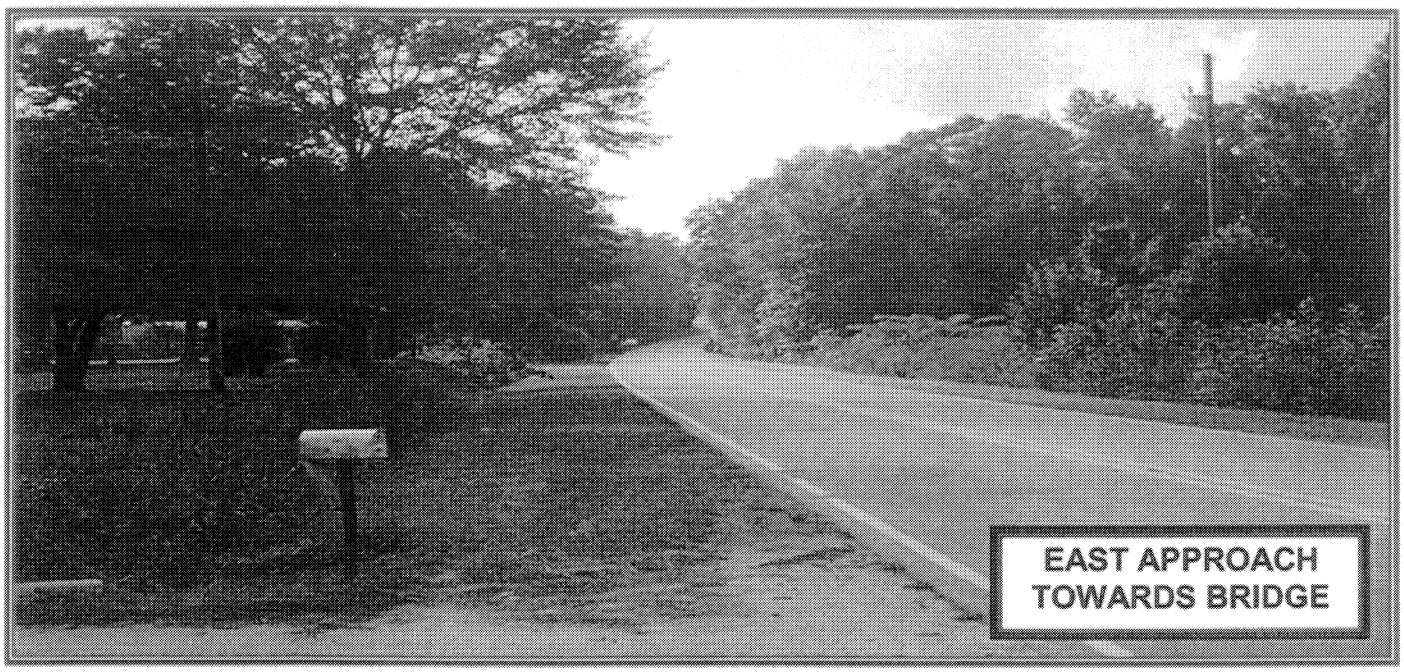
BRIDGE NO. 40 ON SR 1308
OVER SQUIRES RUN

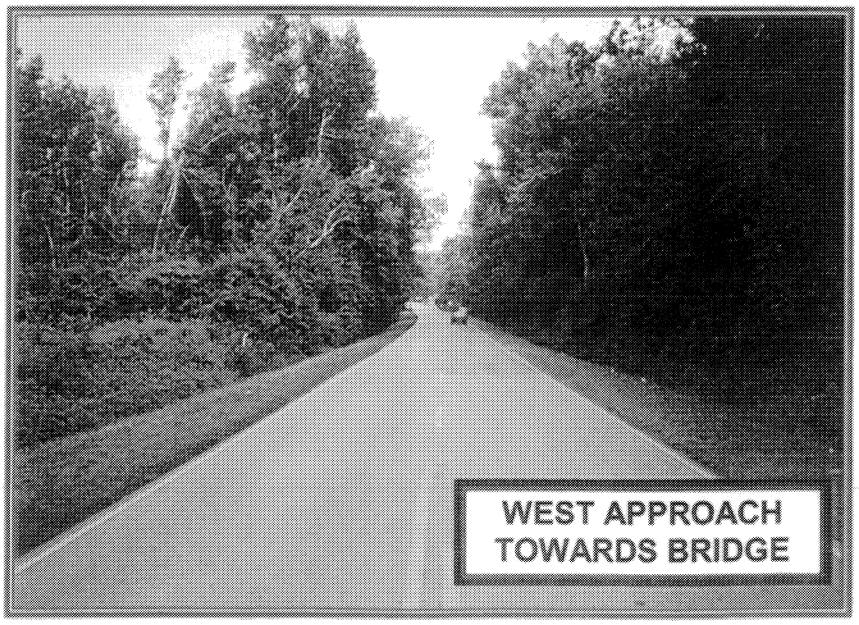
TIP NO. B-3884

1 " = 100'
1cm = 12m

FIGURE 2A



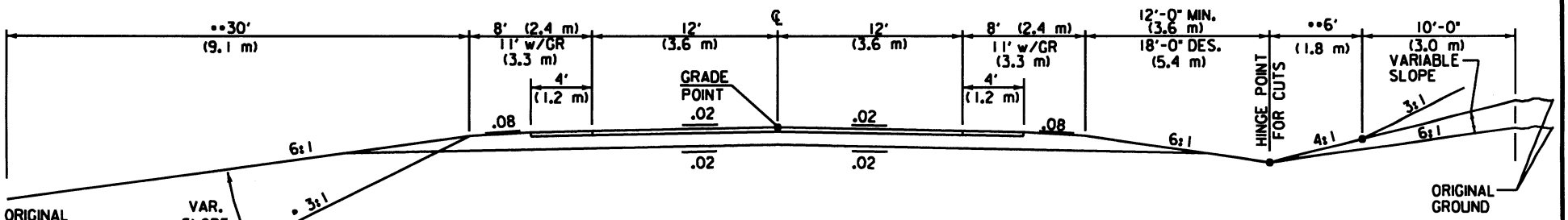




B-3884
Replacement of Bridge No. 40 on SR 1308 Over Squires Run
Onslow County

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

FIGURE 3



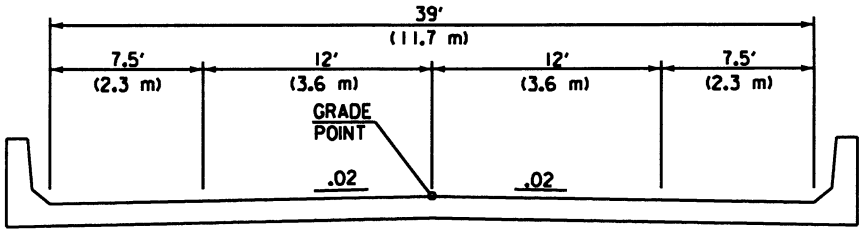
TYPICAL ROADWAY SECTION

•• WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS 6:1 TO 3:1, THE DISTANCE BECOMES VARIABLE AND THE MAX. OR MIN. SLOPE MAINTAINED.

TRAFFIC DATA

ADT 2001	*8100*
ADT 2003	*8500*
ADT 2025	*12800*
DUAL	*2%*
TTST	*1%*

FUNCTIONAL CLASSIFICATION: RURAL MAJOR COLLECTOR



TYPICAL BRIDGE SECTION

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPEMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

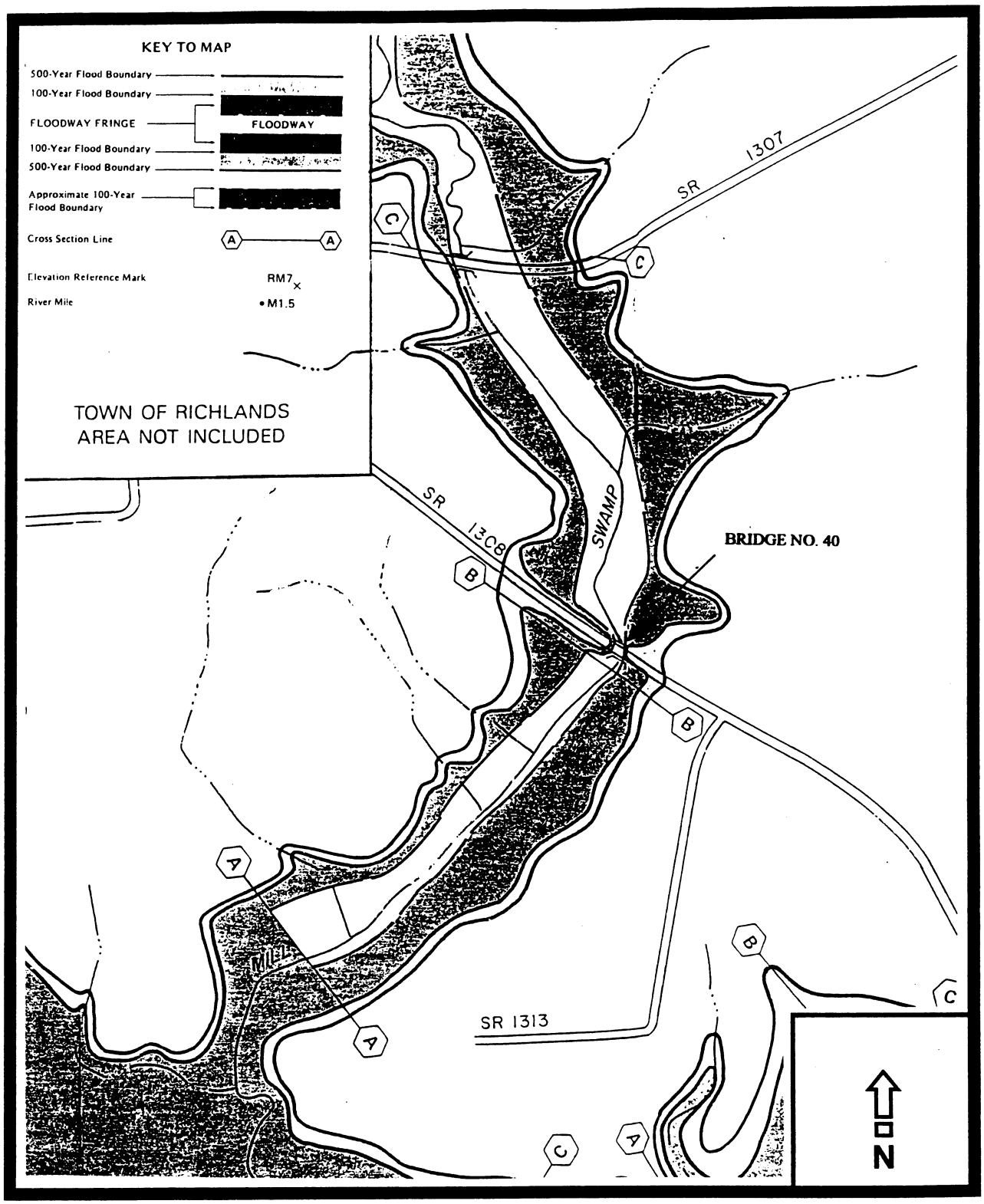
ONSLOW COUNTY

BRIDGE NO. 40 ON SR 1308
OVER SQUIRES RUN

B-3884

FIGURE 4

B-3884
BRIDGE N0. 40
ONSLOW COUNTY



FEMA FLOOD STUDY 100 YEAR FLOOD PLAIN

Panel No. 370340 0045
Date: July 02, 1987
Street Name: SR 1308
Onslow County, North Carolina

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

FIGURE 5

APPENDIX

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

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

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,

Ronald A. Sechler

for 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 stream underneath the bridge.

7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.

8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.

9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.

10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

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.

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

November 16, 2000

MEMORANDUM

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

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

Re: Replace Bridge No. 40, SR 1308 over Squires Run,
Onslow County, B-3884, ER 01-7096

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, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:kgc

cc: Mary Pope Furr, 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

Federal Aid #BRSTP-1308(3) *TIP* #B-3884 *County*: Onslow

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

Project Description: Replace Bridge No. 40 on SR 1308 over Squires Run

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

Richard C Dawn — 10/24/00
FHWA, for the Division Administrator, or other Federal Agency — Date

April 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.

248 Wilmington Hwy
Jacksonville, NC

Onslow County Schools Transportation

July 10, 2001

Greg Purvis
Wang Engineering

Dear Mr. Purvis:

In response to your request, approximately 14 buses cross the bridge on S.R. 1308 daily. This translates to 28 bus crossings daily. If the suggested detour is in effect for an extended amount of time, this will result in a significant increase in transportation cost, both mileage and driver salary, above our projected costs. Please advise us as soon as possible of the length of time the bridge will be closed and possible dates. An ideal situation for school transportation would be during summer break, between May 24, 2002 and August, 2002. Thank you for your consideration.

Sincerely,

Barbara Justice-Rooks
T.L.M.S. Coordinator

[Click here and type signature]

RELOCATION REPORT

North Carolina Department of Transportation
AREA RELOCATION OFFICE

[X] E.I.S. [ ] CORRIDOR [ ] DESIGN

PROJECT:	8.2261301	COUNTY	Onslow	Alternate "A" of	Alternate
I.D. NO.:	B-3884	F.A. PROJECT	BRSTP-1308(3)		
DESCRIPTION OF PROJECT:	Replace bridge No. 40 on SR 1308 over Squires Run.				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential				
Businesses				
Farms				
Non-Profit				

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP

VALUE OF DWELLING				DSS DWELLING AVAILABLE			
Owners		Tenants		For Sale		For Rent	
0-20M		$ 0-150		0-20M		$ 0-150	
20-40M		150-250		20-40M		150-250	
40-70M		250-400		40-70M		250-400	
70-100M		400-600		70-100M		400-600	
100 UP		600 UP		100 UP		600 UP	
TOTAL							

REMARKS (Respond by Number)

There are no business or residential relocatees on this alternate.

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affect by displacement?
X		3. Will business services still be available after project?
	X	4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
	X	6. Source for available housing (list).
	X	7. Will additional housing programs be needed?
	X	8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
	X	11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X	13. Will there be a problem of housing within financial means?
	X	14. Are suitable business sites available (list source).
	X	15. Number months estimated to complete RELOCATION? N/A

[redacted] 1-09-01
Relocation Agent Date

[redacted] 1/10/01
Approved by Date

Form 15, Revised 02/95 t
(YELLOW)

Original & 1 Copy: State Relocation Agent
2 Copy Area Relocation Office

RELOCATION REPORT

North Carolina Department of Transportation
AREA RELOCATION OFFICE

[X] E.I.S. [ ] CORRIDOR [ ] DESIGN

PROJECT:	8.2261301	COUNTY	Onslow	Alternate "B" of	Alternate
I.D. NO.:	B-3884	F.A. PROJECT	BRSTP-1308(3)		
DESCRIPTION OF PROJECT:	Replace bridge No. 40 on SR 1308 over Squires Run				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential				
Businesses				
Farms				
Non-Profit				

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP

VALUE OF DWELLING				DSS DWELLING AVAILABLE			
Owners		Tenants		For Sale		For Rent	
0-20M		$ 0-150		0-20M		$ 0-150	
20-40M		150-250		20-40M		150-250	
40-70M		250-400		40-70M		250-400	
70-100M		400-600		70-100M		400-600	
100 UP		600 UP		100 UP		600 UP	
TOTAL							

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.	
	X	1. Will special relocation services be necessary?	
	X	2. Will schools or churches be affect by displacement?	
X		3. Will business services still be available after project?	
	X	4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.	
	X	5. Will relocation cause a housing shortage?	
	X	6. Source for available housing (list).	
	X	7. Will additional housing programs be needed?	
	X	8. Should Last Resort Housing be considered?	
	X	9. Are there large, disabled, elderly, etc. families?	
	X	10. Will public housing be needed for project?	
	X	11. Is public housing available?	
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?	
	X	13. Will there be a problem of housing within financial means?	
	X	14. Are suitable business sites available (list source).	
	X	15. Number months estimated to complete RELOCATION?	N/A

REMARKS (Respond by Number)

There are no business or residential relocatees on this alternate (building show right of approximate Survey station 21 + 60 is a dilapidated abandoned stucco dwelling).

Relocation Agent — Date: 1-09-01

Approved by — Date: 1/10/01

Form 15.4 Revised 02/95 t

(YELLOW)

Original & 1 Copy: State Relocation Agent
2 Copy Area Relocation Office

RELOCATION REPORT

North Carolina Department of Transportation
AREA RELOCATION OFFICE

[x] E.I.S. [ ] CORRIDOR [ ] DESIGN

PROJECT:	8.2261301	COUNTY	Onslow	Alternate "C" of	Alternate
I.D. NO.:	B-3884	F.A. PROJECT	BRSTP-1308(3)		
DESCRIPTION OF PROJECT:	Repalce bridge No. 40 on WR 1308 over Squires Run.				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential				
Businesses				
Farms				
Non-Profit				

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP

VALUE OF DWELLING				DSS DWELLING AVAILABLE			
Owners		Tenants		For Sale		For Rent	
0-20M		$ 0-150		0-20M		$ 0-150	
20-40M		150-250		20-40M		150-250	
40-70M		250-400		40-70M		250-400	
70-100M		400-600		70-100M		400-600	
100 UP		600 UP		100 UP		600 UP	
TOTAL							

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.	
	X	1.	Will special relocation services be necessary?
	X	2.	Will schools or churches be affect by displacement?
X		3.	Will business services still be available after project?
	X	4.	Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5.	Will relocation cause a housing shortage?
	X	6.	Source for available housing (list).
	X	7.	Will additional housing programs be needed?
	X	8.	Should Last Resort Housing be considered?
	X	9.	Are there large, disabled, elderly, etc. families?
	X	10.	Will public housing be needed for project?
	X	11.	Is public housing available?
X		12.	Is it felt there will be adequate DSS housing housing available during relocation period?
	X	13.	Will there be a problem of housing within financial means?
	X	14.	Are suitable business sites available (list source).
	X	15.	Number months estimated to complete RELOCATION? N/A

REMARKS (Respond by Number)

There are no business or residential relocatees on this alternate (building show right of approximate Survey Statio 21 + 60 is a dilapidated abandoned stucco dwelling).

Relocation Agent — Date 1-09-01

Approved by — Date 1/10/01

Form 15.4 Revised 02/95 t

(YELLOW)

Original & 1 Copy: State Relocation Agent
2 Copy Area Relocation Office

RELOCATION REPORT

North Carolina Department of Transportatic
AREA RELOCATION OFFIC

[X] E.I.S. [ ] CORRIDOR [ ] DESIGN

PROJECT:	8.2261301	COUNTY	Onslow	Alternate "D" of	Alternat
I.D. NO.:	B-3884	F.A. PROJECT	BRSTP-1308(3)		
DESCRIPTION OF PROJECT:	Replace bridge No. 40 on SR 1308 over Squires Run.				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	1			
Businesses				
Farms				
Non-Profit				

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP

VALUE OF DWELLING

Owners		Tenants	
0-20M		$ 0-150	
20-40M	X	150-250	
40-70M		250-400	
70-100M		400-600	
100 UP		600 UP	
TOTAL	1		

DSS DWELLING AVAILABLE

For Sale		For Rent	
0-20M		$ 0-150	
20-40M	0	150-250	
40-70M	11	250-400	
70-100M		400-600	
100 UP		600 UP	
	11		

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.	
	X	1.	Will special relocation services be necessary?
	X	2.	Will schools or churches be affect by displacement?
X		3.	Will business services still be available after project?
	X	4.	Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5.	Will relocation cause a housing shortage?
X		6.	Source for available housing (list).
	X	7.	Will additional housing programs be needed?
X		8.	Should Last Resort Housing be considered?
	X	9.	Are there large, disabled, elderly, etc. families?
	X	10.	Will public housing be needed for project?
X		11.	Is public housing available?
X		12.	Is it felt there will be adequate DSS housing housing available during relocation period?
	X	13.	Will there be a problem of housing within financial means?
X		14.	Are suitable business sites available (list source).
		15.	Number months estimated to complete RELOCATION? 9

REMARKS (Respond by Number)

Note: All residential displacees are considered families.

3. No businesses are affected
6&14. MLS services, local realtors, newspapers, etc.
8. As mandated by law.
11. Onslow County
12. or built as necessary

Relocation Agent — Date 1-09-01 — Approved by — Date 1/10/01

Form 15.4 Revised 02/95 (YELLOW)

Original & 1 Copy: State Relocation Agent
2 Copy: Area Relocation Office

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

Project/Site: B-3884	Date: 12-4-00
Applicant/Owner: NCDOT	County: Onslow
Investigator: E. Scherrer	State: NC
Do Normal Circumstances exist on the site? Yes No	Community ID: Cpl Sm, Str. Swamp
Is the site significantly disturbed (Atypical Situation)? Yes No	Transect ID: UB, WC
Is the area a potential Problem Area? Yes No	Plot ID: Upland
(If needed, explain on reverse)	

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Liquidambar styraci.	C	FAC+
2. Smilax rotundifolia	V	FAC
3. Ligustrum sinense	S	FAC
4. Quercus nigra	C	FAC
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100

Remarks:

HYDROLOGY

___Recorded Data (Describe in Remarks):
- ___Stream, Lake or Tide Gauge
- ___Aerial Photographs
- ___Other

___No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)
Depth to Free Water in Pit: _____(in.)
Depth to Saturated Soil: _____(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:

No indicators

SOILS

Map Unit Name (Series and Phase): Muckalee Loam

Drainage Class: fairly drained

Taxonomy (Subgroup): Typic Fluvaquents

Field Observations Confirm Mapped Type: (Yes) No

Profile Description: Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Structure, etc.
0-3		10YR 4/2	—		silt loam
3+		10YR 4/2	10YR 4/6	few, indistinct	silt loam

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)	(Circle)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	(Yes) No	Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

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

Project/Site: B-3884 Applicant/Owner: NCDOT Investigator: G. Scherrer	Date: 12-4-00 County: Onslow 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: CP Sm. Stream Swamp Transect ID: VB, WC Plot ID: Wetland

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Quercus michauxii	C	FACW-
2. Taxodium distichum	C	OBL
3. Liquidambar sty.	C	FACT
4. Nyssa sylvatica	C	FAC
5. Quercus phellos	C	FACW-
6. Juncus effusus	H	FACW+
7. Smilax rotundifolia	V	FAC
8. Rubus argutus	S	FACW+
9. Lonicera japonica	S	FAC-
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 89

Remarks:

HYDROLOGY

- ___ Recorded Data (Describe in Remarks):
  - ___ Stream, Lake or Tide Gauge
  - ___ Aerial Photographs
  - ___ Other
- ✓ No Recorded Data Available

Field Observations:

Depth of Surface Water:	0 (in.)
Depth to Free Water in Pit:	2 (in.)
Depth to Saturated Soil:	1 (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): Muckalee Loam

Drainage Class: Poorly drained

Taxonomy (Subgroup): Typic Fluvaquent

Field Observations Confirm Mapped Type: (Yes) No

Profile Description: Depth Concretions, (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Structure, etc.
0+		10YR 3/2	10YR 4/6	many, distinct	silt loam

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

		(Circle)
Hydrophytic Vegetation Present?	(Yes) No (Circle)	Is this Sampling Point Within a Wetland? (Yes) No
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

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

Project/Site: B-3984 Applicant/Owner: NCDOT Investigator: E. Scherrer	Date: 12-4-00 County: Onslow 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: CP Sm. Str. SW. Transect ID: WE Plot ID: Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Ligustrum sinense	S	FAC
2. Liquidambar styr.	C	FAC+
3. Smilax rotundifolia	V	FAC
4. Lonicera japonica	V	FAC-
5. Quercus phellos	C	FACW-
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 80

Remarks:

HYDROLOGY

___Recorded Data (Describe in Remarks):
- ___Stream, Lake or Tide Gauge
- ___Aerial Photographs
- ___Other

✓ ___No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)
Depth to Free Water in Pit: _____(in.)
Depth to Saturated Soil: _____(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:

No indicators

SOILS

Map Unit Name (Series and Phase): Mahalee Loam Drainage Class: Poorly drained

Taxonomy (Subgroup): Typic Fluvaquents 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.
0-3		10YR 3/3	—		silt loam
3+		10YR 3/2	—		silt loam

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

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

Project/Site: B-3884 Applicant/Owner: NCDOT Investigator: E. Scherrer	Date: 12-4-00 County: Onslow 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: CP Sm. Str. Sw. Transect ID: WE Plot ID: Wetland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Ligustrum sinense	S	FAC	9.		
2. Woodwardia areolata	H	OBL	10.		
3. Taxodium distichum	C	OBL	11.		
4. Nyssa sylvatica	C	FAC	12.		
5. Quercus phellos	C	FACW-	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100

Remarks:

HYDROLOGY

- ___ Recorded Data (Describe in Remarks):
  - ___ Stream, Lake or Tide Gauge
  - ___ Aerial Photographs
  - ___ Other
- ✓ No Recorded Data Available

Field Observations:

Depth of Surface Water:	—	(in.)
Depth to Free Water in Pit:	2	(in.)
Depth to Saturated Soil:	1	(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): Muckalee Loam — Drainage Class: Poorly drained

Taxonomy (Subgroup): Typic Fluvaquent — Field Observations Confirm Mapped Type: (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Structure, etc.
0-3		10YR 3/2	—		silt loam
3+		10YR 3/2	10YR 4/6	few diffuse	silt loam

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

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

Project/Site: B-3884 Applicant/Owner: NCDOT Investigator: G. Scherrer	Date: 12-4-00 County: Onslow 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: Cp. Sm. Str. Swa. Transect ID: UD, WD Plot ID: Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Liquidambar styr.	C	FAC+
2. Ligustrum sinense	S	FAC
3. G. gnetos	C	FACW-
4. Aralia spinosa	S	FAC
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100

Remarks:

HYDROLOGY

__Recorded Data (Describe in Remarks):
- __Stream, Lake or Tide Gauge
- __Aerial Photographs
- __Other
- ✓__No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)
Depth to Free Water in Pit: _____(in.)
Depth to Saturated Soil: _____(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: No indicators

SOILS

Map Unit Name (Series and Phase): Muckalee loam

Drainage Class: poorly drained

Taxonomy (Subgroup): Typic Fluvaquent

Field Observations Confirm Mapped Type: (Yes) No

Profile Description: Depth Concretions, (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Structure, etc.
0-4		10YR 3/3	—		silt loam
4+		10YR 3/2	—		silt loam

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

		(Circle)
Hydrophytic Vegetation Present?	(Yes) No	
Wetland Hydrology Present?	Yes (No)	Is this Sampling Point Within a Wetland? Yes (No)
Hydric Soils Present?	Yes (No)	

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

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

Project/Site: B-3884	Date: 12-4-00
Applicant/Owner: NCDOT	County: Onslow
Investigator: E. Scherrer	State: NC
Do Normal Circumstances exist on the site? Yes No	Community ID: CPSm.SJr.Sw.
Is the site significantly disturbed (Atypical Situation)? Yes No	Transect ID: VD, WD
Is the area a potential Problem Area? Yes No	Plot ID: Wetland
(If needed, explain on reverse)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Fagus grandifolia	C	FACU	9.		
2. Carpinus caroliniana	S	FAC	10.		
3. Ligustrum sinense	S	FAC	11.		
4. Liquidambar styr.	C	FAC+	12.		
5. Juncus effusus	H	FACW+	13.		
6. Quercus michauxii	C	FACW-	14.		
7. a. phellos	C	FACW-	15.		
8. Woodwardia areolata	H	OBL	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 88

Remarks:

HYDROLOGY

__Recorded Data (Describe in Remarks):
- __Stream, Lake or Tide Gauge
- __Aerial Photographs
- __Other

✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: 2 (in.)
Depth to Free Water in Pit: ____ (in.)
Depth to Saturated Soil: ____ (in.)
inundated

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): Muckalee loam

Drainage Class: Poorly drained

Field Observations Confirm Mapped Type: (Yes) No

Taxonomy (Subgroup): Typic Fluvaquents

Profile Description: Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
1-0	O				humus
0+		10YR 3/1	10YR 6/3	many distinct	silt loam

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-3884 Nearest road SR 1308
County Onslow Name of Evaluator E. Scherrer Date 12-4-00

Wetland location
- _ on pond or lake
- ✓ on perennial stream
- _ on intermittent stream
- _ within interstream divide
- _ other

Adjacent land use (within 1/2 mile upstream)
- forested/natural vegetation 95 %
- agriculture, urban/suburban 5 %
- impervious surface 0 %

Soil Series Muckalee
- _ predominantly organic-humus, muck, or peat
- ✓ predominantly mineral- non-sandy
- _ predominantly sandy

Dominant Vegetation
(1) Quercus nigra
(2) Taxodium distichum
(3) Quercus laurifolia

Hydraulic Factors
- _ steep topography
- _ ditched or channelized
- ✓ wetland width >/= 50 feet

Flooding and Wetness
- _ semipermanently to permanently flooded or inundated
- ✓ seasonally flooded or inundated
- ✓ intermittently flooded or temporary surface water
- _ no evidence of flooding or surface water

Wetland Type (select one)

- _ Bottomland hardwood forest
- _ Headwater forest
- ✓ Swamp forest
- _ Wet flat
- _ Pocosin
- _ Pine savanna
- _ Freshwater marsh
- _ Bog/fen
- _ Ephemeral wetland
- _ Other

*The rating system cannot be applied to salt or brackish marshes

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

Total score 70

Add 1 point if in sensitive watershed and >10% nonpoint disturbance within 1/2 mile upstream

United States Department of the Interior

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

February 18, 2004

Phillip Harris
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

This letter is in response to your letter of February 6, 2004 which provided the U.S. Fish and Wildlife Service (Service) with the biological conclusion of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 40 on SR 1308 over Squires Run in Onslow County (TIP No. B-3884) may affect, but is not likely to adversely affect the federally endangered West Indian manatee (*Trichechus manatus*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

NCDOT has committed to implement the Service's **Precautionary Guidelines for General Construction in Areas Which May Be Used by the West Indian Manatee** (copy enclosed). Given this commitment, the Service concurs that the project may affect, but is not likely to adversely affect the federally endangered West Indian manatee. We believe that the requirements of section 7 (a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

Garland B. Pardue, Ph.D.
Ecological Services Supervisor

enclosure: Precautionary Guidelines for General Construction in Areas Which May Be Used by the West Indian Manatee

cc: Dave Timpy, USACE, Wilmington, NC
John Hennessy, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

Precautionary Guidelines for General Construction in Areas Which May Be Used by the West Indian Manatee in North Carolina

1. The applicant will inform all personnel associated with the project that manatees may be present in the project area, primarily during the months June through October, and the need to avoid any harm to these endangered mammals. The applicant will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.

2. The applicant will advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Endangered Species Act of 1973, as amended, and the Marine Mammal Protection Act of 1972, as amended.

3. If a manatee is seen within 300 ft of the active daily construction/dredging operation or vessel movement, all appropriate precautions must be implemented to ensure protection of the manatee. The precautions must include the operation of all moving equipment no closer than 50 ft of a manatee. Operation of any equipment closer than 50 ft to a manatee must necessitate immediate shutdown of the equipment. Activities will not resume until the manatee has departed the project area on its own volition. Manatees should not be herded away or harassed into leaving.

4. Any collision with and/or injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service and the North Carolina Wildlife Resources Commission immediately, and dredging should be postponed until cause of injury or mortality can be determined and a revised dredging and or monitoring plan is produced and approved by the Service.

5. A sign must be posted in all vessels associated with the project where it is clearly visible to the vessel operator. The sign should state:

> CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes with 50 ft of operating equipment. A collision with and/or injury to a manatee will be reported immediately to the U.S. Fish and Wildlife Service and the North Carolina Wildlife Resources Commission.

6. The applicant/contractor will maintain a log detailing sightings, collisions, or injuries to manatees during project construction. After construction, the applicant/contractor will prepare a report which summarizes all information on manatees during construction. This report will be submitted to the U.S. Fish and Wildlife Service and the North Carolina Wildlife Resources Commission.

7. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than 4 ft clearance from the bottom. All vessels will follow routes of deep water whenever possible.

8. If siltation barriers must be placed in shallow water, these barriers will be: (a) made of material in which manatees cannot become entangled; (b) secured in a manner that they cannot break free and entangle manatees; and, (c) regularly monitored to ensure that manatees have not become entangled. Barriers will be placed in a manner to allow manatees entry to or exit from essential habitat.

United States Department of the Interior

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

GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATEE
Precautionary Measures for Construction Activities in North Carolina Waters

The West Indian manatee (*Trichechus manatus*), also known as the Florida manatee, is a Federally-listed endangered aquatic mammal protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) and the Marine Mammal Protection Act of 1972, as amended (16 U.S.C 1461 *et seq.*). The manatee is also listed as endangered under the North Carolina Endangered Species Act of 1987 (Article 25 of Chapter 113 of the General Statutes). The U.S. Fish and Wildlife Service (Service) is the lead Federal agency responsible for the protection and recovery of the West Indian manatee under the provisions of the Endangered Species Act.

Adult manatees average 10 feet long and weigh about 2,200 pounds, although some individuals have been recorded at lengths greater than 13 feet and weighing as much as 3,500 pounds. Manatees are commonly found in fresh, brackish, or marine water habitats, including shallow coastal bays, lagoons, estuaries, and inland rivers of varying salinity extremes. Manatees spend much of their time underwater or partly submerged, making them difficult to detect even in shallow water. While the manatee's principal stronghold in the United States is Florida, the species is considered a seasonal inhabitant of North Carolina with most occurrences reported from June through October.

To protect manatees in North Carolina, the Service's Raleigh Field Office has prepared precautionary measures for general construction activities in waters used by the species. Implementation of these measure will allow in-water projects which do not require blasting to proceed without adverse impacts to manatees. In addition, inclusion of these guidelines as conservation measures in a Biological Assessment or Biological Evaluation, or as part of the determination of impacts on the manatee in an environmental document prepared pursuant to the National Environmental Policy Act, will expedite the Service's review of the document for the fulfillment of requirements under Section 7 of the Endangered Species Act. These measures include:

1. The project manager and/or contractor will inform all personnel associated with the project that manatees may be present in the project area, and the need to avoid any harm to these endangered mammals. The project manager will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.

2. The project manager and/or the contractor will advise all construction personnel that

there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act and the Endangered Species Act.

3. If a manatee is seen within 100 yards of the active construction and/or dredging operation or vessel movement, all appropriate precautions will be implemented to ensure protection of the manatee. These precautions will include the immediate shutdown of moving equipment if a manatee comes within 50 feet of the operational area of the equipment. Activities will not resume until the manatee has departed the project area on its own volition (i.e., it may not be herded or harassed from the area).

4. Any collision with and/or injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service (ph. 919.856.4520 ext. 16), the National Marine Fisheries Service (ph. 252.728.8762), and the North Carolina Wildlife Resources Commission (ph. 252.448.1546).

5. A sign will be posted in all vessels associated with the project where it is clearly visible to the vessel operator. The sign should state:

> CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes within 50 feet of the vessel or operating equipment. A collision with and/or injury to the manatee must be reported immediately to the U.S. Fish and Wildlife Service (919-856-4520 ext. 16), the National Marine Fisheries Service (252.728.8762), and the North Carolina Wildlife Resources Commission (252.448.1546).

6. The contractor will maintain a log detailing sightings, collisions, and/or injuries to manatees during project activities. Upon completion of the action, the project manager will prepare a report which summarizes all information on manatees encountered and submit the report to the Service's Raleigh Field Office.

7. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than a four foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

8. If siltation barriers must be placed in shallow water, these barriers will be: (a) made of material in which manatees cannot become entangled; (b) secured in a manner that they cannot break free and entangle manatees; and, (c) regularly monitored to ensure that manatees have not become entangled. Barriers will be placed in a manner to allow manatees entry to or exit from essential habitat.

Prepared by (rev. 06/2003):
U.S. Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726
919/856-4520

Figure 1. The whole body of the West Indian manatee may be visible in clear water; but in the dark and muddy waters of coastal North Carolina, one normally sees only a small part of the head when the manatee raises its nose to breathe.

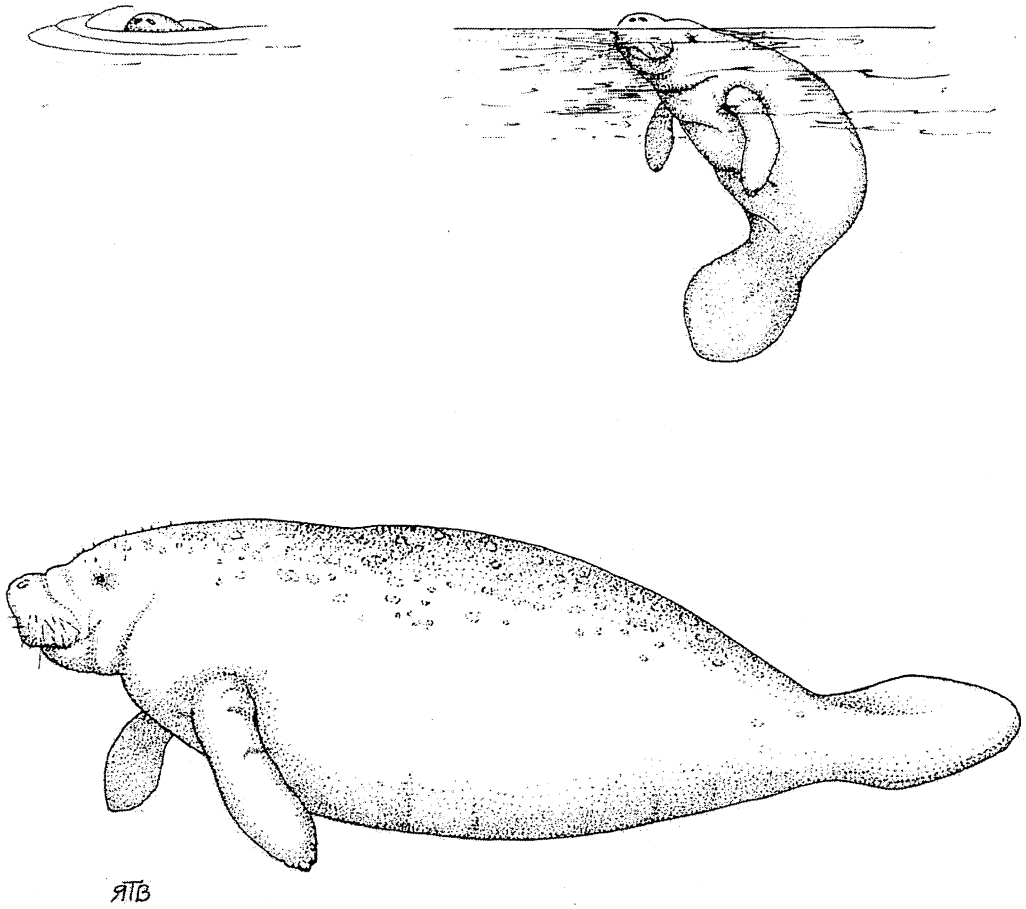


Illustration used with the permission of the North Carolina State Museum of Natural Sciences. Source: Clark, M. K. 1987. Endangered, Threatened, and Rare Fauna of North Carolina: Part I. A re-evaluation of the mammals. Occasional Papers of the North Carolina Biological Survey 1987-3. North Carolina State Museum of Natural Sciences. Raleigh, NC. pp. 52.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

April 21, 2004

N. C. Dept. of Environment and Natural Resources
Division of Coastal Management
151-B NC Highway 24
Hestron Plaza II
Morehead City, NC 28557

ATTENTION: Mr. Bill Arrington

Dear Sir:

SUBJECT: **Application for CAMA Major Development Permit** for the proposed replacement of Bridge No. 40 over Squires Run on SR 1308 in Onslow County, Division 3. Federal Aid No. BRSTP-1308 (3), State Project No. 8.2261301; WBS Element 33324.1.1; TIP No. B-3884. $400 debit work order, 82261301, WBS Element 33324.1.1.

Please find enclosed copies of the Coastal Area Management Act (CAMA) permit application (MP 1 and 5), Categorical Exclusion (CE) document, a copy of green cards from the Adjacent Riparian Property Owners, permit drawings, stormwater permit exemption, and design plan sheets. Work Order No. 82261301 will be debited $400 for the application fee for the CAMA Permit.

PROJECT DESCRIPTION

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 40 over Squire Run on SR 1308 in Onslow County. The 70-foot existing bridge will be replaced with a longer bridge along the existing horizontal alignment. The proposed bridge replacement will be a spanning structure, thereby eliminating piers in the stream channel. The proposed bridge is approximately 131 feet in length and will facilitate the removal of a total of 65 feet (215 cubic yards) of the old causeway from the end bents of existing structure to the end bents of the new bridge. During construction, traffic will be detoured along existing area roads.

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

TELEPHONE: 919-715-1500
FAX: 919-715-1501

WEBSITE: www. NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

PROPOSED IMPACTS

Hand Clearing Activities in Wetlands

Wetlands associated with Squires Run (DWQ Index No. 19-3) Class C NSW will be impacted by the proposed project. The proposed project is considered to be in public trust waters and shoreline and the wetlands are non-coastal. Construction of the proposed project will result in 0.01 acre of hand clearing in wetlands. Clearing will be performed using chain saws and then pulling out trees, no grubbing is proposed. Therefore, these impacts will not be jurisdictional. The hand clearing in the wetland has been reduced to maximum of 5 feet beyond the construction limits. There will be no construction impacts since Bridge No. 40 will be replaced using top down construction and the pile installation method. To restore navigational clearance, the existing and remnant timber piles will be cut 1 foot below streambed and removed.

Restoration Plan

Upon completion of the new bridge, the area outside of wetland will be graded to adjacent topography and revegetated. The 0.01 acres of temporary impacts for the wetlands are expected to naturally recover while the area at both ends of bridge will be graded to adjacent topography and revegetated.

Removal and Disposal Plan

The old causeway will be removed during construction and placed offsite at an upland location. The contractor will be required to submit a reclamation plan for removal of and disposal of all material off-site at an upland location.

Bridge Demolition

Dropping any portion of the structure into waters of the United States will be avoided unless there is no other practical method of removal. During removal of Bridge No. 40, the bridge rails will be removed without dropping them into waters of the United States. There is potential for components of the deck and interior bents to be dropped into waters of the United States, resulting in a temporary fill of approximately 20 cubic yards. NCDOT's Best Management Practices for Bridge Demolition and Removal will be followed.

MITGATION

Although the project is on the Ecosystem Enhancement Program (EEP) list for mitigation, further minimization of impacts during the design phase dropped the project impacts below the threshold for mitigation requirements. NCDOT is not proposing mitigation.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of February 23, 2003, the United States Fish and Wildlife Service (FWS) lists thirteen federally protected species for Onslow County. Of these species, the American alligator (*Alligator mississippiensis*) is listed threatened, due to similarity in appearance, and is not subject to

Section 7 consultation. The list includes the twelve original species mentioned in the CE and the West Indian manatee (*Trichechus manatus*). There is potential habitat for the manatee at this project location, but it is unlikely that a manatee will be encountered. However, NCDOT will commit to adhering to the FWS Guidelines for Avoiding Impacts to the West Indian Manatee (see attached Guidelines). A biological conclusion of "May Affect, but Not Likely to Adversely Affect" has been rendered for the West Indian manatee. A letter of the concurrence has been received from the FWS on February 18, 2004 (see attached letter). Biological conclusions documented in the CE for the eleven remaining species of "No Effect" given based on the absence of habitat within the project area remain valid. Since the publication of the CE in which we agreed to an anadromous fish moratorium, the North Carolina Wildlife Resource Commission (Fritz Rhode) has stated that no moratorium is required.

REGULATORY APPROVALS

NCDOT requests that the proposed work be authorized under a Coastal Area Management Act (CAMA) Major Permit. In a separate application, the NCDOT is also requesting issuance of a United States Army Corps of Engineers Nationwide Permit 23 and a 401 Water Quality Certification from the North Carolina Division of Water Quality.

Thank you for your assistance with this project. If you have any questions or need additional information please call Ms. Deanna Riffey at (919) 715-1409.

Sincerely,

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

GJT/drr

Cc:

Ms. Cathy Brittingham, NCDCM	Mr. David Timpy, USACE, Wilmington
Mr. John Hennessy, DWQ, Raleigh (1 copy)	Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS	Mr. Ron Sechler, NMFS
Mr. Mike Street, NCDMF	Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP	Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics	Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental	Ms. Stacey Baldwin, P.E., PDEA
Mr. H. Allen Pope, P.E., Div. 3 Engineer	Mr. Mason Herndon, Div 3 DEO

Form DCM-MP-1

APPLICATION

(To be completed by all applicants)

1. APPLICANT

a. Landowner:

Name **N. C. Department of Transportation**

Address **1548 Mail Service Center**

City **Raleigh** State **NC**

Zip **27699** Day Phone **(919) 733-3141**

Fax **(919) 733-9794**

b. Authorized Agent **(Contact)**:

Name **Deanna Riffey**

Address **same as above**

City _____ State _____

Zip _____ Day Phone **(919) 715-1409**

Fax **(919) 715-1501**

c. Project name (if any) **B-3884**

NOTE: Permit will be issued in name of landowner(s), and/or project name.

2. LOCATION OF PROPOSED PROJECT

a. County **Onslow**

b. City, town, community or landmark
Richlands

c. Street address or secondary road number
SR 1308

d. Is proposed work within city limits or planning jurisdiction? _____ Yes **X** No

e. Name of body of water nearest project (e.g. river, creek, sound, bay) **Squires Run**

3. DESCRIPTION AND PLANNED USE OF PROPOSED PROJECT

a. List all development activities you propose (e.g. building a home, motel, marina, bulkhead, pier, and excavation and/or filling activities.
Renovating a substandard bridge.

b. Is the proposed activity maintenance of an existing project, new work, or both? **both**

c. Will the project be for public, private or commercial use? **Public transportation**

d. Give a brief description of purpose, use, methods of construction and daily operations of proposed project. If more space is needed, please attach additional pages. **Purpose of project is to provide public transportation. Bridge No. 40 will be replaced at the existing location with a new structure, while maintaining traffic during construction with an off-site detour.**

4. LAND AND WATER CHARACTERISTICS

a. Size of entire tract **approx 1.7 acres**

b. Size of individual lot(s) **N/A**

c. Approximate elevation of tract above MHW or NWL **0.0 – 7.0 feet (NWL)**

d. Soil type(s) and texture(s) of tract
Muckalee loam

e. Vegetation on tract **CP Small Stream Swamp forest: canopy is dominated by cypress, various oaks, green ash, and red maple. Lesser dominate species include loblolly pine, blackgum, sweetgum, and tulip poplar.**

f. Man-made features now on tract **existing bridge and roadway**

g. What is the CAMA Land Use Plan land classification of the site? *(Consult the local land use plan.)*

X Conservation	____ Transitional
____ Developed	____ Community
____ Rural	____ Other

h. How is the tract zoned by local government?
N/A

i. Is the proposed project consistent with the applicable zoning? **X** Yes ____ No
(Attach zoning compliance certificate, if applicable)

j. Has a professional archaeological assessment been done for the tract? ___ Yes **X** No
If yes, by whom? ____

k. Is the project located in a National Registered Historic District or does it involve a National Register listed or eligible property?
____ Yes **X** No

l. Are there wetlands on the site? **X** Yes ___ No
Coastal (marsh) ____ Other **X**
If yes, has a delineation been conducted? **YES**
(Attach documentation, if available)

m. Describe existing wastewater treatment facilities.
N/A

n. Describe location and type of discharges to waters of the state. (For example, surface runoff, sanitary wastewater, industrial/commercial effluent, "wash down" and residential discharges.)
surface runoff

o. Describe existing drinking water supply source.
N/A

5. ADDITIONAL INFORMATION

In addition to the completed application form, the following items must be submitted:

- **A copy of the deed** (with state application only) or other instrument under which the applicant claims title to the affected properties. If the applicant is not claiming to be the owner of said property, then forward a copy of the deed or other instrument under which the owner claims title, plus written permission from the owner to carry out the project.

- **An accurate, dated work plat** (including plan view and cross-sectional drawings) drawn to scale in black ink on an 8 1/2" by 11" white paper. (Refer to Coastal Resources Commission Rule 7J.0203 for a detailed description.)

  Please note that original drawings are preferred and only high quality copies will be accepted. Blue-line prints or other larger plats are acceptable only if an adequate number of quality copies are provided by applicant. (Contact the U.S. Army Corps of Engineers regarding that agency's use of larger drawings.) A site or location map is a part of plat requirements and it must be sufficiently detailed to guide agency personnel unfamiliar with the area to the site. Include highway or secondary road (SR) numbers, landmarks, and the like.

- **A Stormwater Certification**, if one is necessary.

- A list of the **names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail.** Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management. Upon signing this form, the applicant further certifies that such notice has been provided.

Name **see permit drawings page 7 of 8**
Address _____
_____

Name _____
Address _____
Phone _____

Name _____
Address _____
Phone _____

- **A list of previous state or federal permits** issued for work on the project tract. Include permit numbers, permittee, and issuing dates.

N/A

- **A check for $250** made payable to the Department of Environment, Health, and Natural Resources (DEHNR) to cover the costs of processing the application.

- **A signed AEC hazard notice** for projects in oceanfront and inlet areas.

- **A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A - 1 to 10)** If the project involves the expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

6. CERTIFICATION AND PERMISSION TO ENTER ON LAND

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to conditions and restrictions contained in the permit.

I certify that to the best of my knowledge, the proposed activity complies with the State of North Carolina's approved Coastal Management Program and will be conducted in a manner consistent with such program.

I certify that I am authorized to grant, and do in fact, grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

This is the 14 day of April, 2004.

Print Name Philip S. Harris III

Signature _____
Landowner or Authorized Agent

Please indicate attachments pertaining to your proposed project.

___ DCM MP-2 Excavation and Fill Information
___ DCM MP-3 Upland Development
___ DCM MP-4 Structures Information
_X_ DCM MP-5 Bridges and Culverts
___ DCM MP-6 Marina Development

NOTE: Please sign and date each attachment in the space provided at the bottom of each form.

Form DCM-MP-5

BRIDGES AND CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM-MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project.

1. BRIDGES

a. Public __X__ Private _____

b. Type of bridge (construction material)
concrete - cored slab

c. Water body to be crossed by bridge
Squires Run

d. Water depth at the proposed crossing at MLW or NWL **approximately 6.0 feet (NWL)**

e. Will proposed bridge replace an existing bridge?
__X__ Yes _____ No
If yes,
(1) Length of existing bridge **70 ft**
(2) Width of existing bridge **22 ft**
(3) Navigation clearance underneath existing bridge **5.5 ft**
(4) Will all, or a part of, the existing bridge be removed? (Explain) **Entire bridge to be removed and replaced.**

f. Will proposed bridge replace an existing culvert(s)?
_____ Yes __X__ No
If yes,
(1) Length of existing culvert **N/A**
(2) Width of existing culvert **N/A**
(3) Height of the top of the existing culvert above the MHW or NWL **N/A**
(4) Will all, or a part of, the existing culvert be removed? (Explain) **N/A**

g. Length of proposed bridge **131.5 ft**

h. Width of proposed bridge **39 ft**

i. Height of proposed bridge above wetlands
5 ft above NWL

j. Will the proposed bridge affect existing water flow?
_____ Yes __X__ No
If yes, explain _____

k. Navigation clearance underneath proposed bridge
5.0 ft

l. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? __X__ Yes _____ No
If yes, explain **The proposed replacement bridge will be a spanning structure, thereby eliminating the piles in the stream channel.**

m. Will the proposed bridge cross wetlands containing no navigable waters? _____ Yes __X__ No
If yes, explain _____

n. Have you contacted the U.S. Coast Guard concerning their approval?
__X__ Yes _____ No
If yes, please provide record of their action.
See letter, dated 02/15/01 within the appendix of the CE document - stating no permits will be required, under the Advanced Approval category.

2. CULVERTS N/A

a. Water body in which culvert is to be placed

_____

b. Number of culverts proposed _____

c. Type of culvert (construction material, style)

_____

d. Will proposed culvert replace an existing bridge?
_____ Yes _____ No
If yes,
(1) Length of existing bridge _____
(2) Width of existing bridge _____
(3) Navigation clearance underneath existing bridge _____
(4) Will all, or a part of, the existing bridge be removed? (Explain) _____

e. Will proposed culvert replace an existing culvert?
_____ Yes _____ No
If yes,
(1) Length of existing culvert _____
(2) Width of existing culvert _____
(3) Height of the top of the existing culvert above the MHW or NWL _____
(4) Will all, or a part of, the existing culvert be removed? (Explain) _____
_____
_____

f. Length of proposed culvert _____

g. Width of proposed culvert _____

h. Height of the top of the proposed culvert above the MHW or NWL _____

i. Will the proposed culvert affect existing water flow?
_____ Yes _____ No
If yes, explain _____
_____

j. Will the proposed culvert affect existing navigation potential? _____ Yes _____ No
If yes, explain _____
_____

3. EXCAVATION AND FILL

a. Will the placement of the proposed bridge or culvert require any excavation below the MHW or NWL?
____ Yes __X__ No
If yes,
(1) Length of area to be excavated _____
(2) Width of area to be excavated _____
(3) Depth of area to be excavated _____
(4) Amount of material to be excavated in cubic yards _____

b. Will the placement of the proposed bridge or culvert require any excavation within: __NO__
___ Coastal Wetlands ___ SAVs ___ Other Wetlands
If yes,
(1) Length of area to be excavated _____
(2) Width of area to be excavated _____
(3) Amount of material to be excavated in cubic yards _____

c. Will the placement of the proposed bridge or culvert require any highground excavation?
__X__ Yes _____ No
If yes,
(1) Length of area to be excavated **65 ft +/-**
(2) Width of area to be excavated **50 ft**
(3) Amount of material to be excavated in cubic yards **215 cubic yards**

d. If the placement of the bridge or culvert involves any excavation, please complete the following:
(1) Location of the spoil disposal area
To be determined by contractor.
_____
(2) Dimensions of spoil disposal area
N/A
(3) Do you claim title to the disposal area?
_____ Yes __X__ No
If no, attach a letter granting permission from the owner.
(4) Will the disposal area be available for future maintenance? _____ Yes __X__ No
(5) Does the disposal area include any coastal wetlands (marsh), SAVs, or other wetlands?
_____ Yes __X__ No
If yes, give dimensions if different from (2) above. _____

(6) Does the disposal area include any area below the MHW or NWL? ____ Yes __X__ No
If yes, give dimension if different from No. 2 above. _____

e. Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d. above) to be placed below MHW or NWL? ___ Yes __X__ No
If yes,
(1) Length of area to be filled _____
(2) Width of area to be filled _____
(3) Purpose of fill _____

f. Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d. above) to be placed within:
__NO__ Coastal Wetlands __NO__ SAVs __NO__ Other Wetlands If yes,
(1) Length of area to be filled _____
(2) Width of area to be filled _____
(3) Purpose of fill _____

g. Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item d. above) to be placed on highground? ___ Yes __X__ No
If yes,
(1) Length of area to be filled _____
(2) Width of area to be filled _____
(3) Purpose of fill _____

4. GENERAL

a. Will the proposed project involve any mitigation?
____ Yes __X__ No
If yes, explain in detail _____

b. Will the proposed project require the relocation of any existing utility lines? ____ Yes __X__ No
If yes, explain in detail _____

c. Will the proposed project require the construction of any temporary detour structures?
____ Yes __X__ No
If yes, explain in detail _____

d. Will the proposed project require any work channels? ____ Yes __X__ No
If yes, complete Form DCM-MP-2

e. How will excavated or fill material be kept on site and erosion controlled? **Design Standards for Sensitive Watersheds will be used.**

f. What type of construction equipment will be used (for example, dragline, backhoe or hydraulic dredge)? **Standard bridge and roadway construction equipment.**

g. Will wetlands be crossed in transporting equipment to project site? ____ Yes __X__ No
If yes, explain steps that will be taken to lessen environmental impacts. _____

h. Will the placement of the proposed bridge or culvert require any shoreline stabilization?
____ Yes __X__ No
If yes, explain in detail _____

Philip S. Harris III
Applicant or Project Name

Signature

4/14/04
Date

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here
B 3884

Sent To: Elmer J. Cummings
Street, Apt. No.; or PO Box No.: 1023 E. Vance St.
City, State, ZIP+4: Wilson NC 27893

PS Form 3800, May 2000 — See Reverse for Instructions

7000 1670 0003 2581 7641

USPS
Permit No. G-10

ZIP+4 in this box •

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here
B 3884

Sent To: William Cummings, Est. c/o Rosa Lee Cummings
Street, Apt. No.; or PO Box No.: 9515 Rainbow Forest Drive
City, State, ZIP+4: Charlotte, NC 28277

PS Form 3800, May 2000 — See Reverse for Instructions

7000 1670 0003 2581 7665

ZIP+4 in this box •

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

UNITED STATES POSTAL SERVICE

STON, NC

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here
B 3884

Sent To: Lee Mills Est.
Street, Apt. No.; or PO Box No.: 6778 Wise Fork Rd
City, State, ZIP+4: Dover, NC 28526

PS Form 3800, May 2000 — See Reverse for Instructions

7000 1670 0003 2581 7658

IP+4 in this box •

Michael F. Easley, Governor

William G. Ross, Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E., Director
Division of Water Quality

Wilmington Regional Office

RECEIVED

APR 07 2003

DIVISION OF HIGHWAYS
HYDRAULICS UNIT

April 2, 2003

Mr. Marshall Clawson
NCDOT
1590 Mail Service Center
Raleigh, NC 27699

Subject: **EXEMPTION** from Stormwater Management Permit Regulations
Stormwater Project No. SW8030330
B-3884 Replacement Bridge)
Onslow County

Dear Mr. Clawson:

The Wilmington Regional Office received a copy of your application for the project known as B-3884 (Replacement Bridge). Staff of the Wilmington Regional Office have reviewed the application for the applicability of the Stormwater Management rules to the proposed activity at this project. Based on our review, you do not appear to be proposing a development activity on this site at this point in time that would be subject to the stormwater requirements as provided for in 15A NCAC 2H.1000. Please be advised that other regulations will potentially apply to your proposed activities.

If your project disturbs one acre or more and has a point source discharge of stormwater runoff, then it is subject to the National Pollutant Discharge Elimination System (NPDES) stormwater discharge requirements. You are required to have an NPDES permit for stormwater discharge from projects meeting these criteria.

This exemption applies only to the Coastal Stormwater Management Permit for the currently proposed activity. If at any time in the future, development of any part of this site is planned, as defined in NCAC 2H.1000, or if the proposed activities differ in any manner from what is shown on the plans on file with the Division, you must submit the project for review of the applicability of the stormwater management rules. If you have any questions concerning this matter, please do not hesitate to call me at (910) 395-3900.

Sincerely,

Rick Shiver

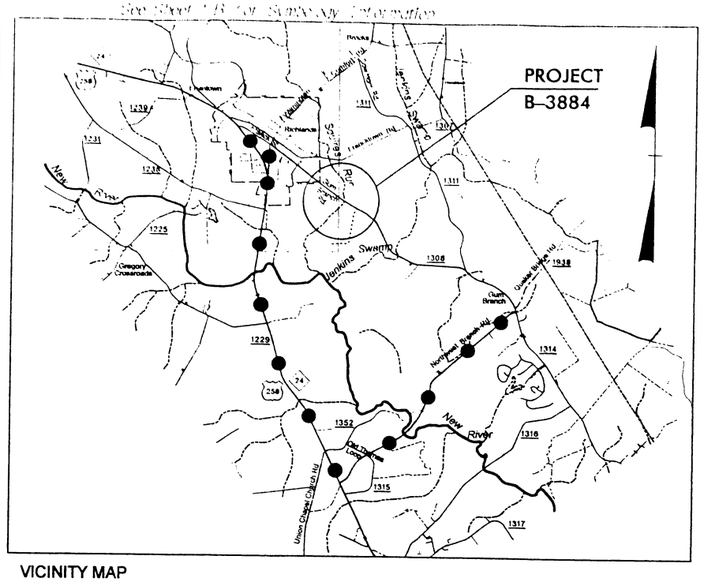
Rick Shiver
Water Quality Regional Supervisor

RSS/arl: S:\WQS\STORMWAT\EXEMPT\030330.Mar
cc: Ted L. Bartelt, P.E.
Mitchell Parker, Onslow County Building Inspections
Jim Gregson
Linda Lewis
Wilmington Regional Office
Central Files

B-3884

PROJECT: 8.2261303

See Sheet 1B for Survey Information



VICINITY MAP
OFFSITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW COUNTY

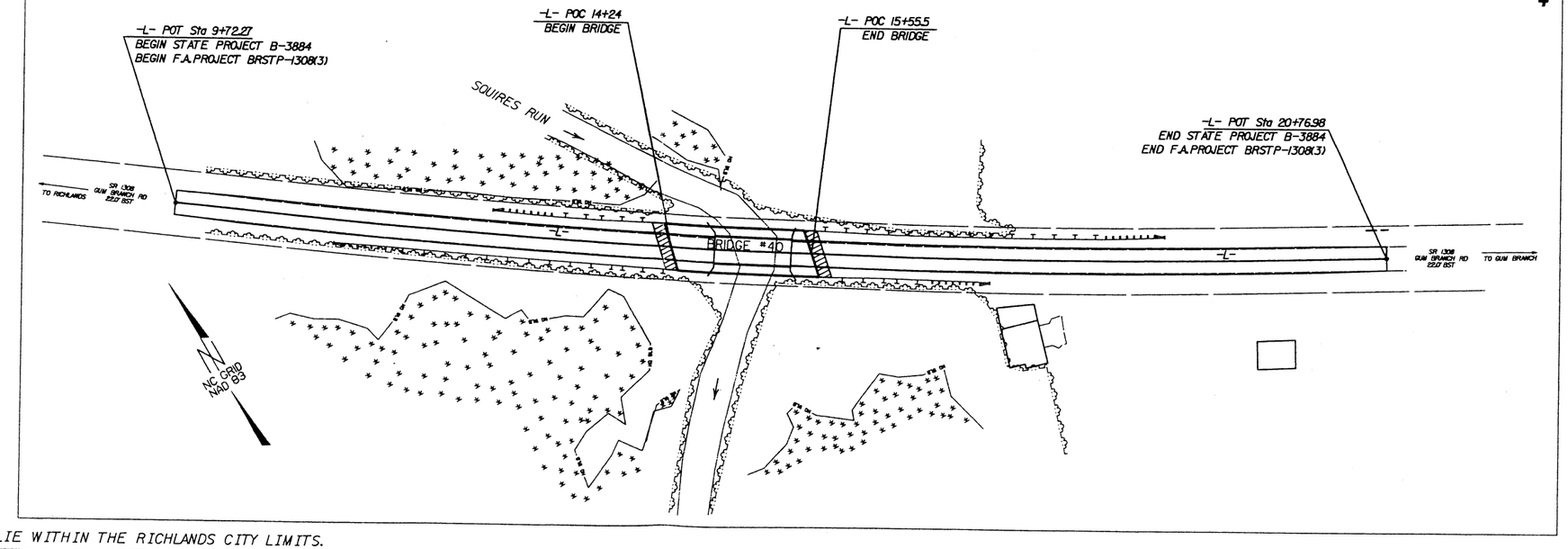
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3884	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
8.2261301	BRSTP-1308(3)	PE/UTIL
8.2261302	BRSTP-1308(3)	R/W
8.2261303	BRSTP-1308(3)	CONST

LOCATION: *BRIDGE NO. 40 AND APPROACHES OVER SQUIRES RUN ON SR 1308*

TYPE OF WORK: *PAVEMENT, GRADING, STRUCTURES, DRAINAGE, AND GUARDRAIL*

4



THIS PROJECT DOES NOT LIE WITHIN THE RICHLANDS CITY LIMITS.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2003 = 8,500
ADT 2023 = 12,400
DHV = 12 %
D = 60 %
T = 3 % *
V = 60 MPH

* TTST 1% DUAL 2%

PROJECT LENGTH

LENGTH OF ROADWAY F.A. PROJECT BRSTP-1308(3) = 0.184 MILE
LENGTH OF STRUCTURE F.A. PROJECT BRSTP-1308(3) = 0.025 MILE
LENGTH OF STATE PROJECT 8.2661303 = 0.209 MILE

NCDOT CONTACT:

CATHY HOUSER, PE
PROJECT ENGINEER – DESIGN SERVICES

Prepared for NCDOT In the Office of:
CH ENGINEERING, PLLC
4601 LAKE BOONE TRAIL, RALEIGH, NC 27607

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 29, 2002

LETTING DATE: AUGUST 19, 2003

THOMAS R. HEPLER, PE
PROJECT ENGINEER

CAROLYN E. KESLER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

PROJECT REFERENCE NO.	SHEET NO.
B-5884	11

*S.U.E = SUBSURFACE UTILITY ENGINEER

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

- Edge of Pavement
- Curb
- Prop. Slope Stakes Cut — C
- Prop. Slope Stakes Fill — F
- Prop. Woven Wire Fence
- Prop. Chain Link Fence
- Prop. Barbed Wire Fence
- Prop. Wheelchair Ramp — WCR
- Curb Cut for Future Wheelchair Ramp — CCFR
- Exist. Guardrail
- Prop. Guardrail
- Equality Symbol
- Pavement Removal

RIGHT OF WAY

- Baseline Control Point
- Existing Right of Way Marker
- Exist. Right of Way Line w/Marker
- Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
- Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
- Exist. Control of Access Line — CA
- Prop. Control of Access Line — CA
- Exist. Easement Line — E
- Prop. Temp. Construction Easement Line — E
- Prop. Temp. Drainage Easement Line — TDE
- Prop. Perm. Drainage Easement Line — PDE

HYDROLOGY

- Stream or Body of Water
- River Basin Buffer — BZ
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Shoreline
- Falls, Rapids
- Prop Lateral, Tail, Head Ditches — FLOW

STRUCTURES

MAJOR

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

MINOR

- Head & End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Boxes — CB
- Paved Ditch Gutter

UTILITIES

- Exist. Pole
- Exist. Power Pole
- Prop. Power Pole
- Exist. Telephone Pole
- Prop. Telephone Pole
- Exist. Joint Use Pole
- Prop. Joint Use Pole
- Telephone Pedestal — T
- U/G Telephone Cable Hand Hold — HH
- Cable TV Pedestal — C
- U/G TV Cable Hand Hold — HH
- U/G Power Cable Hand Hold — HH
- Hydrant
- Satellite Dish
- Exist. Water Valve
- Sewer Clean Out
- Power Manhole — P
- Telephone Booth
- Cellular Telephone Tower
- Water Manhole — W
- Light Pole
- H-Frame Pole
- Power Line Tower
- Pole with Base
- Gas Valve
- Gas Meter
- Telephone Manhole — T
- Power Transformer
- Sanitary Sewer Manhole — S
- Storm Sewer Manhole — S
- Tank; Water, Gas, Oil — G
- Water Tank With Legs — W
- Traffic Signal Junction Box — S
- Fiber Optic Splice Box — F
- Television or Radio Tower
- Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement — TS

- Recorded Water Line — W
- Designated Water Line (S.U.E.*) — W
- Sanitary Sewer — SS
- Recorded Sanitary Sewer Force Main — FSS
- Designated Sanitary Sewer Force Main(S.U.E.*) — FSS
- Recorded Gas Line — G
- Designated Gas Line (S.U.E.*) — G
- Storm Sewer — S
- Recorded Power Line — P
- Designated Power Line (S.U.E.*) — P
- Recorded Telephone Cable — T
- Designated Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Unknown Utility (S.U.E.*) — ?UTL
- Recorded Television Cable — TV
- Designated Television Cable (S.U.E.*) — TV
- Recorded Fiber Optics Cable — FO
- Designated Fiber Optics Cable (S.U.E.*) — FO
- Exist. Water Meter
- U/G Test Hole (S.U.E.*) — ATTUR
- Abandoned According to U/G Record — E.O.I.
- End of Information

BOUNDARIES & PROPERTIES

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Property Line Symbol — PL
- Exist. Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Property Number — 123
- Parcel Number — 6
- Fence Line
- Existing Wetland Boundaries — WW & ISBW
- High Quality Wetland Boundary — WLB
- Medium Quality Wetland Boundaries — HQ WLB
- Low Quality Wetland Boundaries — MQ WLB
- Proposed Wetland Boundaries — LQ WLB
- Existing Endangered Animal Boundaries — WLB
- Existing Endangered Plant Boundaries — LAB — LPB

BUILDINGS & OTHER CULTURE

- Buildings
- Foundations
- Area Outline
- Gate
- Gas Pump Vent or U/G Tank Cap
- Church
- School
- Park
- Cemetery
- Dam
- Sign — S
- Well — W
- Small Mine
- Swimming Pool

TOPOGRAPHY

- Loose Surface
- Hard Surface
- Change in Road Surface
- Curb
- Right of Way Symbol — R/W
- Guard Post — GP
- Paved Walk
- Bridge
- Box Culvert or Tunnel
- Ferry
- Culvert
- Footbridge
- Trail, Footpath
- Light House

VEGETATION

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

RAILROADS

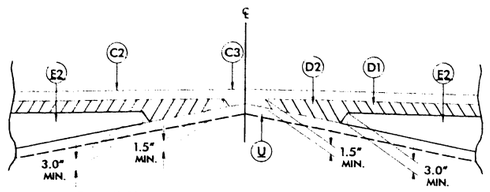
- Standard Gauge — SEA TRANSPORTATION
- RR Signal Milepost — MILEPOST 25
- Switch — SWITCH

RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

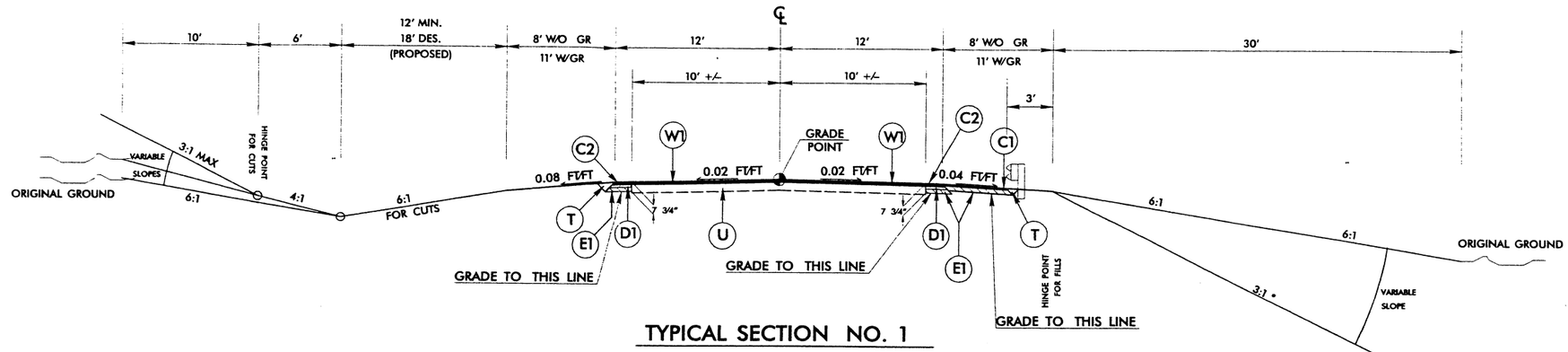
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD.	E2	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" AND NO GREATER THAN 5½" IN DEPTH.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	U	EXISTING PAVEMENT.
C3	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH PLACED IN LAYERS NOT TO EXCEED 1½"	T	EARTH MATERIAL.
D1	PROP. APPROX. 2¼" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 256.5 LBS. PER SQ. YD.	W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
D2	PROP. VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD PER 1" DEPTH PLACED IN LAYERS NOT LESS THAN 1½" AND GREATER THAN 3".		
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.		

NOTE: PAVEMENT SLOPES ARE 1:1 UNLESS OTHERWISE NOTED



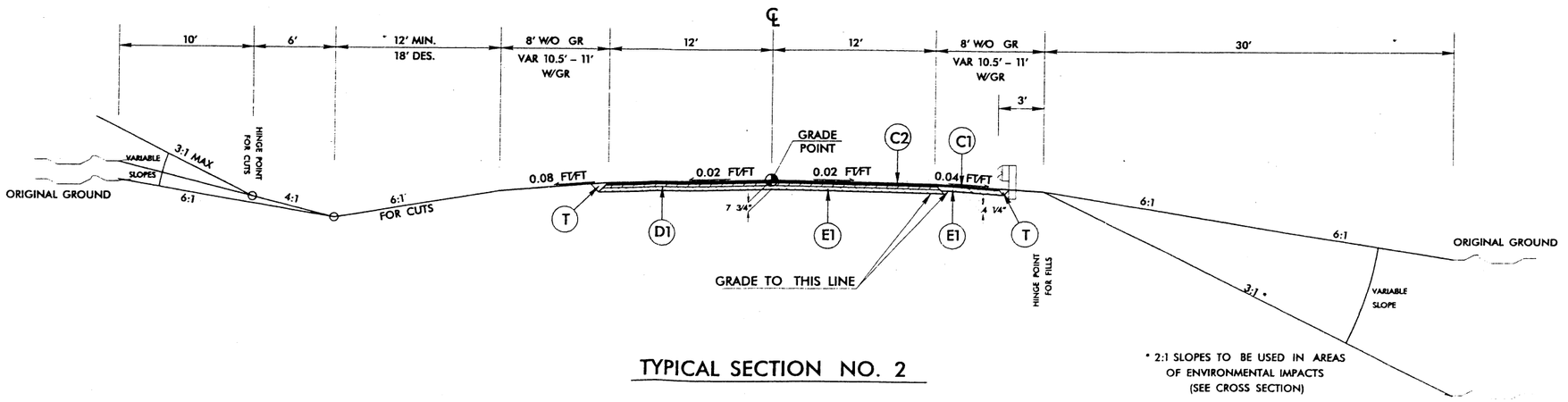
Detail Showing Method of Wedging (W1)



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
-L- STATION 10+22.27 TO 13+99
-L- STATION 15+88.50 TO 20+26.98
TRANSITION FROM EXISTING TO T.S. NO.1 9+72.27 TO 10+22.27
TRANSITION FROM T.S. NO. 1 TO EXISTING 20+26.98 TO 20+76.98

* 2:1 SLOPES TO BE USED IN AREAS OF ENVIRONMENTAL IMPACTS (SEE CROSS SECTION)



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
-L- STATION 13+99 TO 14+24 (BEGIN BRIDGE)
-L- 15+51.5 (END BRIDGE) TO 15+88.50

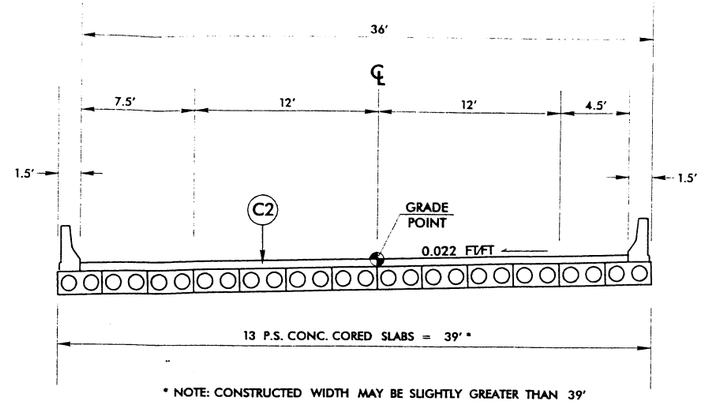
* 2:1 SLOPES TO BE USED IN AREAS OF ENVIRONMENTAL IMPACTS (SEE CROSS SECTION)

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5384	2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

ABBREVIATED PAVEMENT SCHEDULE	
C1	PROP. 1¼" TYPE S9.5B
C2	PROP. 2½" TYPE S9.5B
C3	PROP. VAR. DEPTH TYPE S9.5B
D1	PROP.2¼" TYPE I19.0B
D2	PROP. VAR. DEPTH TYPE I19.0B
E1	PROP. 3" TYPE B25.0B
E2	PROP. VAR. DEPTH TYPE B25.0B
J1	PROP. 4" AGGREGATE BASE COURSE
U	EXISTING PAVEMENT.
T	EARTH MATERIAL.
W1	PROP. VAR. DEPTH ASPHALT PAVING.

NOTE: PAVEMENT SLOPES ARE 1:1 UNLESS OTHERWISE NOTED



* NOTE: CONSTRUCTED WIDTH MAY BE SLIGHTLY GREATER THAN 39' DUE TO PRECAST DIMENSION AND JOINTS. WIDTH DEVIATION SHALL BE ACCOUNTED FOR IN THE SHOULDER.

TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:
–L– STATION 14+24 (BEG BRIDGE) TO –L– STATION 15+55.5 (END BRIDGE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

B-3888-1 | 5-A

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	CONST EASE.	PERM. DRAIN EASE.	TEMP. DRAIN EASE.
1	LEE MILLS EST.	266.79 AC	-	183.04 AC	83.75 AC	10,961.9 SF	1469.6 SF	-
2	WILLIAM CUMMINGS EST.	31.56 AC	0.36 AC	14.10 AC	17.10 AC	4,413.0 SF	-	-
3	ELMER J. AND MINNIE E. CUMMINGS	1.98 AC	0.19 AC	1.79 AC	-	553.8 SF	-	-

SUMMARY OF QUANTITIES

SUMMARY DESC.NO.	SECT.NO.	QUANTITY	UNIT	ITEM DESCRIPTION

SUMMARY DESC.NO.	SECT.NO.	QUANTITY	UNIT	ITEM DESCRIPTION

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	CU. YDS. C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	LIN. *FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	D.I. STD. 840.14 OR STD. 840.35	D.I. FRAME & GRATE STD. 840.22	M.D.I. TYPE "A" STD. 840.17 OR 840.26	M.D.I. TYPE "B" STD. 840.18 OR 840.27	M.D.I. TYPE "D" STD. 840.19 OR 840.28	M.D.I. FRAME WITH GRATE STD. 840.22	M.D.I. FRAME WITH TWO GRATES STD. 840.22	M.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	TBDI STD. 840.35	FRAME & NARROW SLOT FLAT GRATE STD. 840.29	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
			FROM	TO		INVERT ELEVATION																																											
13+95	LT	2	1			21.50	N		4'																																									
13+95	LT	1	3		21.30	21.10	N		53'																																									
15+75	LT	4	5		22.63	20.59	N		53'																																									
TOTAL									110																																									

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS XI MOD	XI	GRAU 350	M-350	III	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
L	11+18.31	14+18.31	RT	300	-	-	BRIDGE	-	8	11	50'	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-
L	12+67.65	14+05.15	LT	137.5	-	-	-	BRIDGE	8	11	-	50'	-	1	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-
L	15+73.16	17+10.66	RT	137.5	-	-	-	BRIDGE	8	10	-	50'	-	1	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-
L	15+60.12	18+60.12	LT	300	-	-	BRIDGE	-	8	11	50'	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-
			SUBTOTAL	875										SUBTOTAL			4		4											
		MINUS 4	GRAU-350 @ 50' EA	200																										
		MINUS 4	TYPE III @ 18.75' EA	75																										
			TOTAL	600																										

ADDITIONAL GUARDRAIL POSTS 5 EACH

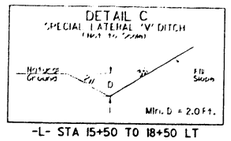
ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
M.D.I.	MEDIAN DROP INLET
M.D.I. (N.S.)	MEDIAN DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUCTION BOX

DATUM DESCRIPTION

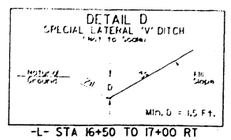
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3884-2" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 418514.09811 EASTING: 2439360.63011 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998980983 THE NC LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3884-2" TO -L- STATION 9+72.27 IS S 54°34'45.6" E 752.16' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

DETAIL C
SPECIAL LATERAL "V" DITCH
(NOT TO SCALE)



-L- STA 15+50 TO 18+50 LT

DETAIL D
SPECIAL LATERAL "V" DITCH
(NOT TO SCALE)



-L- STA 16+50 TO 17+00 RT

PROJECT REFERENCE NO.	SHEET NO.
B-3884	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

FOR -L- PROFILE SEE SHEET 5
FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S-19

REVISIONS

-L-
PI Sta 15+25.12
Δ = 6°34'30.7" (LT)
D = 0°45'00.0"
L = 876.69'
T = 438.83'
R = 7,639.44'
SUPER = .022 FT/FT
RUNOFF = 66'

NC GRID NAD 83

PCSta. 10+86.29

-BL- 3 5+00.00 PINC
-L- POT 9+99.64 15.43 RT.

BEGIN BRIDGE
-L- POC 14+24.00

+85 LT
BEGIN SHLDR
BERM GUTTER

+517
35 LT
EXIST

BM#2
-BL- STA 8+97.86
103.21 LEFT
ELEV. 21.84'

PL
50 LT

-BL- 4 9+43.36 PINC
-L- POC 14+42.05 23.15 RT.

+60 LT
END SHLDR
BERM GUTTER

END BRIDGE
-L- POC 15+55.50

POT Sta. 20+76.98
END STATE PROJECT B-3884

PT Sta. 19+62.98

20+76.98
EXIST
50 LT

19+62.98
50 LT

BM#1
-BL- STA 15+96.69
163.08 LEFT
ELEV. 33.87'

① LEE MILLS EST.

② WILLIAM CUMMINGS EST.

③ ELMER J. CUMMINGS and wife MINNIE E. CUMMINGS

SQUIRES RUN

S30°26'55"E 142.13'

S42°18'48"E 15.63'

S22°41'58"E 35.11'

N58°26'40"W 167.97'

S29°10'20"W 196.35'

S32°10'20"W 200.00'

N49°15'08"E 90.11'

N54°19'56"W 107.56'

N57°17'17"W 471.36'

S65°27'35"E 82.71'

S17°17'17"E 133.15'

WOODS

GRAU 350

DOUBLE 2GI W/15" RCP

CONC BRIDGE #40

REMOVE EXIST (SEE STR. PLANS)

15" RCP

CLASS II RIP RAP TO SHOULDER (TYP.) (STRUCTURE PAY ITEM)

SPECIAL DITCH (SEE DETAIL C)

PROPOSED GUARDRAIL

BEGIN APPROACH SLAB
-L- POC 14+12.00

PDE PERM. DRAINAGE EASEMENT

PREFORMED SCOUR HOLE (SEE DETAIL A)

18" SHLDR BERM GUTTER (TYP)

PREFORMED SCOUR HOLE (SEE DETAIL A)

SPECIAL DITCH (SEE DETAIL D)

18" SHLDR BERM GUTTER

RUINS

CONC

ISFD

END APPROACH SLAB
-L- POC 15+67.50

-L- POT Sta 9+72.27
BEGIN STATE PROJECT B-3884
MATCH EXISTING

-BL- 5 15+97.40 PINC
-L- POT 20+94.82 16.58 RT.

SR 1308 GUM BRANCH RD 22.0' BST

S 53° 39' 46.9" E

S 60° 14' 17.7" E

EXISTING R/W

60'

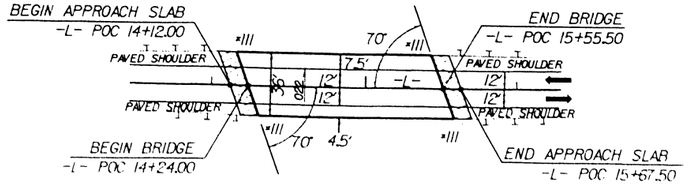
30' (TYP)

50' TAPER LT. & RT.

40' RT

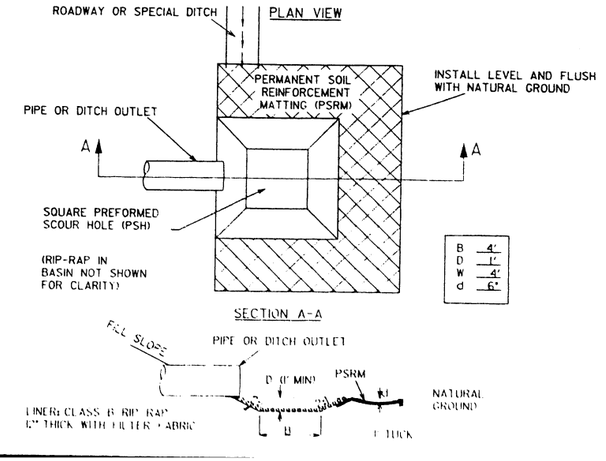
55' RT

BRIDGE DETAIL SHOWING
PAVEMENT - BRIDGE RELATIONSHIP



* GUARDRAIL ANCHOR TYPE REQUIRED

DETAIL A: PREFORMED SCOUR HOLE
NOT TO SCALE



PROJECT REFERENCE NO.	SHEET NO.
B-3814	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STRUCTURE HYDRAULIC DATA:

DRAINAGE AREA	= 20.31 SQ MI
DESIGN DISCHARGE	= 1900 CFS
DESIGN HW FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 23.7 FT
BASE DISCHARGE	= 3,090 CFS
BASE HW ELEVATION	= 25.0 FT
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING DISCHARGE	= 3,240 CFS
OVERTOPPING ELEVATION	= 26.8 FT
BASE WATERWAY OPENING (LX)	= 447 SF
BASE WATERWAY OPENING (PR)	= 608 SF

WHITE OAK RIVER BASIN

BM #1
N 417,598.0
E 2,140,982.6
ELEV 33.87'
RR SPIKE SET IN POWER POLE
-BL- STA 15+96.7
165' LT

BM #2
N 417,902.3025
E 2,140,361.4177
ELEV 31.24'
RR SPIKE SET IN 24" CYPRESS
-BL- STA 13+97.4
105.2' LT

PI = 13+75.00
EL = 25.13'
K = 119
VC = 75'
DS = 60 MPH

BEGIN BRIDGE
14+24.00

END BRIDGE
15+45.50

PI = 17+00.00
EL = 26.13'
K = 170
VC = 200'
DS = 60 MPH

FEATHER TO EXISTING
10'

(-)0.200%

(+)0.300%

(+)0.300%

(+)1.4786%

285'

165'

-LT- STA 13+98.27
BEGIN GRADE
ELEV = 25.62

BEGIN SPECIAL DITCH LT 15+60
ELEV. 20.25

BEGIN SPECIAL DITCH RT 15+75
ELEV. 20.59

END SPECIAL DITCH RT 17+00
ELEV 23.90

END SPECIAL DITCH LT 16+50
ELEV 25.20

-LT- STA 20+66.98
END GRADE
ELEV 31.55

FEATHER TO EXISTING
10'

40
30
20
10
0

10 11 12 13 14 15 16 17 18 19 20

United States Department of the Interior

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

February 18, 2004

Phillip Harris
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

This letter is in response to your letter of February 6, 2004 which provided the U.S. Fish and Wildlife Service (Service) with the biological conclusion of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 40 on SR 1308 over Squires Run in Onslow County (TIP No. B-3884) may affect, but is not likely to adversely affect the federally endangered West Indian manatee (*Trichechus manatus*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

NCDOT has committed to implement the Service's **Precautionary Guidelines for General Construction in Areas Which May Be Used by the West Indian Manatee** (copy enclosed). Given this commitment, the Service concurs that the project may affect, but is not likely to adversely affect the federally endangered West Indian manatee. We believe that the requirements of section 7 (a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

Garland B. Pardue, Ph.D.
Ecological Services Supervisor

enclosure: Precautionary Guidelines for General Construction in Areas Which May Be Used by the West Indian Manatee

cc: Dave Timpy, USACE, Wilmington, NC
John Hennessy, NCDWQ, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC

Precautionary Guidelines for General Construction in Areas Which May Be Used by the West Indian Manatee in North Carolina

1. The applicant will inform all personnel associated with the project that manatees may be present in the project area, primarily during the months June through October, and the need to avoid any harm to these endangered mammals. The applicant will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.

2. The applicant will advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Endangered Species Act of 1973, as amended, and the Marine Mammal Protection Act of 1972, as amended.

3. If a manatee is seen within 300 ft of the active daily construction/dredging operation or vessel movement, all appropriate precautions must be implemented to ensure protection of the manatee. The precautions must include the operation of all moving equipment no closer than 50 ft of a manatee. Operation of any equipment closer than 50 ft to a manatee must necessitate immediate shutdown of the equipment. Activities will not resume until the manatee has departed the project area on its own volition. Manatees should not be herded away or harassed into leaving.

4. Any collision with and/or injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service and the North Carolina Wildlife Resources Commission immediately, and dredging should be postponed until cause of injury or mortality can be determined and a revised dredging and or monitoring plan is produced and approved by the Service.

5. A sign must be posted in all vessels associated with the project where it is clearly visible to the vessel operator. The sign should state:

> CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes with 50 ft of operating equipment. A collision with and/or injury to a manatee will be reported immediately to the U.S. Fish and Wildlife Service and the North Carolina Wildlife Resources Commission.

6. The applicant/contractor will maintain a log detailing sightings, collisions, or injuries to manatees during project construction. After construction, the applicant/contractor will prepare a report which summarizes all information on manatees during construction. This report will be submitted to the U.S. Fish and Wildlife Service and the North Carolina Wildlife Resources Commission.

7. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than 4 ft clearance from the bottom. All vessels will follow routes of deep water whenever possible.

8. If siltation barriers must be placed in shallow water, these barriers will be: (a) made of material in which manatees cannot become entangled; (b) secured in a manner that they cannot break free and entangle manatees; and, (c) regularly monitored to ensure that manatees have not become entangled. Barriers will be placed in a manner to allow manatees entry to or exit from essential habitat.

United States Department of the Interior

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

GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATEE
Precautionary Measures for Construction Activities in North Carolina Waters

The West Indian manatee (*Trichechus manatus*), also known as the Florida manatee, is a Federally-listed endangered aquatic mammal protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) and the Marine Mammal Protection Act of 1972, as amended (16 U.S.C 1461 *et seq.*). The manatee is also listed as endangered under the North Carolina Endangered Species Act of 1987 (Article 25 of Chapter 113 of the General Statutes). The U.S. Fish and Wildlife Service (Service) is the lead Federal agency responsible for the protection and recovery of the West Indian manatee under the provisions of the Endangered Species Act.

Adult manatees average 10 feet long and weigh about 2,200 pounds, although some individuals have been recorded at lengths greater than 13 feet and weighing as much as 3,500 pounds. Manatees are commonly found in fresh, brackish, or marine water habitats, including shallow coastal bays, lagoons, estuaries, and inland rivers of varying salinity extremes. Manatees spend much of their time underwater or partly submerged, making them difficult to detect even in shallow water. While the manatee's principal stronghold in the United States is Florida, the species is considered a seasonal inhabitant of North Carolina with most occurrences reported from June through October.

To protect manatees in North Carolina, the Service's Raleigh Field Office has prepared precautionary measures for general construction activities in waters used by the species. Implementation of these measure will allow in-water projects which do not require blasting to proceed without adverse impacts to manatees. In addition, inclusion of these guidelines as conservation measures in a Biological Assessment or Biological Evaluation, or as part of the determination of impacts on the manatee in an environmental document prepared pursuant to the National Environmental Policy Act, will expedite the Service's review of the document for the fulfillment of requirements under Section 7 of the Endangered Species Act. These measures include:

1. The project manager and/or contractor will inform all personnel associated with the project that manatees may be present in the project area, and the need to avoid any harm to these endangered mammals. The project manager will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.

2. The project manager and/or the contractor will advise all construction personnel that

there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act and the Endangered Species Act.

3. If a manatee is seen within 100 yards of the active construction and/or dredging operation or vessel movement, all appropriate precautions will be implemented to ensure protection of the manatee. These precautions will include the immediate shutdown of moving equipment if a manatee comes within 50 feet of the operational area of the equipment. Activities will not resume until the manatee has departed the project area on its own volition (i.e., it may not be herded or harassed from the area).

4. Any collision with and/or injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service (ph. 919.856.4520 ext. 16), the National Marine Fisheries Service (ph. 252.728.8762), and the North Carolina Wildlife Resources Commission (ph. 252.448.1546).

5. A sign will be posted in all vessels associated with the project where it is clearly visible to the vessel operator. The sign should state:

> CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes within 50 feet of the vessel or operating equipment. A collision with and/or injury to the manatee must be reported immediately to the U.S. Fish and Wildlife Service (919-856-4520 ext. 16), the National Marine Fisheries Service (252.728.8762), and the North Carolina Wildlife Resources Commission (252.448.1546).

6. The contractor will maintain a log detailing sightings, collisions, and/or injuries to manatees during project activities. Upon completion of the action, the project manager will prepare a report which summarizes all information on manatees encountered and submit the report to the Service's Raleigh Field Office.

7. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than a four foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

8. If siltation barriers must be placed in shallow water, these barriers will be: (a) made of material in which manatees cannot become entangled; (b) secured in a manner that they cannot break free and entangle manatees; and, (c) regularly monitored to ensure that manatees have not become entangled. Barriers will be placed in a manner to allow manatees entry to or exit from essential habitat.

Prepared by (rev. 06/2003):
U.S. Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726
919/856-4520

Figure 1. The whole body of the West Indian manatee may be visible in clear water; but in the dark and muddy waters of coastal North Carolina, one normally sees only a small part of the head when the manatee raises its nose to breathe.

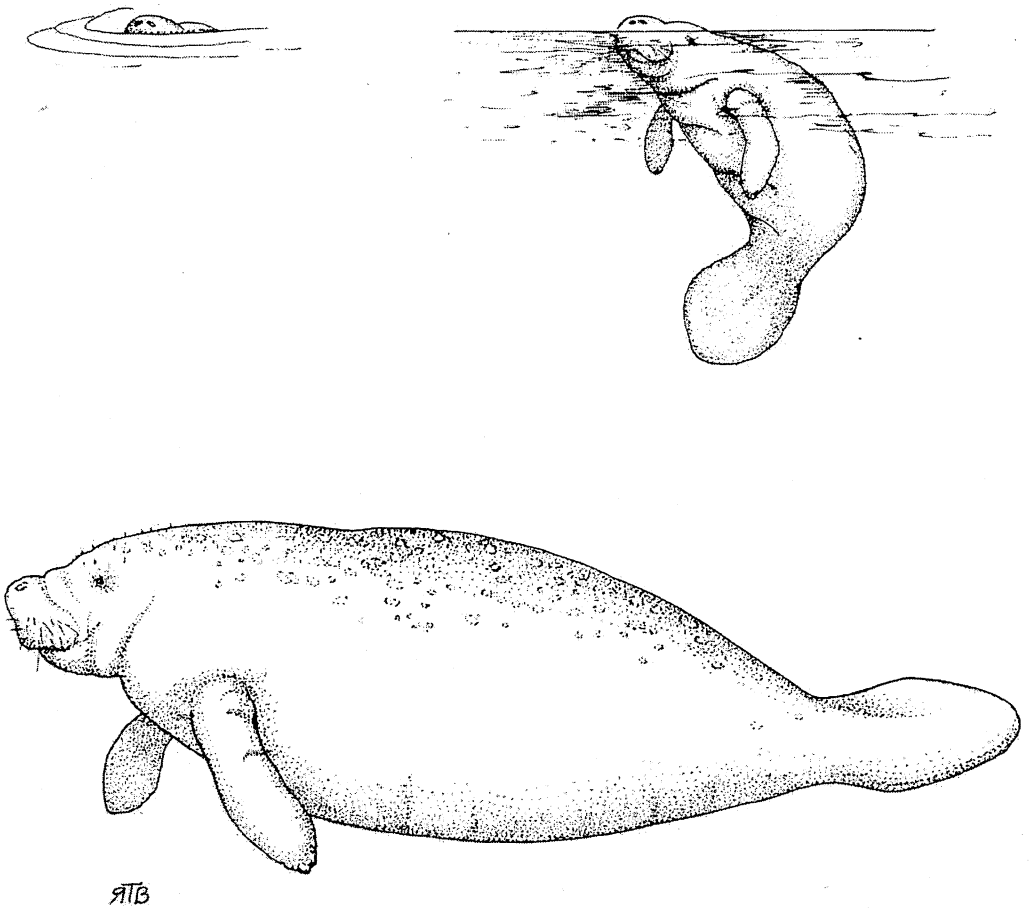


Illustration used with the permission of the North Carolina State Museum of Natural Sciences. Source: Clark, M. K. 1987. Endangered, Threatened, and Rare Fauna of North Carolina: Part I. A re-evaluation of the mammals. Occasional Papers of the North Carolina Biological Survey 1987-3. North Carolina State Museum of Natural Sciences. Raleigh, NC. pp. 52.