STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 28, 2004

U.S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1000
Washington, NC 27889-1000

ATTENTION: Mr. Mike Bell
NCDOT Coordinator

Dear Sir:

Subject: **Nationwide 23 Permit Application** for the proposed replacement of Bridge No. 52 over Turkey Creek on SR 1131, Wilson County, Federal Aid Project No. BRZ-1131(7), State Project No. 8.2341901, TIP B-4327, Division 4.

Please find enclosed a copy of the project planning report for the above referenced project. Bridge No. 52 will be replaced in the existing location with a 130-foot single span steel girder bridge with a 28-foot width. The structure will provide two 11-foot travel lanes with three feet of lateral clearance on each side. The new approach roadway will provide two 11-foot travel lanes with six feet grass shoulders (nine feet where guardrail is required). A design speed of 60 mph will be provided. While the bridge is under construction, traffic will utilize an off-site detour.

Impacts to Waters of the United States

There will be 0.52 acres of permanent jurisdictional wetland impacts associated with this project. Permanent impacts include 0.35 acre of fill and 0.17 acre of mechanized clearing. There will be 0.01 acre of permanent surface water impacts.

Bridge Demolition

Bridge No. 52 is a seven span bridge composed of a reinforced concrete deck with an asphalt-wearing surface on steel I-beams. The existing structure is 118 feet long. Due to the structural components of the bridge, there will likely be no temporary fill associated with the removal of Bridge No. 52. All measures will be taken to avoid any temporary fill from entering Waters of the U.S. Best Management Practices for Bridge Demolition and Removal will be implemented.

As noted in the project's PCE document, NCDOT will observe an in-stream construction moratorium from April 1 to June 15 for sunfish. This moratorium will include bridge demolition activities that could result in minor amounts of bridge material entering the surface waters.

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Water Resources

Turkey Creek is located in the sub-basin 030407 of Neuse River Basin which is located within the United States Geological Survey Hydrologic Unit 03020203 of the Atlantic/Gulf Region. The DWQ best usage classification (Index No. 27-86-3-(1)) is C NSW. *Class* C water resources are defined as suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Wastewater discharge and stormwater management requirements apply to these waters. The supplemental *NSW* classification refers to nutrient sensitive waters which require limitations on nutrient input.

Avoidance and Minimization

In order to avoid having piers in the water and work bridge impacts, a single-span, 130-foot bridge was designed for the replacement. Roadway fill slopes were steepened from 4:1 to 3:1 to minimize wetland impacts. The 3: 1 slopes will reduce wetland impacts but are not so steep that major erosion and slope failure are likely to occur.

Mitigation

Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District" (MOA), it is understood that the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP), will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 2005.

Compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the EEP. The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible. The remaining, unavoidable impacts to 0.52 acre of jurisdictional wetlands will be offset by compensatory mitigation provided by the EEP. A copy of the EEP acceptance letter dated September 15, 2004 is provided with the application.

Federally Protected Species

As of January 29, 2003, the United States Fish and Wildlife Service (USFWS) lists three federally protected species for Wilson County. The red-cockaded woodpecker *(Picoides borealis),* dwarf wedgemussel *(Alasmidonta heterodon),* and Michaux's sumac *(Rhus michauxii)* are listed as endangered. Biological Conclusions for each of the three protected species is: No Effect.

Regulatory Approvals

Section 404 Permit: This project is being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit but propose to proceed under a Nationwide 23 as authorized by a Nationwide Permit 23 (67 EB: 2020; January 15, 2002). The NCDOT requests that replacement of Bridge No. 42 be authorized by Nationwide Permit 23.

Section 401 Pennit: We anticipate 401 General Certification number 3403 will apply to this project. In accordance with 15A NCAC 2H, Section .0500(a) we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their review.

Neuse Riparian Buffer Rules: Bridge No. 52 lies within the Neuse River Basin. Therefore, this project is subject to the Neuse Buffer Rules. There will be 6664 feet^2 of impacts in zone 1 and 4489 feet^2 of impacts in zone 2. NCDOT hereby requests a buffer certification for this project from DWQ.

The project is currently scheduled to be let in April 2005. You may view a copy of this permit application on the NCDOT website at: http://www.ncdot.org/planning/pe/naturalunit/Permit.html.

The NCDOT appreciates your continued assistance with this project. If you have any questions or need additional information, please contact Mr. Chris Underwood at (919) 715-1451.

Sincerely,

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

cc: W/attachment

Mr. John Hennessy, Division of Water Quality (7 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. David Chang, P .E., Hydraulics
Mr. Greg Perfetti, P .E., Structure Design
Mr. Jim Trogdon, P.E., Division Engineer
Mr. Jamie Shern, DEO Division 4

W/o attachment

Mr. Jay Bennett, P .E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P .E., Highway Design
Mr. Mark Staley, Roadside Environmental
Mr. David Franklin, USACE, Wilmington
Ms. Beth Harmon, EEP
Ms. Karen Capps, P .E., PDEA

CR

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

August 26, 2004

Mr. Gregory J. Thorpe, Ph.D., Manager,
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

Subject: Bridge 52 over Turkey Creek, B-4327, Wilson County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide compensation for the subject project. Based on the information supplied by you in a letter dated August 20, 2004, the impacts are located in CU 3020203 of the Neuse River Basin in the Northern Inner Coastal Plain Eco-Region, and are as follows:

Riverine Wetland Impacts: 0.52 acre

As stated in your letter, the subject project is listed in Exhibit 2 of the Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, Wilmington District dated July 22, 2003. The mitigation for the subject project will be provided in accordance with this agreement.

If you have any questions or need additional information, please contact Ms. Beth Harmon at (919) 715-1929.

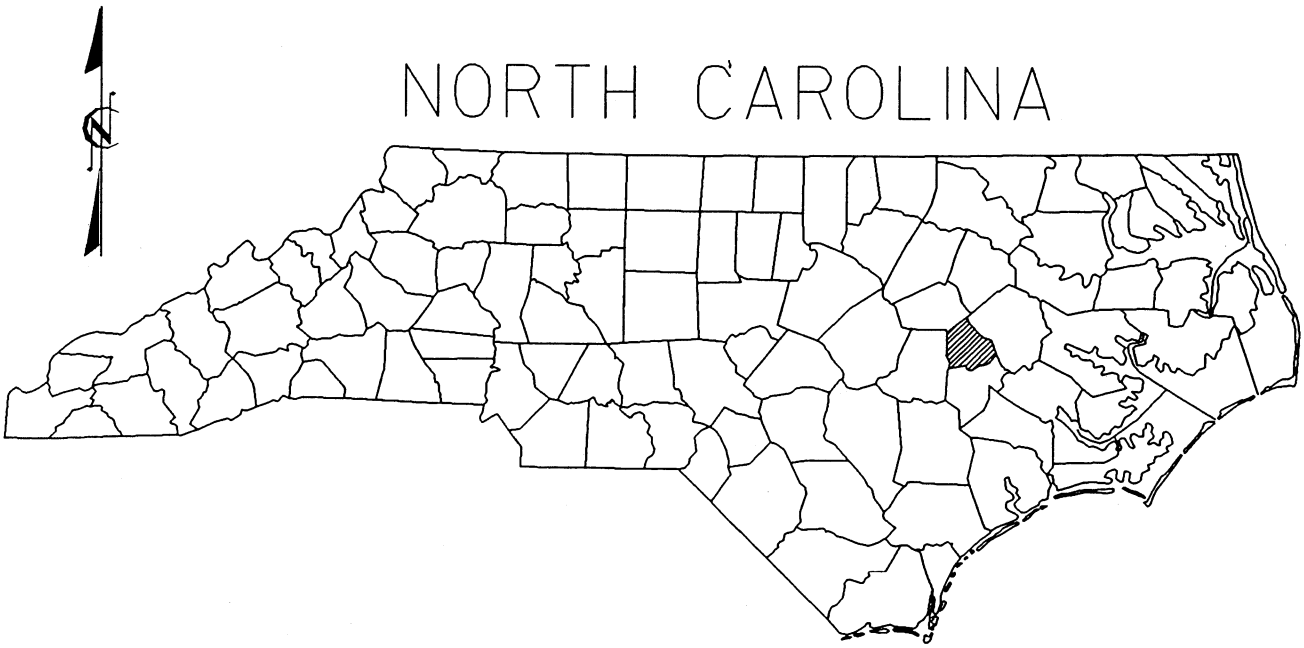
Sincerely,

William D. Gilmore

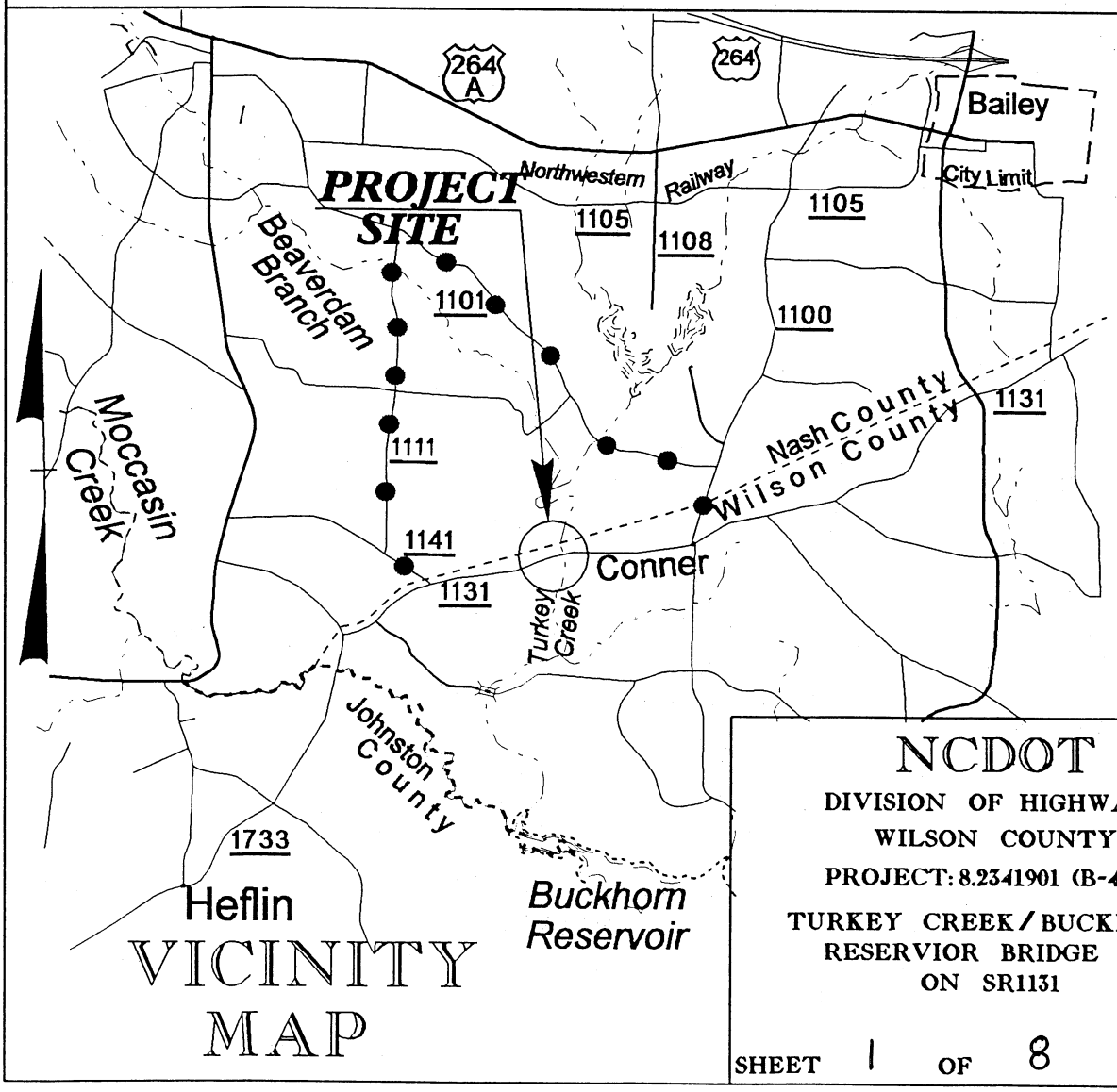
William D. Gilmore, P.E.
Transition Manager

cc: Michael Bell, USACE – Washington
John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-4327

NC DENR Ecosystem Enhancement Program
1652 Mail Service Center, Raleigh, North Carolina 27699-1652
Phone: 919-715-1413 \ FAX: 919-715-2219 \ Internet: h2o.enr.state.nc.us/wrp/



SURFACE WATER IMPACTS



VICINITY MAP

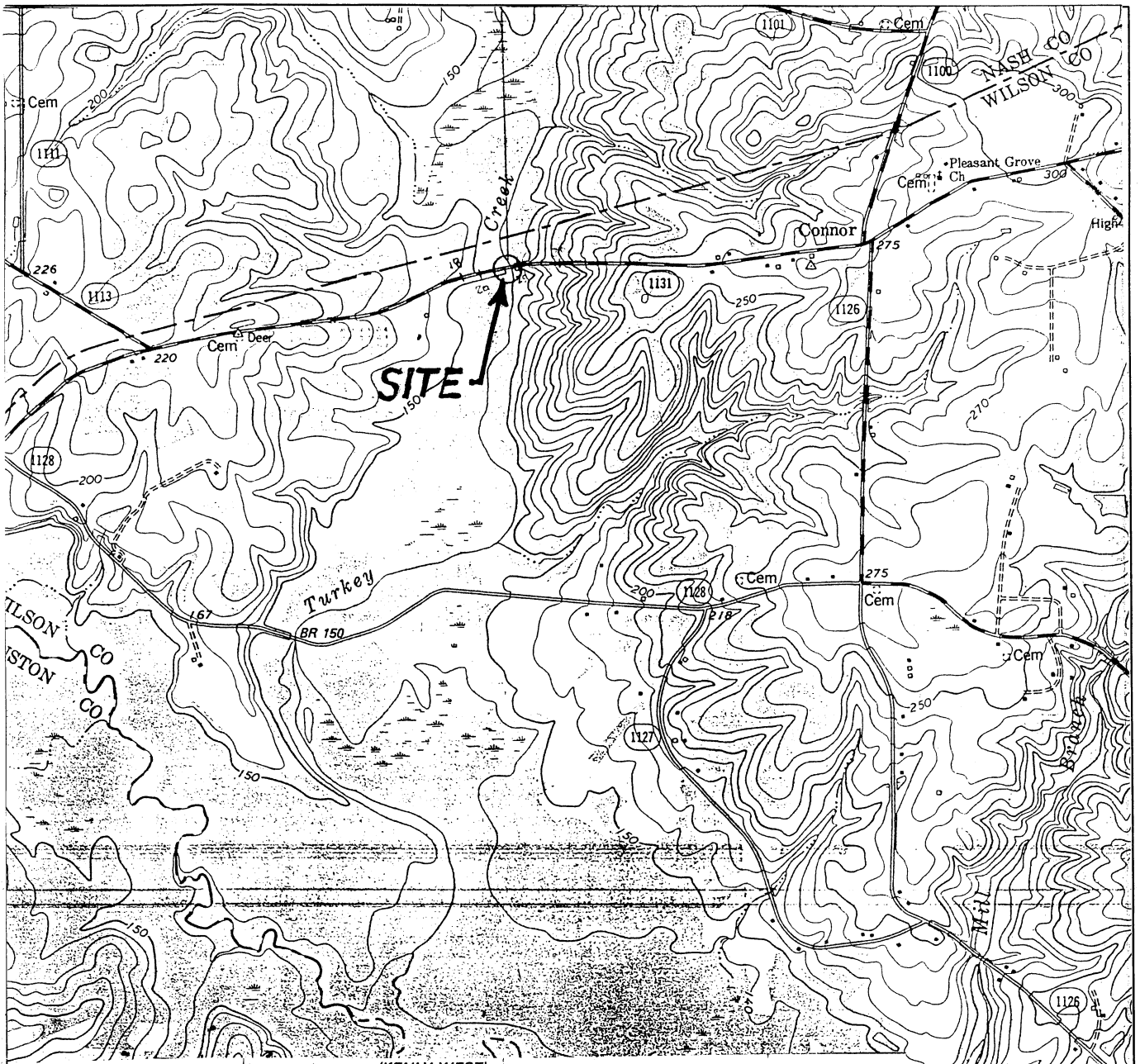
NCDOT

DIVISION OF HIGHWAYS
WILSON COUNTY

PROJECT: 8.2341901 (B-4327)

TURKEY CREEK / BUCKHORN RESERVIOR BRIDGE #52 ON SR1131

SHEET 1 OF 8 07 / 07 / 04



(KENLY WEST)
5355 II SW

SCALE 1:24 000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

STANCILS CHAPEL, N. C.

NW/4 KENLY 15' QUADRANGLE
N3537.5—W7807.5/7.5

1978

MN GN
6° 107 MILS
1°38' 29 MILS

UTM GRID AND 1978 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

NCDOT

DIVISION OF HIGHWAYS

WILSON COUNTY

PROJECT: 8.2341901 (B-4327)

TURKEY CREEK / BUCKHORN RESERVIOR BRIDGE #52 ON SR1131

SHEET 2 **OF** 8 **07 / 07 / 04**

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS				
			Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	23+80	130' BRIDGE	0.35			0.17	0.01				
TOTALS:			0.35			0.17	0.01				

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
Project: 8.2341901(B-4327)
WILSON COUNTY

Bridge no. 52 over Turkey Creek/Buckhorn Reservior

PROJECT REFERENCE NO.	SHEET NO.
B-4327	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR PROFILE SEE SHEET 5

-L-

PI Sta 17+36.85
Δ = 8° 29' 00.8" (RT)
D = 2° 54' 30.3"
L = 291.69'
T = 146.11'
R = 1,970.00'
e = EXIST

PI Sta 20+18.72
Δ = 1° 53' 05.6" (RT)
D = 0° 51' 41.7"
L = 218.77'
T = 109.39'
R = 6,650.00'
e = SEE PLANS

PI Sta 27+31.55
Δ = 11° 42' 56.5" (RT)
D = 3° 48' 25.3"
L = 307.74'
T = 154.41'
R = 1,505.00'
e = SEE PLANS

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)

EST 243 TOTAL TONS
Type of Liner = CL I RIP RAP
-L- STA 20+30 - 21+90 RT
-L- STA 24+45 - 25+77 RT
-L- STA 24+45 - 25+20 LT

DETAIL A
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Min. D = 3.0Ft.
B = 5.0Ft.

HAZARDOUS SPILL BASIN
-L- STA 19+65 - 20+75 LT

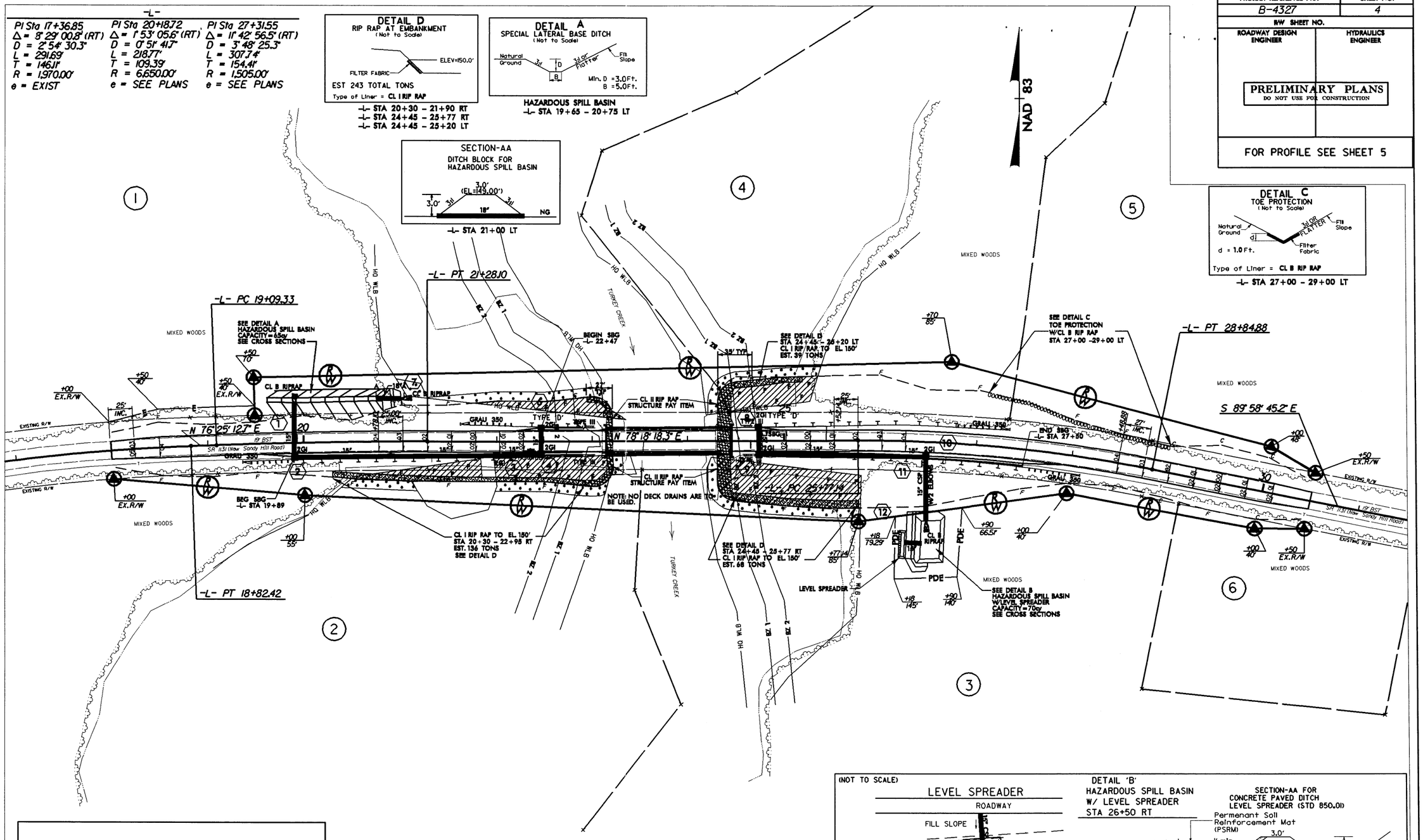
SECTION-AA
DITCH BLOCK FOR
HAZARDOUS SPILL BASIN

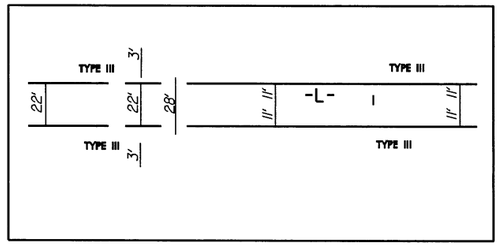
-L- STA 21+00 LT

DETAIL C
TOE PROTECTION
(Not to Scale)

d = 1.0Ft.
Type of Liner = CL B RIP RAP
-L- STA 27+00 - 29+00 LT

NAD 83





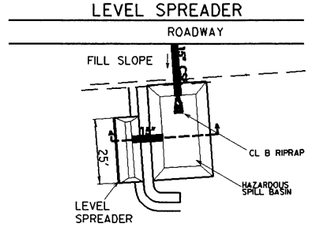
DENOTES FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING IN WETLAND

DENOTES FILL IN WETLAND

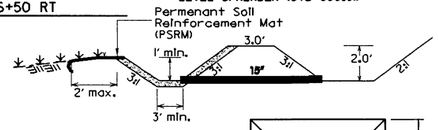
(NOT TO SCALE)

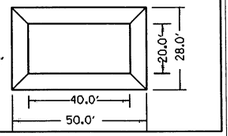
LEVEL SPREADER



DETAIL 'B'
HAZARDOUS SPILL BASIN
W/ LEVEL SPREADER
STA 26+50 RT

SECTION-AA FOR
CONCRETE PAVED DITCH
LEVEL SPREADER (STD 850.01)





HAZARDOUS SPILL BASIN
DIMENSIONS: 20' x 40' x 2'

REVISIONS

8/17/99

12-OCT-2004 15:31
R:\Hydraulics\permit\B4327_pmt_pln&vicmap.dgn
smorgan
A1

5/28/

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
B-4327	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 3600 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 150.4 FT
BASE DISCHARGE	= 5500 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 151.3 FT
OVERTOPPING DISCHARGE	= 13850 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 154.1 FT

-L-

PI = 24+43.00
EL = 151.09'
VC = 1,080'
K = 145

-L- STATION 23+80.00
SINGLE SPAN STEEL GIRDER BRIDGE
LENGTH=120' SKEW=90°
GF ELEV=159.33'

BEGIN BRIDGE
STA 23+15 +/-

END BRIDGE
STA 24+45 +/-

EXISTING BRIDGE

(-)0.6003%

(+)6.8616%

CL II RIP RAP

CL II RIP RAP

189.51

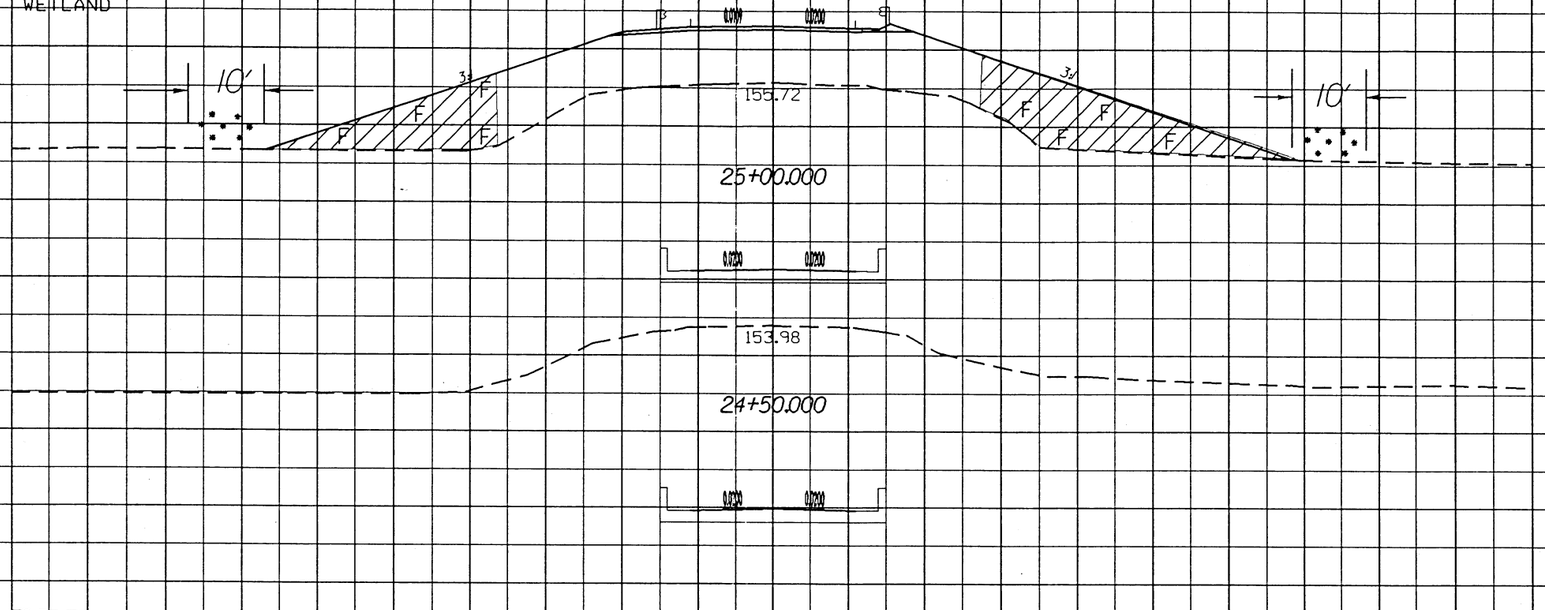
170
160
150
140
130

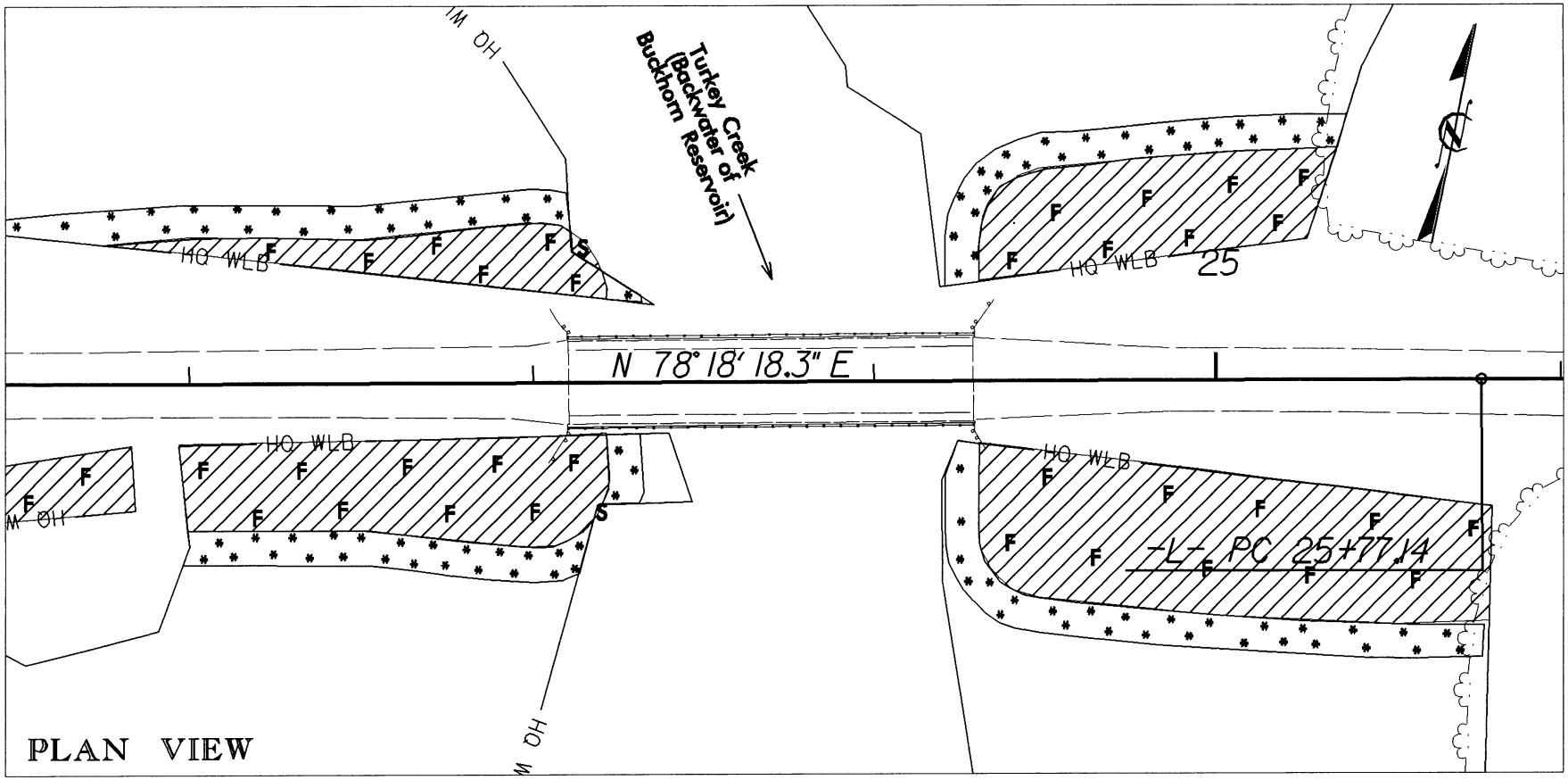
17 18 19 20 21 22 23 24 25 26 27 28 29 30

PROJ. REFERENCE NO.	SHEET NO.
B-4327	6

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND





ENLARGED VIEW NEAR BRIDGE SHOWING WETLAND IMPACTS, SURFACE WATER IMPACTS, AND RELATIONSHIP OF WETLAND TO EXISTING ROADWAY CROSSING

50 0 50

SCALE, FEET

DENOTES FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING IN WETLAND

DENOTES FILL IN WETLAND

NCDOT

DIVISION OF HIGHWAYS

WILSON COUNTY

PROJECT: 8.2341901 (B-4327)

TURKEY CREEK / BUCKHORN RESERVIOR BRIDGE #52 ON SR1131

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	CITY OF WILSON	PO. BOX 10 WILSON NC.27894
2	DEBORAH BUNN BRADSHAW	9109 SANDY HILL CH. RD. BAILEY NC. 27807
3	LINDA M. FRAZIER	7965 W. TARBORO RD. ROCKY MT. NC. 27803

NCDOT

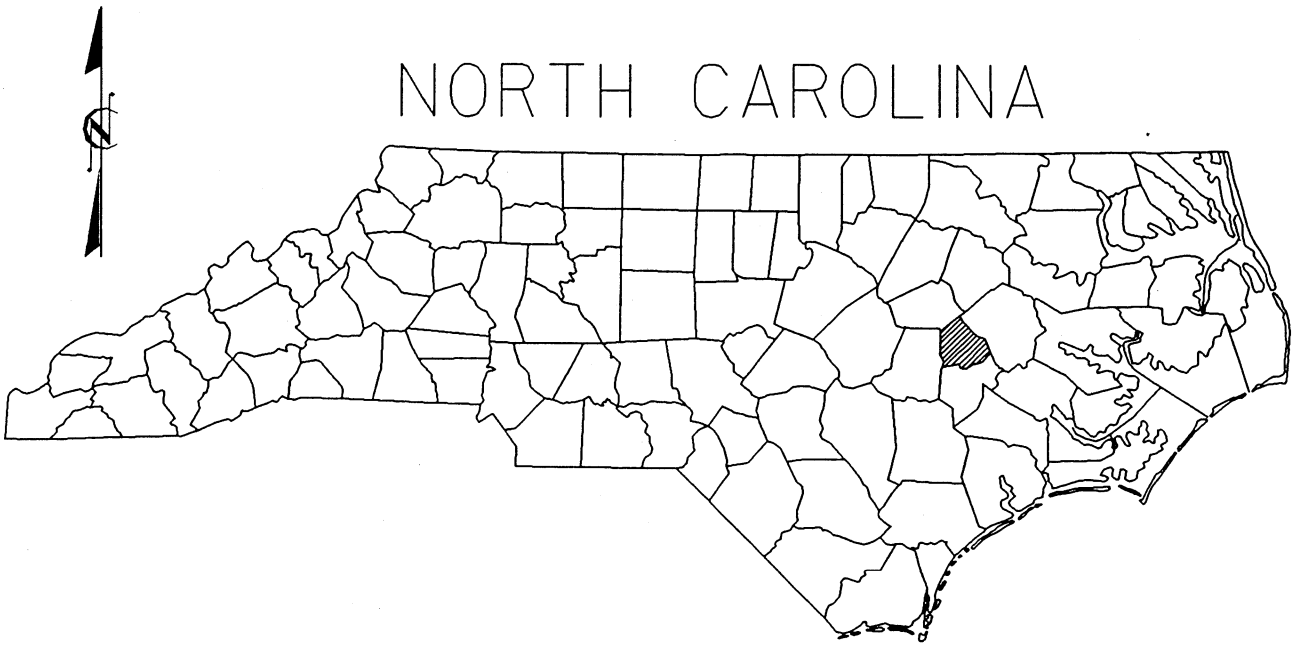
DIVISION OF HIGHWAYS

WILSON COUNTY

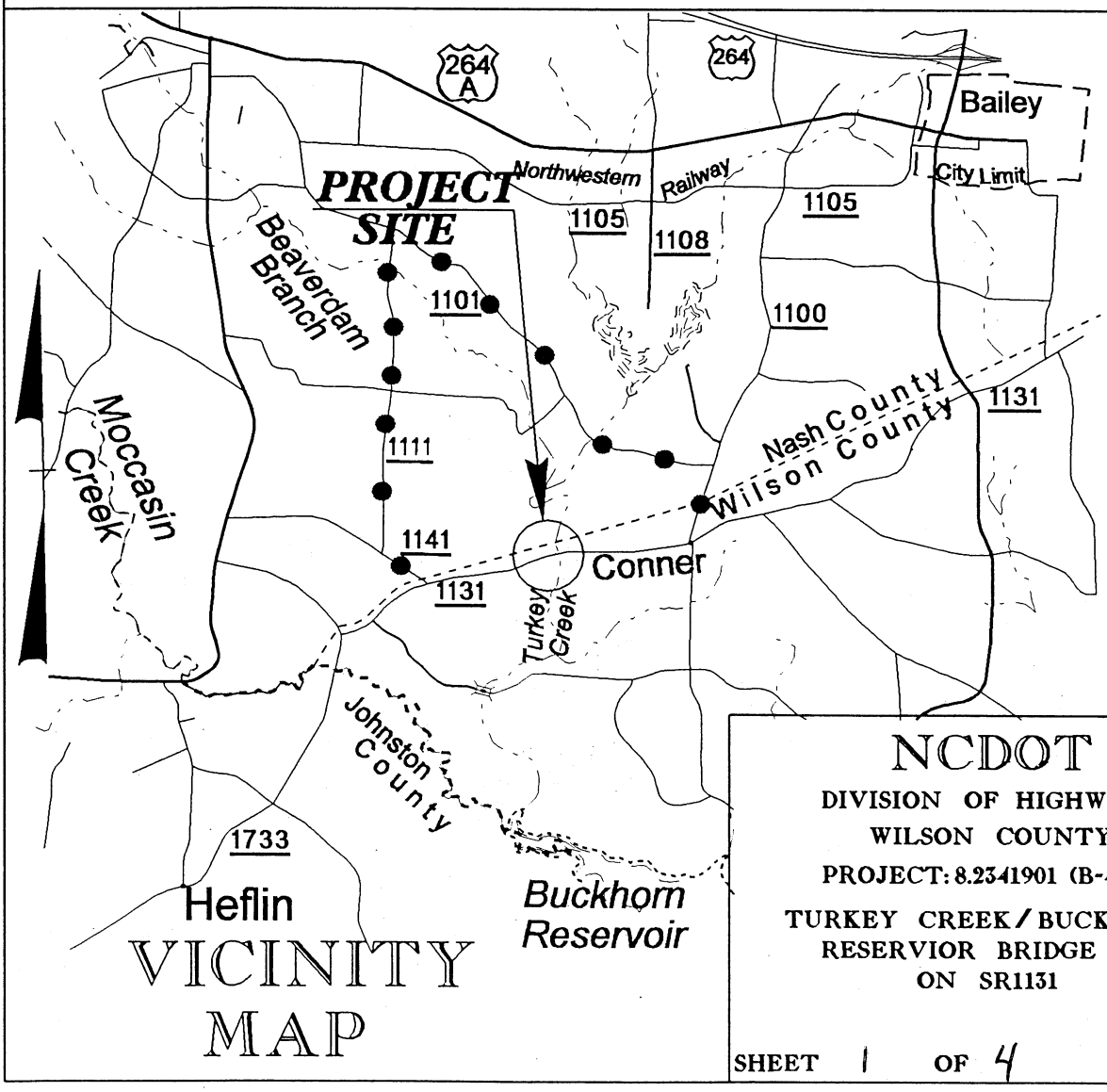
PROJECT: 8.2341901 (B-4327)

TURKEY CREEK / BUCKHORN RESERVIOR BRIDGE #52 ON SR1131

07 / 07 / 04



NEUSE RIVER BUFFER



VICINITY MAP

NCDOT

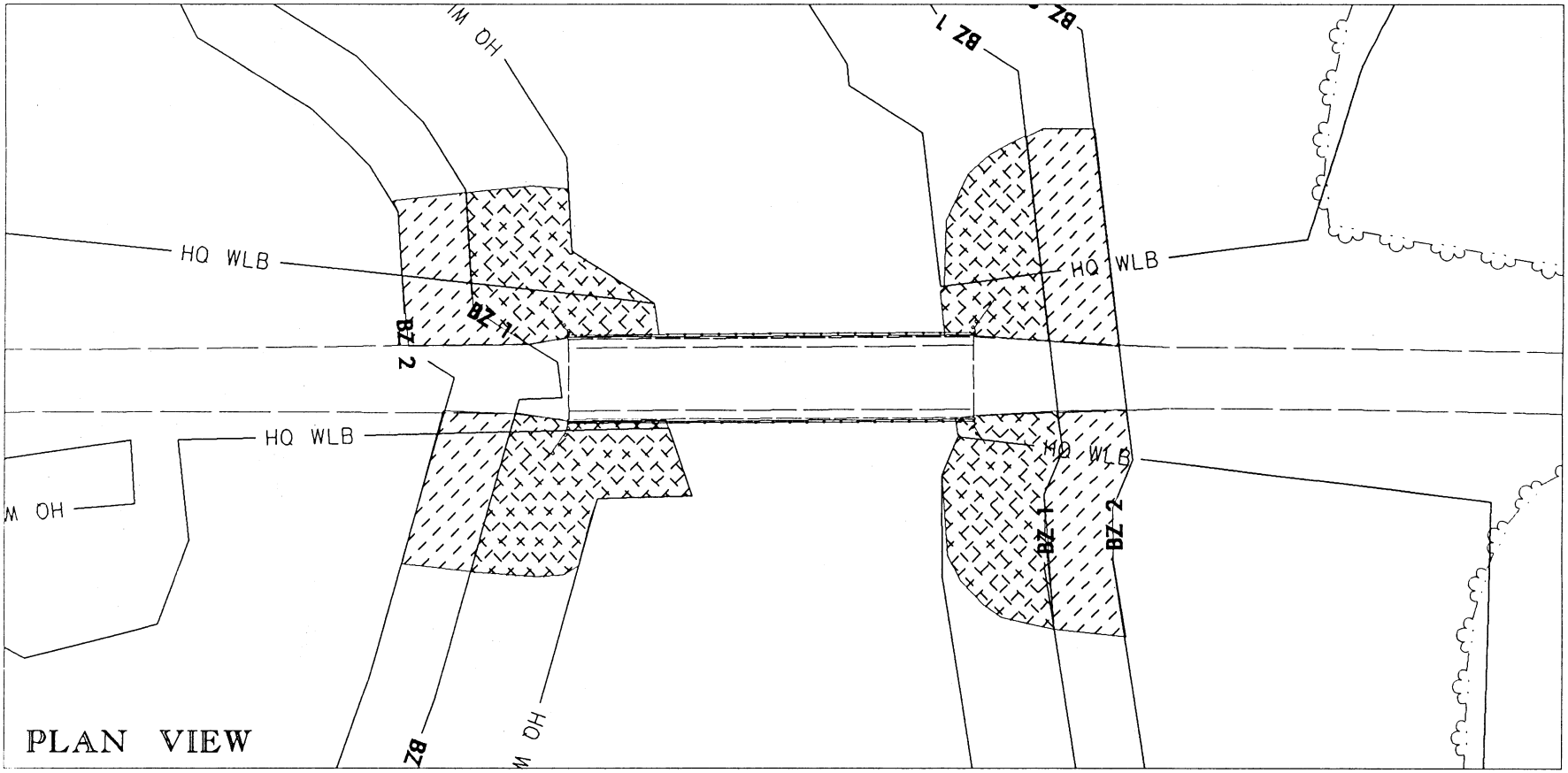
DIVISION OF HIGHWAYS

WILSON COUNTY

PROJECT: 8.2341901 (B-4327)

TURKEY CREEK / BUCKHORN RESERVIOR BRIDGE #52 ON SR1131

SHEET 1 OF 4 07 / 07 / 04



ENLARGED VIEW NEAR BRIDGE SHOWING BUFFER IMPACTS, AND RELATIONSHIP OF BUFFERS TO EXISTING ROADWAY CROSSING

50 0 50
SCALE, FEET

DENOTES ALLOWABLE IMPACTS IN BUFFER ZONE ONE

DENOTES ALLOWABLE IMPACTS IN BUFFER ZONE TWO

NCDOT

DIVISION OF HIGHWAYS
WILSON COUNTY
PROJECT: 8.2341901 (B-4327)

TURKEY CREEK / BUCKHORN RESERVIOR BRIDGE #52 ON SR1131

SHEET 2 **OF** 4 **8/03/04**

BUFFER IMPACTS SUMMARY

			IMPACT								BUFFER REPLACEMENT	
			TYPE		ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	130' BRIDGE	23+80	X		6664	4489					0	0
TOTAL:					6664	4489						#
					(Acres)	(0.153)	(0.103)					

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WILSON COUNTY
PROJECT: 8.2341901 (B-4327)
BRIDGE NO. 52 OVER TURKEY CREEK
AT BUCKHORN RESERVOIR

SHEET 3 of 4 8/03/04

PROJECT REFERENCE NO.	SHEET NO.
B-4327	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR PROFILE SEE SHEET 5

REVISIONS

8.17.9

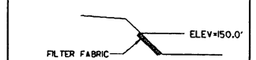
-L-

PI Sta 17+36.85
Δ = 8° 29' 00.8" (RT)
D = 2° 54' 30.3"
L = 291.69'
T = 146.11'
R = 1,970.00'
e = EXIST

PI Sta 20+18.72
Δ = 1° 53' 05.6" (RT)
D = 0° 51' 41.7"
L = 218.77'
T = 109.39'
R = 6,650.00'
e = SEE PLANS

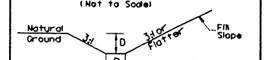
PI Sta 27+31.55
Δ = 11° 42' 56.5" (RT)
D = 3° 48' 25.3"
L = 307.74'
T = 154.41'
R = 1,505.00'
e = SEE PLANS

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



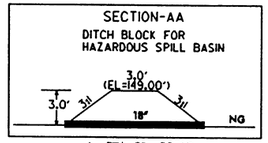
EST 243 TOTAL TONS
Type of Liner = CL I RIP RAP
-L- STA 20+30 – 21+90 RT
-L- STA 24+45 – 25+77 RT
-L- STA 24+45 – 25+20 LT

DETAIL A
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 3.0 Ft.
B = 5.0 Ft.
HAZARDOUS SPILL BASIN
-L- STA 19+65 – 20+75 LT

SECTION-AA
DITCH BLOCK FOR HAZARDOUS SPILL BASIN



-L- STA 21+00 LT

NAD 83

(1) CITY OF WILSON

-L- POC STA. 18+00.00
BEGIN TIP PROJECT B-4327

-L- PC 19+09.33

-L- PT 18+82.42

(2) CITY OF WILSON

-L- PT 21+28.10

-L- STA 22+90
BEGIN APPR. SLAB

-L- STA 23+15
BEGIN BRIDGE

(4) CITY OF WILSON

'SBG' – DENOTES SHOULDER BERM GUTTER

SEE DETAIL A
HAZARDOUS SPILL BASIN
CAPACITY = 45cy
SEE CROSS SECTIONS

SEE DETAIL D
STA 24+48 – 25+20 LT
CL I RIP RAP TO EL 150'
EST. 39 TONS

BEGIN SBG
-L- STA 22+46.79

CL II RIP RAP
STRUCTURE PAY ITEM

BEG SBG
-L- STA 19+89

CL I RIP RAP TO EL 150'
STA 20+30 – 22+95 RT
EST. 136 TONS
SEE DETAIL D

SEE DETAIL D
STA 24+48 – 25+77 RT
CL I RIP RAP TO EL 150'
EST. 68 TONS

-L- STA 24+70
END APPR. SLAB
LEVEL SPREADER

-L- PC 25+77.14

-L- STA 25+45
END BRIDGE

NOTE: NO DECK DRAINS ARE TO BE USED.

SEE DETAIL B
HAZARDOUS SPILL BASIN
W/LEVEL SPREADER
CAPACITY = 70cy
SEE CROSS SECTIONS

(5) LINDA N. FRAZIER

DETAIL C
TOE PROTECTION
(Not to Scale)

Type of Liner = CL II RIP RAP
-L- STA 27+00 – 29+00 LT

SEE DETAIL C
TOE PROTECTION
W/CL II RIP RAP
STA 27+00 –29+00 LT

-L- PT 28+84.88

END SBG
-L- STA 27+30

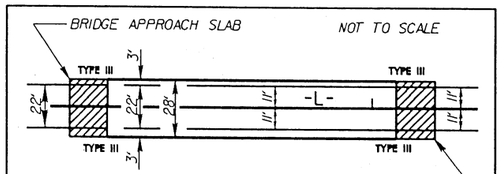
(6) WILLIAM S. AND DEBERAH BRADSHAW

(3) WILLIAM S. AND DEBERAH BRADSHAW

LEVEL SPREADER
STA. 26+50 RT.
Q= 1.8 cfs
L= 25ft.

-L- POT STA. 30+50.00
END TIP PROJECT B-4327

BRIDGE APPROACH SLAB — NOT TO SCALE



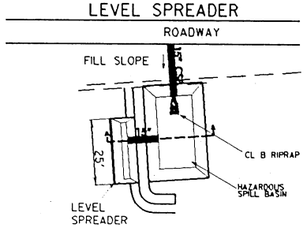
DETAIL SHOWING BRIDGE IN RELATION TO PAVEMENT

DENOTES ALLOWABLE IMPACTS IN BUFFER ZONE ONE

DENOTES ALLOWABLE IMPACTS IN BUFFER ZONE TWO

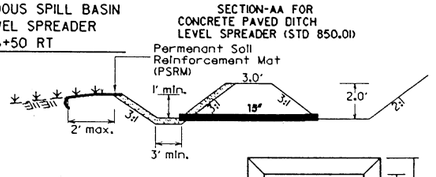
(NOT TO SCALE)

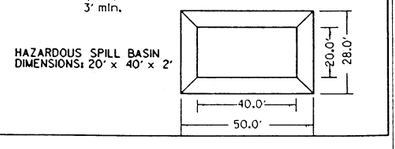
LEVEL SPREADER



DETAIL 'B'
HAZARDOUS SPILL BASIN
W/ LEVEL SPREADER
STA 26+50 RT

SECTION-AA FOR
CONCRETE PAVED DITCH
LEVEL SPREADER (STD 850.01)





HAZARDOUS SPILL BASIN
DIMENSIONS: 20' x 40' x 2'

12-Aug-2004 14:59
c:\projects\roads\permit\B4327_bufferpmt_pln.dgn

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	**B-4327**
State Project No.	**8.2341901**
Federal Project No.	**BRZ-1131(7)**

A. Project Description:

This project proposes to replace Bridge No. 52 on SR 1131 over Turkey Creek in Wilson County. The bridge will be replaced with a 150-foot (45.7-m) long bridge in the same location. The proposed roadway grade will be slightly higher than the existing bridge in order to faciliate drainage. The cross section of the new bridge will include two 11-foot (3.3-m) lanes with 3.0-foot (1.0-m) offsets. Approach work will consist of resurfacing and tying into the existing alignment for approximately 510 feet (155.4 meters) to the west and approximately 640 feet (195.1 meters) to the east of the existing bridge. Guardrail will be installed where warranted. Traffic will be detoured along surrounding roads during construction.

B. Purpose and Need:

Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 36.6 out of a possible 100 for a new structure. The bridge is composed of a timber substructure, with one bent requiring two side crutches for additional support. Therefore, the bridge is structurally deficient. The replacement of this inadequate structure will result in safer traffic operations.

C. Proposed Improvements:

The following Type II improvements which apply to the project are circled:

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

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

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

    a. Installing ramp metering devices
    b. Installing lights

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

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

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

4. Transportation corridor fringe parking facilities.

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

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

7. Approvals for changes in access control.

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

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

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

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

12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction

projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

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

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

D. Special Project Information:

Estimated Costs:

Total Construction	$ 825,000
Right of Way	$ 27,000
Total	$ 852,500

Estimated Traffic:

Current	-	600 vpd
Year 2025	-	1000 vpd
TTST	-	1 %
Dual	-	2 %

Detour Length:

5.6 miles (9.0 km)

Proposed Typical Cross Section:

The existing roadway approaches will be widened to a 22-foot (6.6 meter) pavement width to provide for two 11-foot (3.3-meter) lanes. Six-foot (1.8 meter) shoulders will be provided on each side increased to 9.0-foot (2.7-meter) shoulders where guardrail is required.

Design Speed:

60 mph (100 kph)

Functional Classification: Rural Minor Collector

Division Office Comments:

The Division Construction Engineer concurs with replacing Bridge No. 52 in essentially the same location and using an offsite detour to maintain traffic on existing roads. The EMS director for Wilson Co. expressed concerns about delay of emergency vehicles. The construction time will be held to eight (8) months.

Bridge Demolition:

Bridge No. 52 contains seven spans totaling 119 feet (36.3 m) in length. The bridge is composed of a reinforced concrete deck with concrete rails and timber joists. The substructure is composed of timber bents, end bents and piles, with a crutch composed of steel beams. There will be no likely fill associated with the removal of Bridge No. 52.

Alternatives Studied and Rejected

The "do-nothing" alternative will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by SR 1131.

"Rehabilitation" of the old bridge is not practical due to its age, deteriorated condition and timber substructure.

An alternate (Alternate 2) to replace the bridge on new location to the north of the existing bridge was studied. Alternate 2 would impact fewer wetlands than the perferred alternate, however; the proposed approach work would impact approximately 2.0 acres of forested land. The proposed alternate impacts only 0.85 acres of forested land. Additionally, due to the requried bridge length, Alternate 2 has a total construction cost of $1.9 million as compared to less than $900 thousand for the perferred alternate. Therefore, Alternate 2 was judged not prudent or feasible.

Environmental Commitments

Please see attached Green Sheet for Project Commitments.

E. Threshold Criteria

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

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

PERMITS AND COORDINATION		YES	NO
(10)	If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?		X
(11)	Does the project involve Coastal Barrier Resources Act resources?		X
(12)	Will a U. S. Coast Guard permit be required?		X

		YES	NO
(13)	Will the project result in the modification of any existing regulatory floodway?		X
(14)	Will the project require any stream relocations or channel changes?		X

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES		YES	NO
(15)	Will the project induce substantial impacts to planned growth or land use for the area?		X
(16)	Will the project require the relocation of any family or business?		X
(17)	Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population?		X
(18)	If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor?	X	
(19)	Will the project involve any changes in access control?		X
(20)	Will the project substantially alter the usefulness and/or land use of adjacent property?		X
(21)	Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness?		X
(22)	Is the project included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)?	X	
(23)	Is the project anticipated to cause an increase in traffic volumes?		X
(24)	Will traffic be maintained during construction using existing roads, staged construction, or on-site detours?	X	
(25)	If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility?	X	
(26)	Is there substantial controversy on social, economic, or environmental grounds concerning the project?		X

(27)	Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project?	X	
(28)	Will the project have an "effect" on structures/properties eligible for or listed on the National Register of Historic Places?		X
(29)	Will the project affect any archaeological remains, which are important to history or pre-history?		X
(30)	Will the project require the use of Section 4(f) resources (public parks, recreation lands, wildlife and waterfowl refuges, historic sites, or historic bridges, as defined in Section 4(f) of the U. S. Department of Transportation Act of 1966)?		X
(31)	Will the project result in any conversion of assisted public recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Land and Water Conservation Act of 1965, as amended?		X
(32)	Will the project involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the Natural System of Wild and Scenic Rivers?		X

F. Additional Documentation Required for Unfavorable Responses in Part E

(Discussion regarding all unfavorable responses in Part E should be provided below. Additional supporting documentation may be attached, as necessary.)

2. There are records of state and federally listed mussels in the project vicinity. An on-site meeting was held on January 14, 2003 with the appropriate agencies. Upon further investigation, NCWRC determined that the Dwarf wedgemussel and several other mussel species were salvaged from this site before inundation of Buckhorn Reservoir. Therefore, Section 7 requirements have been satisfied.

4. The proposed project is expected to impact approximately 0.45 acres of wetlands. The typical section of the proposed bridge and roadway approaches has been minimized to the extent possible. Mitigation will be required for the impacts associated with the project.

G. CE Approval

TIP Project No.	**B-4327**
State Project No.	**8.2341901**
Federal-Aid Project No.	**BRZ-1131(7)**

Project Description:

This project proposes to replace Bridge No. 52 on SR 1131 over Turkey Creek in Wilson County. The bridge will be replaced with a 150-foot (45.7-m) long bridge in the same location. The proposed roadway grade will be slightly higher than the existing bridge in order to faciliate drainage. The cross section of the new bridge will include two 11-foot (3.3-m) lanes with 3.0-foot (1.0-foot) offsets. Approach work will consist of resurfacing and tying into the existing alignment for approximately 510 feet (155.4 meters) to the west and approximately 640 feet (195.1 meters) to the east of the existing bridge. Guardrail will be installed where warranted. Traffic will be detoured along surrounding roads during construction.

Categorical Exclusion Action Classification:

_____ TYPE II(A)
__X__ TYPE II(B)

Approved:

6/6/03 — Teresa Hart
Date — Assistant Manager
Project Development & Environmental Analysis Branch

6/6/03 — Willie T. Hawkins Jr.
Date — Project Planning Unit Head
Project Development & Environmental Analysis Branch

6/6/03 — Karen B. Capps, PE
Date — Project Development Engineer
Project Development & Environmental Analysis Branch

For Type II(B) projects only:

6/29/03 — for Ronald G. Lucas Jr.
Date — Division Administrator
Federal Highway Administration

Project Commitments

Replacement of Bridge No. 52 on SR 1131 Over Turkey Creek
Wilson County
F. A. Project No. BRZ-1131(7)
State Project No. 8.2341901
T.I.P. No. B-4327

Division 4, Design Services

In order to allow Emergency Management Services (EMS) time to prepare for road closure, the NCDOT Resident Engineer will notify Gordon Deno with Wilson County EMS at (252) 399-2830 of the bridge removal 30 days prior to road closure. The total road closure time will be held to eight (8) months.

Program Development Unit, Division 4

The replacement of Bridge No. 52 must be completed and SR 1131 open to traffic before construction of T.I.P. No. B-3877 is allowed to begin. This bridge will likely serve as part of the detour route for that project.

Project Development and Environmental Analysis, Roadway Design Unit, Hydraulics Unit

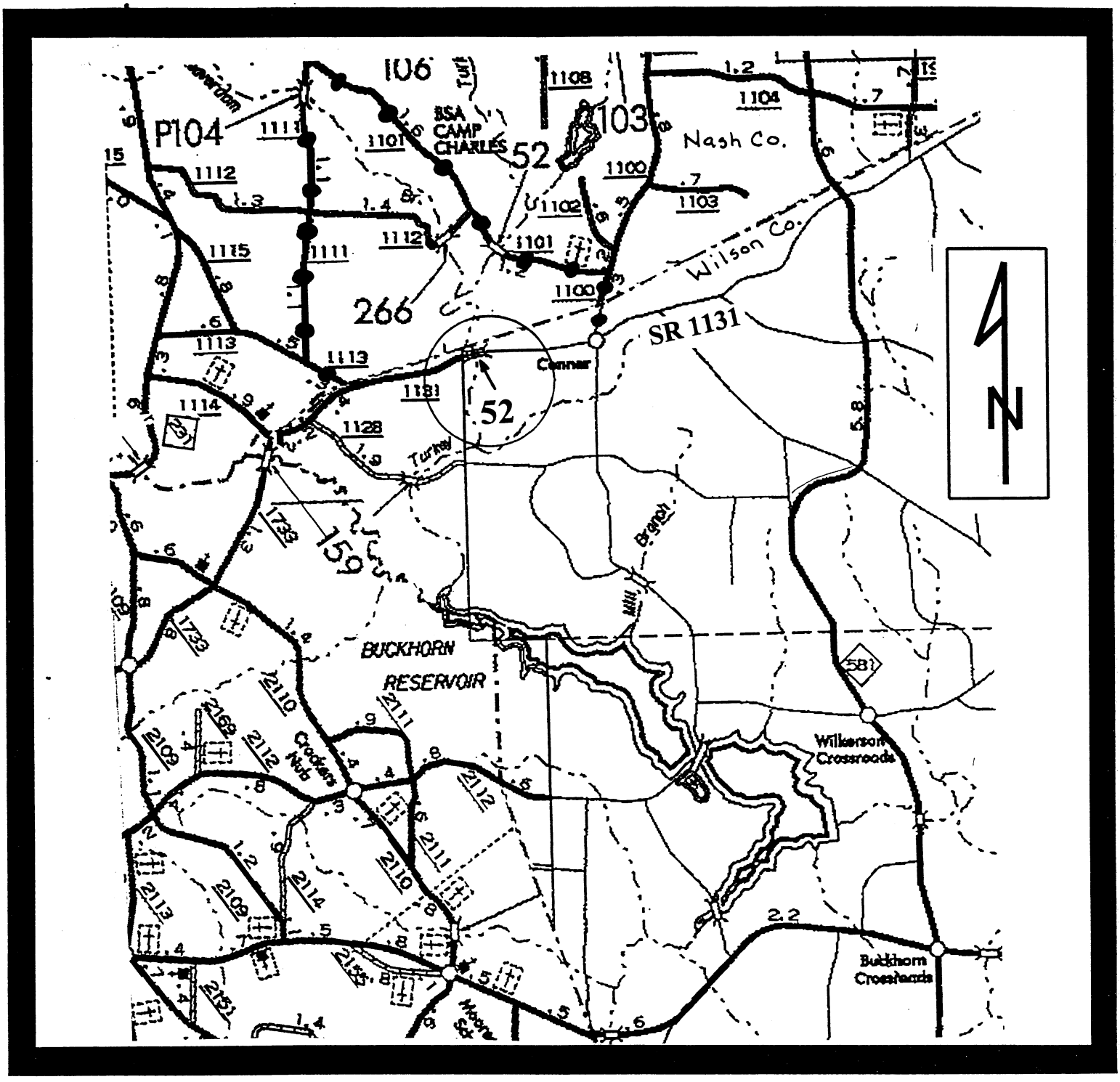
Turkey Creek is in the Neuse River Basin and must adhere to all Riparian Buffer Rules for this basin.

Division 4, Project Development and Environmental Analysis

Turkey Creek supports a good fishery for sunfish, therefore; NCWRC recommends a moratorium on work within jurisdictional waters from April 1 to June 15.

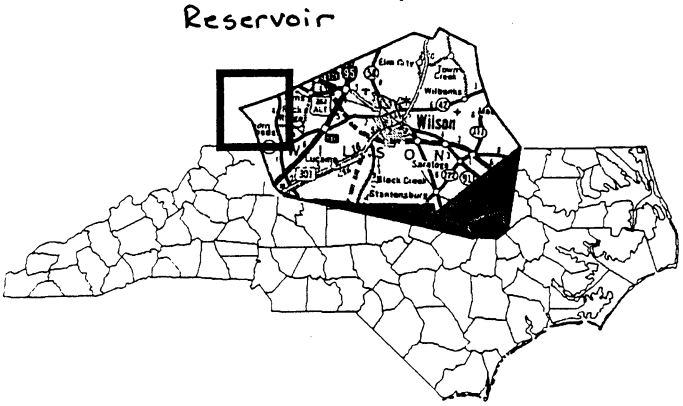
Roadway Design Unit, Hydraulics Unit

Hazardous Material Spill Basins will be required on this project.



Note : SR 1128 now partially inundated by Buckhorn Reservoir

Proposed Detour Route



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

WILSON COUNTY
REPLACE BRIDGE 52 ON SR 1131
OVER TURKEY CREEK
B-4327

Figure One

Goodwin Capps

North Carolina Department of Cultural Resources
State Historic Preservation Office
David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary
Office of Archives and History

Division of Historical Resources
David J. Olson, Director

March 22, 2002

MAR 26 2002

MEMORANDUM

TO: William D. Gilmore, Manager
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook PJE for David Brook

SUBJECT: Replace Bridge No. 52 and SR 1131 over Turkey Creek, B-4327, Wilson County, ER 02-8568

Thank you for your memorandum of September 25, 2001, concerning the above project.

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

Because the Department of Transportation is in the process of surveying and evaluating the National Register eligibility of all of its concrete bridges, we are unable to comment on the National Register eligibility of the subject bridge. Please contact Mary Pope Furr, in the Architectural History Section, to determine if further study of the bridge is needed.

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. In all future communication concerning this project, please cite the above-referenced tracking number.

DB:kgc

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

on 1/14/03

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

MEMORANDUM TO: File

FROM: Karen B. Capps, PE KBC
Project Planning Engineer

DATE: January 14, 2003

Subject: Replacement of Bridge No. 52 on SR 1131 over Turkey Creek, Wilson County, Federal Aid Project No. BRZ-1131(7), State Project No. 8.2341901, TIP Project No. B-4327

A Section 7 meeting for this project was held at the site on January 13, 2003. The following people were in attendance.

Judy Raticliff	NCWRC
John Alderman	PDEA
Gary Jordan	USFWS
Brian Hanks	Structure Design
Kanak Purohit	Structure Design
Greg Brew	Roadway Design
Imad Younis	Roadway Design
Wendi Johnson	Division 4 Const. Engineer
Steve Morgan	Hydraulics
William Whitfield	Hydraulics
Karen Capps	PDEA

Turkey Creek, at this location, is inundated with backwater from Buckhorn Reservoir. Historically, the dwarfwedge mussel has been documented in the project vicinity. However, the habitat has been altered at this site by the water impounded from Buckhorn Reservoir and is considered marginal at best. NCDOT will conduct a mussel survey in the spring for both the dwarfwedge mussel and the Tar River spinymussel. If any of these federally-listed species are found, they will be relocated upstream to a suitable site agreed

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

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

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

upon by NCDOT, USFWS, and NCWRC. Due to the degradation of the habitat, the standard NCDOT Best Management Practices for this site will be sufficient to satisfy Section 7 requirements. There being no further business, the meeting was adjourned.

Subject: **RE: B-4327 Section 7 Meeting**
Date: Wed, 29 Jan 2003 15:17:30 -0500
From: "Judith A. Johnson" <johnsonj5@mindspring.com>
To: "Karen Capps PE" <kcapps@dot.state.nc.us>,
"John M. Alderman" <jmalderman@dot.state.nc.us>,
"Gary Jordan" <Gary_Jordan@fws.gov>, "Brian Hanks" <bhanks@dot.state.nc.us>,
"Kanak Purohit" <kpurohit@dot.state.nc.us>,
"Gregory E. Brew PE" <gbrew@dot.state.nc.us>, "Imad Younis" <iyounis@dot.state.nc.us>,
"Wendi Oglesby Johnson, PE" <wojohnson@dot.state.nc.us>,
"William \(Bill\) A. Whitfield" <wawhitfield@dot.state.nc.us>,
"S. R. Morgan" <smorgan@dot.state.nc.us>

Karen,

I've investigated the dwarf wedgemussel issue at the SR 1131 crossing of Turkey Creek in Wilson County. Dwarf wedgemussels and several other species were salvaged from this site before inundation as part of the "reasonable and prudent measures" for the Buckhorn Reservoir project. A mussel survey will not be necessary for this project.

Thanks,
JUDY

Judith A. Ratcliffe
North Carolina Wildlife Resources Commission
Nongame & Endangered Wildlife Program
1117 Woodbrook Way
Garner, NC 27529
(919) 773-0276
(919) 548-0538 cell
johnsonj5@mindspring.com

-----Original Message-----
From: Karen Capps PE [mailto:kcapps@dot.state.nc.us]
Sent: Tuesday, January 14, 2003 2:32 PM
To: Judy Ratcliffe; John M. Alderman; Gary Jordan; Brian Hanks; Kanak Purohit; Gregory E. Brew PE; Imad Younis; Wendi Oglesby Johnson, PE; William (Bill) A. Whitfield; S. R. Morgan
Subject: B-4327 Section 7 Meeting

Attached are minutes from the section 7 meeting for B-4327.
Please review and comment. Thank you.

Karen

NATURAL SYSTEMS REPORT

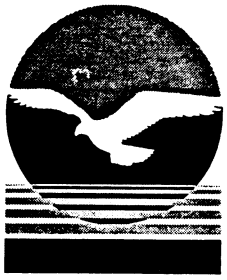
Replacement of Bridge No. 52
SR 1131 (New Sandy Hill Road) over Turkey Creek

Wilson County, North Carolina
(B-4327)
(State Project No. 8.2341901)
(Federal Aid No. BRZ-1131[7])

Prepared for:

The North Carolina Department of Transportation
Raleigh, North Carolina

Prepared by:



EcoScience

ECOSCIENCE CORPORATION
1101 Haynes Street, Suite 101
Raleigh, NC 27604
Tel (919) 828-3433 Fax (919) 828-3518

November 2001

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Replacement of Bridge No. 52
SR 1131 (New Sandy Hill Road) over Turkey Creek
Wilson County, North Carolina
(B-4327)

1.0 INTRODUCTION

1.1 Project Description

The North Carolina Department of Transportation (NCDOT) proposes replacement of Bridge No. 52 on SR 1131 (New Sandy Hill Road) over Turkey Creek and associated floodplain (Figure 1). Bridge No. 52 spans Turkey Creek and the adjacent floodplain for a distance of approximately 125 feet (38.1 meters). The existing roadway is 23 feet (7.0 meters) wide with a right-of-way width of 60 feet (18.3 meters) (Figure 2).

Bridge No. 52 is 125 feet (38.1 meters) long and is 23 feet (7.0 meters) wide. The superstructure consists of wooden stringers, wooden decking, concrete rails, and an asphalt surface. The substructure consists of timber piles, wooden piles and concrete end bents.

[Alternatives]

[Bridge Demolition Paragraph #1]

1.2 Purpose

The purpose of this study is to provide an evaluation of biological resources in the immediate vicinity of project area. Specific tasks performed for this study include 1) an assessment of biological features within the project area including descriptions of vegetation, wildlife, protected species, jurisdictional wetlands, and water quality, 2) a delineation of Section 404 jurisdictional areas and subsequent survey of jurisdictional boundaries (utilizing Trimble XRS Differential Global Positioning System technology), 3) an evaluation of plant communities and their areas within the study cooridor, and 4) a preliminary determination of permit needs.

1.3 Methods

Materials and literature supporting this investigation have been derived from a number of sources including U.S. Geological Survey (USGS) topographic mapping (Stancil's Chapel, NC 7.5 minute quadrangle), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory mapping (NWI) (Stancil's Chapel, NC 7.5 minute quadrangle), Natural Resources Conservation Service (NRCS; formerly the Soils Conservation Service) soils mapping (SCS 1983), and recent aerial photography and design plans (scale 1:1200) furnished by NCDOT.

Replacement of Bridge No. 52
SR 1131 (New Sandy Hill Road) over Turkey Creek
Wilson County, North Carolina
(B-4327)

1.0 INTRODUCTION

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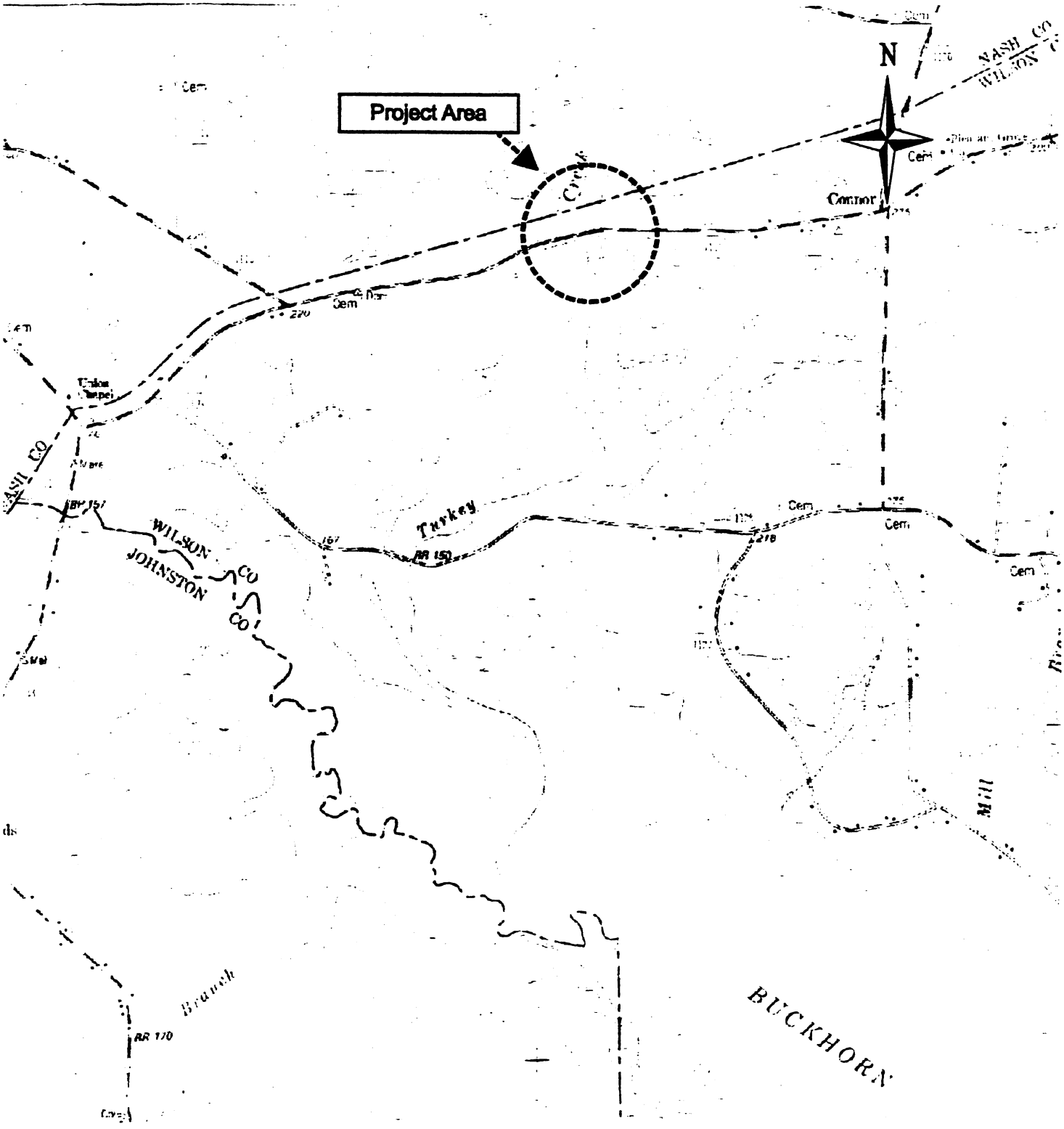


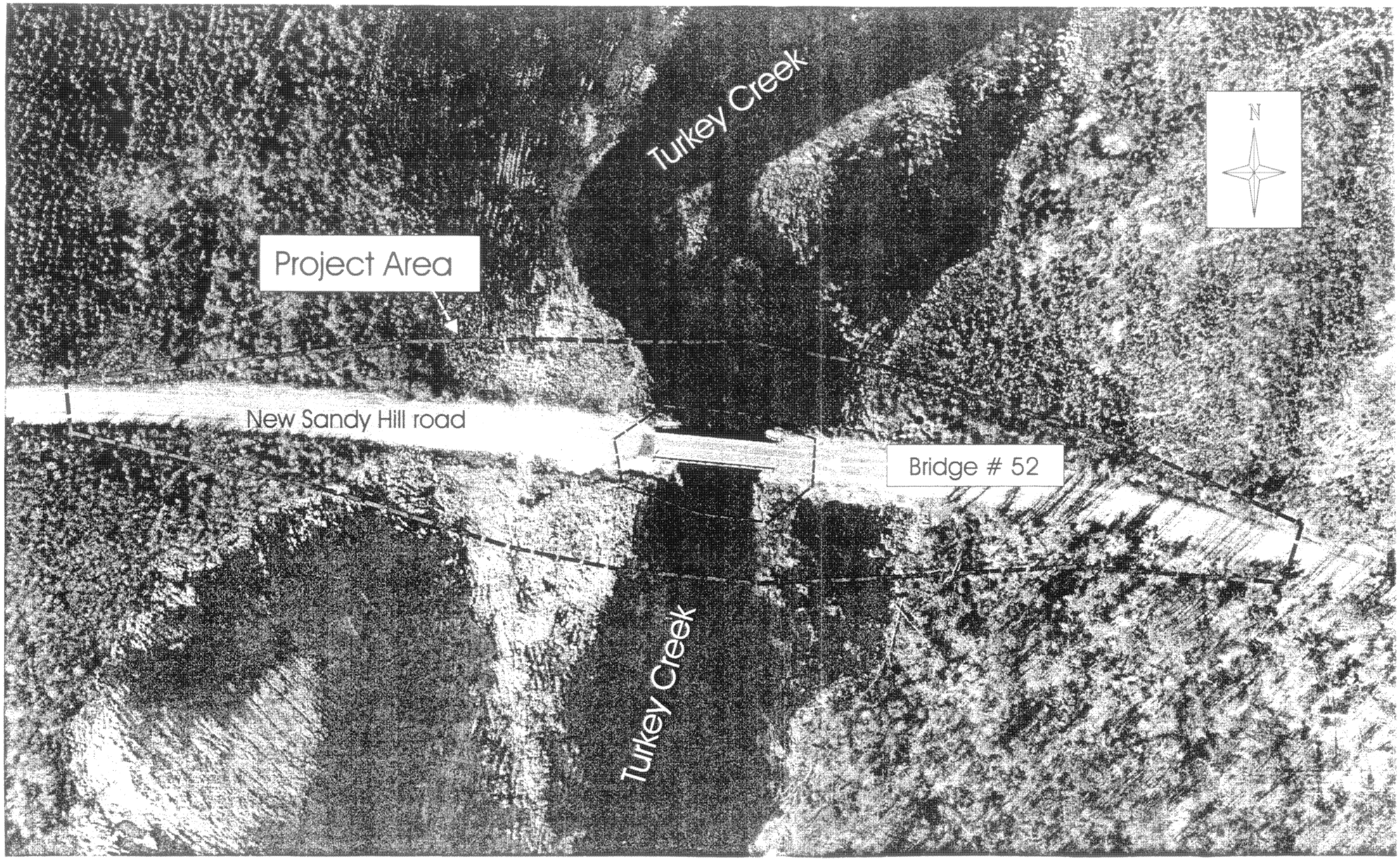
EcoScience Corporation
1101 Haynes Street, Suite 101
Raleigh, North Carolina 27604
919 828 3433 Fax: 919 828 3518

LOCATION MAP

Replacement of Bridge No. 52
Wilson and Nash Counties, North Carolina

Dwn. by:	ES
Ckd by:	SS
Date:	AUG 2001
Project:	00-046.09

FIGURE 1



EcoScience Corporation
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Client:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Project:
B-4327

Replacement of Bridge No. 52 over Turkey Creek Wilson County, North Carolina

Title:
LAND USE
BRIDGE NO. 52

Dwn By:	Date:
ES	AUG 2001
Ckd By:	Scale:
SS	1:1200

ESC Project No.: 00-046.09

FIGURE
2

The project area was visited on August 10, 2001. The project area was walked and visually surveyed for significant features. For purposes of this evaluation, the project area has been delineated by the NCDOT (Figure 2). Special concerns evaluated in the field include 1) potential protected species habitat and 2) wetlands and water quality protection in Turkey Creek.

The field work for this investigation was conducted by EcoScience Corporation biologists Joseph R. Pursley and Kendrick Weeks. Mr. Pursley is a Project scientist with 3 years of experience in the environmental field. He has received a bachelor's degree in natural resource sciences (ecosystem assessment) from North Carolina State University. He has conducted fieldwork involving forest productivity, avian population monitoring, avian nesting behavior, and plant community ecology. His professional expertise includes avian neo-tropical migrant identification, plant community mapping, protected species surveys, stream assessment, and Section 404 jurisdictional area delineations.

Mr. Weeks is a project scientist with 2 years of experience in the environmental field. Mr. Weeks earned a bachelor's degree in biology from Appalachian State University and a master's degree in zoology from North Carolina State University. His graduate research focused on breeding productivity of Neotropical Migrant Landbirds in the southern Appalachians. Professional expertise includes plant and wildlife identification, protected species surveys, environmental document preparation, and stream and wetland delineations.

Plant community descriptions are based on a classification system utilized by N.C. 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 for updated nomenclature (Kartesz 1998). Jurisdictional areas were evaluated using the three-parameter approach following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Aquatic and terrestrial wildlife habitat requirements and distributions were determined by supportive literature (Martof *et al.* 1980, Potter *et al.* 1980, Webster *et al.* 1985, Menhinick 1991, Hamel 1992, Palmer and Braswell 1995, and Rohde *et al.* 1994). Water quality information for area streams and tributaries was derived from available sources (DWQ 1999a, DWQ 1999b). Quantitative sampling was not undertaken to support existing data.

The most current FWS listing of federally protected species with ranges extending into Wilson and Nash County (April 12, 2001 FWS list) was reviewed prior to initiation of the field investigation. In addition, NHP records documenting presence of federally or state listed species were consulted before commencing field investigations.

1.4 Project Area

The project area is located at the crossing of SR 1131 (New Sandy Hill Road) and Turkey Creek, approximately 0.9 mile (1.4 kilometer) west of Connor, NC (Figure 1). The project area boundary (Figure 2) has been delineated by the NCDOT. The project area is generally linear and extends approximately 1150 feet (350.5 meters) along SR 1131 (New Sandy Hill Road), centered on Turkey Creek bridge, and is widest in the vicinity of the bridge, where the width is approximately 225 feet (68.5 meters). Included within the project area is Turkey Creek, the associated floodplain, and adjacent uplands. This section of Turkey Creek is characterized as a well-defined, upper Coastal Plain river with low to moderate flow velocity.

1.5 Physiography and Soils

The project area is located within the fall line zone between the upper Coastal Plain and the lower Piedmont physiographic provinces of North Carolina. The fall line zone runs along a northeast and southwest axis and marks the dividing line between the Piedmont and Coastal Plain where slopes change from moderate to nearly level. This area is located within the Middle Coastal Plain System soil region (Daniels *et al.* 1999). The region is characterized by smooth, gently undulating uplands, bisected by steep valley slopes along major streams and rivers. When sea level was at its highest, ancient oceans overlaid the relict Piedmont soils with Coastal Plain marine sediments. Streams within the fall line zone maintain moderate velocities and typically cut steep valley slopes through the highly erodable marine sediments and expose the relict Piedmont soils. Sediments along major streams may combine a variety of Coastal Plain and Piedmont sediments. The project area is located within a relatively level, floodplain valley surrounded by moderately sloped valley walls. Elevations in the project area range from a high of approximately 160 feet (48.7 meters) National Geodetic Vertical Datum (NGVD) along the west and east floodplain slopes of Turkey Creek to a low of approximately 150 feet (45.7 meters) NGVD within the stream channel.

Based on soil mapping for Wilson County (SCS 1983), the project area is underlain by three soil series: Altavista sandy loam (*Aquic Hapludults*), Wedowee sandy loam (*Typic Hapludults*), and Wehadkee loam (*Typic Fluvaquents*). The majority of the project area is composed of the Turkey Creek floodplain and mapped as the Wehadkee loam. A small inclusion of Altavista sandy loam occurs southwest of the bridge. The eastern upland soil bordering the floodplain is primarily Wedowee sandy loam.

Altavista sandy loam is a moderately well drained soil on river and stream terraces. Permeability is moderate and the water capacity is medium. The subsoil extends to a depth of 52 inches (132 centimeters). The underlying bedrock is typically encountered at 62 inches (157.4 centimeters).

Wedowee sandy loam is a well drained soil on side slopes of Piedmont and upper Coastal Plain uplands. The permeability is moderate and water availability is high. Wedowee soils are strongly associated with mixed hardwood forests.

Wehadkee loam soil series is a nearly level, poorly drained soil found on low terraces and floodplains. Wehadkee loam typically has inclusions of Chewacla loam which occur near the stream edge. The organic matter content of the surface layer is medium, and permeability is moderate. The seasonal high water table is at or near the surface during wet periods. These soils are subject to frequent flooding. Wehadkee loam is listed as a hydric soil for Wilson County (NRCS 1997).

2.0 WATER RESOURCES

2.1 Waters Impacted

The project area is located within sub-basin 030407 of the Neuse River Basin (DWQ 1999a). This area is part of USGS Hydrologic Unit 03020203 of the Atlantic/Gulf Region. The structure targeted for replacement spans Turkey Creek and the Turkey Creek floodplain. This section of Turkey Creek has been assigned Stream Index Number 27-86-3-(1) by the N.C. Division of Water Quality (DWQ 1999b).

2.1.1 Stream Characteristics

Turkey Creek is a high order, perennial stream with an undetermined streambed substrate. At Bridge No. 52, Turkey Creek is approximately 87.5 feet (26.6 meters) wide, with banks approximately 0 to 1 foot (0 to 0.3 meter) high and gradually sloping. The project area north and south of the bridge overlies the active floodplain of Turkey Creek, which is characterized as a fresh water marsh and Piedmont alluvial forest that is frequently flooded.

During the field visit, Turkey Creek was a moderately undefined stream due to backwater from Buckhorn Reservoir. During field investigations of Turkey Creek project area, water clarity was moderate to low and flow velocity was slow. The depth and creek bed substrate were undefined due to the poor clarity and perceived depth of the creek.

2.1.2 Best Usage Classifications and Water Quality

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. A best usage classification of **C NSW** has been assigned to this reach of Turkey Creek. Class **C** waters are suitable for aquatic life propagation and protection, agriculture, and secondary recreation. Secondary recreation includes wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis. The supplemental classification **NSW** is

intended for waters needing additional nutrient management due to their being subject to excessive growth of microscopic or macroscopic vegetation. In general, management strategies for point and non-point source pollution control require no increase in nutrients over background levels. No designated High Quality Waters (**HQW**), Outstanding Resource Waters (**ORW**), Water Supply I (**WS-I**), or Water Supply II (**WS-II**) waters occur within 1.0 mile (1.6 kilometer) of the project area (DWQ 1999). No watershed Critical Areas (**CA**) occur within 1.0 mile (1.6 kilometer) of the project area.

The Division of Water Quality (DWQ) (previously known as the Division of Environmental Management, Water Quality Section [DEM]) has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed project area is summarized in the Neuse River Basinwide Water Quality plan (DWQ 1999a). Based on DWQ data, Turkey Creek is currently designated as **Partially Supporting** its current use rating. Upstream of Bridge No. 52, at the Turkey Creek crossing of SR 1101, a bioclassification of **Fair** has been assigned, and a downstream bioclassification of **Good-Fair** has been assigned at SR 1128 based on benthic macroinvertebrate monitoring in 1997.

Sub-basin 030407 of the Neuse River Basin supports 28 permitted, point source discharges. Total discharge is 21.08 million gallons per day (MGD) (79.8 million liters per day [MLD]). Discharges include four major and 24 minor. The four major dischargers account for 19.35 MGD (73.24 MLD), and the 24 minor dischargers account for 1.73 MGD (6.54 MLD). Major non-point sources of pollution for Turkey Creek include runoff from cropping and pasturage. Sedimentation and nutrient inputs are major problems associated with non-point source discharges and often result in fecal coliform (DWQ 1999a).

2.2 Anticipated Impacts to Water Resources

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

The proposed bridge replacement will allow for continuation of pre-project stream flows in Turkey Creek, 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 BMPs for the Protection of Surface Waters will be strictly enforced during the entire life of the project. Due to the composition of the Turkey Creek stream bed, sediment

curtains should be utilized to minimize potential water quality degradation as a result of bridge replacement.

[Bridge Demolition Paragraph #2]

3.0 BIOTIC RESOURCES

3.1 Plant Communities

Four distinct plant communities were identified within the project area: fresh water marsh, mesic mixed hardwood forest, disturbed/maintained land, and Piedmont alluvial forest (Figure 3). Plant community designations are based on a classification system utilized by the NHP (Schafale and Weakley 1990). These communities are described below.

Fresh Water Marsh – The largest plant community within the project area is a freshwater marsh which spans the Turkey Creek floodplain on both the upstream and downstream sides of the bridge. The structure of the marsh community is controlled by the fluctuating water level of Turkey Creek and the downstream Buckhorn Reservoir. The freshwater marsh contains a wide variety of woody and herbaceous plants. The scattered trees/shrubs were silky dogwood (*Cornus amomum*), swamp chestnut oak (*Quercus michauxii*), Virginia willow (*Itea virginica*), and buttonbush (*Cephalanthus occidentalis*). Grasses, sedges, and rushes were plentiful and were represented by beaked rush (*Rhynchospora corniculata*), woolgrass (*Scirpus cyperinus*), leathery rush (*Juncus coriaceous*), soft rush (*J. effusus*), taper-tip rush (*J. acuminatus*), and hop sedge (*Carex lupulina*). The herbaceous layer is diverse and contained arrow-leaf tearthumb (*Polygonum sagittatum*), swamp smartweed (*P. hydropiperoides*), Asiatic dayflower (*Murdannia keisak*), narrow-leaf sundrops (*Oenothera fruticosa*), bushy seedbox (*Ludwigia alternifolia*), river seedbox (*L. leptocarpa*), primrose willow (*L. decurrens*), creeping seedbox (*L. repens*), false nettle (*Boehmeria cylindrica*), swamp rosemallow (*Hibiscus moscheutos*), broad-leaf cattail (*Typha latifolia*), Virginia meadow-beauty (*Rhexia virginica*), bladderwort (*Utricularia* spp.), lizard's tail (*Saururus cernuus*), common arrowhead (*Sagittaria latifolia*), green arum (*Peltandra virginica*), and duckweeds (*Lemna* spp.).

Mesic-mixed Hardwood Forest – A mature mesic-mixed hardwood forest and an early successional mesic-mixed hardwood forest occur on upland slopes adjacent to the Turkey Creek floodplain on both the north and south side of New Sandy Hill Road to the east of Bridge No. 52. The mesic-mixed hardwood forest consists of a well-developed canopy with a moderately dense understory with a thin assemblage of grasses and herbs. Canopy species identified within this community are river birch (*Betula nigra*), tulip poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), swamp blackgum (*Nyssa biflora*), and loblolly pine (*Pinus taeda*). The sub-canopy included flowering dogwood (*Cornus florida*), southern sugar maple (*Acer barbatum*), slippery elm (*Ulmus rubra*), and ironwood (*Carpinus caroliniana*). Shrub, vine, and herb species included sea myrtle (*Baccharis halimifolia*),

elderberry (*Sambucus canadensis*), trumpet creeper (*Campsis radicans*), greenbrier (*Smilax rotundifolia*), muscadine grape (*Vitis rotundifolia*), Japanese honeysuckle (*Lonicera japonica*), creeping grass (*Microstegium vimineum*), poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), blackberry (*Rubus argutus*), kudzu (*Pueraria lobata*), and false nettle. The early successional mesic mixed hardwood forest is located north of New Sandy Hill Road and was comprised of similar species, but the structure was less well defined due to recent disturbance.

Disturbed/Maintained Land - Disturbed/maintained land occurs only along the shoulders of SR 1131 (New Sandy Hill Road). Roadside right-of-way areas are approximately 10 feet (3.0 meters) wide. This community is a single-layered system of natural and planted grasses, herbs, and vines. The community is comprised of blackberry, trumpet creeper, Japanese honeysuckle, poison ivy, Queen Anne's lace (*Daucus carota*), common morning glory (*Ipomoea coccinea*), aster (*Eupatorium* sp.), lespedeza (*Lespedeza bicolor*), and fescue.

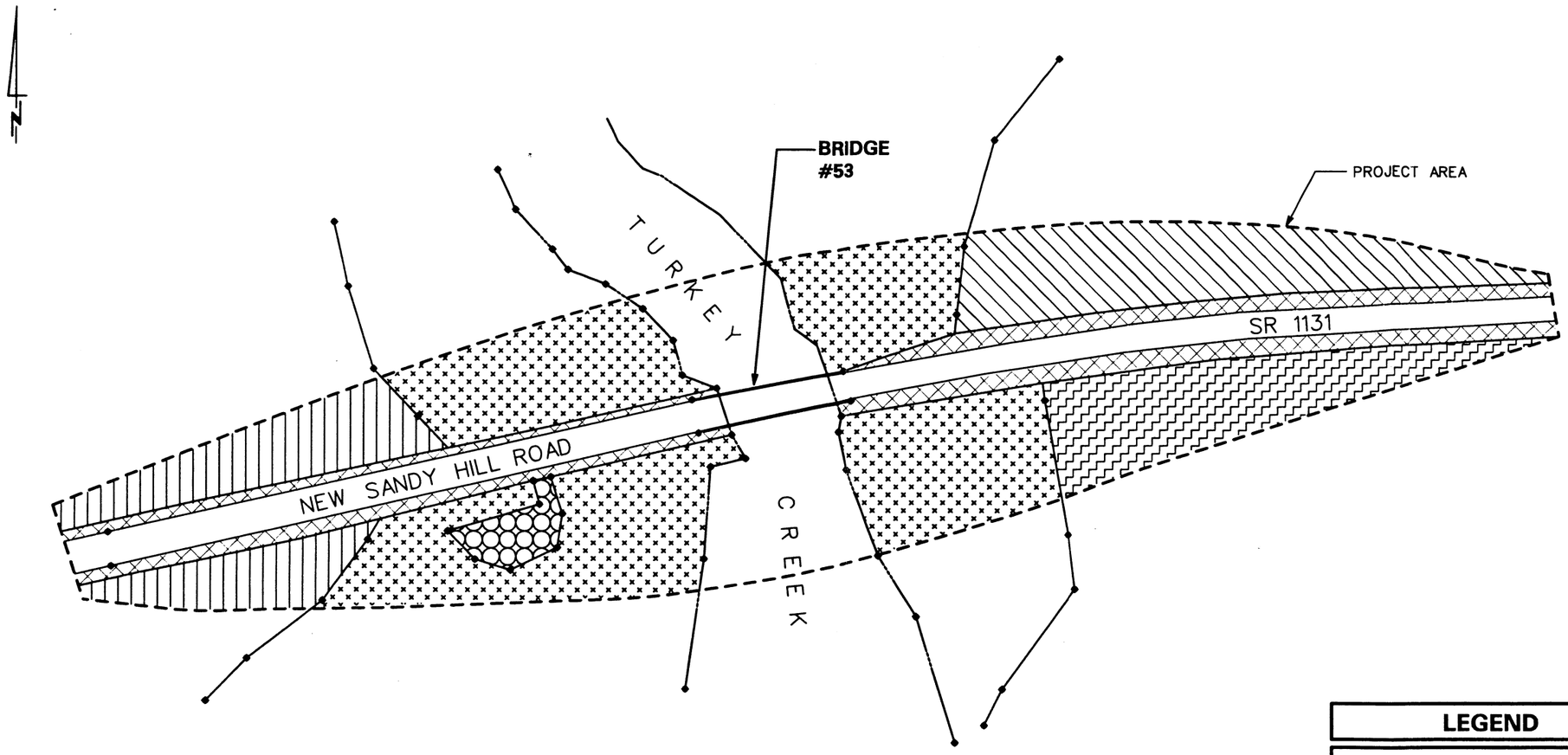
Piedmont Alluvial Forest – A Piedmont alluvial forest and an early successional Piedmont alluvial forest occur at the western fringe of the Turkey creek floodplain. The early successional Piedmont alluvial forest occupies a relatively small area and is isolated within the fresh water marsh community. The mature Piedmont alluvial forest occurs north and south of New Sandy Hill Road at the western edge of the project area. The canopy is well developed and very thick. The sub-canopy is very thin and contains mainly trailing vines. The shrub and herbaceous layer are poorly defined due to the thick canopy layer. The primary canopy trees are sweetgum, green ash, river birch, red maple and loblolly pine. The shrub and vine layer were represented by deciduous holly (*Ilex decidua*), Chinese privet (*Ligustrum sinense*), greenbrier, poison ivy, and blackberry.

3.2 Terrestrial Plant Community Areas

Plant communities within the project area were delineated to determine approximate area and location of each plant community (Figure 3). A summary of plant community areas is presented in Table 1.

Table 1. Project area plant communities. Areas are given in acres (hectares).

Plant Community	Area
Fresh water marsh	1.39 (0.56)
Mesic mixed Hardwood Forest	0.95 (0.38)
Disturbed/ Maintained Land	0.47 (0.19)
Piedmont Alluvial Forest	0.40 (0.16)
Total	3.21 (1.29)



LEGEND

- STREAM BOUNDARIES
- BRIDGE
- PLANT COMMUNITY BOUNDARY
- FRESH WATER MARSH
- EARLY SUCCESSIONAL MESIC MIXED HARDWOOD FOREST
- PIEDMONT ALLUVIAL FOREST
- DISTURBED/MAINTAINED
- MESIC MIXED HARDWOOD FOREST
- EARLY SUCCESSIONAL PIEDMONT ALLUVIAL FOREST

0 100 200

SCALE IN FEET

EcoScience Corporation
Raleigh, North Carolina

REVISIONS

Client: NCDOT

Project: **BRIDGE #52 (B4327) NEW SANDY HILL ROAD (SR 1131) over TURKEY CREEK**

WILSON COUNTY, NORTH CAROLINA

Title: **PLANT COMMUNITIES**

Dwn By:	Date:
MAF	AUG 2001
Ckd By:	Scale:
JP	1"= 100'

ESC Project No.: 00-046.09

FIGURE **3**

3.3 Wildlife

3.3.1 Terrestrial

No terrestrial mammals were observed during the site visit but physical signs of two mammal species, white-tailed deer (*Odocoileus virginianus*) and raccoon (*Procyon lotor*) were observed within the project area. Other mammal species expected to occur within the project area are gray fox *(Urocyon cinereoargenteus*), eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), Virginia opossum (*Didelphis virginiana*), river otter *(Lutra canadensis*), mink (*Mustela vison*), southeastern shrew (*Sorex longirostris*), cotton mouse (*Peromyscus gossypinus*), and red bat (*Lasiurus borealis*).

Birds observed within or adjacent to the corridor are indigo bunting (*Passerina cyanea*), yellow-billed cuckoo (*Coccyzus americanus*), great egret (*Casmerodius albus*), osprey (*Pandion haliaetus*), great blue heron (*Ardea herodias*), rock dove (*Columba livia*), white eyed vireo (*Vireo griseus*), Canada goose (*Branta canadensis*), and killdeer (*Charadrius vociferus*).

Two terrestrial amphibian species were observed during the site visit, green frog (*Rana clamitans*) and northern cricket frog (*Acris crepitans*). No terrestrial reptiles were observed during the site visit. Terrestrial reptiles which may occur within the project area include eastern box turtle (*Terrapene carolina*), eastern fence lizard (*Sceloporus undulatus*), five-lined skink (*Eumeces fasciatus*), rough green snake (*Opheodrys aestivus*), worm snake (*Carphophis amoenus*), rat snake (*Elaphe obsoleta*), eastern garter snake (*Thamnophis sirtalis*), copperhead (*Agkistrodon contortrix*), gray treefrog (*Hyla versicolor*), Fowler's toad (*Bufo woodhousei*), American toad (*Bufo americanus*), southern toad (*Bufo terrestris*), northern dusky salamander (*Desmognathus fuscus*), Carolina mudpuppy (*Necturus lewisi*), and slimy salamander (*Plethodon glutinosus*).

3.3.2 Aquatic

Limited surveys within the project area resulted in no observations of aquatic reptiles. Aquatic or semi-aquatic reptiles and amphibians which are expected to occur within the project area include snapping turtle (*Chelydra serpentina*), mud turtle (*Kinosternon subrubrum)*, river cooter (*Pseudemys concinna*), and southern dusky salamander (*Desmognathus auriculatus*).

No sampling was undertaken in Turkey Creek to determine fishery potential. Fish species that may be present in Turkey Creek include bluehead chub (*Nocomis leptocephalus*), margined madtom (*Noturus insignis*), spottail shiner (*Notropis hudsonius*), tessellated darter (*Etheostoma olmstedi*), and yellow bullhead (*Ameiurus natalis*). Potential game fish that may be present within the project area include yellow perch (*Perca flavescens*) and largemouth bass (*Micropterus salmoides*).

3.4 Anticipated Impacts to Wildlife

No significant habitat fragmentation is expected since potential improvements will be restricted to adjoining roadside margins. Construction noise and associated disturbances will have short-term impacts on avifauna and migratory wildlife movement patterns.

Impacts associated with turbidity and suspended sediments resulting from bridge replacement will be minimized through the use of silt curtains and the implementation of stringent erosion control measures. Migratory fish are not expected to be an issue for this bridge replacement due to the presence of Buckhorn Reservoir just downstream of the project area.

4.0 SPECIAL TOPICS

4.1 Waters of the United States

Surface waters within the embankments of Turkey Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as waters of the United States (33 CFR section 328.3). NWI mapping indicates that Turkey Creek exhibits characteristics of a palustrine-forested broad-leaved deciduous-temporarily flooded (PFO1A), Palustrine-forested broad-leaved deciduous-seasonally flooded (PFO1C), Palustrine-forested broad-leaved deciduous/needle-leaved evergreen temporarily flooded (PFO1/4A) (Cowardin *et al.* 1979). Field investigations indicate that, within the project area, Turkey Creek is a well-defined, open water, riverine system.

Wetlands adjacent to Turkey Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as waters of the United States (33 CFR section 328.3). These areas are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987 see attached Routine Wetland Determination data forms). NWI mapping indicates that there are wetlands adjacent to Turkey Creek within the project area and jurisdictional wetlands were found during the site visit. Wetland vegetation species growing in this area are silky dogwood, swamp smartweed, wool grass, and bladderwort. These species are growing in soils that exhibit values, chromas, and mottles characteristic of hydric conditions. Evidence of wetland hydrology includes saturated and innundated soil conditions, a wetland drainage pattern, and oxidized root channels in the upper 12 inches (30.5 centimeters) of the soil. Jurisdictional impacts should be avoided or minimized by any considered alternatives. Bridge replacement impacts will likely be limited to existing fill areas of Turkey Creek bridge

The Nutrient Sensitive Waters Management Strategy for the Protection and Maintenance of Riparian Buffers for the Neuse River Basin. The Nutrient Sensitive Waters Management Strategy for the Protection and Maintenance of Riparian Buffers (15 A NCAC 2B .0233) provides a designation for uses that cause impacts to riparian buffers within the Neuse Basin

and affect their nutrient removal functions. Changes in land use within the buffer area are considered to be buffer impacts. Land use changes within the riparian are defined as being **Exempt**, **Allowable**, **Allowable with Mitigation**, or **Prohibited**. The **Exempt** designation refers to uses allowed within the buffer. The **Allowable** designation refers to uses that may proceed within the riparian buffer provided there are no practical alternatives, and that written authorization from the DWQ is obtained prior to project development. The **Allowable with Mitigation** designation refers to uses that are allowed, given there are no practical alternatives and appropriate mitigation plans have been approved. The **Prohibited** designation refers to uses that are prohibited without a variance. Exemptions to the riparian buffer rule include the footprint of existing uses that are present and ongoing. Stream linear distance was determined as the length of the main channel. Riparian buffer linear distance was determined as the stream linear distance minus existing use exemptions (e.g. road). Riparian buffer area was calculated by multiplying riparian buffer linear distance by 100 feet (Table 2). Most of the land north and south of Bridge No. 52 will be affected by buffer rules (Figure 4).

[Bridge demolition paragraph #3]

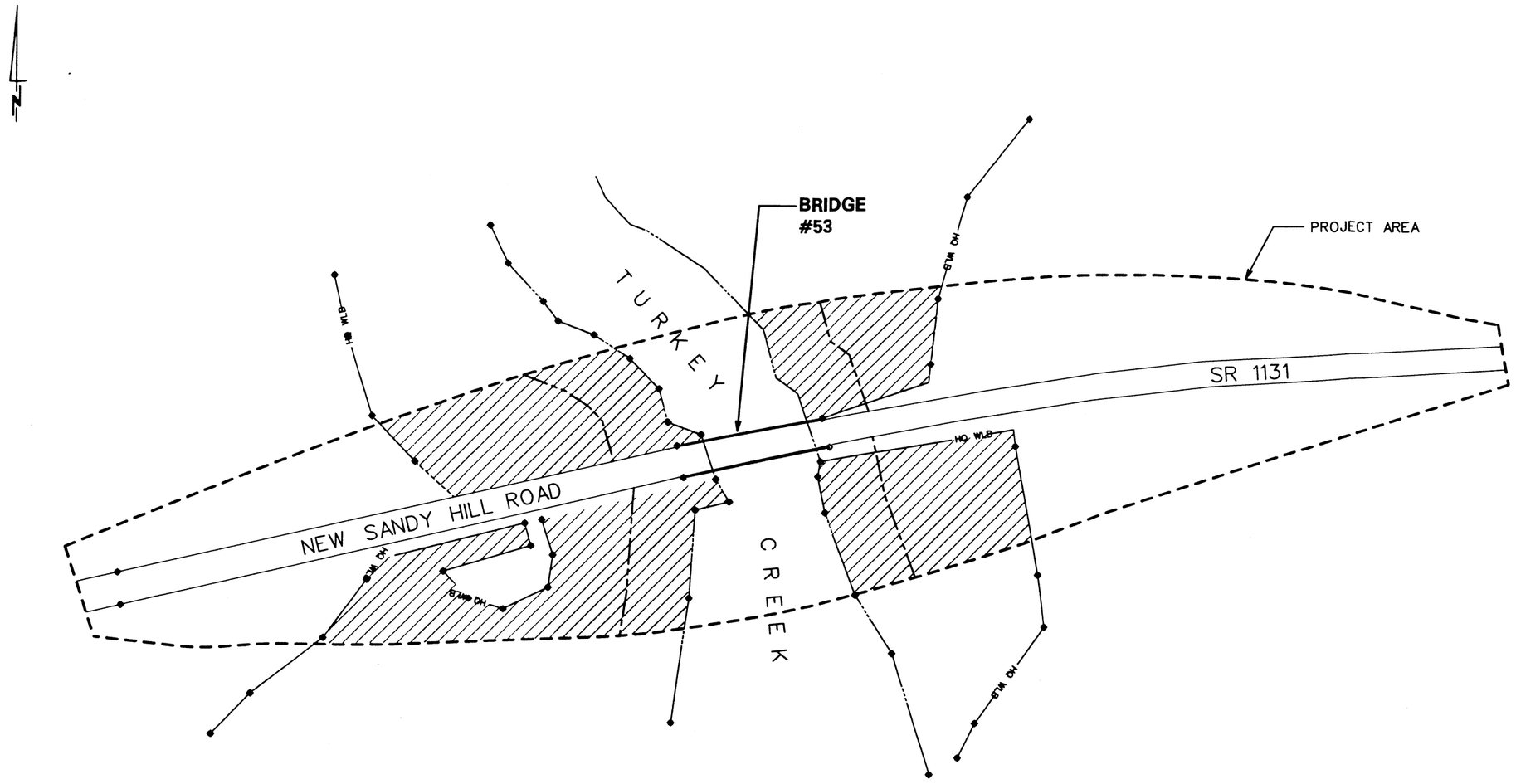
As this reach of Turkey Creek has no potential as a travel corridor for migratory fish, this project can be classified as **Case 3**, where in-water work will have no moratorium. No special restrictions apply to surface waters beyond those outlined in the BMPs.

Table 2: Linear distance, area of surface waters/wetlands, and riparian buffer within the project area. Linear distance is expressed in feet (meters) and area is expressed in acres (hectares).

Jurisdictional Type	Linear Distance	Area
Surface Water	245 (74.6)	0.49 (0.2)
Wetlands	0	1.4 (0.56)
Riparian Buffer	222 (67.6)	0.5 (0.2)

4.1.1 Permits

This project may be 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 to waters of the U.S. 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, impacts attributed to bridge replacement and associated approach improvements may qualify under General Bridge Permit (GP) 031 issued by the Wilmington COE District. DWQ has made available a General 401 Water Quality Certification for GP 031. Notification to the Wilmington COE office is required if this general permit is utilized. The COE may exert discretionary authority and require an Individual Permit if avoidance and minimization have not been



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SCALE IN FEET

LEGEND

- STREAM BOUNDARIES
- BRIDGE
- HQ WLB — WETLAND
- 50' RIPARIAN BUFFER

EcoScience Corporation
Raleigh, North Carolina

REVISIONS

Client:
NCDOT

Project:
BRIDGE #52 (B4327) NEW SANDY HILL ROAD (SR 1131) over TURKEY CREEK

WILSON COUNTY, NORTH CAROLINA

Title:
JURISDICTIONAL SYSTEMS

Dwn By:	Date:
MAF	AUG 2001
Ckd By:	Scale:
JP	1"= 100'

ESC Project No.: 00-046.09

FIGURE
4

authority and require an Individual Permit if avoidance and minimization have not been adequately addressed, or if mitigation is inadequate (assuming mitigation may be required).

The Neuse River Basin Rule applies to 50-foot (15.3-meters) wide riparian buffers directly adjacent to surface waters of the Neuse River Basin. Neuse Buffer Certification mayl be needed in addition to a COE permit and DWQ Water Quality Certification.

4.1.2 Mitigation

Mitigation for Section 404 area impacts may be required, depending on the bridge replacement cut-and-fill limits. Utilization of BMPs is recommended in an effort to minimize impacts. Temporary impacts to floodplains associated with construction activities could be mitigated by replanting disturbed areas with native riparian species and removal of temporary fill material upon project completion. Fill or alteration of more than 150 linear feet (45.8 meters) of stream may require compensatory mitigation in accordance with 15 NCAC 2H .0506(h). A final determination regarding mitigation rests with the COE and DWQ.

The requirement for riparian buffer mitigation will depend on the amount of potential impacts resulting from proposed bridge replacement and the availability of practical alternatives. A final determination regarding practical alternatives rests with DWQ.

4.2 Protected Species

4.2.1 Federally Protected Species

Species with the federal classification of Endangered (E), Threatened (T), or officially Proposed (P) 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 Wilson and adjacent Nash County (April 12, 2001 FWS list) is presented in Table 3.

Table 3. Federally Protected Species for Wilson and Nash County (April 12, 2001 FWS list).

Common Name	Scientific Name	Status	County
Dwarf Wedge mussel	*Alasmidonta heterodon*	E	Wilson/Nash
Tar River spinymussel	*Elliptio steinstansana*	E	Nash
Michaux's sumac	*Rhus michauxii*	E	Wilson
Red-cockaded woodpecker	*Picoides borealis*	E	Wilson/Nash

* E= Endangered, T= Threatened, W= Wilson County, N= Nash County.

Dwarf Wedge Mussel-The dwarf wedge mussel is relatively small, averaging 1.0 to 1.5 inches long. The shells are olive-green to dark brown in color and are subrhomboidally shaped. The shells of females are swollen posteriorly, while the shells of males are generally flattened (TSCFTM 1990). The preferred habitats are streams with moderate flow velocities and bottoms varying in texture from gravel and coarse sand to mud, especially just downstream of debris and on banks of accreting sediment. This species was previously known only from a few, disjunct populations in the Neuse River basin (Johnston Co.) and Tar River basin (Wilson Co.). Statewide surveys conducted since 1992 have expanded this species' range in North Carolina. This species is now known from Neuse Basin in Orange, Wake, Johnston, and Nash Counties; and from Tar River Basin in Wilson, Vance, Warren, Franklin, Halifax, and Nash Counties.

> **BIOLOGICAL CONCLUSION**: The dwarf wedge mussel typically occurs in rivers with moderate flow rates and a gravel to sand substrate. The Turkey Creek shoreline and river bottom within the project area provide marginal habitat for the dwarf wedge mussel. The low creek flow and limited clarity would indicate a thick mud and silt bottom which provides poor habitat for the dwarf wedge mussel. NHP records have documentation of this species approximately 1.0 mile (1.6 kilometer) downstream of the project area, but no mussels or relict shells were observed during the field visit. Based on professional judgement and a cursory investigation of potential habitat, a field survey is needed to determine presence or absence of dwarf wedge mussel within the project area. **UNRESOLVED**

Tar River spinymussel-The Tar River spinymussel is a small, subrhomboidal mussel that grows to approximately 2.5 inches (6.4 centimeters) in length. The external shell of the adult is smooth, orange-brown to dark brown, and ornamented by one or two rows of short spines (to 0.2 inches [5.1 millimeters] long). The shell is thicker on the anterior end and thinner on the posterior end. Preferred habitat of the spiny mussel includes relatively fast-flowing, well-oxygenated, circumneutral water over a silt-free, noncompacted, gravel/coarse sand substrate. The mussel's range is believed to be limited to a 1.0-mile (1.6-kilometer) section of the Tar River in Edgecombe County and Swift Creek in Vance and Edgecombe Counties (TSCFTM 1990).

> **BIOLOGICAL CONCLUSION**: Marginal habitat for the Tar River spinymussel is found in the vicinity of the project area due to apparent slow flows and a silty substrate. NHP has no documentation of the Tar River spinymussel within 2.0 miles (3.2 kilometers) of the project area. No evidence of mussels was observed during the field investigation. Based on professional judgement and a cursory field investigation, a field survey is needed to determine presence or absence of dwarf wedge mussel within the project area. **UNRESOLVED**

Michaux's sumac- Michaux's sumac is a densely pubescent, deciduous, rhizomatous shrub, usually less than 2 feet (0.6 meter) high. The alternate, compound leaves consist of 9 to 13 hairy, round-based, toothed leaflets borne on a hairy rachis that may be slightly winged (Radford *et al.* 1968). Small male and female flowers are produced during June on separate

plants; female flowers are produced on terminal, erect clusters followed by small, hairy, red fruits (drupes) in August and September. Michaux's sumac tends to grow in disturbed areas where competition is reduced by periodic fire or other disturbances, and may grow along roadside margins or utility right-of-ways. In the Piedmont, Michaux's sumac appears to prefer clay soil derived from mafic rocks or sandy soil derived from granite; in the Sandhills, it prefers loamy swales (Weakley 1993). Michaux's sumac ranges from south Virginia through Georgia in the inner Coastal Plain and lower Piedmont.

BIOLOGICAL CONCLUSION: NHP records indicate that Michaux's sumac has not been documented to occur within 1.0 mile (1.6 kilometers) of the project area. The project area does contain suitable habitat for this species. Based on analysis of NHP records and habitat types within the project area, an intensive survey of the project area was undertaken and did not reveal the presence of Michaux's sumac. Therefore, on the basis of NHP records and best professional judgement, the proposed project will have **NO EFFECT**

Red-cockaded Woodpecker This small woodpecker (7 to 8.5 inches [18 to 22 centimeters] long) has a black head, prominent white cheek patches, and a black-and-white barred back. Males often have red markings (cockades) behind the eye, but the cockades may be absent or difficult to see (Potter *et al.* 1980). Primary habitat consists of mature to over-mature southern pine forests dominated by loblolly (*Pinus taeda*), long-leaf (*P. palustris*), slash (*P. 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 which 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 **BIOLOGICAL CONCLUSION**: A few, young loblolly pine trees exist within the project area and adjacent areas. These trees are not old enough to provide suitable nesting and foraging habitat for red-cockaded woodpeckers The clustered arrangement of pine trees preferred by the birds for nesting colonies is not provided in the vicinity of the project area. In addition, the use of these scattered pines for foraging sites would depend on the birds' crossing large, inhospitable tracts of roadways, and extensive open fresh water marsh. The NHP documents no occurrences of red-cockaded woodpeckers within 2.0 miles (3.2 kilometers) of the project area, and none were observed during field surveys. Based on professional judgment and available information, this project will have. **NO EFFECT**

Federal Species of Concern - The April 12, 2001 FWS list also includes a category of species designated as "Federal species of concern" (FSC). A species with this designation is one that

may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing). The FSC designation provides no federal protection under the ESA for the species listed. FSC species listed for Wilson and adjacent Nash County are presented in Table 4. NHP files have no documentation of FSC species within 2.0 miles (3.2 kilometers) of the project area. The nearest FSC species is the pinewoods shiner (*Lythrurus matutinus*) located 2.5 miles (4.0 kilometers) downstream to the east-southeast.

Table 4. Federal Species of Concern listed for Wilson and adjacent Nash County (FWS list, April 12, 2001).

Common Name	Scientific Name	Potential Habitat	State Status*	County listing
Henslow's sparrow	*Ammodramus henslowii*	NO	SR	Wilson
Pinewoods shiner	*Lythrurus matutinus*	YES	SR	Wilson/Nash
Yellow lampmussel	*Lampsilis cariosa*	NO	T	Nash
Yellow lance	*Elliptio lanceolata*	NO	T	Nash
Green floater	*Lasmigona subviridis*	NO	E	Nash
Atlantic pigtoe	*Fusconaia masoni*	NO	T	Wilson/Nash
Sandhills bog lily	*Lilium iridollae*	NO	T	Nash
Carolina least trillium	*Trillium pusillum* var. *pusillum*	YES	E	Nash
Carolina asphodel	*Tofieldia glabra*	YES	C	Wilson
Diana fritillary butterfly	*Speyeria diana*	YES	SR	Nash

* E = Endangered; T = threatened; SR = Significantly Rare; C = Candidate; P = Species has been formally proposed for listing as Endangered, Threatened, or Special Concern; W1 = NC Plant Watch List: rare because of severe decline; W3 = NC Watch List: poorly known in North Carolina (Amoroso 1999; LeGrand and Hall1999).

4.2.2 State Protected Species

Plant and animal species which are on the North Carolina state list as Endangered, Threatened, Special Concern (SC), Candidate, Significantly Rare (SR), or Proposed (Amoroso 1999, LeGrand and Hall 1999) receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202 *et seq.*). NHP records indicate that the notched rainbow mussel (*Villosa consricta*), triangle floater (*Alasmidonta undulata*), and Georgia holly (*Ilex longipies*) have been documented within 2.0 miles (3.2 kilometers) of the project area. In Wilson County, notched rainbow mussel and the triangle floater have been documented 1.3 miles (2.1 kilometers) downstream and west-southwest of the project area. The Georgia holly has been documented

0.7 mile (1.1 kilometer) west of Bridge No. 52. The notched rainbow mussel is state listed as SR, the triangle floater as Threatened, and Georgia holly as SC rating. No other NHP species are documented within two miles of the project area.

NHP also documents Significant Natural Heritage Areas (SNHA), sites selected on the basis of the occurrence of rare plant and animal species, rare or high quality natural communities and special animal habitats. NHP documents a SNHA, Turkey Creek Aquatic Habitat, at the project area with a signifigance classification of (**A**) (NHP 1999). Class **A** signifigance denotes a Nationally signifigant natural area that contains examples of natural communities, rare plant or animal populations, or geologic features that are among the highest quality in the nation. No other NHP SNHA occur within two miles of the project area.

5.0 REFERENCES

Amoroso, J.L. 1999. Natural Heritage Program List of the Rare Plant Species of North Carolina. North Carolina Natural Heritage Program, Division of Parks and Recreation, N.C. Department of Environment, Health and Natural Resources, Raleigh.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS -79/31. Fish and Wildlife Service, U.S. Department of the Interior, Washington, DC. 103 pp.

Daniels, R.B., S.W. Buol, H.J. Kleiss, and C.A. Ditzler. 1999. Soil Systems in North Carolina. North Carolina State University Soil Science Department. Raleigh, North Carolina. 118 pp.

Department of the Army (DOA). 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. US Army Engineer Waterways Experiment Station, Vicksburg, MS. 100 pp.

Division of Water Quality (DWQ). 1999. Neuse River Basinwide Water Quality Plan. North Carolina Department of Environment and Natural Resources, Raleigh.

Division of Water Quality (DWQ). 1999b. Classifications and Water Quality Standards Assigned to the Waters of the Neuse River Basin. North Carolina Department of Environment and Natural Resources, Raleigh.

Fish and Wildlife Service (FWS). 1985. Red-cockaded Woodpecker Recovery Plan. U.S. Department of the Interior, Southeast Region, Atlanta, Georgia. 88 pp.

Fish and Wildlife Service (FWS). 1987. Habitat Management Guidelines for the Bald Eagle in the Southeast Region. U.S. Department of the Interior, Fish and Wildlife Service. 8 pp.

Hamel, P.B. 1992. Land Manager's Guide to the Birds of the South. The Nature Conservancy, Southeastern Region, Chapel Hill, NC. 437 pp.

Kartesz, J. 1998. A Synonymized Checklist of the Vascular Flora of the United States, Puerto Rico, and the Virgin Islands. Biota of North America Program.

LeGrand, H.E. and S.P. Hall. 1999. Natural Heritage Program List of the Rare Animal Species of North Carolina. North Carolina Natural Heritage Program, Division of Parks and Recreation, N.C. Department of Environment, Health, and Natural Resources, Raleigh.

Martof, B.S., W.M. Palmer, J.R. Bailey, and J.R. Harrison III. 1980. Amphibians and Reptiles of the Carolinas and Virginia. The University of North Carolina Press, Chapel Hill, NC. 264 pp.

Menhinick, E.F. 1991. The Freshwater Fishes of North Carolina. North Carolina Wildlife Resources Commission, Raleigh. 227 pp.

Natural Heritage Program (NHP). 1999. List of Significant Natural Heritage Areas. North Carolina Division of Parks and Recreation, Department of Environment and Natural Resources. Raleigh, NC.

Natural Resources Conservation Service (NRCS). 1997. U.S. Department of Agriculture. Hydric Soils, Wilson County, N.C. Technical Guide, Section II-A-2.

Palmer, W.M. and A.L. Braswell. 1995. Reptiles of North Carolina. The University of North Carolina Press, Chapel Hill, NC. 412 pp.

Potter, E.F., J.F. Parnell, and R.P. Teulings. 1980. Birds of the Carolinas. The University of North Carolina Press, Chapel Hill, NC. 408 pp.

Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. The University of North Carolina Press, Chapel Hill, NC. 1183 pp.

Rohde, F.C., R.G. Arndt, D.G. Lindquist, and J.F. Parnell. 1994. Freshwater Fishes of the Carolinas, Virginia, Maryland, and Delaware. The University of North Carolina Press, Chapel Hill, N.C. 222 pp.

Schafale, M.P. and A.S. Weakley. 1990. Classification of the Natural Communities of North Carolina: Third Approximation. Natural Heritage Program, Division of Parks and Recreation, N.C. Department of Environment, Health, and Natural Resources. Raleigh. 325 pp.

Soil Conservation Service (SCS). 1983. Soil survey of Wilson County, North Carolina, USDA National Cooperative Soil Survey.

The Scientific Council on Freshwater and Terrestrial Mollusks (TSCFTM). 1990. A Report on the Conservation Status of North Carolina's Freshwater and Terrestrial Molluscan Fauna. Pp. 50-52.

Thompson, R.L. and W.W. Baker. 1971. A survey of red-cockaded woodpeckers nesting habitat requirements (pp. 170-186). **In** R.L. Thompson ed., The Ecology and Management of the Red-cockaded Woodpecker. Tall Timbers Research Station, Tallahassee, FL.

Webster, W.D., J.F. Parnell, and W.C. Biggs, Jr. 1985. Mammals of the Carolinas, Virginia, and Maryland. The University of North Carolina Press, Chapel Hill, NC. 255 pp.

Weakley, A. S. 1993. Guide to the Flora of the Carolinas and Virginia. Working Draft of November 1993. North Carolina Natural Heritage Program, Division of Parks and Recreation, Department of Environment, Health, and Natural Resources. 575 pp.

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

Project/Site: Bridge No. 52 SR1131 (New Sandy Hill Road) Date: 8-10-01
Applicant/Owner: NCDOT County: Wilson
Investigator: Joseph R. Pinsley (Ecoscience Corp.) State: North Carolina

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: Freshwater Marsh
Transect ID: ZC03
Plot ID: wetland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Cornus amomum	Shrub/Herb	FacW+	9. Oenothera fruticosa	"	FAC
2. Polygonum hydropiperoides	"	OBL	10.		
3. Scirpus cyperinus	"	OBL	11.		
4. Murdannia keisak	"	OBL	12.		
5. Juncus effusus	"	FacW	13.		
6. P. sagittatum	"	OBL	14.		
7. Ludwigia alternifolia	"	OBL	15.		
8. L. leptocarpa	"	OBL	16.		

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

Remarks: Vegitation was no more than 1.5 meters high throughout wetland.

HYDROLOGY

__Recorded Data (Describe in Remarks):
__Stream, Lake or Tide Gauge
__Aerial Photographs
__Other
X No Recorded Data Available

Field Observations:
Depth of Surface Water: 1-2" (in.)
Depth to Free Water in Pit: 2" (in.)
Depth to Saturated Soil: Completely Saturated

Wetland Hydrology Indicators:
Primary Indicators:
X Inundated
X Saturated in Upper 12 Inches
__Water Marks
__Drift Lines
__Sediment Deposits
X Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
X Oxidized Root Channels in Upper 12 Inches
__Water-Stained Leaves
X Local Soil Survey Data
X FAC-Neutral Test
__Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Wehadkee 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.
0-1	A	4/2 10yr	—	—	loam
1-6	A	6/2 2.5yr	6/6 10yr	25%	sandy loam
6-16	B	6/1 2.5yr	—	—	loamy clay

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? (Yes) No

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

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

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

Project/Site: Bridge No. 52 SR1131 (New Sandy Hill Road)	Date: 8-10-01
Applicant/Owner: NCDOT	County: Wilson
Investigator: Joseph R. Pearkey (Ecoscience Corp)	State: North Carolina
Do Normal Circumstances exist on the site? (Yes) No	Community ID: Piedmont Alluvial Forest
Is the site significantly disturbed (Atypical Situation)? Yes (No)	Transect ID: ZC03
Is the area a potential Problem Area? Yes (No)	Plot ID: upland
(If needed, explain on reverse	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Betula nigra	Canopy	FACW	9.		
2. Liquidambar styraciflua	"	FAC	10.		
3. Pinus taeda	"	FAC	11.		
4. Acer rubrum	"	FAC	12.		
5. Rubus arguta	Herb/Shrub	FAC-	13.		
6. Ligustrum sinense	Herb/Shrub	FAC	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

X No Recorded Data Available

Field Observations:
- Depth of Surface Water: None (in.)
- Depth to Free Water in Pit: None (in.)
- Depth to Saturated Soil: 15"+ (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
- X FAC-Neutral Test
- __Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Wehadkee

Drainage Class: poorly drained

Taxonomy (Subgroup): Typic Fluvaquents

Field Observation Confirm Mapped Type: (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	A	10yr 3/3	—	—	loamy sand
1-7"	A	10yr 6/3	—	—	loamy clay
7-16"	B	2.5y 6/3	—	—	sandy clay

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
- X Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Upland area had 12' spaced relic ditches which reached the marsh boundry. Soils adjacent to and away from the ditches were upland + dry.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? Yes (No)

Hydric Soils Present? Yes (No)

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

Remarks: Soil is mapped as wehadkee but relic ditches have created oxidized conditions within 12-16" of the soil surface. Most likely Chewacla now.

Approved by HQUSACE 2/92

HJL
8/93

Wetland Rating Worksheet

Project name Bridge No. 52 (New Sand Hill Rd) Nearest road SR 1131
County Wilson Name of Evaluator Joseph R Pursley Date 8-10-01

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

Adjacent land use (within 1/2 mile upstream)
forested/natural vegetation 100 %
agriculture, urban/suburban — %
impervious surface — %

Soil Series Wehadkee
- _ predominantly organic-humus, muck, or peat
- _ predominantly mineral- non-sandy
- X predominantly sandy

Dominant Vegetation
(1) Polygonum hydropiperoides
(2) P. sagittatum
(3) Murdannia keisak

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

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

Wetland Type (select one)
- _ Bottomland hardwood forest
- _ Headwater forest
- _ Swamp forest
- _ Wet flat
- _ Pocosin
- _ Pine savanna
- X 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	2	*	5	=	10
Wildlife habitat	2	*	2	=	4
Aquatic life value	5	*	4	=	20
Recreation/Education	2	*	1	=	2

Total score 68

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