



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 2, 2004

Division of Coastal Management
Hestron Plaza II
151-B NC Highway 24
Morehead City, NC 28557

ATTENTION: Mr. Bill Arrington
District Manager

Dear Mr. Arrington:

SUBJECT: **Application for CAMA Major Development Permit** for the proposed replacement of Bridge No. 10 over Bradley Creek on SR 1411 in New Hanover County, Division 3. Federal Aid No. BRSTP-1411(5), State Project No. 8.2251101; TIP No. B-3496.

Please find enclosed the requested wetland mitigation plan for B-3496. If you have any questions please call me at 715-1488.

Sincerely,

A handwritten signature in black ink, appearing to read "Brett Feulner".

Brett M. Feulner.
Environmental Biologist, PDEA

Cc:

W/ attatchement

Ms. Cathy Brittingham, NCDQM
Mr. David Timpy, USACE, Wilmington
Mr. John Hennessy, DWQ, Raleigh
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Mr. Mike Street, NCDMF
Mr. Mason Herndon, DEO
Mr. Mark Staley, Roadside Environmental

w/o attatchment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. H. Allen Pope, P.E., Div. 3 Engineer

Bradley Creek Mitigation Plan
Bridge No. 10 on Wrightsville Avenue (SR 1411)
New Hanover County

TIP B-3496
Federal Aid Project No. BRSTP-1411(5)
State Project No. 8.2251101

North Carolina Department of Transportation
Division of Highways
Project Development and Environmental Analysis Branch
Office of Natural Environment

August 2004

1.0 Introduction

The North Carolina Department of Transportation (NCDOT) proposed to replace Bridge No. 10 over the Bradley Creek on Wrightsville Avenue (SR 1411) in New Hanover County (Figure 1). The existing 40 foot long bridge will be replaced with a 200-foot long bridge and will facilitate the removal 160 feet of existing causeway. The existing causeway will be graded back to the original elevation of the adjacent wetland.

1.1 Wetland Resources

Within the project area, a coastal tidal marsh, Cowardin Classification Estuarine-Intertidal-Emergent-Persistent, is adjacent to the causeway and Bradley Creek in all four quadrants. Existing marsh vegetation primarily consist of salt marsh cordgrass (*Spartina alterniflora*), and black needle rush (*Juncus roemerianus*).

1.2 Summary of Mitigation

Wetland restoration associated with B-3496 will be accomplished by removal of 0.19 acres of the existing causeway and vegetating with species matching the target wetland community and the resulting enhancement on 0.74 acres of adjacent wetlands (Figure 2). Proposed impacts due to the replacement of Bridge No. 10 are 0.04 acres, below the threshold for mitigation. Therefore, the entire 0.19 acres of restoration and 0.74 acres of enhancement will be available for future projects in the Cape Fear River Basin (HUC 03030001).

2.0 B-3496 Onsite Mitigation

The purpose of this report is to document the existing site conditions at the location of the proposed replacement of Bridge No. 10, to describe the wetland restoration and enhancement, and to establish the monitoring for the onsite restoration site. This plan includes on-site wetland restoration and enhancement associated with the planned removal of the bridge causeway.

2.1 Site Description

The total project area for the bridge replacement is approximately 1.51 acres. The approximate elevation in the project area ranges from 5-10 feet above mean sea level.

Soils located in the project area are of the Kenansville-Craven-Lakeland and Tidal Marsh-Newhan associations. The Kenansville-Craven-Lakeland association consists of nearly level to gently sloping soils on uplands. Soils of the Tidal-Marsh-Newhan association consist of nearly level soils in flat or slightly depressional areas on rims of depressions and on broad smooth flats. Tidal-Marsh-Newhan is the dominant soil in the study area.

2.2 Methodology

The goal of the mitigation plan is to establish a wetland community classified as Coastal Tidal Marsh. The proposed replacement of Bridge No. 10 will provide 0.19 acres of wetland restoration by the removal of the existing bridge causeway to the elevation of the adjacent marsh.

Fill material will be graded down to the elevation of the adjacent jurisdictional wetlands. Exact elevations will be determined during the construction by matching grades at cross sections of the marsh. If the depth of excavation of the existing roadway surface layers fall below the adjacent wetland elevation and excess waste soil is not available onsite, clean sand will be added to bring the restored area to the correct elevation. The area will be disked as necessary to reduce compaction. Soil amendments may be added if needed. Marsh vegetation (See Figure 3) consisting of saltmeadow cordgrass (Table 1) will be planted on random spacing averaging 3 foot on center.

Table 1: Species mix for B-3496 marsh restoration

Species	Proportion
Salt marsh cordgrass (<i>Spartina alterniflora</i>)	100%

The removal of the old causeway is expected to enhance the natural hydrologic cycle for the surrounding wetlands. Water will be able to flow unimpeded beneath the new structure, allowing natural wetland hydrology to improve.

2.3 Monitoring

NCDOT will photo monitor the site once a year for a period of three years following completion of the project. The NCDOT will meet on site with the regulatory agencies after the third year to closeout the project. The elevation of the mitigation site will be verified during construction of the project to ensure that the elevation matches the adjacent salt marsh. No hydrologic monitoring is proposed.

2.4 Mitigation Credit Ratios

The following table outlines the onsite mitigation from the proposed replacement of Bridge No. 10. NCDOT proposes to use the surplus mitigation for the impacts from projects in the Cape Fear River Basin (HUC 03030001). Each projects debit will be submitted for approval from the regulatory agencies.

Table 2: B-3496 Onsite Mitigation Debit Ledger marsh restoration

Mitigation Type	Acreage
Coastal Plan Marsh Restoration	0.19
Coastal Plain March Enhancement	0.74

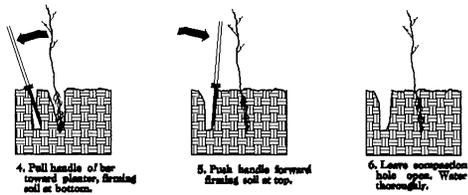
2.5 Final Dispensation of the Property

NCDOT will retain ownership of the restoration located within the proposed 80-foot right of way. The NCDOT does not propose to place the areas of enhancement in a conservation easement because New Hanover County considers the area in question as submerged property and due to presence of such high quality coastal marsh wetlands.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3496	EC-8	
STATE PROJECT NO.	F.A. PROJECT NO.	DESCRIPTION	

PLANTING DETAILS

DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



PLANTING NOTES:

PLANTING BAG
During planting plant plugs shall be kept in a moist cover bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a rhombic cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



WETLAND GRASS PLANTING

- WETLAND GRASS SPECIES SHALL BE PLANTED 2 FT. TO 4 FT. ON CENTER, RANDOM SPACING, AVERAGING 3 FT. ON CENTER, APPROXIMATELY 4840 PLANTS PER ACRE.

WETLAND GRASS PLANTING

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

100% SPARTINA ALTERNIFLORA SALT MARSH CORDGRASS 2 in PEAT POT

WETLAND GRASS PLANTING DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT