

**Restoration Plan for Northeast Cape Fear River Wetland
At Bridge No. 21 on NC 210
Pender County
TIP B-4223
Federal Aid Project No. BRSTP-210(4)
WBS No. 33467.1.1
January 11, 2006**

The North Carolina Department of Transportation (NCDOT) will perform on-site mitigation for riverine wetland impacts at the NC 210 overpass over the Northeast Cape Fear River. This mitigation site occurs within Transportation Improvement Program (TIP) B-4223. The project begins approximately 1100 feet west of Bridge No. 21 and continues to approximately 1500 feet to the east of the bridge. NCDOT will restore approximately 0.95 acre of riverine wetland by removing existing causeway fill in the northeast and southeast quadrants of the project.

Proposed impacts due to the replacement of Bridge No. 21 are 0.52 acre. Therefore, the surplus 0.43 acre of restoration will be available for future projects in the Cape Fear River Basin (HUC 03030007).

EXISTING CONDITIONS:

The project is located in Pender County approximately 2.0 miles (3.2 km) north of Mooretown and 2.3 miles (3.7 km) east of the intersection of NC 210 and Interstate 40. Surrounding land use is a mixture of residential, agricultural, and silvicultural.

The existing causeway for the NC 210 overpass at Bridge No. 21 is located partially in the floodplain of the Northeast Cape Fear River. The floodplain wetland consists mainly of a mature riverine swamp forest dominated by canopy species of bald cypress (*Taxodium distichum*), swamp blackgum (*Nyssa sylvatica* var. *biflora*), red maple (*Acer rubrum*), and sweet bay (*Magnolia virginiana*). In the northeast quadrant of the project, the swamp wetland is near the toe of slope of the existing causeway. In the southeast quadrant of the project, the swamp wetland grades into a mixed pine/hardwood forest along the existing causeway. Canopy species in this transition zone between the swamp forest and the existing causeway are dominated by loblolly pine (*Pinus taeda*), red maple, sweet bay, and sweetgum (*Liquidambar styraciflua*).

PROPOSED CONDITIONS:

The proposed wetland mitigation will consist of restoring approximately 0.95 acre of riverine swamp wetland. Restoration will involve removing causeway fill and transition area to match the adjacent swamp wetland elevation. The restored area will be planted with species commonly found in riverine swamp communities.

The Categorical Exclusion (CE) for TIP B-4223, dated April 2004, provides further details concerning existing and proposed roadway conditions.

DESIGN/CONSTRUCTION:

WETLAND MITIGATION GRADING

The design of the wetland mitigation area shall consist of removing fill associated with the existing causeway. All excavated areas shall be ripped according to the provision provided below prior to placement of any backfill material and before planting of the site.

The Natural Environment Unit shall be contacted to provide construction oversight to ensure that the wetland mitigation area is constructed appropriately.

VEGETATION PLANTING

The restoration site will be planted following the completion of the site grading. The following riverine swamp tree species will be planted: bald cypress and swamp blackgum.

The hardwood tree species utilized shall be 18"-30" in size and shall be bare root seedlings that are at least one growing season in age. Planting density shall be 680 seedlings per acre, which equates to a plant spacing of 8 feet on-center.

MONITORING:

Upon successful completion of construction, the following monitoring strategy is proposed for the mitigation site. Any remediation necessary during the monitoring period will be coordinated with the appropriate agencies.

HYDROLOGIC MONITORING

No specific hydrological monitoring is proposed for this restoration site. The target elevation will be based on the adjacent wetland and verified during construction. Constructing the site at the adjacent wetland elevation will ensure that the hydrology in the restored area is similar to the hydrology in the reference area.

VEGETATION SUCCESS CRITERIA

NCDOT shall monitor the restoration site by visual observation and photo points for survival of planted seedlings. NCDOT shall monitor the site for a minimum of five years. Monitoring will be initiated upon completion of the site planting.