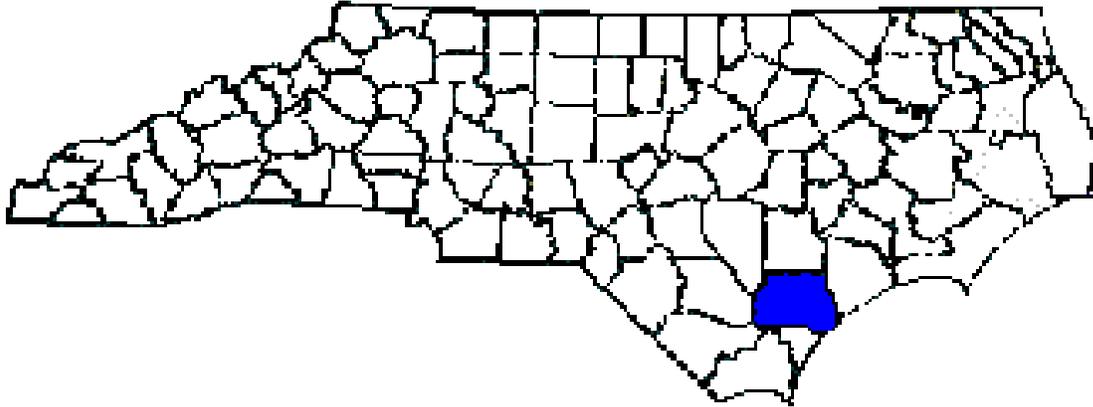


ANNUAL REPORT FOR 2014



Northeast Cape Fear River Wetland Mitigation Site
Pender County
TIP No. B-4223
COE Action ID: 200101172
DWQ Project #: 060364
CAMA Permit #: 123-06



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North Carolina Department of Transportation
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Appendix A – Site Photos

SUMMARY

The Northeast Cape Fear River Wetland Mitigation Site is located in Pender County. The site was planted in March 2010 and was designed as wetland mitigation for impacts associated with bridge project B-4223.

The mitigation encompasses approximately 0.95 acre total of riverine swamp wetland by removing an abandoned causeway and connecting the road back to wetland elevations of the existing adjacent wetlands. Proposed impacts due to the replacement of Bridge No. 21 are 0.52 acre. Therefore, the surplus of 0.43 acre of restoration will be available for future projects in the Cape Fear River Basin (HUC 03030007). The restored area will be planted with species commonly found in riverine swamp communities. The restoration effort involved acquiring the site within DOT right-of-way, grading the site to adjacent wetland elevation, and re-vegetating the area that was restored. The area that was restored is being monitored by visual observation and photo points for survival of planted seedlings. No hydrologic monitoring is required for this project; however, vegetation monitoring is required for five years.

There were two vegetation monitoring plots established throughout the 0.95 acre site. The mowed area noted during the 2010 evaluation was replanted in January 2011. After the fifth year of monitoring, the 2014 vegetation monitoring of the site revealed an average tree density of 489 trees per acre.

NCDOT has met the success criteria for the mitigation site and proposes to discontinue vegetation monitoring at the Northeast Cape Fear River Wetland Mitigation Site.

1.0 INTRODUCTION

1.1 Project Description

The Northeast Cape Fear River Wetland Mitigation Site is located at Bridge No. 21 on NC 210 over the Northeast Cape Fear River (Figure 1). The site consists of approximately 0.95 acres of riverine wetland mitigation for wetland impacts associated with bridge project B-4223.

1.2 Purpose

In order for a mitigation site to be considered successful, the site must meet vegetation success criteria. This report details the vegetation monitoring in 2014 at the Northeast Cape Fear River Wetland Mitigation Site. Hydrologic monitoring was not required for the site.

1.3 Project History

| | |
|----------------|----------------------------------|
| March 2010 | Site planted |
| June 2010 | Vegetation Monitoring (1 year) |
| September 2010 | Installed signs identifying site |
| January 2011 | Replanted mowed area |
| July 2011 | Vegetation Monitoring (2 year) |
| July 2012 | Vegetation Monitoring (3 year) |
| July 2013 | Vegetation Monitoring (4 year) |
| March 2014 | Onsite Agency Meeting |
| June 2014 | Vegetation Monitoring (5 year) |
| July 2014 | Herbicide Application |

1.4 Debit Ledger

| Site name | Site TIP | HUC | River Basin | Division | County | Mitigation Type | Notes | As Built Quantity | Available | Debit |
|---|----------|---------|-------------|----------|--------|------------------------------|-------|-------------------|-----------|--------|
| Bridge 21 on NC 210 over N.E. Cape Fear | B-4223 | 3030007 | Cape Fear | 3 | Pender | | | | | B-4223 |
| | | | | | | Riverine Wetland Restoration | | 0.95 | 0.43 | 0.52 |

Note: Debit ledger information up to date as of October 6, 2014.

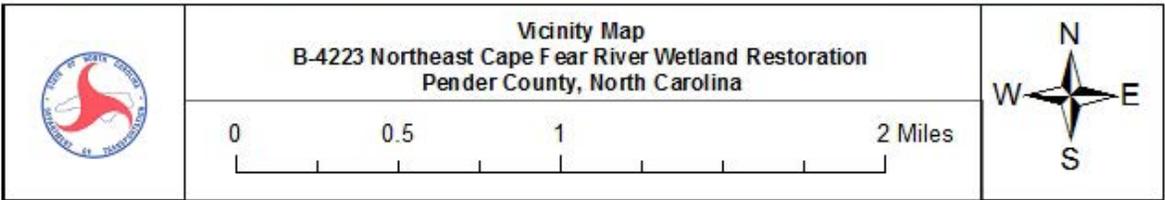
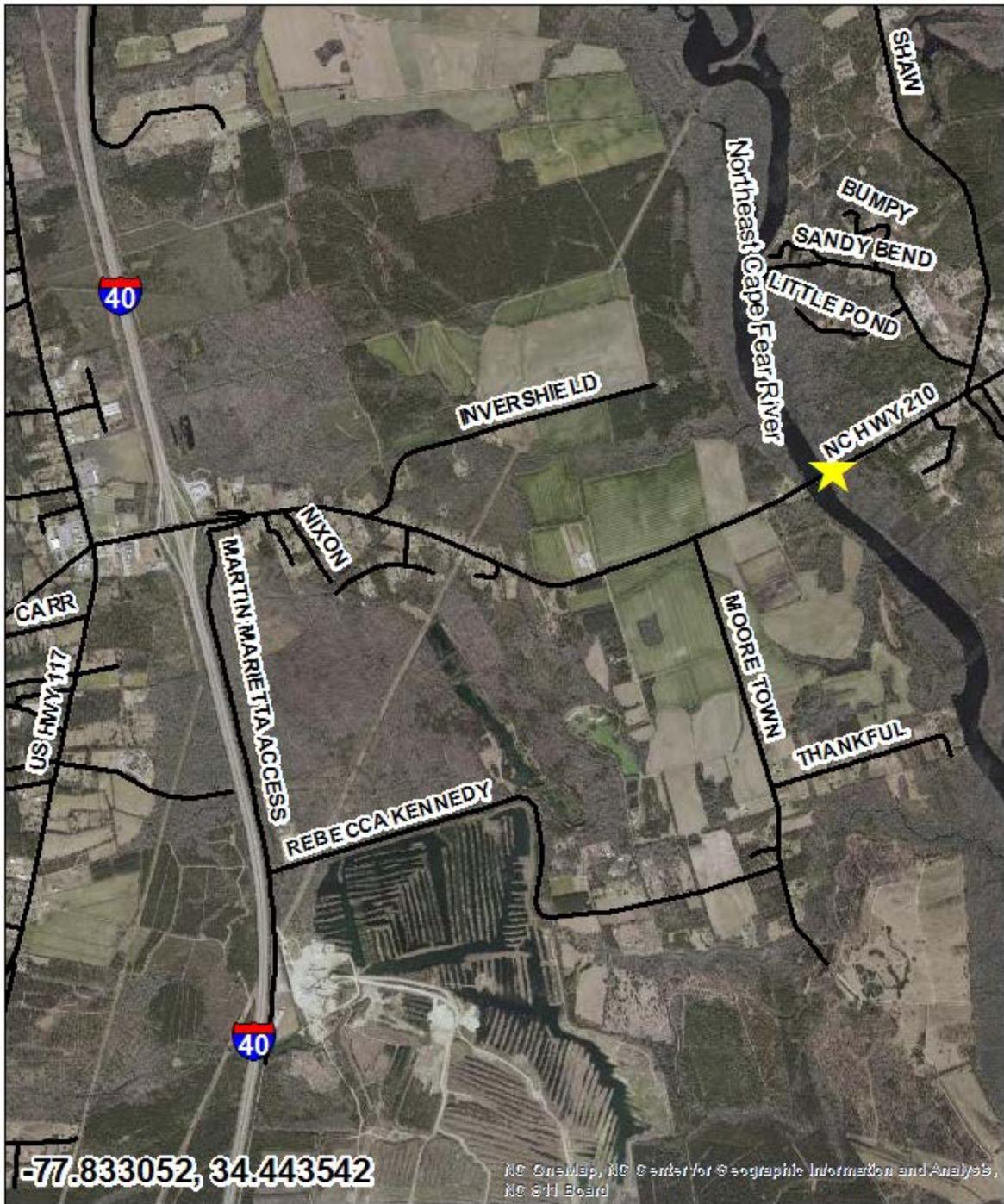


Figure 1 Site Location Map

2.0 VEGETATION: NORTHEAST CAPE FEAR RIVER WETLAND MITIGATION SITE (YEAR 5 MONITORING)

2.1 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.

No specific hydrological monitoring is proposed for this restoration site. The target elevation will be based on the adjacent wetland elevation 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.

2.2 Description of Species

The following tree species were planted in the Wetland Reforestation area:

Nyssa sylvatica var. *biflora*, Swamp Blackgum

Taxodium distichum, Baldcypress

Fraxinus pennsylvanica, Green Ash

2.3 Results of Vegetation Monitoring

| Plot # | Swamp Blackgum | Baldcypress | Green Ash | Total (5 year) | Total (at planting) | Density (Trees/Acre) |
|--|----------------|-------------|-----------|----------------|---------------------|----------------------|
| 1 | 3 | 28 | 2 | 33 | 54 | 416 |
| 2 | 5 | 29 | 9 | 43 | 52 | 562 |
| Year 5 Average Density (Trees/Acre) | | | | | | 489 |
| Year 4 Average Density | | | | | | 515 |
| Year 3 Average Density | | | | | | 559 |
| Year 2 Average Density | | | | | | 630 |
| Year 1 Average Density | | | | | | 570 |

Site Notes: The restoration area is re-attaining wetland jurisdictional status and the planted species are surviving. Other species noted onsite included woolgrass, cattail, black willow, phragmites, tag alder, wax myrtle, *Sagittaria* sp., pennywort, buttonbush, *Juncus* sp., climbing hempvine, baccharis, red maple, sycamore, stinkweed, jewelweed, sedge, and various grasses. The few phragmite stems noted onsite were sprayed with an herbicide application on July 1, 2014. The phragmites noted onsite was not affecting the overall survival of the planted vegetation. An ATV path was still present onsite but no recent ATV activity was noted on it.

2.4 Conclusions

There were 2 vegetation monitoring plots established throughout the 0.95 acre site. The 2014 vegetation monitoring of the site revealed an average density of 489 trees per acre for the fifth year of monitoring.

3.0 OVERALL CONCLUSIONS AND RECOMMENDATIONS

The 2014 year represents the fifth year of monitoring activities that have occurred at the Northeast Cape Fear River Wetland Mitigation Site. The site must demonstrate vegetation success for a minimum of five years or until the site is deemed successful.

There were two vegetation monitoring plots established throughout the 0.95 acre site. The 2014 vegetation monitoring of the site revealed an average density of 489 trees per acre.

NCDOT has met the success criteria for the mitigation site and proposes to discontinue vegetation monitoring at the Northeast Cape Fear River Wetland Mitigation Site.

APPENDIX A

SITE PHOTOS

Northeast Cape Fear River Wetland Site



Photo 1



Photo 2



Photo 3

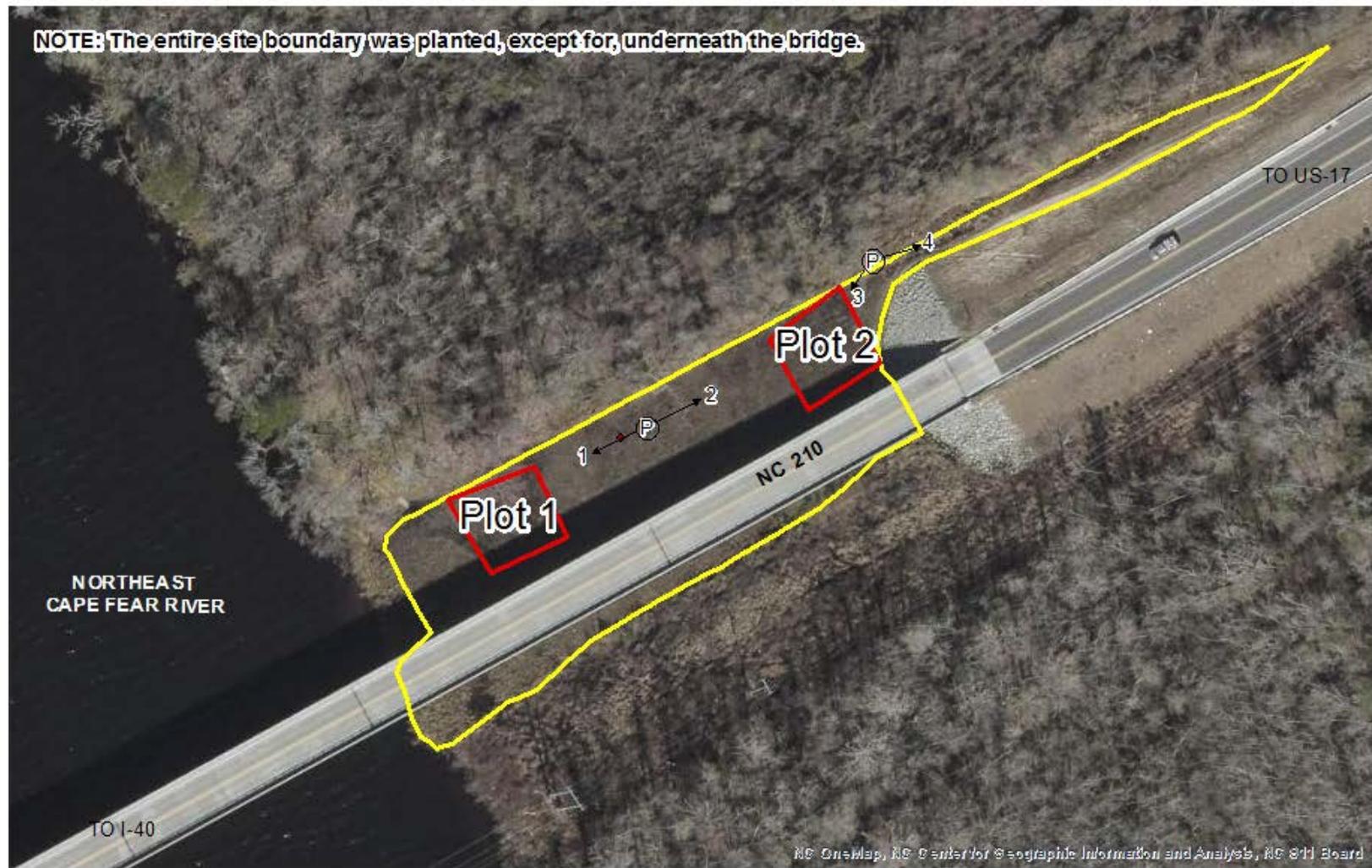


Photo 4



Overview photo of the site
June 2014

NOTE: The entire site boundary was planted, except for, underneath the bridge.



NC OneMap, NC Center for Geographic Information and Analysis, NC SH Board



Site Map: Vegetation Plot and Photo Point Locations
B-4223 Northeast Cape Fear River Wetland Restoration
Pender County, North Carolina

