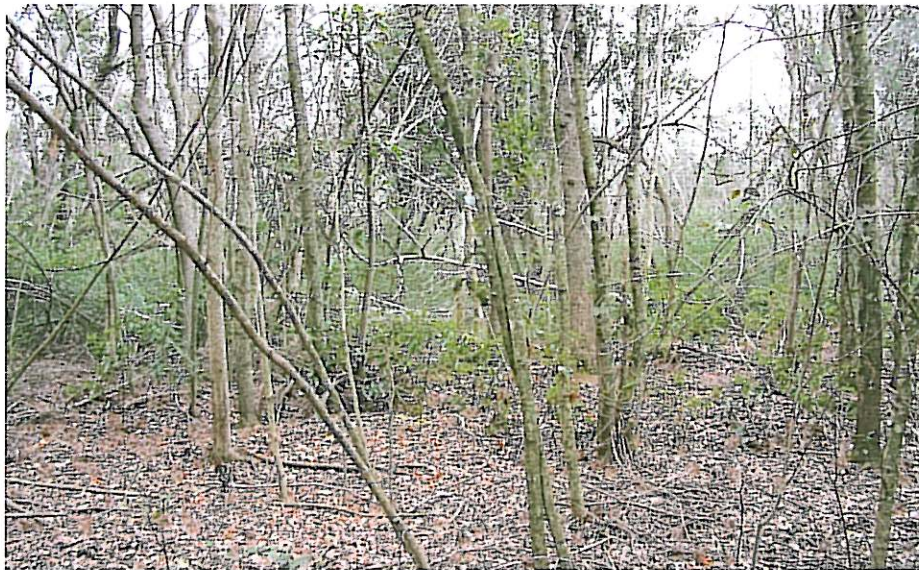


**“Simpson Tract”
Buffer Restoration Project**

**Beaufort County, NC
Tar-Pamlico River Basin
(Cataloging Unit #03020104)**

**Annual Monitoring Report – Year 1
(Task 7)**

NC EEP Contract #D05027



Prepared For:

**North Carolina Department of Environment and Natural Resources
Ecosystem Enhancement Program
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December 2007

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EXECUTIVE SUMMARY

Prior to project implementation, the Simpson Tract was managed for silvicultural production. The site consisted entirely of mono-culture pine stands with sparse hardwood colonization. Under contract with the EEP, Wetlands Resource Center (WRC) restored 45.0 acres of riparian buffer which will improve water quality within Pungo Creek (a tributary of the Pungo River) in Beaufort County, NC.

The entire 45.0 acre area has been planted with an appropriate mixture of tree and shrub species at an average density of 600 stems/acre. Planting was completed in February 2007. A total of twenty-three (23) 0.10-acre permanent plots corresponding to a total of 2.3 acres (equivalent to 5% of the restoration area) were established throughout the project area. Year 1 monitoring was conducted in September 2007 and will continue until 2011. Vegetative planting will be deemed successful if survivorship of plantings and volunteers of desirable species meets or exceeds a target stem density of 320 stems/acre.

A total of 1,494 woody stems (excluding sweet gum and red maple) were enumerated during the Year 1 monitoring event. This total corresponds to an average density of 650 stems per acre throughout the project area. Each of the twenty-three plots meet the established success criteria. However, certain plots appear to have been affected by severe drought conditions as indicated by reduced survivorship. These plots (in particular Plots 8, 10, 14, 15, 21, and 23) will need to be closely monitored during future site evaluations to determine if supplemental planting is necessary.

The following mitigation report summarizes the restoration project and includes more specific information related to project implementation and site progress through Year 1 monitoring.

1.0 NARRATIVE

Introduction

As approved by the EEP, WRC implemented the restoration of 45.0 acres of riparian buffer located at the headwaters of Pungo Creek, a fourth-order tributary of the Pungo River within the Tar-Pamlico River Basin (USGS 8-digit Hydrologic Unit 03020104; DWQ Subbasin 03-03-07). The project area is part of the "Simpson Tract", located approximately 10 miles south of Plymouth in Beaufort County, NC (refer to Figure 1). The project includes the establishment of characteristic tree and shrub species adjacent to open silvicultural ditches on the north side of Rodman Road (refer to Figures 2-5).

Mitigation Goals and Objectives

The proposed restoration project is intended to provide suitable, high-quality riparian buffer restoration as compensatory mitigation for buffer impacts authorized through the NC Division of Water Quality. The objective of the project is to restore appropriate vegetation and diffuse flow conditions to help reduce non-point source discharge of contaminants into adjacent water bodies and increase flood water retention. The primary function of the buffer restoration project detailed in this document is to restore the nitrogen (N) and sediment removal capacity of those areas situated adjacent to surface waters. In addition, the project will provide ancillary benefits to aquatic and wildlife habitat via enhanced niche habitat, microclimate modification and shade, and increased food-web support.

Pre-Construction Conditions

The 45-acre restoration area is part of a larger timber tract totaling 1,391 acres. Approximately 950 acres have been determined to be non-jurisdictional ("non-wetlands") by the NRCS (USACE concurrence of this determination has also been provided in previous submittals to the EEP). The remaining acreage has been confirmed to be jurisdictional wetlands. The predominant land use of the tract (both jurisdictional and non-jurisdictional areas) is silvicultural production. Prior land use practices (including herbicide, pesticide, and fertilizer application) serve as potential contributors to decreased water quality of adjacent surface waters (i.e. ditches and 'blue-line' streams). The natural vegetative assemblage of the tract has been modified over the years via prescribed drainage improvements (i.e. ditching), bedding, and planting of loblolly pine (*Pinus taeda*). These silvicultural practices have resulted in a community dominated by pine in more mature stands outside of the proposed buffer area. Hardwood species characteristic of headwater swamp communities of the Coastal Plain are either absent entirely or occur only in sparse locations. Typical canopy species of an undisturbed area would include swamp tupelo (*Nyssa biflora*), bald cypress (*Taxodium distichum*), pond pine (*Pinus serotina*), and Atlantic white cedar (*Chamaecyparis thuyoides*). Understory species typical of non-

riverine swamp forest communities include American titi (*Cyrilla racemiflora*), sweet bay (*Magnolia virginiana*), red bay (*Persea borbonia*), fetterbush (*Lyonia lucida*), red maple (*Acer rubrum*), and catbrier (*Smilax* species).

Project Implementation

Site preparation commenced in the fall of 2006. During this period, areas of invasive or non-target species were drum-chopped and bush-hogged. Following these activities, an herbicide was applied to reduce competition within the project area. A water soluble herbicide was used and applied by a licensed applicator to reduce impacts to the surrounding open water areas.

Site planting was completed on February 23, 2007. The installation of approximately 35,000 seedlings was supervised by LMG to ensure proper spacing and planting depths. LMG obtained a mix of hardwood and shrub seedlings which accurately represent the targeted headwater swamp community discussed in the approved restoration plan (Table 2). Hardwood tree seedlings comprised a majority of the planting for Zone 1 (150' wide), while shrubs were installed throughout Zone 2 (remaining 50'). Seedlings were planted on approximately 8' centers at a depth sufficient to cover the root collar throughout the project area. Following the planting activities, LMG inspected the project area to ensure that seedlings had been installed correctly.

Refer to Appendix A for photographs of site conditions during the Year 1 monitoring event. Refer to Table 1 for a complete project timeline.

2.0 AS-BUILTS

As specified by the approved restoration plan, a total of twenty-three (23) permanent monitoring plots were established, which corresponds to a total of 2.3 acres (equivalent to 5% of the restoration area). These plots were installed throughout the project area to provide for a representative sampling of the vegetative community.

Refer to the attached survey (Appendix C) of the buffer restoration area for the location and corresponding number of the permanent vegetative monitoring plots a on the site.

3.0 MONITORING PLAN

Annual monitoring is being conducted near the end of each growing season for a period of five years.

Vegetative monitoring has been conducted at each of the twenty-three (23) 0.10-acre permanent plots.

Vegetative planting will be deemed successful if survivorship of plantings and volunteers of desirable species¹ meets or exceeds a target stem density of 320 stems/acre. Monitoring reports will be submitted annually to the EEP (by January 1 of each year). These reports will include results of vegetative monitoring and photographic documentation of site conditions. Monitoring reports will also identify any contingency measures that may need to be employed to remedy any site deficiencies. For instance, deer browse tubes and fencing may need to be used if evidence of significant herbivory or deer browse is observed. In addition, supplemental planting may be necessary in areas of reduced survivorship.

4.0 MONITORING RESULTS

Monitoring of the on-site vegetation was conducted on September 21, 2007. A total of 1,494 stems were counted throughout the twenty-three plots, which correlates to an average of 650 stems/acre within the project area (Table 3). Black gum (*Nyssa sylvatica*) was the most abundant woody species, with a total of 364 individuals. Other planted species such as bald cypress (*Taxodium distichum*) and red bay (*Persea borbonia*) were also prevalent within the monitored plots. Acceptable survivorship was found at 17 of the 23 plots, with plots 8, 10, 14, 15, 21, and 23 containing less than 45 individuals. The reduced survivorship in these plots may be attributed to the drought conditions that followed the initial planting in February 2007 and continued throughout the summer and fall. Current estimates from the USDA classify Beaufort County as a D3 (Extreme Drought) county, experiencing a precipitation deficit of greater than 24 inches for 2007. Refer to Appendix A for photographs of current site conditions and Appendix B for information regarding individual plot totals.

While average stem densities are sufficient to meet the applicable success criteria across the site, continued drought conditions may adversely impact the remaining seedlings. If survivorship totals continue to decline during the Year 2 annual monitoring event, a supplemental planting may be implemented to ensure that all appropriate success criteria are met during the course of this project. In the event that this occurs, WRC will contact the NCEEP to discuss the logistics of the proposed work.

5.0 CONCLUSION

WRC has completed the implementation of 45.0 acres of buffer restoration located in TAR-7 of the lower Tar-Pamlico Basin. At the end of Year 1 monitoring, the vegetative success criteria has been met and the site appears to be progressing well towards the target swamp forest community. Restoration of riparian buffer

¹ Desirable species are considered as noninvasive species characteristic of riparian habitats.
Simpson Tract Riparian Buffer Annual Monitoring Report – Year 1
Contract No. D05027

along "blue-line" surface waters will help to decrease source nutrient loading and concurrently increase nutrient removal capacity. In addition, the project will provide ancillary benefits to aquatic and wildlife habitat via enhanced niche habitat, microclimate modification and shade, and increased food-web support. By doing so, the proposed project will help to effectively mitigate for authorized loss of buffer habitat within the Tar-Pamlico Basin.

Tables

Table 1. Simpson Buffer Restoration Timeline

Task	Project Milestone	Completion Date	COMMENTS
1	Feasibility Study, CE Document, and Public Meeting	July 1, 2005	
2	Record a Conservation Easement on the Site	September 22, 2006	Recorded in Beaufort County Register of Deeds
3	Restoration Plan Approved by EEP	April 2006	Restoration Plan complete
4	Mitigation Site Earthwork Completed	February 15, 2007	
5	Mitigation Site Planting and Installation of Monitoring Devices	February 21, 2007	Approved by EEP
6	Submittal of Mitigation Plan (including as-built drawings)	June, 2007	Approved by EEP
7	Submittal of Monitoring Report #1 to EEP	December 31, 2007	
8	Submittal of Monitoring Report #2 to EEP	December 31, 2008	
9	Submittal of Monitoring Report #3 to EEP	December 31, 2009	
10	Submittal of Monitoring Report #4 to EEP	December 31, 2010	
11	Submittal of Monitoring Report #5 to EEP	December 31, 2011	

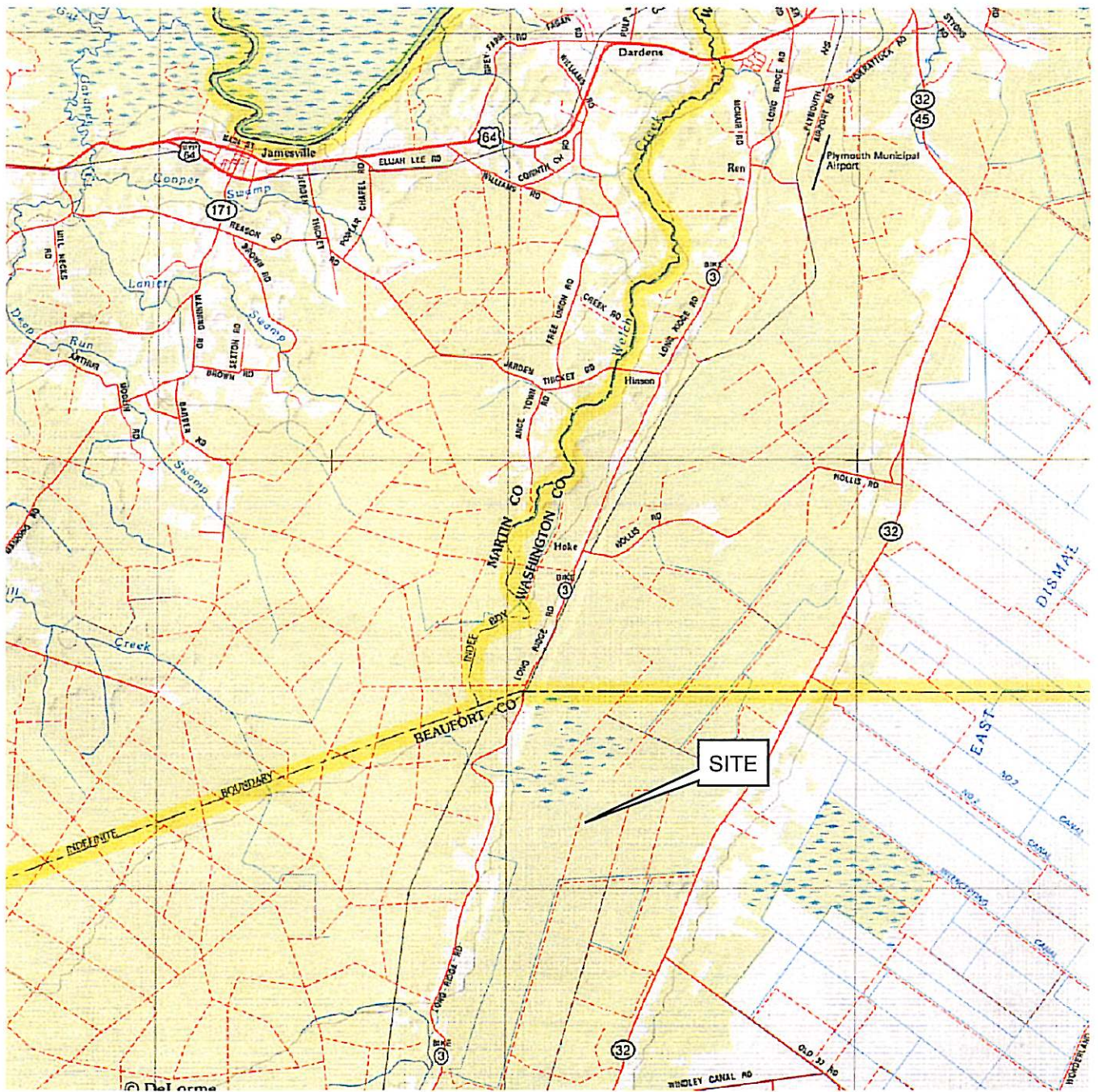
TABLE 2. Simpson Buffer Plant List (Planted February 2007)

Buffer Zone	Zone 1 (Trees)	
Stem Target:	600/ac (30ac.)	17,000
Species	# planted	(% of total)
Bald cypress (<i>Taxodium distichum</i>)	5,000	27.78%
White Cedar (<i>Chamaemycyparis thyoides</i>)	3,000	16.67%
Black Gum (<i>Nyssa sylvatica</i>)	4,000	22.22%
Green Ash (<i>Fraxinus pennsylvanica</i>)	5,000	27.78%
	Zone 2 (Shrubs)	
	1,000/ac (15ac.)	18,500
Red Bay (<i>Persea borbonia</i>)	5,000	33.33%
Sweet Bay (<i>Magnolia virginiana</i>)	6,000	40.00%
Fetterbush (<i>Lyonia lucida</i>)	2,000	13.33%
Wax Myrtle (<i>Myrica cerifera</i>)	5,500	36.67%
	Total	35,500

TABLE 3. MONITORING PLOT COMPARISON
SIMPSON BUFFER RESTORATION
YEAR 1 (2007)

Species	Plot #																				Total			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		21	22	23
Bald Cypress	11	5	9	11	13	0	15	0	12	1	9	16	16	10	22	12	14	4	2	14	4	0	0	200
Black Gum	21	8	3	43	23	28	28	18	45	6	1	1	2	8	18	22	16	20	4	16	18	1	14	364
Blueberry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
Fetlebrush	7	18	18	2	2	12	4	13	1	3	0	0	0	0	22	15	8	7	20	50	1	9	1	213
Bitter Galberry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0	0	1	28	0	52
Green Ash	0	0	0	0	0	0	0	0	0	0	15	16	14	9	18	3	6	1	22	15	3	0	6	128
Loblolly Bay	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	30	0	35
Loblolly Pine	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Red Bay	4	10	7	1	11	5	2	12	7	30	27	35	10	8	0	1	0	8	0	0	0	7	1	186
Red Maple	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Sassafras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11	0	0	12
Sweet Bay	2	7	17	0	0	3	6	0	0	0	0	0	0	0	1	0	0	9	0	0	0	1	0	46
Sweet Pepperbush	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	1	0	0	25	0	126
Wax Myrtle	0	20	14	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	20	0	61
White Cedar	2	1	0	1	10	1	0	0	0	5	6	0	6	8	1	3	1	0	8	0	4	0	11	68
TOTAL	47	69	68	59	59	51	55	43	65	45	58	68	48	44	83	56	45	183	57	96	42	121	33	1495
Total Counted Toward Success Stem Density (per ac)	47	69	68	59	59	51	55	43	65	45	58	68	48	44	82	56	45	183	57	96	42	121	33	1494
	470	690	680	590	590	510	550	430	650	450	580	680	480	440	820	560	450	1830	570	960	420	1210	330	650

Figures



SCALE: 1" = 2 miles

Simpson Tract
Tar-Pamlico River Basin
HUC: 03020104
Subbasin:03-03-07

Figure 1.
 Vicinity Map

Delorme Gazetteer
 Land Management Group, Inc.

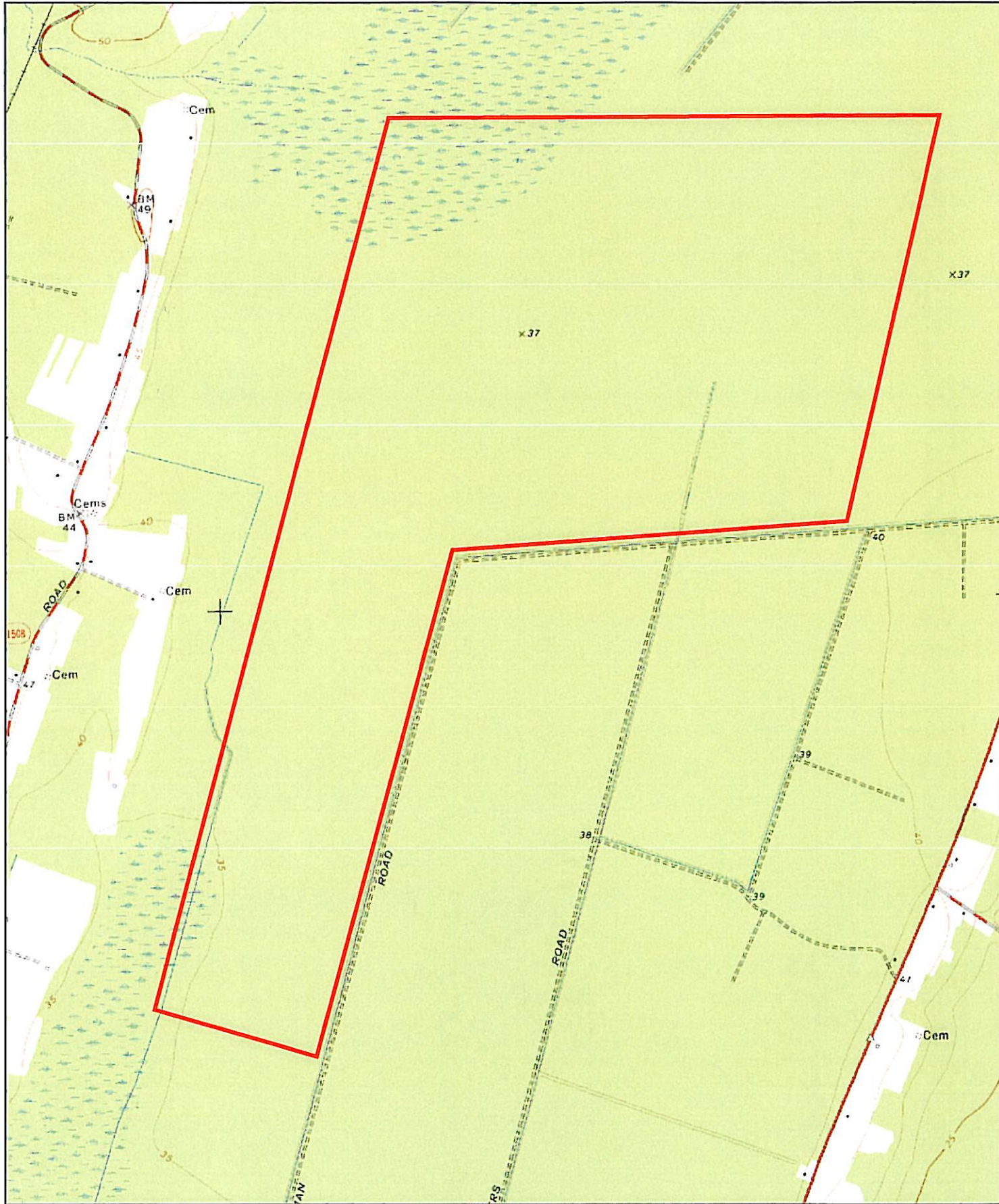


0 2,000 4,000
ft

Simpson Tract
Tar-Pamlico River Basin
HUC: 03020104
Subbasin:03-03-07

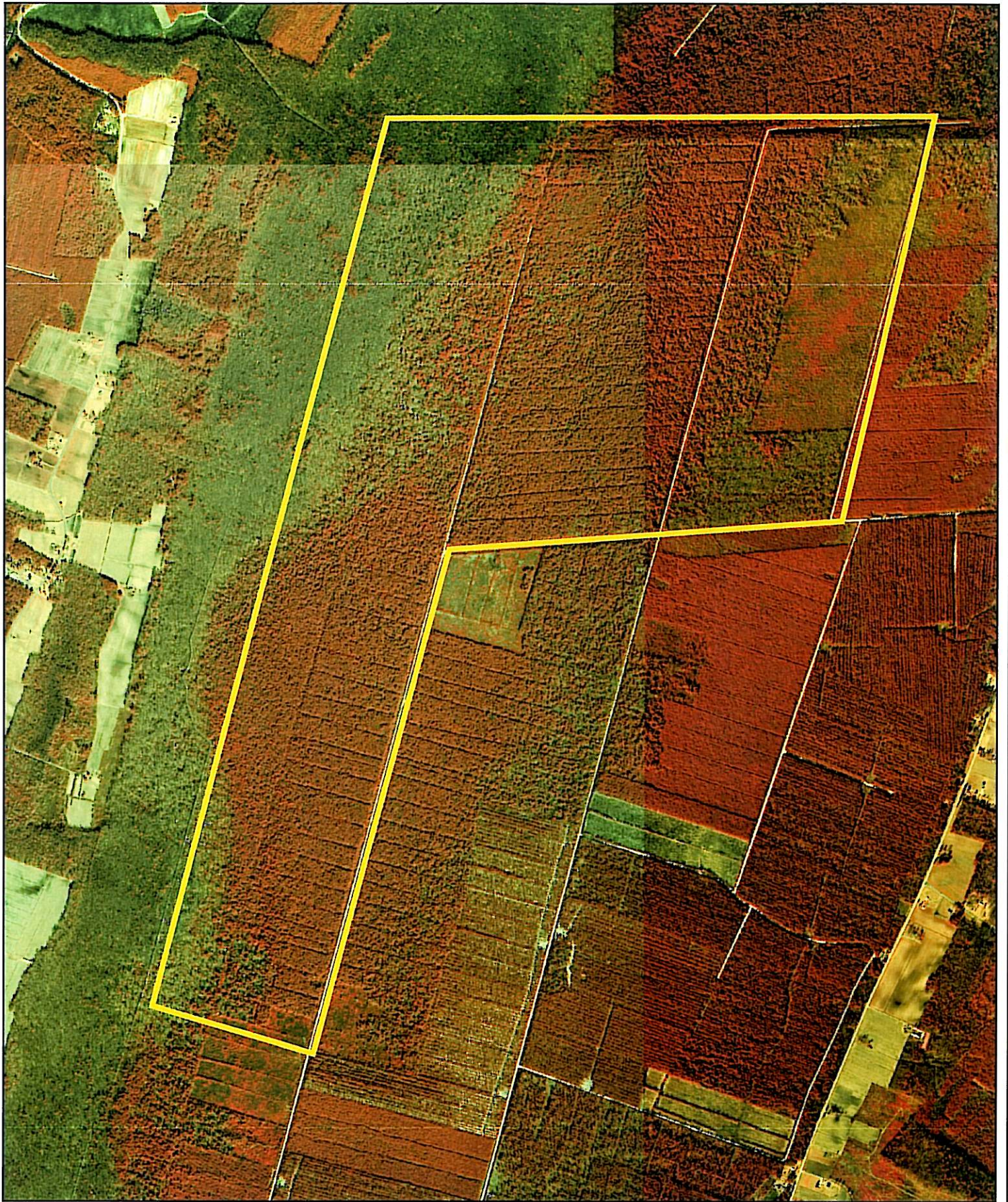
Figure 2.
 USDA Soil Survey

Beaufort County
 Land Management Group, Inc.



Simpson Tract
Tar-Pamlico River Basin
HUC: 03020104
Subbasin:03-03-07

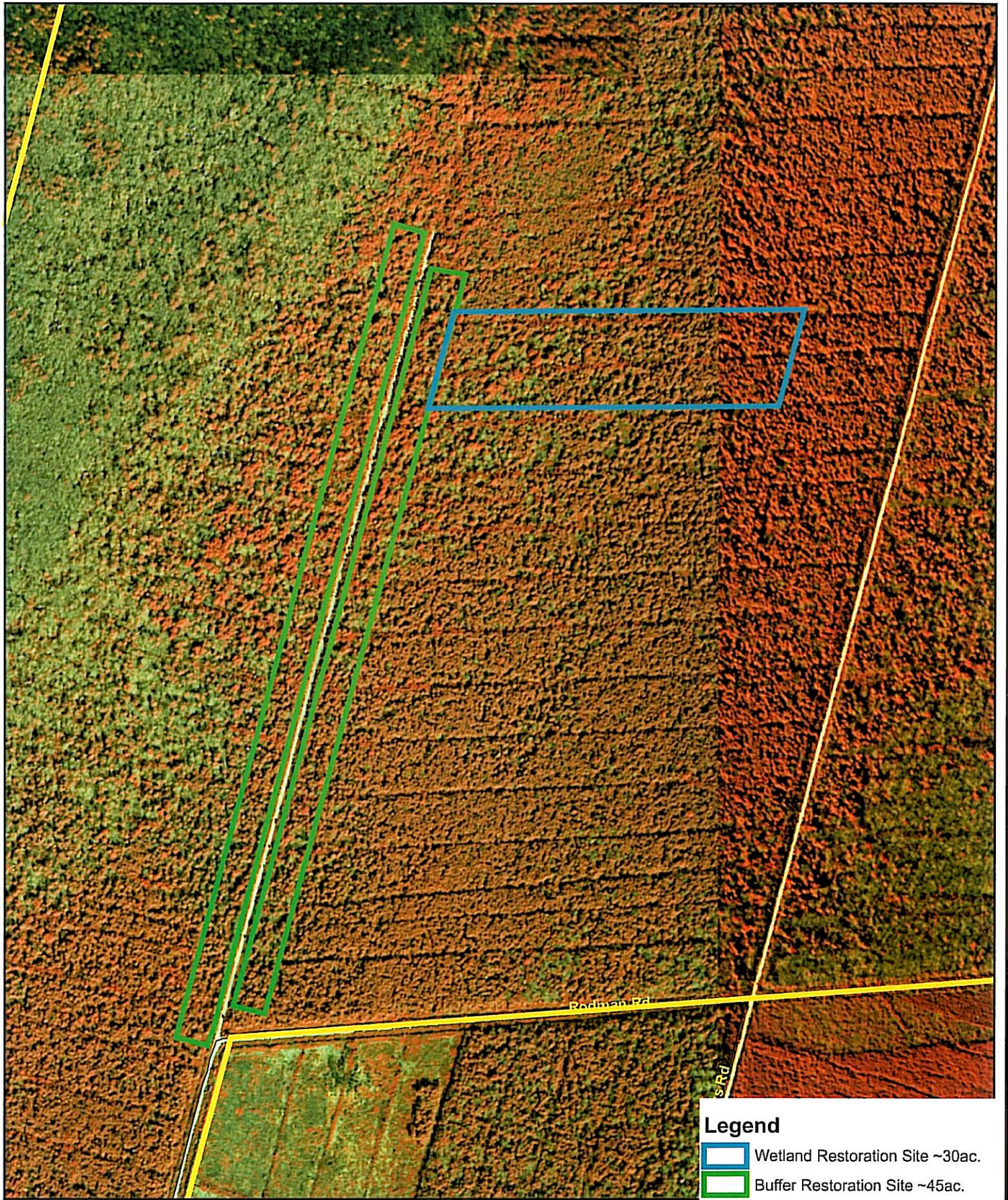
Figure 3.
USGS Topographic Map
Hoke, NC





0 2,000 4,000
ft

Simpson Tract
Tar-Pamlico River Basin
HUC: 03020104
Subbasin:03-03-07

Figure 4.
1998 Aerial Photography



Legend

-  Wetland Restoration Site ~30ac.
-  Buffer Restoration Site ~45ac.



0 800 1,600 ft

Simpson Tract
Tar-Pamlico River Basin
HUC: 03020104
Subbasin:03-03-07

Figure 5.
Wetland and Buffer
Restoration Plan

Land Management Group, Inc.

**Appendix A. Site Photographs
(September 2007)**

Typical view of buffer vegetation (plot 2)



Typical view of buffer vegetation (plot 3)



Wetlands Resource Center
Cal Miller
Simpson Tract Buffer Restoration
Beaufort County, NC
40-05-625



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Environmental Consultants

October 2007

Appendix A.
Site Photographs

Typical bald cypress seedling



Typical monitoring plot with flagged seedlings



Wetlands Resource Center
Cal Miller
Simpson Tract Buffer Restoration
Beaufort County, NC
40-05-625



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Appendix A.
Site Photographs

View of conditions at Plot 7



View of bald cypress seedling at Plot 5



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Simpson Tract Buffer Restoration
Beaufort County, NC
40-05-625



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October 2007

Appendix A.
Site Photographs

**Appendix B. Individual Plot Data Sheets
(September 2007)**

**SIMPSON FARM BUFFER RESTORATION SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 1**

SPECIES	STRATUM (T, SA or SH)	Number of Individuals	HEIGHT (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	3	1	Planted	3
Bald Cypress	T/SA	8	2	Planted	8
Black Gum	T/SA	14	1	Planted	14
Black Gum	T/SA	7	2	Planted	7
Fetterbush	SH	2	<1	Planted	2
Fetterbush	SH	2	1	Planted	2
Fetterbush	SH	3	2	Planted	3
Red Bay	SA	2	1	Planted	2
Red Bay	SA	2	2	Planted	2
Sweet Bay	SA	2	1	Planted	2
White Cedar	T/SA	2	<1	Planted	2
	TOTAL SHRUBS	7		OBSERVED DENSITY (PER PLOT)	47
	TOTAL TREES OF PLANTED SPECIES	40		OBSERVED DENSITY (PER ACRE)	470
	TOTAL INDIVIDUALS	47			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 2**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	1	1	Planted	1
Bald Cypress	T/SA	4	2	Planted	4
Black Gum	T/SA	2	<1	Planted	2
Black Gum	T/SA	4	1	Planted	4
Black Gum	T/SA	2	2	Planted	2
Fetterbush	SH	7	<1	Planted	7
Fetterbush	SH	10	1	Planted	10
Fetterbush	SH	1	2	Planted	1
Red Bay	SA	6	1	Planted	6
Red Bay	SA	4	2	Planted	4
Sweet Bay	SA	1	<1	Planted	1
Sweet Bay	SA	2	1	Planted	2
Sweet Bay	SA	3	2	Planted	3
Sweet Bay	SA	1	3	Planted	1
Wax Myrtle	SH	1	<1	Planted	1
Wax Myrtle	SH	16	1	Planted	16
Wax Myrtle	SH	3	2	Planted	3
White Cedar	T/SA	1	<1	Planted	1
	TOTAL SHRUBS	38		OBSERVED DENSITY (PER PLOT)	69
	TOTAL TREES OF PLANTED SPECIES	31		OBSERVED DENSITY (PER ACRE)	690
	TOTAL INDIVIDUALS	69			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 3**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	4	<1	Planted	4
Bald Cypress	T/SA	5	1	Planted	5
Black Gum	T/SA	1	<1	Planted	1
Black Gum	T/SA	2	1	Planted	2
Fetterbush	SH	7	<1	Planted	7
Fetterbush	SH	10	1	Planted	10
Fetterbush	SH	1	2	Planted	1
Red Bay	SH	2	<1	Planted	2
Red Bay	SH	5	1	Planted	5
Sweet Bay	SH	2	<1	Planted	2
Sweet Bay	SH	4	1	Planted	4
Sweet Bay	SH	9	2	Planted	9
Sweet Bay	SH	2	3	Planted	2
Wax Myrtle	SH	4	<1	Planted	4
Wax Myrtle	SH	7	1	Planted	7
Wax Myrtle	SH	3	2	Planted	3
	TOTAL SHRUBS	56		OBSERVED DENSITY (PER PLOT)	68
	TOTAL TREES OF PLANTED SPECIES	12		OBSERVED DENSITY (PER ACRE)	680
	TOTAL INDIVIDUALS	68			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 4**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	2	1	Planted	2
Bald Cypress	T/SA	9	2	Planted	9
Black Gum	T/SA	22	1	Planted	22
Black Gum	T/SA	21	2	Planted	21
Fetterbush	SH	1	<1	Planted	1
Fetterbush	SH	1	1	Planted	1
Red Bay	SA	1	1	Planted	1
Wax Myrtle	SH	1	<1	Planted	1
White Cedar	T/SA	1	<1	Planted	1
	TOTAL SHRUBS	4		OBSERVED DENSITY (PER PLOT)	59
	TOTAL TREES OF PLANTED SPECIES	55		OBSERVED DENSITY (PER ACRE)	590
	TOTAL INDIVIDUALS	59			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 5**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	13	2	Planted	13
Black Gum	T/SA	2	1	Planted	2
Black Gum	T/SA	21	2	Planted	21
Fetterbush	SH	1	<1	Planted	1
Fetterbush	SH	1	1	Planted	1
Red Bay	SA	1	<1	Planted	1
Red Bay	SA	2	1	Planted	2
Red Bay	SA	5	2	Planted	5
Red Bay	SA	3	3	Planted	3
White Cedar	T/SA	10	<1	Planted	10
	TOTAL SHRUBS	13		OBSERVED DENSITY (PER PLOT)	59
	TOTAL TREES OF PLANTED SPECIES	46		OBSERVED DENSITY (PER ACRE)	590
	TOTAL INDIVIDUALS	59			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 6**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Black Gum	T/SA	3	<1	Planted	3
Black Gum	T/SA	8	1	Planted	8
Black Gum	T/SA	17	2	Planted	17
Fetterbush	SH	11	<1	Planted	11
Fetterbush	SH	1	1	Planted	1
Loblolly Bay	SA	2	<1	Volunteer	2
Red Bay	SA	1	<1	Planted	1
Red Bay	SA	2	1	Planted	2
Red Bay	SA	2	2	Planted	2
Sweet Bay	SA	3	<1	Planted	3
White Cedar	T/SA	1	<1	Planted	1
	TOTAL SHRUBS	12		OBSERVED DENSITY (PER PLOT)	51
	TOTAL TREES OF PLANTED SPECIES	37		OBSERVED DENSITY (PER ACRE)	510
	TOTAL TREES OF VOLUNTEER SPECIES	2			
	TOTAL INDIVIDUALS	51			

**SIMPSON FARM RESTORATION WETLAND SITE
 ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
 YEAR 1- 2007
 PLOT NUMBER 7**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	15	2	Planted	15
Black Gum	T/SA	9	1	Planted	9
Black Gum	T/SA	19	2	Planted	19
Fetterbush	SH	4	<1	Planted	4
Red Bay	SA	1	<1	Planted	1
Red Bay	SA	1	1	Planted	1
Sweet Bay	SA	4	<1	Planted	4
Sweet Bay	SA	1	1	Planted	1
Sweet Bay	SA	1	2	Planted	1
	TOTAL SHRUBS	4		OBSERVED DENSITY (PER PLOT)	55
	TOTAL TREES OF PLANTED SPECIES	51		OBSERVED DENSITY (PER ACRE)	550
	TOTAL INDIVIDUALS	55			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 8**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Black Gum	T/SA	1	<1	Planted	1
Black Gum	T/SA	5	1	Planted	5
Black Gum	T/SA	12	2	Planted	12
Fetterbush	SH	13	<1	Planted	13
Red Bay	SA	1	<1	Planted	1
Red Bay	SA	3	1	Planted	3
Red Bay	SA	5	2	Planted	5
Red Bay	SA	3	3	Planted	3
	TOTAL SHRUBS	13		OBSERVED DENSITY (PER PLOT)	43
	TOTAL TREES OF PLANTED SPECIES	30		OBSERVED DENSITY (PER ACRE)	430
	TOTAL INDIVIDUALS	43			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 9**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	2	<1	Planted	2
Bald Cypress	T/SA	1	1	Planted	1
Bald Cypress	T/SA	9	2	Planted	9
Black Gum	T/SA	5	<1	Planted	5
Black Gum	T/SA	21	1	Planted	21
Black Gum	T/SA	19	2	Planted	19
Fetterbush	SH	1	1	Planted	1
Red Bay	SA	3	1	Planted	3
Red Bay	SA	4	2	Planted	4
	TOTAL SHRUBS	1		OBSERVED DENSITY (PER PLOT)	65
	TOTAL TREES OF PLANTED SPECIES	64		OBSERVED DENSITY (PER ACRE)	650
	TOTAL INDIVIDUALS	65			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 10**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	1	<1	Planted	1
Black Gum	T/SA	4	1	Planted	4
Black Gum	T/SA	2	2	Planted	2
Fetterbush	SH	2	<1	Planted	2
Fetterbush	SH	1	1	Planted	1
Red Bay	SA	17	1	Planted	17
Red Bay	SA	13	2	Planted	13
White Cedar	T/SA	5	<1	Planted	5
	TOTAL SHRUBS	3		OBSERVED DENSITY (PER PLOT)	45
	TOTAL TREES OF PLANTED SPECIES	42		OBSERVED DENSITY (PER ACRE)	450
	TOTAL INDIVIDUALS	45			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 11**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	6	1.5	Planted	6
Bald Cypress	T/SA	3	2	Planted	3
Black Gum	T/SA	1	2	Planted	1
Green Ash	T/SA	15	1.5	Planted	15
Red Bay	SA	2	<1	Planted	2
Red Bay	SA	1	1	Planted	1
Red Bay	SA	12	1.5	Planted	12
Red Bay	SA	9	2	Planted	9
Red Bay	SA	3	2.5	Planted	3
White Cedar	T/SA	6	<1	Planted	6
	TOTAL SHRUBS	0		OBSERVED DENSITY (PER PLOT)	58
	TOTAL TREES OF PLANTED SPECIES	58		OBSERVED DENSITY (PER ACRE)	580
	TOTAL INDIVIDUALS	58			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 12**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	1	1	Planted	1
Bald Cypress	T/SA	12	1.5	Planted	12
Bald Cypress	T/SA	3	2	Planted	3
Black Gum	T/SA	1	1.5	Planted	1
Green Ash	T/SA	1	1	Planted	1
Green Ash	T/SA	13	1.5	Planted	13
Green Ash	T/SA	2	2	Planted	2
Red Bay	SA	3	1	Planted	3
Red Bay	SA	14	1.5	Planted	14
Red Bay	SA	7	2	Planted	7
Red Bay	SA	9	2.5	Planted	9
Red Bay	SA	2	3	Planted	2
	TOTAL SHRUBS	0		OBSERVED DENSITY (PER PLOT)	68
	TOTAL TREES OF PLANTED SPECIES	68		OBSERVED DENSITY (PER ACRE)	680
	TOTAL INDIVIDUALS	68			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 13**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	2	<1	Planted	2
Bald Cypress	T/SA	13	1.5	Planted	13
Bald Cypress	T/SA	1	2	Planted	1
Black Gum	T/SA	1	1.5	Planted	1
Black Gum	T/SA	1	2	Planted	1
Green Ash	T/SA	1	1	Planted	1
Green Ash	T/SA	10	1.5	Planted	10
Green Ash	T/SA	3	2	Planted	3
Red Bay	SA	1	<1	Planted	1
Red Bay	SA	6	1.5	Planted	6
Red Bay	SA	3	2	Planted	3
White Cedar	T/SA	6	<1	Planted	6
	TOTAL SHRUBS	0		OBSERVED DENSITY (PER PLOT)	48
	TOTAL TREES OF PLANTED SPECIES	48		OBSERVED DENSITY (PER ACRE)	480
	TOTAL INDIVIDUALS	48			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 14**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	10	1.5	Planted	10
Black Gum	T/SA	8	1.5	Planted	8
Green Ash	T/SA	8	1.5	Planted	8
Green Ash	T/SA	1	2	Planted	1
Loblolly Pine	T/SA	1	<1	Volunteer	1
Red Bay	SA	1	<1	Planted	1
Red Bay	SA	1	1	Planted	1
Red Bay	SA	3	1.5	Planted	3
Red Bay	SA	3	2	Planted	3
White Cedar	T/SA	8	1.5	Planted	8
	TOTAL SHRUBS	0		OBSERVED DENSITY (PER PLOT)	44
	TOTAL TREES OF PLANTED SPECIES	43		OBSERVED DENSITY (PER ACRE)	440
	TOTAL TREES OF VOLUNTEER SPECIES	1			
	TOTAL INDIVIDUALS	44			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 15**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	3	<1	Planted	3
Bald Cypress	T/SA	2	1	Planted	2
Bald Cypress	T/SA	3	1.5	Planted	3
Bald Cypress	T/SA	9	2	Planted	9
Bald Cypress	T/SA	5	2.5	Planted	5
Black Gum	T/SA	1	<1	Planted	1
Black Gum	T/SA	1	1	Planted	1
Black Gum	T/SA	6	1.5	Planted	6
Black Gum	T/SA	10	2	Planted	10
Fetterbush	SH	20	<1	Planted	20
Fetterbush	SH	2	2.5	Planted	2
Green Ash	T/SA	1	<1	Planted	1
Green Ash	T/SA	1	1	Planted	1
Green Ash	T/SA	6	1.5	Planted	6
Green Ash	T/SA	10	2	Planted	10
Red Maple	T/SA	1	<1	Volunteer	0
Sweet Bay	SA	1	<1	Planted	1
White Cedar	T/SA	1	<1	Planted	1
	TOTAL SHRUBS	22		OBSERVED DENSITY (PER PLOT)	82
	TOTAL TREES OF PLANTED SPECIES	60		OBSERVED DENSITY (PER ACRE)	820
	TOTAL TREES OF VOLUNTEER SPECIES	1			
	TOTAL INDIVIDUALS	83			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 16**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	1	1	Planted	1
Bald Cypress	T/SA	8	1.5	Planted	8
Bald Cypress	T/SA	3	2	Planted	3
Black Gum	T/SA	2	<1	Planted	2
Black Gum	T/SA	3	1	Planted	3
Black Gum	T/SA	6	1.5	Planted	6
Black Gum	T/SA	10	2	Planted	10
Black Gum	T/SA	1	2.5	Planted	1
Fetterbush	SH	14	<1	Planted	14
Fetterbush	SH	1	1	Planted	1
Green Ash	T/SA	1	1.5	Planted	1
Green Ash	T/SA	2	2	Planted	2
Red Bay	SA	1	1	Planted	1
White Cedar	T/SA	3	<1	Planted	3
	TOTAL SHRUBS	15		OBSERVED DENSITY (PER PLOT)	56
	TOTAL TREES OF PLANTED SPECIES	41		OBSERVED DENSITY (PER ACRE)	560
	TOTAL INDIVIDUALS	56			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 17

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	1	<1	Planted	1
Bald Cypress	T/SA	1	1	Planted	1
Bald Cypress	T/SA	11	1.5	Planted	11
Bald Cypress	T/SA	1	2	Planted	1
Black Gum	T/SA	1	<1	Planted	1
Black Gum	T/SA	4	1	Planted	4
Black Gum	T/SA	5	1.5	Planted	5
Black Gum	T/SA	6	2	Planted	6
Fetterbush	SH	8	<1	Planted	8
Green Ash	T/SA	6	1.5	Planted	6
White Cedar	T/SA	1	<1	Planted	1
	TOTAL SHRUBS	8		OBSERVED DENSITY (PER PLOT)	45
	TOTAL TREES OF PLANTED SPECIES	37		OBSERVED DENSITY (PER ACRE)	450
	TOTAL INDIVIDUALS	45			

**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 18**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	2	<1	Planted	2
Bald Cypress	T/SA	2	1.5	Planted	2
Black Gum	T/SA	13	<1	Planted	13
Black Gum	T/SA	6	1	Planted	6
Black Gum	T/SA	1	1.5	Planted	1
Blueberry	SH	2	1.5	Volunteer	2
Fetterbush	SH	7	<1	Planted	7
Galberry	SH	3	1.5	Volunteer	3
Galberry	SH	20	2	Volunteer	20
Green Ash	T/SA	1	1.5	Planted	1
Loblolly Bay	SA	1	1.5	Volunteer	1
Loblolly Bay	SA	2	2	Volunteer	2
Red Bay	SA	1	<1	Planted	1
Red Bay	SA	2	1.5	Planted	2
Red Bay	SA	3	2	Planted	3
Red Bay	SA	1	2.5	Planted	1
Red Bay	SA	1	3	Planted	1
Sweet Bay	SA	5	<1	Planted	5
Sweet Bay	SA	3	1	Planted	3
Sweet Bay	SA	1	3	Planted	1
Sweet Pepperbush	SH	100	1	Volunteer	100
Wax Myrtle	SH	3	<1	Planted	3
Wax Myrtle	SH	2	1	Planted	2
Wax Myrtle	SH	1	2	Planted	1
	TOTAL SHRUBS	138		OBSERVED DENSITY (PER PLOT)	183
	TOTAL TREES OF PLANTED SPECIES	42		OBSERVED DENSITY (PER ACRE)	1830
	TOTAL TREES OF VOLUNTEER SPECIES	3			

	TOTAL INDIVIDUALS	183			
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SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 19

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	2	1.5	Planted	2
Black Gum	T/SA	1	<1	Planted	1
Black Gum	T/SA	2	1	Planted	2
Black Gum	T/SA	1	1.5	Planted	1
Fetterbush	SH	20	<1	Planted	20
Green Ash	T/SA	1	1	Planted	1
Green Ash	T/SA	21	1.5	Planted	21
Sweet Pepperbush	SH	1	<1	Volunteer	1
White Cedar	T/SA	8	<1	Planted	8
	TOTAL SHRUBS	21		OBSERVED DENSITY (PER PLOT)	57
	TOTAL TREES OF PLANTED SPECIES	36		OBSERVED DENSITY (PER ACRE)	570
	TOTAL INDIVIDUALS	57			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 20

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	3	1	Planted	3
Bald Cypress	T/SA	10	1.5	Planted	10
Bald Cypress	T/SA	1	2	Planted	1
Black Gum	T/SA	2	1	Planted	2
Black Gum	T/SA	10	1.5	Planted	10
Black Gum	T/SA	4	2	Planted	4
Fetterbush	SH	50	<1	Planted	50
Green Ash	T/SA	2	1	Planted	2
Green Ash	T/SA	13	1.5	Planted	13
Sassafras	T/SA	1	<1	Volunteer	1
	TOTAL SHRUBS	50		OBSERVED DENSITY (PER PLOT)	96
	TOTAL TREES OF PLANTED SPECIES	46		OBSERVED DENSITY (PER ACRE)	960
	TOTAL INDIVIDUALS	96			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 21

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Bald Cypress	T/SA	1	<1	Planted	1
Bald Cypress	T/SA	3	1.5	Planted	3
Black Gum	T/SA	4	1	Planted	4
Black Gum	T/SA	10	1.5	Planted	10
Black Gum	T/SA	4	2	Planted	4
Fetterbush	SH	1	<1	Planted	1
Galberry	SH	1	<1	Volunteer	1
Green Ash	T/SA	3	1.5	Planted	3
Sassafras	T/SA	11	<1	Volunteer	11
White Cedar	T/SA	4	<1	Planted	4
	TOTAL SHRUBS	2		OBSERVED DENSITY (PER PLOT)	42
	TOTAL TREES OF PLANTED SPECIES	25		OBSERVED DENSITY (PER ACRE)	420
	TOTAL INDIVIDUALS	42			

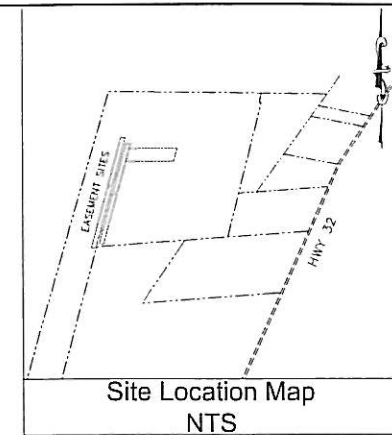
**SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 22**

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Black Gum	T/SA	1	2	Planted	1
Fetterbush	SH	8	<1	Planted	8
Fetterbush	SH	1	1	Planted	1
Galberry	SH	5	1	Volunteer	5
Galberry	SH	20	1.5	Volunteer	20
Galberry	SH	3	2	Volunteer	3
Loblolly Bay	SA	15	1	Volunteer	15
Loblolly Bay	SA	15	1.5	Volunteer	15
Red Bay	SA	2	<1	Planted	2
Red Bay	SA	2	1	Planted	2
Red Bay	SA	2	2	Planted	2
Red Bay	SA	1	2.5	Planted	1
Sweetbay	SA	1	2	Planted	1
Sweet Pepperbush	SH	25	1.5	Volunteer	25
Wax Myrtle	SH	13	<1	Planted	13
Wax Myrtle	SH	5	1	Planted	5
Wax Myrtle	SH	2	1.5	Planted	2
	TOTAL SHRUBS	82		OBSERVED DENSITY (PER PLOT)	121
	TOTAL TREES OF PLANTED SPECIES	9		OBSERVED DENSITY (PER ACRE)	1210
	TOTAL TREES OF VOLUNTEER SPECIES	30			
	TOTAL INDIVIDUALS	121			

SIMPSON FARM RESTORATION WETLAND SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS
YEAR 1- 2007
PLOT NUMBER 23

Species	Stratum (T, SA or SH)	Number of Individuals	Height (feet)	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Black Gum	T/SA	10	1.5	Planted	10
Black Gum	T/SA	4	2	Planted	4
Fetterbush	SH	1	<1	Planted	1
Green Ash	T/SA	6	1.5	Planted	6
Red Bay	SA	1	1.5	Planted	1
White Cedar	T/SA	11	<1	Planted	11
	TOTAL SHRUBS	1		OBSERVED DENSITY (PER PLOT)	33
	TOTAL TREES OF PLANTED SPECIES	32		OBSERVED DENSITY (PER ACRE)	330
	TOTAL INDIVIDUALS	33			

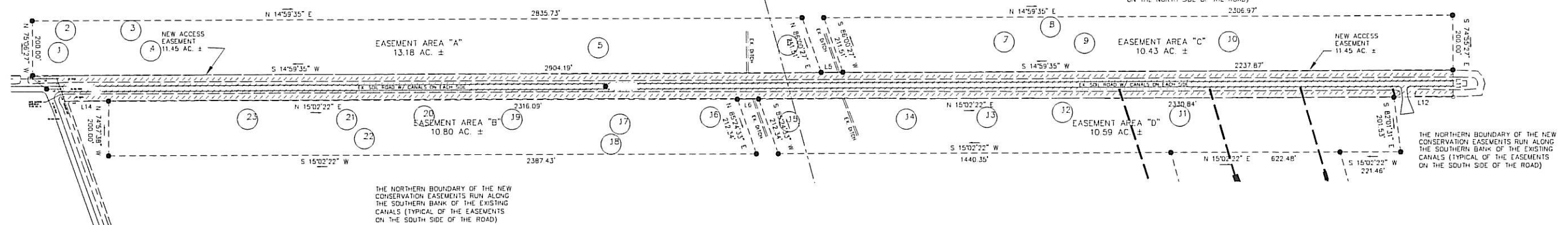
Appendix C. Conservation Easement Plat - September 2006
(includes plot locations)



THOMAS D. SIMPSON
DB 1418 PG 55B
PLAT CAB. "F" SLIDE 23-4

THE SOUTHERN BOUNDARY OF THE NEW CONSERVATION EASEMENTS RUN ALONG THE NORTHERN BANK OF THE EXISTING CANALS (TYPICAL OF THE EASEMENTS ON THE NORTH SIDE OF THE ROAD)

THE SOUTHERN BOUNDARY OF THE NEW CONSERVATION EASEMENTS RUN ALONG THE NORTHERN BANK OF THE EXISTING CANALS (TYPICAL OF THE EASEMENTS ON THE NORTH SIDE OF THE ROAD)



THE NORTHERN BOUNDARY OF THE NEW CONSERVATION EASEMENTS RUN ALONG THE SOUTHERN BANK OF THE EXISTING CANALS (TYPICAL OF THE EASEMENTS ON THE SOUTH SIDE OF THE ROAD)

THOMAS D. SIMPSON
DB 1418 PG 55B
PLAT CAB. "F" SLIDE 23-4

THOMAS D. SIMPSON
DB 1418 PG 55B
PLAT CAB. "F" SLIDE 23-4

THOMAS D. SIMPSON
DB 1418 PG 55B
PLAT CAB. "F" SLIDE 23-4

THIS MAP IS BASED ON ORIGINAL DRAWINGS AND/OR SURVEY INFORMATION FROM:



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Project: Simpson Buffer Restoration	Date: 4/17/07	Revision Date: NA
Applicant:	Scale: 1"=400'	Job Number: 40-05-625
Title:	Drawn By: GSF	Sheet Number: Appendix B