

**“Howard Farm Property”
Buffer Restoration Project**

**Greene County, NC
Neuse River Basin
(Cataloging Unit #03020203)**

**2008 Annual Monitoring Report (Year 3 of 5)
(Task 9)**

NC EEP Contract #D05020-1



Prepared For:

**North Carolina Department of Environment and Natural Resources
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652**



December 2008

Prepared By:

Land Management Group, Inc.
PO Box 2522
Wilmington, NC 28403



LMG

LAND MANAGEMENT GROUP INC.
Environmental Consultants

Phone. 910-452-0001

Fax. 910-452-0060

Project Manager:

Christian A. Preziosi

Office. 910-452-0001

Cell. 910-471-0515

Email. cpreziosi@lmgroup.net

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
I. PROJECT BACKGROUND	2
1. Location and Setting	2
2. Mitigation Type and Objectives.....	2
3. Project History and Background.....	2
4. Monitoring Plan View.....	2
II. PROJECT CONDITIONS	3
1. Pre-Construction Conditions.....	3
2. Soils.....	3
3. Restoration Activities.....	3
4. Adaptive Management.....	4
III. METHODOLOGY AND SUCCESS CRITERIA	4
IV. MONITORING	5
V. CONCLUSION	5

TABLES

1. REPORTING AND MILESTONE HISTORY
2. PLANTED SPECIES LIST
3. ANNUAL MONITORING DATA (YEAR 3) – CUMULATIVE SPREADSHEET

FIGURES

1. SITE LOCATION MAP
2. USGS TOPOGRAPHIC QUADRANGLE
3. NRCS SOIL SURVEY
4. BUFFER PLANTING OVERVIEW

APPENDICES

- A. SITE PHOTOGRAPHS
- B. VEGETATION SURVEY DATA BY PLOT
- C. SURVEY WITH MONITORING PLOT LOCATIONS

EXECUTIVE SUMMARY

Prior to project implementation, the Howard Farm Property was farmed for soybean and cotton production. The site consisted entirely of open agricultural fields with no existing riparian buffer (i.e. trees and shrubs are absent within 200 ft of existing surface waters). Under contract with the North Carolina Ecosystem Enhancement Program (EEP), Land Management Group, Inc. (LMG) implemented the restoration of 26.3 acres of riparian buffer habitat along Mussel Run (a tributary of Contentnea Creek) and contiguous surface-waters (i.e. field ditches) in Greene County, NC.

The entire 26.3-ac project area has been planted with characteristic tree and shrub species on an average density of 900 stems/ac. Planting was completed in February 2006. Thirteen (13) permanent 0.10-ac monitoring plots (equivalent to 5% of the restoration area) were established subsequent to planting. Annual monitoring will be conducted near the end of each growing season for a period of five years beginning in October 2006. 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 1,638 stems (planted and volunteer shrubs/trees) were observed within the thirteen 0.10-acre plots during Year 3 monitoring. Of the total observed, 906 stems (total excluding red maple and sweet gum) were counted toward the success criteria (corresponding to an average of 791 stems/acre). Given the average stem density observed, the site is progressing well toward the targeted stem density.

Monitoring reports are being submitted annually to the EEP (by January 1 of each year). These reports include results of vegetative monitoring and photographic documentation of site conditions. Monitoring reports also identify any contingency measures that may need to be employed to remedy any site deficiencies.

The following monitoring report summarizes the restoration project and includes more specific information related to project implementation, 'as-built' conditions, and site progress through Year 3.

I. PROJECT BACKGROUND

1. Location and Setting

As approved by the EEP, LMG implemented the restoration of 26.3 acres of farmland located adjacent to Mussel Run (a tributary of the Neuse River) and a series of contiguous surface waters (i.e. field ditches). The project area is part of the “Howard Farm”, located approximately 2.5 miles northeast of Hookerton in Greene County, NC (refer to Figure 1). The project includes the establishment of characteristic tree and shrub species adjacent to open field ditches on the east and west side of Churchill Road (SR #1404) as well as Mussel Run (refer to Figure 2). The property is situated within NEU-7 of the lower Neuse River Basin (USGS Cataloging Unit 03020203) and within sub-basin 03-04-07.

2. Mitigation Type and Objectives

The proposed restoration project is intended to provide suitable, high-quality riparian buffer restoration as compensatory mitigation for riparian buffer impacts authorized through the EEP. The objective of the project is to restore riparian buffer vegetation and diffuse flow conditions to help reduce non-point source discharge of contaminants into adjacent water bodies. The primary function of the riparian buffer project detailed in this document is to restore the nitrogen (N) 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.

3. Project History and Background

Table 1 provides information regarding the reporting and milestone history for the Howard Farm Buffer Restoration project.

4. Monitoring Plan View

Locations of vegetation monitoring plots for the Howard Farm Buffer Restoration are depicted in Appendix C.

II. PROJECT CONDITIONS

1. Pre-Construction Conditions

The 26.3-acre riparian buffer restoration area represents a portion of a larger 145-acre tract (“Howard Farm”) formerly farmed for the production of soybean and cotton. Land use practices (including herbicide, pesticide, and fertilizer application) served as potential contributors to decreased water quality of adjacent surface waters (i.e. ditches and ‘blue-line’ streams).

Application of nitrogen-rich fertilizer represented the most significant non-point source of nitrogen within the immediate project area. Woody vegetation along ditches was either absent or sparse (less than 100 stems per acre that are > 5 inches diameter at breast height). As a result, nutrient-laden runoff was discharged from agricultural fields directly into surface waters with little or no nutrient filtration/transformation.

2. Soils

The site consists predominantly of Johns sandy loam (refer to Figure 4) – a somewhat poorly drained to moderately well drained soil occurring along stream terraces. Infiltration is moderate and surface runoff is slow in these areas. The seasonal high water table occurs between 1.5 ft and 3.0 ft below the soil surface. The remaining portion of the buffer area consists of Lumbee sandy loam – a poorly drained soil characteristic of broader flats of stream terraces. Lumbee soils exhibit moderate infiltration with a seasonal high water table occurring at or near the soil surface.

3. Restoration Activities

The restoration project included the planting of characteristic tree and shrub seedlings adjacent to open ditches and blue-line streams on the 26.3-ac restoration site (refer to Figure 3). No federal or state permits were necessary to conduct the restoration activities. The riparian buffer was planted with various species including river birch (*Betula nigra*), sycamore (*Platanus occidentalis*), green ash (*Fraxinus pennsylvanica*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), and red bay (*Persea borbonia*). The outer 50 feet of the buffer area was planted with characteristic shrub species including wax myrtle (*Myrica cerifera*), American beautyberry (*Callicarpa americana*), elderberry (*Sambucus canadensis*), and sweet pepperbush (*Clethra alnifolia*). All species selected for the restoration project naturally occur on the site within undisturbed riparian buffer areas. These species are considered to be well suited for site-specific conditions (including soil characteristics and moisture regimes). In addition, each of

these species is listed within NCDENR's "Guidelines for Riparian Buffer Restoration" as appropriate species for use in riparian buffer restoration projects. Approximately 20,000 trees and shrubs were planted throughout the project footprint. Bare-root seedlings were planted at a density of 600 trees per acre. Shrubs were planted at densities of 1,000 to 1,200 plants per acre. On-site planting was completed in February 2006.

Refer to Table 2 for a list of species planted (with corresponding quantities) within the buffer restoration area.

4. Adaptive Management

Infestation of common morning glory (*Ipomoea purpurea*) was prevalent during the early stages of site development. Physical removal of the vines was conducted prior to Year 1 and Year 2 monitoring events. In addition to the removal activities a supplemental planting was conducted in February 2007. A total of 12,000 river birch, green ash, and wax myrtle were planted in areas that experienced reduced survivorship and/or suppressed growth. In addition, the herbicide Oust™ was applied in select areas of the tract to limit its potential adverse affect on planted species.

LMG identified the continued prevalence of morning glory during site inspections conducted in February 2008. As a result, an additional application of Oust™ (at a rate of 1,500 liters per hectare) was performed. This work was coordinated through, and conducted by a licensed applicator. Physical removal of vines was also conducted during this year of monitoring. Though the morning glory was present across the site, survivorship of planted trees and shrubs remained high during Year 3 monitoring. It appears as though most plantings now have a competitive height advantage over the morning glory vines, and as a result, no future remedial actions are planned at this time.

III. METHODOLOGY & SUCCESS CRITERIA

Annual monitoring is being conducted near the end of each growing season for a period of five years. Vegetative monitoring has included the establishment of thirteen (13) 0.10-acre permanent plots corresponding to a total of 1.3 acres (equivalent to 5% of the restoration area). The

locations of the monitoring plots are depicted in Figure 3. 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 are being submitted annually to the EEP (by January 1 of each year). These reports 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.

IV. MONITORING

A total of 1,638 stems (planted and volunteer shrubs/trees) were observed within the thirteen 0.10-acre plots. Of the total observed, 906 stems (total excluding red maple and sweet gum) were counted toward the success criteria (corresponding to an average of 798 stems/acre). Of the species planted, wax myrtle (*Myrica cerifera*) and American beautyberry were the most abundant shrubs observed within the thirteen monitoring plots. The most abundant of the planted tree species were American sycamore and river birch. These trees demonstrate successful growth as evidenced by a majority exceeding fifteen (15) feet in height. Please refer to Appendix A for site photographs of Year 3 conditions.

Refer to Table 3 for a summary of results related to species abundance and target stem densities. In addition, individual plot data sheets are provided in Appendix B.

V. CONCLUSION

LMG has completed the third year monitoring for the 26.3 acres of riparian buffer restoration located in NEU-7 of the lower Neuse Basin. Stem densities within all thirteen plots well exceed the 320 stems/acre target density for restored buffer habitats. The total observed density (791 stems/acre) indicates that the site is progressing well toward the target maturity density. The

¹Desirable species are considered as noninvasive species characteristic of riparian habitats of the Coastal Plain.
Howard Farm Buffer Restoration
Annual Monitoring Report (Year 3 of 5)
Land Management Group, Inc.
December 2008
Contract No. D05020-1

TABLES

Table 1. Reporting and Milestone History

	Project Milestone	Completion Date	COMMENTS
1	Feasibility Study, CE Document, and Public Meeting	September, 2005	Complete
2	Record a Conservation Easement on the Site	January 2006	Conveyed to SPO
3	Restoration Plan Approved by EEP		
4	Mitigation Site Earthwork Completed	January 2006	
5	Mitigation Site Planting and Installation of Monitoring Devices	February 15, 2006	Complete
6	Submittal of Mitigation Plan (including as-built drawings)	June 2006	Complete
7	Submittal of Monitoring Report #1 to EEP	December 31, 2006	Approved by NCEEP
8	Submittal of Monitoring Report #2 to EEP	December 31, 2007	Approved by NCEEP
9	Submittal of Monitoring Report #3 to EEP	December 31, 2008	
10	Submittal of Monitoring Report #4 to EEP	December 31, 2009	
11	Submittal of Monitoring Report #5 to EEP	December 31, 2010	

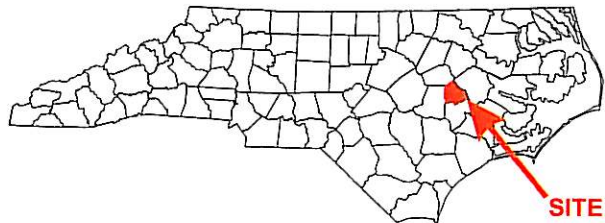
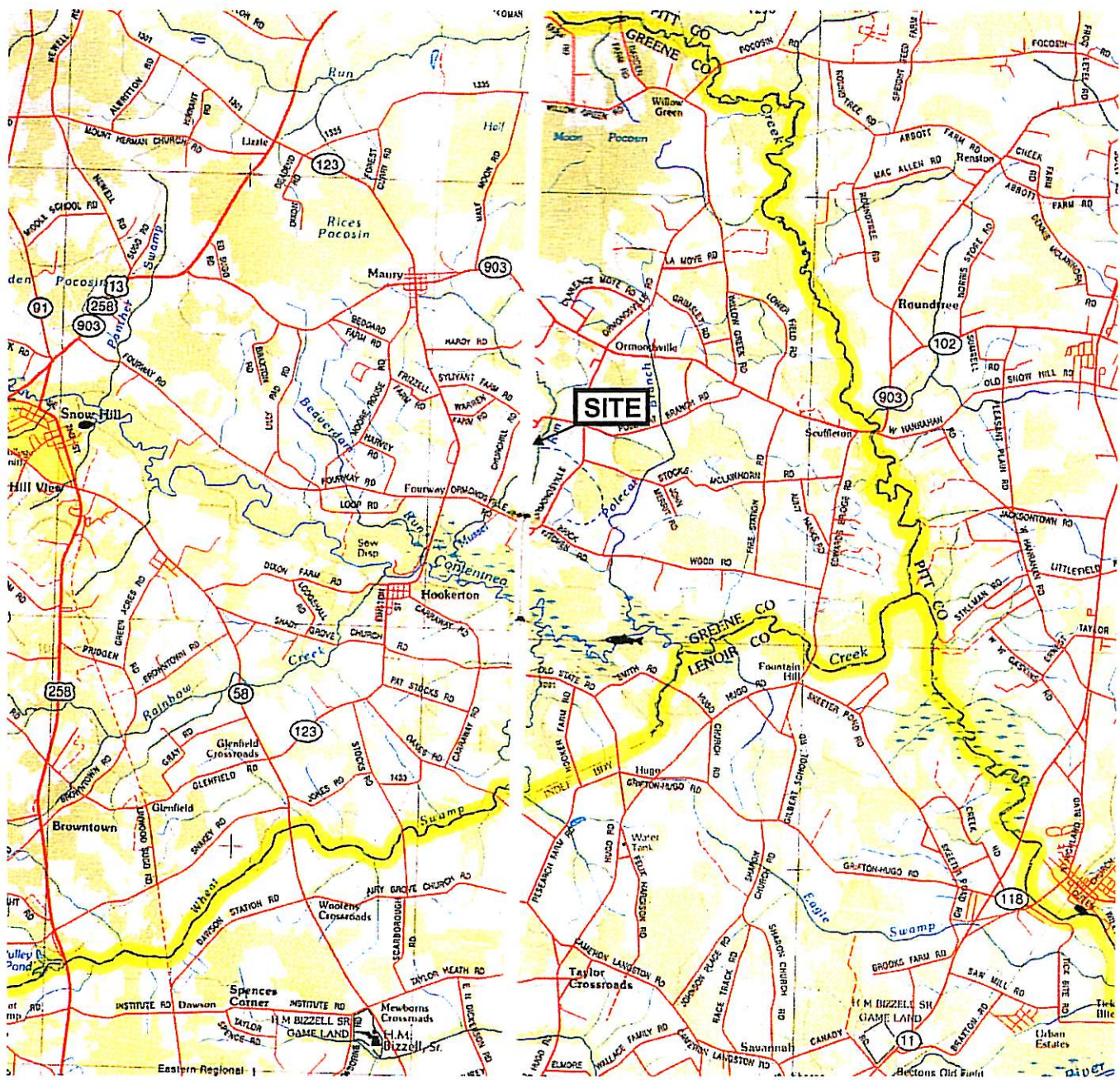
Table 2. Howard Farm Plant List

Species (trees)	Quantity
River Birch (<i>Betula nigra</i>)	2,000
Sycamore (<i>Platanus occidentalis</i>)	2,000
Green Ash (<i>Fraxinus pennsylvanica</i>)	1,000
Willow Oak (<i>Quercus phellos</i>)	1,000
Overcup Oak (<i>Quercus lyrata</i>)	1,000
Water Oak (<i>Quercus nigra</i>)	2,000
Black Gum (<i>Nyssa sylvatica</i>)	1,000
Red Bay (<i>Persea borbonia</i>)	2,000
Species (shrubs)	
Wax Myrtle (<i>Myrica cerifera</i>)	2,000
Sweet pepperbush (<i>Clethra alnifolia</i>)	2,000
Elderberry (<i>Sambucus canadensis</i>)	2,000
American Beautyberry (<i>Callicarpa americana</i>)	1,000
Possumhaw (<i>Viburnum nudum</i>)	1,000
Supplemental Planting (February 2007)	
Green Ash (<i>Fraxinus pennsylvanica</i>)	4,000
River Birch (<i>Betula nigra</i>)	4,000
Wax Myrtle (<i>Myrica cerifera</i>)	4,000
TOTAL	32,000

**TABLE 3. ANNUAL MONITORING DATA SHEET (YEAR 3) - VEGETATION PLOTS
HOWARD FARM RIPARIAN BUFFER SITE**

SPECIES	PLOT 1	PLOT 2	PLOT 3	PLOT 4	PLOT 5	PLOT 6	PLOT 7	PLOT 8	PLOT 9	PLOT 10	PLOT 11	PLOT 12	PLOT 13	TOTAL
Sycamore	6			1	7			44	35		54	3	21	171
Red Maple							30							30
Sweet Gum		300		12	12	30	200						3	557
Loblolly Pine					6							10		16
Baccharis	4	10	11	12	30	8	5	11	9	16		11	2	129
Green Ash	5	9	7	6	15	11	29					8		90
Wax Myrtle	0		2	18	12	23	41			14		22	9	141
River Birch		4	6	15	17	8	4	3	13	8	27		26	131
Blackgum														0
Amer. Beautyberry	18	30	12			10	24			9		15		118
Persimmon	3	3	6										5	17
Elderberry		5	17		1	11	12	9	12	17		4	3	91
Water Oak			1											1
Overcup Oak	1		6	7	18	4								36
Willow Oak					3	5								8
Black Willow			1	4				8	3	7	5			28
Possuthaw			3											3
Highbush Blueberry					4			1	8	17				30
Sweet Pepperbush		1	2			1								4
Red Cedar						9	4					8		21
Tulip Poplar						2	2							4
Sweetbay														0
Red Bay			1	5	6									12
TOTAL	37	362	75	80	131	122	351	76	80	88	86	81	69	1638
Total Counted toward Success	37	62	75	68	113	92	121	76	80	88	86	71	59	906
Stem Density (per ac)	370	620	750	680	1130	920	1210	760	800	880	860	710	590	791

FIGURES



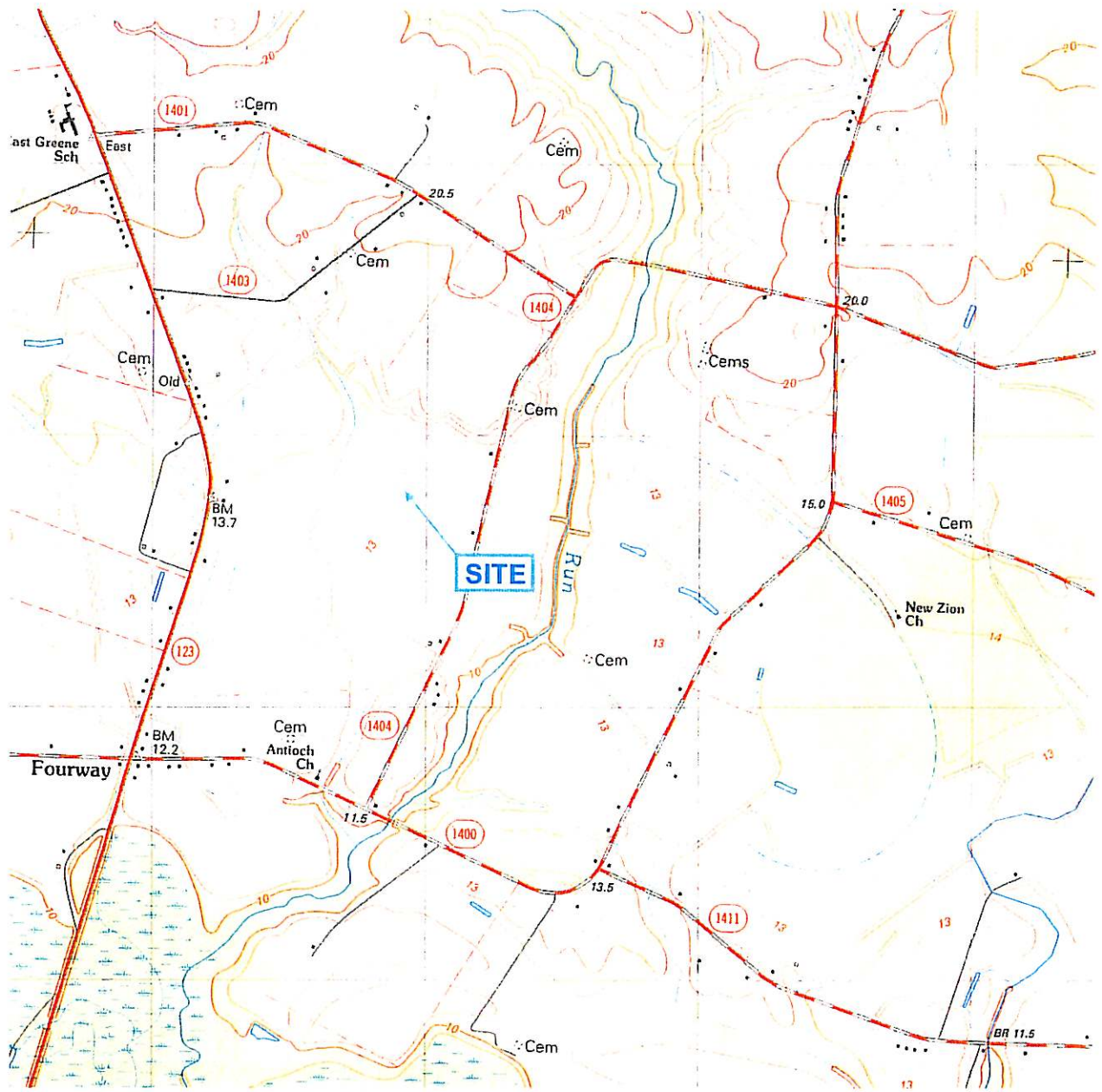
SCALE 1" = 2.0 miles

Map Source: DeLorme: North Carolina Atlas and Gazetteer., 1997 p. 46.

NC EEP
 Howard Farm
 Buffer Restoration Project
 Greene County



Figure 1.
 Site Location Map



Boundaries are approximate
and not meant to be absolute.



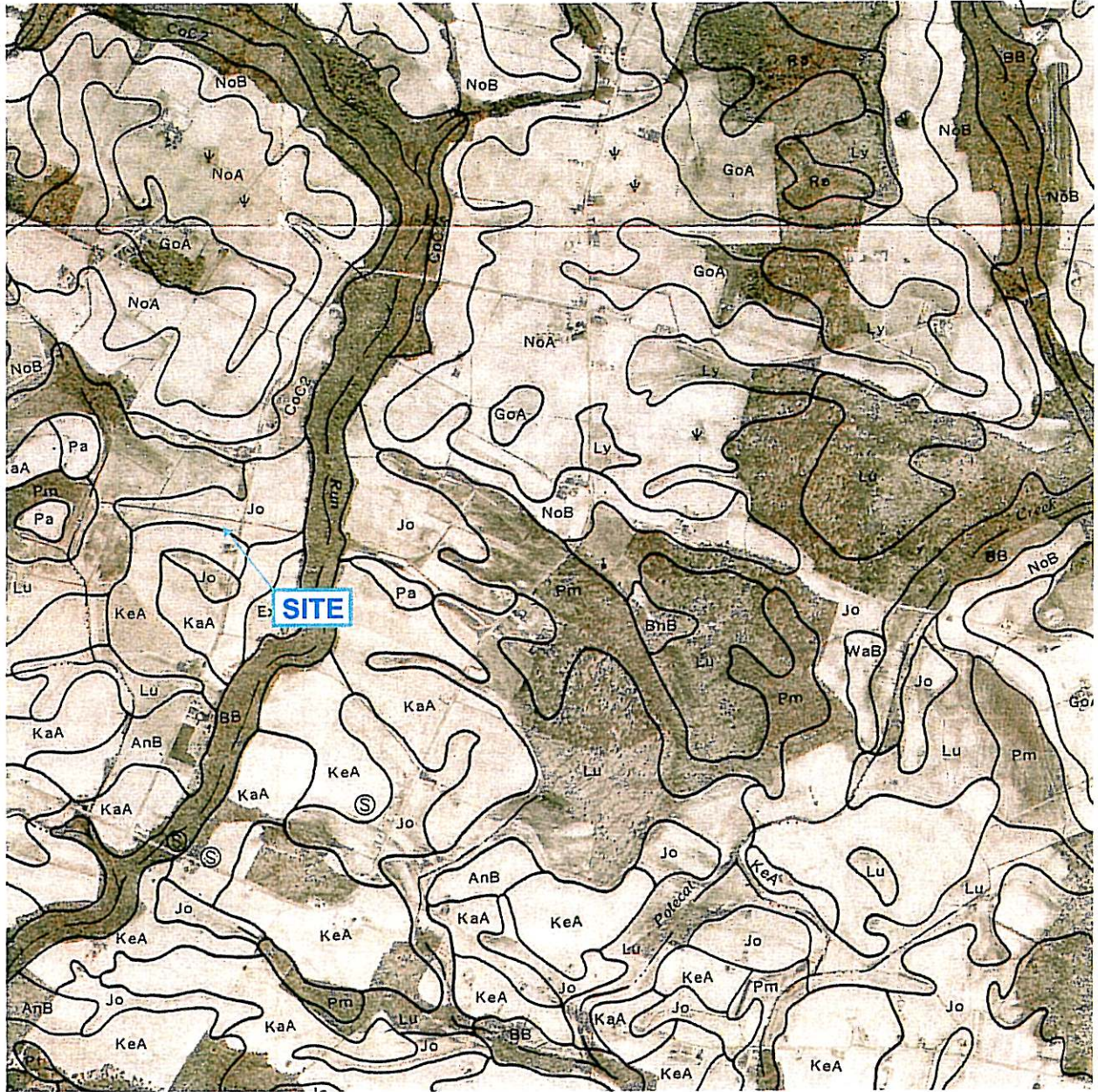
SCALE 1" = 2000'

Map Source: 1982, USGS 7.5' Topographic Quadrangle. Hookerton Quadrangle

NC EEP
Howard Farm
Buffer Restoration Project
Greene County



Figure 2.
1982 Topographic Quad



SCALE 1" = 2000'

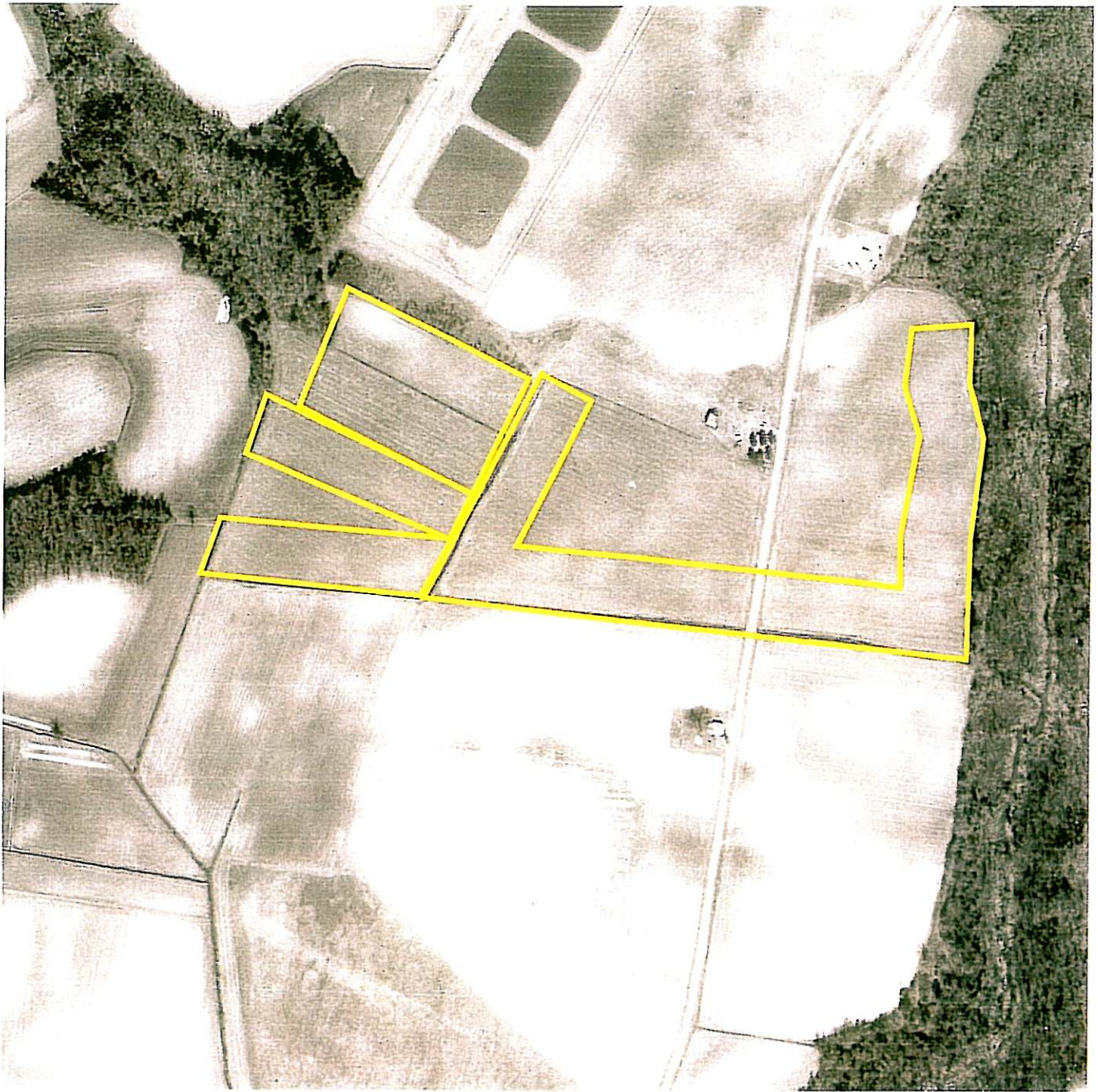
Boundaries are approximate and not meant to be absolute.

Map Source: Soil Survey of Greene County, 1977.

NC EEP
 Howard Farm
 Buffer Restoration Project
 Greene County



Figure 3.
 Generalized Soil Map
 Greene County, NC



 200' Buffer Planting Area (26.3 acres)



SCALE 1" = 500'

Boundaries are approximate
and not meant to be absolute.

Map Source: Soil Survey of Greene County, 1977.

NC EEP
Howard Farm
Buffer Restoration Project
Greene County



Figure 4.
Buffer Planting Overview

APPENDIX A. SITE PHOTOGRAPHS (SEPTEMBER 2008)



1) View of maturing River Birch and Sycamore in Plot 11.



2) View of edge of Plot 12.



3) View of maturing Green Ash at Plot 7.



4) View of seedlings at Plot 13



5) View of maturing American Beauty Berry at Plot 2.



6) View of maturing Sycamore Plot 1.

APPENDIX B. INDIVIDUAL PLOT DATA SHEETS

**HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS**

PLOT NUMBER 1

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
American Beautyberry	SH	7	2 ft	Planted	7
American Beautyberry	SH	7	3 ft	Planted	7
American Beautyberry	SH	2	4 ft	Planted	2
American Beautyberry	SH	2	5 ft	Planted	2
Persimmon	SA	1	3 ft	Planted	1
Persimmon	SA	1	4 ft	Planted	1
Persimmon	SA	1	6 ft	Planted	1
American Sycamore	SA	1	3 ft	Planted	1
American Sycamore	SA	2	4 ft	Planted	2
American Sycamore	SA	1	9 ft	Planted	1
American Sycamore	SA	1	10 ft	Planted	1
American Sycamore	SA	1	13 ft	Planted	1
Green Ash	SA	1	2 ft	Planted	1
Green Ash	SA	1	3 ft	Planted	1
Green Ash	SA	2	4 ft	Planted	2
Green Ash	SA	1	7 ft	Planted	1
Overcup Oak	SA	1	2ft	Planted	1
Persimmon	SA	1	4ft.	Planted	1
Wax Myrtle	SH	1	2 ft	Planted	1
Baccharis	SH	2	4 ft	Volunteer	2
Baccharis	SH	1	5 ft	Volunteer	1
Baccharis	SH	1	6 ft	Volunteer	1
	TOTAL SHRUBS	24		OBSERVED DENSITY (PER PLOT)	39

	TOTAL TREES OF PLANTED SPECIES	15		OBSERVED DENSITY (PER ACRE)	390
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	39			

HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 2

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Amer. Beautyberry	SH	1	4 ft	Planted	1
Amer. Beautyberry	SH	13	5 ft	Planted	13
Amer. Beautyberry	SH	5	6 ft	Planted	5
Amer. Beautyberry	SH	5	7 ft	Planted	5
Amer. Beautyberry	SH	4	8 ft	Planted	4
Amer. Beautyberry	SH	2	10 ft	Planted	2
Sweet pepperbush	SH	1	5 ft	Planted	1
Elderberry	SH	1	2 ft	Planted	1
Elderberry	SH	1	3 ft	Planted	1
Elderberry	SH	3	4 ft	Planted	3
River Birch	SA	1	2 ft	Planted	1
River Birch	SA	1	6 ft	Planted	1
River Birch	SA	1	7 ft	Planted	1
River Birch	SA	1	8 ft	Planted	1
Persimmon	SA	1	12 ft	Planted	1
Persimmon	SA	2	15 ft	Planted	2
Green Ash	SA	2	3 ft	Planted	2
Green Ash	SA	2	4 ft	Planted	2
Green Ash	SA	3	5 ft	Planted	3
Green Ash	SA	2	7 ft	Planted	2
Baccharis	SH	1	4 ft	Volunteer	1
Baccharis	SH	3	5 ft	Volunteer	3
Baccharis	SH	1	6 ft	Volunteer	1
Baccharis	SH	2	7 ft	Volunteer	2
Baccharis	SH	1	8 ft	Volunteer	1
Baccharis	SH	1	9 ft	Volunteer	1
Baccharis	SH	1	11 ft	Volunteer	1
Sweet Gum	SA	150	6 ft	Volunteer	0
Sweet Gum	SA	150	8 ft	Volunteer	0

	TOTAL SHRUBS	46		OBSERVED DENSITY (PER PLOT)	62
	TOTAL TREES OF PLANTED SPECIES	16		OBSERVED DENSITY (PER ACRE)	620
	TOTAL TREES OF VOLUNTEER SPECIES	300			
	TOTAL INDIVIDUALS	362			

**HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS**

PLOT NUMBER

3

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Amer. Beautyberry	SH	2	1 ft	Planted	2
Amer. Beautyberry	SH	4	2 ft	Planted	4
Amer. Beautyberry	SH	4	3 ft	Planted	4
Amer. Beautyberry	SH	1	4 ft	Planted	1
Amer. Beautyberry	SH	1	5 ft	Planted	1
Elderberry	SH	6	3 ft	Planted	6
Elderberry	SH	7	4 ft	Planted	7
Elderberry	SH	3	5 ft	Planted	3
Elderberry	SH	1	6 ft	Planted	1
Possumhaw	SH	2	1 ft	Planted	2
Possumhaw	SH	1	2 ft	Planted	1
Sweet pepperbush	SH	1	1 ft	Planted	1
Sweet pepperbush	SH	1	2 ft	Planted	1
Willow Oak	SA	1	2 ft	Planted	1
Green Ash	SA	3	2 ft	Planted	3
Green Ash	SA	3	3 ft	Planted	3
Green Ash	SA	1	4 ft	Planted	1
Red Bay	SA	1	1 ft	Planted	1
Water Oak	SA	1	4 ft	Planted	1
Overcup Oak	SA	1	2 ft	Planted	1
Overcup Oak	SA	3	4 ft	Planted	3
Overcup Oak	SA	2	5 ft	Planted	2
Persimmon	SA	1	2 ft	Planted	1
Persimmon	SA	3	4 ft	Planted	3
Persimmon	SA	1	6 ft	Planted	1
Persimmon	SA	1	7 ft	Planted	1
River Birtch	SA	2	2 ft	Planted	2
River Birtch	SA	4	3 ft	Planted	4
Baccharis	SH	1	3 ft	Volunteer	1

Baccharis	SH	5	4 ft	Volunteer	5
Baccharis	SH	3	5 ft	Volunteer	3
Baccharis	SH	2	6 ft	Volunteer	2
Wax Myrtle	SH	2	3 ft	Planted	2
	TOTAL SHRUBS	48		OBSERVED DENSITY (PER PLOT)	75
	TOTAL TREES OF PLANTED SPECIES	27		OBSERVED DENSITY (PER ACRE)	750
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	75			

HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER

4

SPECIES	STRATUM	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Willow Oak	SA	1	2 ft	Planted	1
Willow Oak	SA	1	3 ft	Planted	1
Willow Oak	SA	1	5 ft	Planted	1
Willow Oak	SA	1	8 ft	Planted	1
River Birch	SA	2	2 ft	Planted	2
River Birch	SA	4	3 ft	Planted	4
River Birch	SA	4	4 ft	Planted	4
River Birch	SA	2	5 ft	Planted	2
River Birch	SA	2	6 ft	Planted	2
River Birch	SA	1	7 ft	Planted	1
Overcup Oak	SA	1	4 ft	Planted	1
Overcup Oak	SA	4	5 ft	Planted	4
Overcup Oak	SA	1	6 ft	Planted	1
Overcup Oak	SA	1	7 ft	Planted	1
American Sycamore	T	1	10 ft	Planted	1
Green Ash	SA	4	2 ft	Planted	4
Green Ash	SA	2	3 ft	Planted	2
Red Bay	SA	2	1 ft	Volunteer	2
Red Bay	SA	3	3 ft	Volunteer	3
Wax Myrtle	SH	3	1 ft	Planted	3
Wax Myrtle	SH	9	2 ft	Planted	9
Wax Myrtle	SH	4	3 ft	Planted	4
Wax Myrtle	SH	1	4 ft	Planted	1
Wax Myrtle	SH	1	5ft	Planted	1
Baccharis	SH	6	5 ft	Volunteer	6
Baccharis	SH	5	6 ft	Volunteer	5
Baccharis	SH	1	7 ft	Volunteer	1
Sweet Gum	SA	8	2 ft	Volunteer	0
Red Maple	SA	4	4 ft	Volunteer	0

	TOTAL SHRUBS	30		OBSERVED DENSITY (PER PLOT)	68
	TOTAL TREES OF PLANTED SPECIES	33		OBSERVED DENSITY (PER ACRE)	680
	TOTAL TREES OF VOLUNTEER SPECIES	17			
	TOTAL INDIVIDUALS	80			

HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 5

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Elderberry	SH	1	2 ft	Planted	1
River Birch	SA	2	2 ft	Planted	2
River Birch	SA	3	3 ft	Planted	3
River Birch	SA	2	4 ft	Planted	2
River Birch	SA	4	5 ft	Planted	4
River Birch	SA	5	6 ft	Planted	5
River Birch	SA	1	8 ft	Planted	1
Overcup Oak	SA	3	2 ft	Planted	3
Overcup Oak	SA	3	3 ft	Planted	3
Overcup Oak	SA	4	4 ft	Planted	4
Overcup Oak	SA	4	5 ft	Planted	4
Overcup Oak	SA	4	6 ft	Planted	4
Green Ash	SA	4	2 ft	Planted	4
Green Ash	SA	3	3 ft	Planted	3
Green Ash	SA	3	4 ft	Planted	3
Green Ash	SA	2	5 ft	Planted	2
Green Ash	SA	2	6 ft	Planted	2
Green Ash	SA	1	7 ft	Planted	1
Willow Oak	SA	1	2 ft	Planted	1
Willow Oak	SA	1	4 ft	Planted	1
Willow Oak	SA	1	6 ft	Planted	1
American Sycamore	T	3	10 ft	Planted	3
American Sycamore	T	4	12 ft	Planted	4
Red Bay	SA	1	1 ft	Volunteer	1
Red Bay	SA	3	2 ft	Volunteer	3
Red Bay	SA	1	3 ft	Volunteer	1
Red Bay	SA	1	4 ft	Volunteer	1
Baccharis	SH	3	3 ft	Volunteer	3
Baccharis	SH	5	4 ft	Volunteer	5
Baccharis	SH	19	5 ft	Volunteer	19

Baccharis	SH	3	6 ft	Volunteer	3
Wax Myrtle	SH	3	1 ft	Planted	3
Wax Myrtle	SH	4	2 ft	Planted	4
Wax Myrtle	SH	1	3 ft	Planted	1
Wax Myrtle	SH	3	4 ft	Planted	3
Wax Myrtle	SH	1	5 ft	Planted	1
Blueberry	SH	3	2 ft	Volunteer	3
Blueberry	SH	1	3 ft	Volunteer	1
Loblolly Pine	SA	6	2 ft	Volunteer	6
Sweet Gum	SA	12	2 ft	Volunteer	0
	TOTAL SHRUBS	47		OBSERVED DENSITY (PER PLOT)	112
	TOTAL TREES OF PLANTED SPECIES	60		OBSERVED DENSITY (PER ACRE)	1120
	TOTAL TREES OF VOLUNTEER SPECIES	24			
	TOTAL INDIVIDUALS	131			

HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER

6

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Amer. Beautyberry	SH	1	3 ft	Planted	1
Amer. Beautyberry	SH	2	4 ft	Planted	2
Amer. Beautyberry	SH	7	5 ft	Planted	7
Sweet Pepperbush	SH	1	3 ft	Planted	1
Elderberry	SH	1	4 ft	Planted	1
Elderberry	SH	3	5 ft	Planted	3
Elderberry	SH	3	6 ft	Planted	3
Elderberry	SH	4	7 ft	Planted	4
River Birch	SA	1	2 ft	Planted	1
River Birch	SA	1	3 ft	Planted	1
River Birch	SA	1	4 ft	Planted	1
River Birch	T	3	10 ft	Planted	3
River Birch	T	2	12 ft	Planted	2
Green Ash	SA	2	2 ft	Planted	2
Green Ash	SA	1	3 ft	Planted	1
Green Ash	SA	5	4 ft	Planted	5
Green Ash	SA	2	5 ft	Planted	2
Green Ash	SA	1	7 ft	Planted	1
Willow Oak	SA	2	3 ft	Planted	2
Willow Oak	SA	1	5 ft	Planted	1
Willow Oak	SA	2	6 ft	Planted	2
Red Cedar	SA	1	3 ft	Planted	1
Red Cedar	SA	1	4 ft	Planted	1
Red Cedar	SA	4	5 ft	Planted	4
Red Cedar	SA	2	6 ft	Planted	2
Red Cedar	SA	1	7 ft	Planted	1
Overcup Oak	SA	2	5 ft	Planted	2
Overcup Oak	SA	2	7 ft	Planted	2
Baccharis	SH	2	5 ft	Volunteer	2

Baccharis	SH	1	6 ft	Volunteer	1
Baccharis	SH	4	7 ft	Volunteer	4
Baccharis	SH	1	8 ft	Volunteer	1
Wax Myrtle	SH	1	1 ft	Planted	1
Wax Myrtle	SH	3	2 ft	Planted	3
Wax Myrtle	SH	4	3 ft	Planted	4
Wax Myrtle	SH	7	4 ft	Planted	7
Wax Myrtle	SH	3	5 ft	Planted	3
Wax Myrtle	SH	2	6 ft	Planted	2
Wax Myrtle	SH	3	7 ft	Planted	3
Tulip Poplar	SA	1	5 ft	Volunteer	1
Tulip Poplar	SA	1	8 ft	Volunteeer	1
Sweet Gum	SA	30	6 ft	Volunteer	0
	TOTAL SHRUBS	51		OBSERVED DENSITY (PER PLOT)	92
	TOTAL TREES OF PLANTED SPECIES	39		OBSERVED DENSITY (PER ACRE)	920
	TOTAL TREES OF VOLUNTEER SPECIES	32			
	TOTAL INDIVIDUALS	122			

HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER

7

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Amer. Beautyberry	SH	1	2 ft	Planted	1
Amer. Beautyberry	SH	4	3 ft	Planted	4
Amer. Beautyberry	SH	7	4 ft	Planted	7
Amer. Beautyberry	SH	5	5 ft	Planted	5
Amer. Beautyberry	SH	6	6 ft	Planted	6
Amer. Beautyberry	SH	1	7 ft	Planted	1
Elderberry	SH	1	3 ft	Planted	1
Elderberry	SH	2	4 ft	Planted	2
Elderberry	SH	3	5 ft	Planted	3
Elderberry	SH	4	6 ft	Planted	4
Elderberry	SH	1	7 ft	Planted	1
Elderberry	SH	1	8 ft	Planted	1
River Birch	SA	1	2 ft	Planted	1
River Birch	SA	1	4 ft	Planted	1
River Birch	SA	2	8 ft	Planted	2
Green Ash	SA	2	2 ft	Planted	2
Green Ash	SA	14	3 ft	Planted	14
Green Ash	SA	3	4 ft	Planted	3
Green Ash	SA	5	5 ft	Planted	5
Green Ash	SA	4	6 ft	Planted	4
Green Ash	SA	1	8 ft	Planted	1
Red Cedar	SA	2	4 ft	Planted	2
Red Cedar	SA	1	6 ft	Planted	1
Red Cedar	SA	1	7 ft	Planted	1
Tulip Poplar	SA	2	6 ft	Volunteer	2
Wax Myrtle	SH	2	2 ft	Planted	2
Wax Myrtle	SH	1	3 ft	Planted	1
Wax Myrtle	SH	4	4 ft	Planted	4
Wax Myrtle	SH	2	5 ft	Planted	2

Wax Myrtle	SH	5	6 ft	Planted	5
Wax Myrtle	SH	6	7 ft	Planted	6
Wax Myrtle	SH	10	8 ft	Planted	10
Wax Myrtle	T	11	10 ft	Planted	11
Baccharis	SH	1	6 ft	Volunteer	1
Baccharis	SH	3	8 ft	Volunteer	3
Baccharis	SH	1	10 ft	Volunteer	1
Sweet Gum	SA	200	8 ft	Volunteer	0
Red Maple	SA	30	4 ft	Volunteer	0
	TOTAL SHRUBS	71		OBSERVED DENSITY (PER PLOT)	121
	TOTAL TREES OF PLANTED SPECIES	39		OBSERVED DENSITY (PER ACRE)	1210
	TOTAL TREES OF VOLUNTEER SPECIES	241			
	TOTAL INDIVIDUALS	351			

**HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS**

PLOT NUMBER 8

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Elderberry	SH	4	4 ft	Planted	4
Elderberry	SH	1	5 ft	Planted	1
Elderberry	SH	4	6 ft	Planted	4
Highbush Blueberry	SH	1	4 ft	Planted	1
River Birch	SA	2	6 ft	Planted	2
River Birch	SA	1	8 ft	Planted	1
Black Willow	SA	2	4 ft	Planted	2
Black Willow	SA	1	5 ft	Planted	1
Black Willow	SA	4	6 ft	Planted	4
Black Willow	SA	1	8 ft	Planted	1
American Sycamore	SA	2	8 ft	Planted	2
American Sycamore	T	4	10 ft	Planted	4
American Sycamore	T	8	12 ft	Planted	8
American Sycamore	T	4	14 ft	Planted	4
American Sycamore	T	20	16 ft	Planted	20
American Sycamore	T	6	20 ft	Planted	6
Baccharis	SH	1	4 ft	Volunteer	1
Baccharis	SH	9	6 ft	Volunteer	9
Baccharis	SH	1	8 ft	Volunteer	1
	TOTAL SHRUBS	21		OBSERVED DENSITY (PER PLOT)	76
	TOTAL TREES OF PLANTED SPECIES	55		OBSERVED DENSITY (PER ACRE)	760
	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	76			

**HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS**

PLOT NUMBER 9

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
American Sycamore	T	1	10 ft	Planted	1
American Sycamore	T	6	16 ft	Planted	6
American Sycamore	T	1	18 ft	Planted	1
American Sycamore	T	9	20 ft	Planted	9
American Sycamore	T	18	+ 20 ft	Planted	18
Black willow	SA	1	4 ft	Planted	1
Black willow	T	1	10 ft	Planted	1
Black willow	T	1	12 ft	Planted	1
River Birch	SA	2	6 ft	Planted	2
River Birch	SA	3	8 ft	Planted	3
River Birch	T	1	10 ft	Planted	1
River Birch	T	2	14 ft	Planted	2
River Birch	T	4	16 ft	Planted	4
River Birch	T	1	18 ft	Planted	1
Highbush Blueberry	SH	5	4 ft	Planted	5
Highbush Blueberry	SH	3	8 ft	Planted	3
Elderberry	SH	1	2 ft	Planted	1
Elderberry	SH	6	4 ft	Planted	6
Elderberry	SH	5	6 ft	Planted	5
Baccharis	SH	1	4 ft	Volunteer	1
Baccharis	SH	5	6 ft	Volunteer	5
Baccharis	SH	3	8 ft	Volunteer	3
	TOTAL SHRUBS	29		OBSERVED DENSITY (PER PLOT)	80
	TOTAL TREES OF PLANTED SPECIES	51		OBSERVED DENSITY (PER ACRE)	800
	TOTAL TREES OF VOLUNTEER SPECIES	0			

	TOTAL INDIVIDUALS	80			
--	-------------------	----	--	--	--

**HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS**

PLOT NUMBER 10

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Highbush Blueberry	SH	10	4 ft	Planted	10
Highbush Blueberry	SH	4	6 ft	Planted	4
Highbush Blueberry	SH	2	8 ft	Planted	2
Elderberry	SH	2	2 ft	Planted	2
Elderberry	SH	12	4 ft	Planted	12
Elderberry	SH	3	6 ft	Planted	3
Wax Myrtle	SH	3	2 ft	Planted	3
Wax Myrtle	SH	9	4 ft	Planted	9
Wax Myrtle	SH	2	6 ft	Planted	2
Amer. Beautyberry	SH	6	2 ft	Planted	6
Amer. Beautyberry	SH	3	3 ft	Planted	3
Amer. Beautyberry	SH	1	4 ft	Planted	1
River Birch	SA	3	4 ft	Planted	3
River Birch	SA	1	6 ft	Planted	1
River Birch	SA	2	8 ft	Planted	2
River Birch	T	2	10 ft	Planted	2
Black Willow	SA	4	4 ft	Planted	4
Black Willow	SA	1	6 ft	Planted	1
Black Willow	SA	2	8 ft	Planted	2
Baccharis	SH	6	4 ft	Volunteer	6
Baccharis	SH	3	5 ft	Volunteer	3
Baccharis	SH	6	6 ft	Volunteer	6
Baccharis	SH	1	8 ft	Volunteer	1
	TOTAL SHRUBS	73		OBSERVED DENSITY (PER PLOT)	88
	TOTAL TREES OF PLANTED SPECIES	15		OBSERVED DENSITY (PER ACRE)	880

	TOTAL TREES OF VOLUNTEER SPECIES	0			
	TOTAL INDIVIDUALS	88			

**HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS**

PLOT NUMBER 11

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
River Birch	SA	1	3 ft	Planted	1
River Birch	SA	3	4 ft	Planted	3
River Birch	SA	1	5 ft	Planted	1
River Birch	SA	1	6 ft	Planted	1
River Birch	SA	1	7 ft	Planted	1
River Birch	SA	2	8 ft	Planted	2
River Birch	SA	1	9 ft	Planted	1
River Birch	T	1	10 ft	Planted	1
River Birch	T	9	12 ft	Planted	9
River Birch	T	4	14 ft	Planted	4
River Birch	T	1	15 ft	Planted	1
River Birch	T	2	16 ft	Planted	2
Black Gum	SA	2	2 ft	Planted	2
Black Gum	SA	3	3 ft	Planted	3
American Sycamore	T	4	10 ft	Planted	4
American Sycamore	T	19	12 ft	Planted	19
American Sycamore	T	3	14 ft	Planted	3
American Sycamore	T	16	15 ft	Planted	16
American Sycamore	T	5	16 ft	Planted	5
American Sycamore	T	1	18 ft	Planted	1
American Sycamore	T	6	20 ft	Planted	6
	TOTAL SHRUBS	0		OBSERVED DENSITY (PER PLOT)	86
	TOTAL TREES OF PLANTED SPECIES	86		OBSERVED DENSITY (PER ACRE)	860
	TOTAL TREES OF VOLUNTEER SPECIES	0			

	TOTAL INDIVIDUALS	86			
--	-------------------	----	--	--	--

**HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS**

PLOT NUMBER 12

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Amer. Beautyberry	SH	5	2 ft	Planted	5
Amer. Beautyberry	SH	7	3 ft	Planted	7
Amer. Beautyberry	SH	2	4 ft	Planted	2
Amer. Beautyberry	SH	1	5 ft	Planted	1
Elderberry	SH	1	3 ft	Planted	1
Elderberry	SH	3	6 ft	Planted	3
Wax Myrtle	SH	2	1 ft	Planted	2
Wax Myrtle	SH	6	2 ft	Planted	6
Wax Myrtle	SH	3	3 ft	Planted	3
Wax Myrtle	SH	7	4 ft	Planted	7
Wax Myrtle	SH	3	5 ft	Planted	3
Wax Myrtle	SH	1	6 ft	Planted	1
American Sycamore	SA	1	6 ft	Planted	1
American Sycamore	T	2	15 ft	Planted	2
Green Ash	SA	3	2 ft	Planted	3
Green Ash	SA	3	3 ft	Planted	3
Green Ash	SA	2	4 ft	Planted	2
Red Cedar	SA	3	4 ft	Planted	3
Red Cedar	SA	5	5 ft	Planted	5
Baccharis	SH	1	3 ft	Volunteer	1
Baccharis	SH	2	4 ft	Volunteer	2
Baccharis	SH	3	5 ft	Volunteer	3
Baccharis	SH	2	6 ft	Volunteer	2
Baccharis	SH	1	7 ft	Volunteer	1
Baccharis	SH	2	8 ft	Volunteer	2
Loblolly Pine	SA	10	3 ft	Volunteer	10
	TOTAL SHRUBS	52		OBSERVED DENSITY (PER PLOT)	71

	TOTAL TREES OF PLANTED SPECIES	19		OBSERVED DENSITY (PER ACRE)	710
	TOTAL TREES OF VOLUNTEER SPECIES	10			
	TOTAL INDIVIDUALS	81			

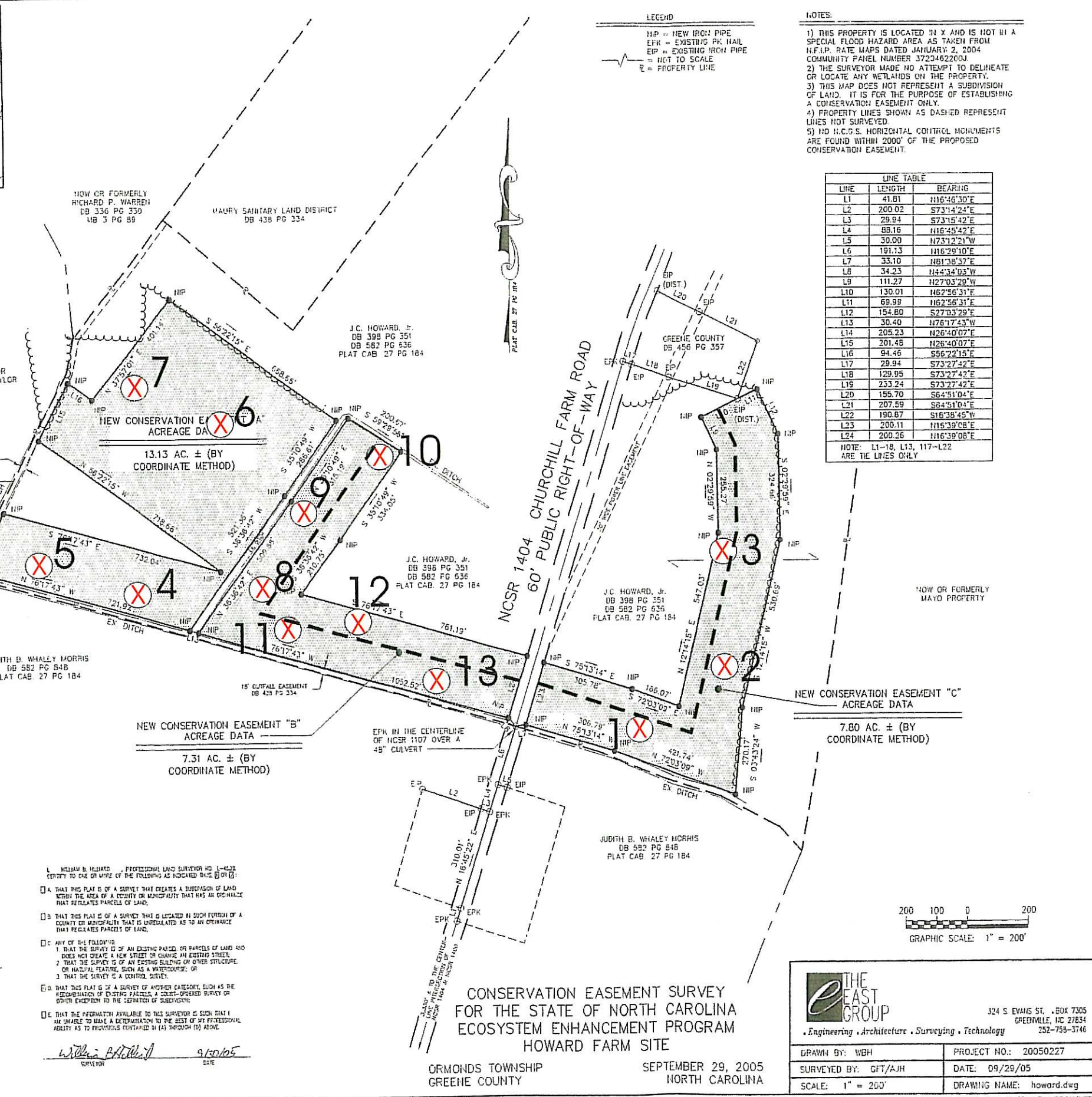
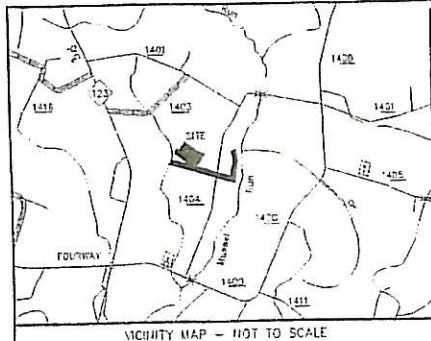
HOWARD FARM RIPARIAN BUFFER SITE
ANNUAL MONITORING DATA SHEET - VEGETATION PLOTS

PLOT NUMBER 13

SPECIES	STRATUM (T, SA, or SH)	Number of Individuals	HEIGHT	Planted vs. Volunteer Species	Number of Individuals Counted toward Success Criteria
Wax Myrtle	SH	4	2 ft	Volunteer	4
Wax Myrtle	SH	4	3 ft	Volunteer	4
Wax Myrtle	SH	1	4 ft	Volunteer	1
Elderberry	SH	1	3 ft	Planted	1
Elderberry	SH	1	4 ft	Planted	1
Elderberry	SH	1	5 ft	Planted	1
Persimmon	SH	3	3 ft	Volunteer	0
Persimmon	SH	2	4 ft	Volunteer	0
River Birch	SA	2	3 ft	Planted	2
River Birch	SA	4	4 ft	Planted	4
River Birch	SA	4	5 ft	Planted	4
River Birch	SA	5	6 ft	Planted	5
River Birch	SA	4	7 ft	Planted	4
River Birch	SA	3	8 ft	Planted	3
River Birch	SA	1	10 ft	Planted	1
River Birch	SA	2	11ft	Planted	2
River Birch	SA	1	12 ft	Planted	1
American Sycamore	SA	1	4 ft	Planted	1
American Sycamore	SA	1	7 ft	Planted	1
American Sycamore	SA	7	10 ft	Planted	7
American Sycamore	SA	1	11 ft	Planted	1
American Sycamore	SA	8	12 ft	Planted	8
American Sycamore	SA	2	14 ft	Planted	2
American Sycamore	SA	1	15 ft	Planted	1
Baccharis	SA	1	4 ft	Volunteer	0
Baccharis	SA	1	10 ft	Volunteer	0
Sweetgum	SA	3	5 ft	Volunteer	0
	TOTAL SHRUBS	17		OBSERVED DENSITY (PER PLOT)	59

	TOTAL TREES OF PLANTED SPECIES	47		OBSERVED DENSITY (PER ACRE)	590
	TOTAL TREES OF VOLUNTEER SPECIES	5			
	TOTAL INDIVIDUALS	69			

APPENDIX C. CONSERVATION EASEMENT PLAT
(INCLUDING MONITORING PLOTS)



LEGEND
 HHP = NEW IRON PIPE
 EPK = EXISTING PK HAIL
 EIP = EXISTING IRON PIPE
 = NOT TO SCALE
 R = PROPERTY LINE

NOTES:
 1) THIS PROPERTY IS LOCATED IN X AND IS NOT IN A SPECIAL FLOOD HAZARD AREA AS TAKEN FROM N.F.P. RATE MAPS DATED JANUARY 2, 2004 COMMUNITY PANEL NUMBER 3720462200.
 2) THE SURVEYOR MADE NO ATTEMPT TO DELINEATE OR LOCATE ANY WETLANDS ON THE PROPERTY.
 3) THIS MAP DOES NOT REPRESENT A SUBDIVISION OF LAND. IT IS FOR THE PURPOSE OF ESTABLISHING A CONSERVATION EASEMENT ONLY.
 4) PROPERTY LINES SHOWN AS DASHED REPRESENT LINES NOT SURVEYED.
 5) NO N.C.G.S. HORIZONTAL CONTROL MONUMENTS ARE FOUND WITHIN 2000' OF THE PROPOSED CONSERVATION EASEMENT.

LINE	LENGTH	BEARING
L1	41.81	N16°46'30"E
L2	200.02	S73°14'24"E
L3	29.94	S73°15'42"E
L4	88.16	N16°46'42"E
L5	30.00	N73°12'21"W
L6	191.13	N16°29'10"E
L7	33.10	N81°38'37"E
L8	34.23	N44°34'03"W
L9	111.27	N27°03'29"W
L10	130.01	N62°56'31"E
L11	69.99	N62°56'31"E
L12	154.80	S27°03'29"E
L13	30.40	N76°17'43"W
L14	205.23	N26°40'07"E
L15	201.46	N26°40'07"E
L16	94.46	S56°22'15"E
L17	29.94	S73°27'42"E
L18	129.95	S73°27'42"E
L19	233.24	S73°27'42"E
L20	155.70	S64°51'04"E
L21	207.59	S64°51'04"E
L22	190.87	S16°38'45"W
L23	200.11	N16°39'08"E
L24	200.26	N16°39'08"E

NOTE: L1-18, L13, L17-L22 ARE THE LINES ONLY

⊗ Permanent Monitoring Plot			
Plot #	UTM Coordinates	Plot #	UTM Coordinates
1	740025.940563 189523.165945	7	739480.818314 189764.335203
2	740098.689967 189567.014901	8	739637.279362 189603.887887
3	740086.731161 189628.802066	9	739664.30900597 189677.942642213
4	739538.61921 189587.942812	10	739720.991005 189734.438188
5	739586.454435 189726.46565	11	739681.128318 189564.025199
6	739586.454435 189726.46565	12	739645.251899 189634.781469
		13	739820.647723 189570.004602

STATE OF NORTH CAROLINA FIFTH COUNTY
 I, WILLIAM B. HILLIARD, PROFESSIONAL LAND SURVEYOR NO. L-4522, CERTIFY THAT THIS PLAN WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION, (DEED DESCRIPTION RECORDED IN BOOK _____ PAGE _____) THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS "FROM INFORMATION FOUND IN BOOK _____ PAGE _____" THAT THE BASIS OF PRECISION IS CALCULATED AS FOLLOWS: THIS PLAN WAS PREPARED IN ACCORDANCE WITH G.S. 47-22. WITNESS MY ORIGINAL SIGNATURE, LICENSE NUMBER AND SEAL THIS 29th DAY OF SEPTEMBER, 2005.

REVIEW OFFICER OF FIFTH COUNTY, CERTIFY THAT THE MAP OR PLAN TO WHICH THIS CERTIFICATION IS AFFIXED MEETS ALL STATUTORY REQUIREMENTS FOR RECORDING.

WILLIAM B. HILLIARD 9/29/05
 L-4522
 SURVEYOR

1. THAT THIS PLAN IS OF A SURVEY THAT CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY OR MUNICIPALITY THAT HAS AN ORDINANCE THAT REGULATES PARCELS OF LAND.
 2. THAT THIS PLAN IS OF A SURVEY THAT IS LOCATED IN SUCH PORTION OF A COUNTY OR MUNICIPALITY THAT IS UNINCORPORATED AS TO AN ORDINANCE THAT REGULATES PARCELS OF LAND.
 3. THAT THE SURVEY IS OF AN EXISTING PARCEL OR PARCELS OF LAND AND DOES NOT CREATE A NEW STREET OR CHANGE AN EXISTING STREET.
 4. THAT THE SURVEY IS OF AN EXISTING BUILDING OR OTHER STRUCTURE OR NATURAL FEATURE, SUCH AS A WATERCOURSE, OR
 5. THAT THE SURVEY IS A CONTROL SURVEY.
 6. THAT THIS PLAN IS OF A SURVEY OF ANOTHER CATEGORY, SUCH AS THE RECONSTRUCTION OF EXISTING PARCELS, A SUBDIVISION SURVEY OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.
 7. THAT THE INFORMATION AVAILABLE TO THIS SURVEYOR IS SUCH THAT I AM UNABLE TO MAKE A DETERMINATION TO THE BEST OF MY PROFESSIONAL ABILITY AS TO FRAUDULENT CONTAINED IN (A) THROUGH (D) ABOVE.

WILLIAM B. HILLIARD 9/30/05
 SURVEYOR

CONSERVATION EASEMENT SURVEY
 FOR THE STATE OF NORTH CAROLINA
 ECOSYSTEM ENHANCEMENT PROGRAM
 HOWARD FARM SITE
 ORMONDS TOWNSHIP GREENE COUNTY SEPTEMBER 29, 2005
 NORTH CAROLINA

THE EAST GROUP
 Engineering • Architecture • Surveying • Technology
 324 S. EVANS ST., BOX 7305 GREENVILLE, NC 27634 252-758-3746

DRAWN BY: VBH PROJECT NO.: 20050227
 SURVEYED BY: GFT/AJH DATE: 09/29/05
 SCALE: 1" = 200' DRAWING NAME: howard.dwg