

Eight Point Buffer Restoration Site

**Year 1 Monitoring Report
Guilford County, North Carolina
Cape Fear River Basin - 03030003**

**DMS Contract 7865
DMS Project Number 100113
DWR Project Number 20190647**



Prepared for:
NC Department of Environmental Quality
Division of Mitigation Services
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TABLE OF CONTENTS

PROJECT SUMMARY	1
MONITORING PLAN	1
SUCCESS CRITERIA.....	1
ANNUAL MONITORING	1

Appendix A – Background Tables and Site Maps

Figure 1. Project Vicinity Map	3
Figure 2. Project Asset and Current Conditions Map	4
Table 1. Buffer Project Attributes.....	5
Table 2. Buffer Project Areas and Assets	6

Appendix B – Visual Assessment Data

Vegetation Plot Photos.....	8
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Appendix C – Vegetation Plot Data

Table 3. Species and Quantity of Planted Stems	10
Table 4. Stem Count by Plot and Species	11

PROJECT SUMMARY

The Eight Point Buffer Restoration Site (EPBRS) was completed in early 2021 and restored a total of 217,858 square feet of riparian buffer along an intermittent stream in the Randleman Lake Watershed of the Cape Fear River Basin (HUC 03030003010050 – Randleman Reservoir/Hickory Creek). The buffers at this site have been historically cleared for pasture and impacted by cattle and other anthropogenic impacts. With the exception of a few large remnant oaks along the stream, the only vegetation in the riparian area is pasture grasses. The completed project will restore a functional riparian buffer and lower the supply of sediment entering Hickory Creek. All project assets are based on the surveyed conservation easement and top of bank.

The EPBRS is protected by a 5.62 acre permanent conservation easement, held by the State of North Carolina. It is located in central Guilford County, approximately eight miles southwest of Greensboro, North Carolina. Specifically, the site is on Newman Davis Road just west of US-73. The center of the site is at approximately 35.9621 N and -79.8351 W in the Pleasant Garden USGS Quadrangle.

The mitigation work at the EPBRS was completed on February 24, 2021. This work consisted of chemical control of pasture grasses and other non-native or invasive species. Disking was used in areas of fescue or other allelopathic plants. 3,400 bare root seedlings were planted across the site with a 4' Tubex Treeshelter and a VisPore Weedmat fitted on every other tree. See Table 3 for a complete list of the species planted on site. A custom herbaceous seed mix composed of native species was spread across the site. Finally the site boundary was marked with visible signs conforming to DMS and DEQ Stewardship standards.

MONITORING PLAN

Monitoring will be conducted for a period of five years following project implementation or until performance standards have been achieved. Monitoring will consist of vegetation sampling and visual inspection to ensure the health and vigor of the planted restoration area and that the requirements of the conservation easement are being upheld. Vegetation sampling will consist of five 10m x 10m plots. Three of these plots were permanently installed during the baseline monitoring, while the other two will be randomly placed during each monitoring visit. The species, height, and origin (planted vs. volunteer) of all trees within these plots will be recorded each year, and a photograph will be taken of each plot. Invasive stems will be recorded in each plot but will not count towards reaching performance standards.

SUCCESS CRITERIA

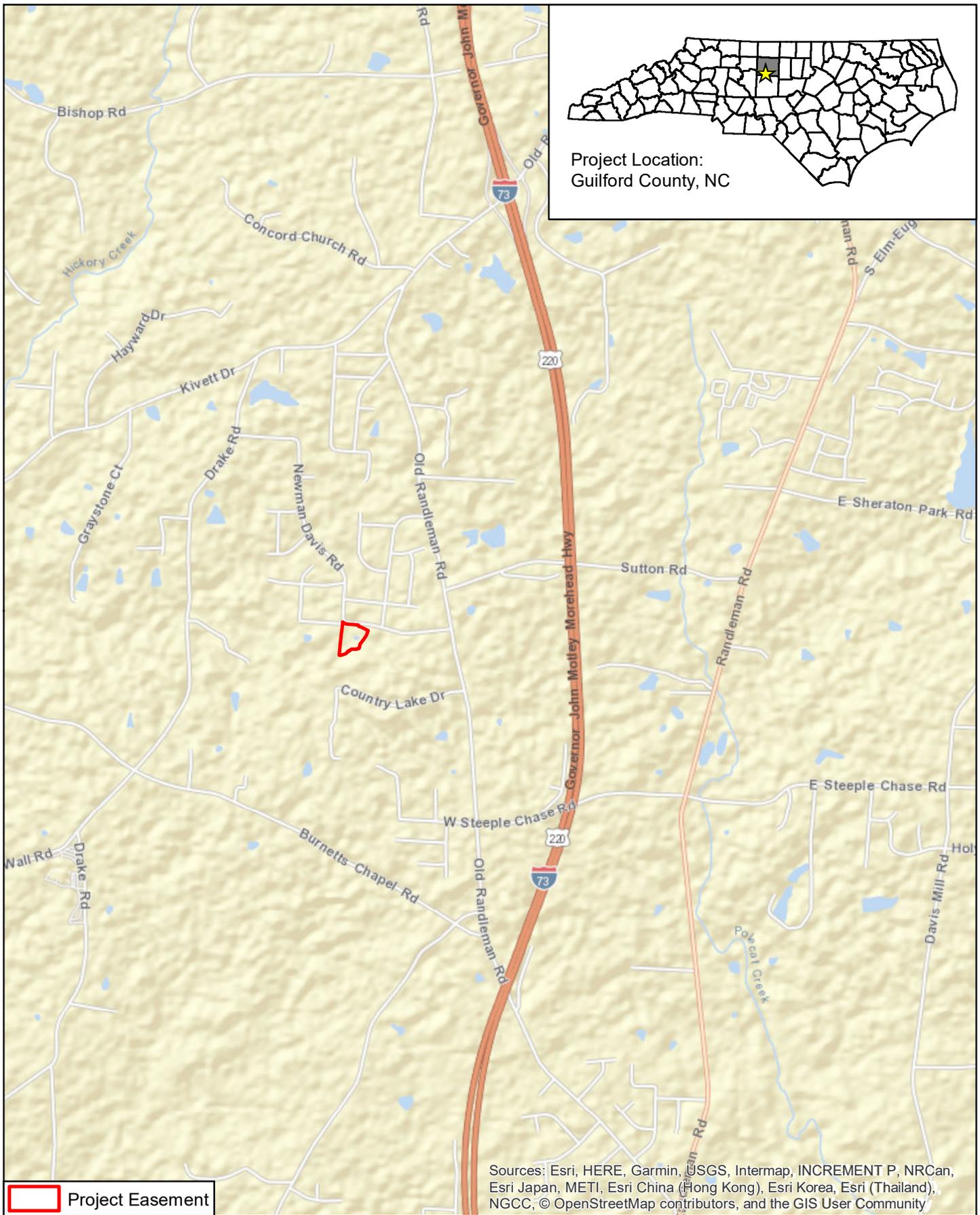
Plots must achieve an average stem density of 260 stems/acre after five years with a minimum of four native hardwood tree species or four native hardwood tree and native shrub species, where no one species is greater than 50 percent of stems. Native hardwood and native shrub volunteer species may be included to meet the final performance standard of 260 stems/acre upon DWR approval.

MONITORING RESULTS

Monitoring Year 1 vegetation data was collected on October 20, 2021. All five vegetation monitoring plots had greater than 260 stems/acre. The site had an average of 728 planted stem/acre and 1,934 total stem/acre (including volunteers). Overall the site is well vegetated with extensive herbaceous coverage and many diverse volunteer woody species.

APPENDIX A

Background Tables and Site Maps



Project Location:
Guilford County, NC

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

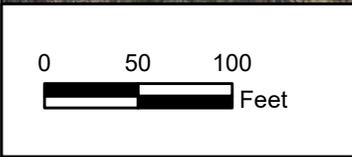
 Project Easement

0 0.25 0.5
Miles

**FIGURE 1. PROJECT SITE VICINITY MAP
EIGHT-POINT BUFFER RESTORATION SITE
GUILFORD COUNTY, NC**



	Project Easement (5.68 ac)	Vegetation Monitoring Plots
Buffer Credits		 Successful
	TOB to less than 20' (514 sqft / No Credit)	 Not Successful
	20'-30' (347 sqft / 260 Credits)	
	30-100' (113,879 sqft / 113,879 Credits)	
	100-200' (103,632 sqft / 34,199 Credits)	



**FIGURE 2. PROJECT ASSETS and CURRENT CONDITIONS
EIGHT-POINT BUFFER RESTORATION SITE
GUILFORD COUNTY, NC**

 Sources: NC Statewide Orthoimagery, 2014.

Table 1. Buffer Project Attributes	
Project Name	Eight Point Buffer Restoration Site
Hydrologic Unit Code	03030003010050
River Basin	Cape Fear - Randleman Lake
Geographic Location (Lat, Long)	35.9621 N and -79.8351 W
Site Protection Instrument (DB, PG)	DB 8295 PG 298
Total Credits (BMU)	148,337.845
Types of Credits	Restoration
Mitigation Plan Date	February 20, 2020
Initial Planting Date	February 24, 2021
Baseline Report Date	April 2021
MY1 Report Date	December 2021
MY2 Report Date	December 2022
MY3 Report Date	December 2023
MY4 Report Date	December 2024
MY5 Report Date	December 2025

Table 2. Buffer Project Areas and Assets
RIPARIAN BUFFER (15A NCAC 02B.0295)

Reach ID/ Component	Restoration Level		Buffer Width (ft)	Creditable Area (sf)*	Initial Credit Ratio (x:1)	% Full Credit	Final Credit Ratio (x:1)	Mitigation Credits (BMU)	
T1	Restoration		0-29	347	1	75%	1.33333	260.251	
			30-100	113,879		100%	1.00000	113,879.000	
			101-200	103,632		33%	3.03030	34,198.594	
	Enhancement		20-29		2	75%	2.66667	0.000	
			30-100			100%	2.00000	0.000	
			101-200			33%	6.00000	0.000	
SUBTOTAL R+E				217,858				148,337.845	
ELIGIBLE PRESERVATION AREA				72,619					
Reach ID/Component	Restoration Level	Location	Jurisdictional	Buffer Width (ft)	Creditable Area (sf)*	Initial Credit Ratio (x:1)	% Full Credit	Final Credit Ratio (x:1)	Mitigation Credits (BMU)
	Preservation	Rural	Subject	20-29		10	75%	13.33333%	0.000
				30-100			100%	10.00000%	0.000
				101-200			33%	30.00000%	0.000
		Nonsubject	20-29		5	75%	6.66667%	0.000	
			30-100			100%	5.00000%	0.000	
			101-200			33%	15.00000%	0.000	
	Urban	Subject or Nonsubject	20-29		3	75%	4.00000%	0.000	
			30-100			100%	3.00000%	0.000	
			101-200			33%	9.00000%	0.000	
SUBTOTAL P				0					0.000
TOTALS				217,858					148,337.845

APPENDIX B

Visual Assessment Data

Vegetation Monitoring Plot Photos



Plot 1 MY01 – 10/20/2021



Plot 2 MY01 – 10/20/2021



Plot 3 MY01 – 10/20/2021



Plot R1 MY01 – 10/20/2021



Plot R2 MY01 – 10/20/2021

APPENDIX C

Vegetation Plot Data

Table 3. Species and Quantity of Planted Stems		
Common Name	Scientific Name	Quantity
Black Gum	<i>Nyssa sylvatica</i>	170
River Birch	<i>Betula nigra</i>	340
Persimmon	<i>Diospyros virginiana</i>	340
Silky Dogwood	<i>Cornus amomum</i>	170
Buttonbush	<i>Cephalanthus occidentalis</i>	34
Pin Oak	<i>Quercus palustris</i>	170
Tulip Poplar	<i>Liriodendron tulipifera</i>	340
Sycamore	<i>Platanus occidentalis</i>	340
White Oak	<i>Quercus alba</i>	340
Swamp Chestnut Oak	<i>Quercus michauxii</i>	340
Willow Oak	<i>Quercus phellos</i>	476
American Elm	<i>Ulmus americana</i>	340
Herbaceous Seed Mix		
Common Name	Scientific Name	% of mix
Autumn Bentgrass	<i>Agrostis perennans</i>	10
Big Bluestem	<i>Andropogon gerardii</i>	8
Lanceleaf Coreopsis	<i>Coreopsis lanceolata</i>	10
Virginia Wild Rye	<i>Elymus virginicus</i>	15
Soft Rush	<i>Juncus effusus</i>	3
Switchgrass	<i>Panicum virgatum</i>	10
Black-Eyed Susan	<i>Rudbeckia hirta</i>	10
Little Bluestem	<i>Schizachyrium scoparium</i>	3
Indian Grass	<i>Sorghastrum nutans</i>	3
Eastern Gamma	<i>Tripsacum dactyloides</i>	3
Rye Grain	<i>Secale cereal</i>	25

Table 4. Stem Count by Plot and Species															
Species	Current Plot Data (MY01 2021)										Annual Means				
	Plot 01		Plot 02		Plot 03		Plot R1		Plot R2		MY01 (2021)		MY00 (2021)		
	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	
American Elm (<i>Ulmus americana</i>)					5	5			5	5	10	10	9	9	
American Sycamore (<i>Platanus occidentalis</i>)					4	4	1	1			5	5	2	2	
Baccharis (<i>Baccharis halimifolia</i>)							4		1		5				
Black Gum (<i>Nyssa sylvatica</i>)	1	1	1	1	2	2			1	1	5	5	2	2	
Buttonbush (<i>Cephalanthus occidentalis</i>)				1			2	2	1	1	3	4			
Eastern Red Cedar (<i>Juniperus virginiana</i>)														1	
Green Ash (<i>Fraxinus pennsylvanica</i>)				2		1		1				4			
Oak (<i>Quercus sp.</i>)													13	13	
Pin Oak (<i>Quercus palustris</i>)			2	2					2	2	4	4			
River Birch (<i>Betula nigra</i>)	10	10	5	5			6	6			21	21	10	10	
Silky Dogwood (<i>Cornus amomum</i>)			1	1			4	4			5	5	1	1	
Swamp Chestnut Oak (<i>Quercus michauxii</i>)	10	10	1	1	1	1	6	6			18	18	4	4	
Sweetgum (<i>Liquidambar styraciflua</i>)		1		14		54		22		39		130		8	
Tulip Poplar (<i>Liriodendron tulipifera</i>)			2	2					4	4	6	6	6	6	
Virginia Pine (<i>Pinus virginiana</i>)						9						9		1	
White Oak (<i>Quercus alba</i>)					6	6			1	1	7	7	1	1	
Willow Oak (<i>Quercus phellos</i>)			3	3				1	1	2	2	6	6	5	5
Unknown													39	39	
Stem count	21	22	15	32	18	82	20	47	16	56	90	239	92	102	
size (ares)	1		1		1		1		1		5		5		
size (ACRES)	0.025		0.025		0.025		0.025		0.025		0.12		0.12		
Species count	3	4	7	10	5	8	6	9	7	9	11	15	11	14	
Stems per ACRE	850	890	607	1,295	728	3,318	809	1,902	647	2,266	728	1,934	745	826	