

Eight Point Buffer Restoration Site

**Baseline 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
1652 Mail Service Center
Raleigh, NC 27699

**Baseline Data Collected: March 2021
Date Submitted: April 2021**

Monitoring and Design Firm

Prepared by:



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Project Contact: Tim Morris
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MEMORANDUM

Date: May 3, 2021

To: Jeremiah Dow, DMS Project Manager

From: Tim Morris, Project Manager
KCI Associates of North Carolina, PA

Subject: Eight Point Buffer Restoration Site
MY-00 Monitoring Report Comments
Cape Fear River Basin CU 03030003
NCDMS Project # 100108
Contract # 7865

Please find below our responses in italics to the MY-00 Baseline Monitoring Report comments from NCDMS received on April 16, 2021, for the Eight Point Buffer Restoration Site.

- The Project Summary states that 3,400 bare root seedlings were planted but the quantities in Table 3 are much higher. Please correct the stem quantities in Table 3.
KCI Response: Table 3 has been updated with the correct total number of bare root species planted.
- Please be advised that if the tree tubes and matting have not biodegraded by project closeout, they will need to be removed from the site.
KCI Response: While it is anticipated that the tree tubes will begin biodegrading over the course of the project, KCI is prepared to remove them before project closeout if necessary.
- Confirm and provide a note in the text and/or figure that the project assets are based on the surveyed conservation easement and top of bank.
KCI Response: Project assets are based on the surveyed conservation easement and top of bank. A note has been added to the text clarifying this.
- There is a structure (barn/storage shed) measuring approximately 30' x 15' partially within the conservation easement boundary. The footprint that is within the conservation easement is approximately 20' x 15' (~300 ft.2). During the July 19, 2019 Site Viability site visit with DWR, the structure was discussed and KCI indicated that it would be torn down. DMS will not authorize KCI to invoice for Task 4 until the structure is removed or otherwise addressed.
KCI Response: Site conditions so far this year have been too wet for removing this shed. It is scheduled to be removed on May 7, and DMS will be notified when this occurs. KCI will not invoice for Task 4 until it is removed.

- KCI is under contract to provide 183,982.000 riparian buffer credits. The site is estimated to generate 148,337.845 riparian buffer credits which is 35,644.155 credits below contract. Please use the adjusted payment schedule below.

Task	Project Milestone	Payment (% of Contract)	Payment Amount	Payment Adjustment	Overpayment Reduction	Total Payment	Approved
1	CE Document, and Public Meeting	5%	\$18,398.20	\$0.00		\$18,398.20	9/19/2019
2	Submit Recorded Conservation Easement on the Site	30%	\$110,389.20	\$0.00		\$110,389.20	8/18/2020
3	Mitigation Plan Approved by DMS	20%	\$73,592.80	\$0.00		\$73,592.80	12/2/2019
4	Vegetative Planting and Baseline Monitoring Report Approved by DMS	15%	\$55,194.60	\$-10,693.25	\$-6,534.76	\$37,966.59	
5	Submit MY #1 to DMS (meets success)	5%	\$18,398.20	\$-3,564.42	\$-6,534.76	\$8,299.02	
6	Submit MY #2 to DMS (meets success)	5%	\$18,398.20	\$-3,564.42	\$-6,534.76	\$8,299.02	
7	Submit MY #3 to DMS (meets success)	5%	\$18,398.20	\$-3,564.42	\$-6,534.76	\$8,299.02	
8	Submit MY #4 to DMS (meets success)	5%	\$18,398.20	\$-3,564.42	\$-6,534.76	\$8,299.02	
9	Submit MY #5 to DMS (meets success) and complete project CO	10%	\$36,796.40	\$-7,128.83	\$-6,534.76	\$23,132.81	
		100%	\$367,964.00	\$-32,079.74	\$-39,208.57	\$296,675.69	

KCI Response: The revised payment schedule will be used.

Please contact me if you have any questions or would like clarification concerning these responses.

Sincerely,



Tim Morris
Project Manager

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PROJECT SUMMARY

The Eight Point Buffer Restoration Site (EPBRS) was completed in March 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, impacted by cattle, and from 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 return a functional riparian buffer and adjacent riparian areas, and will also 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

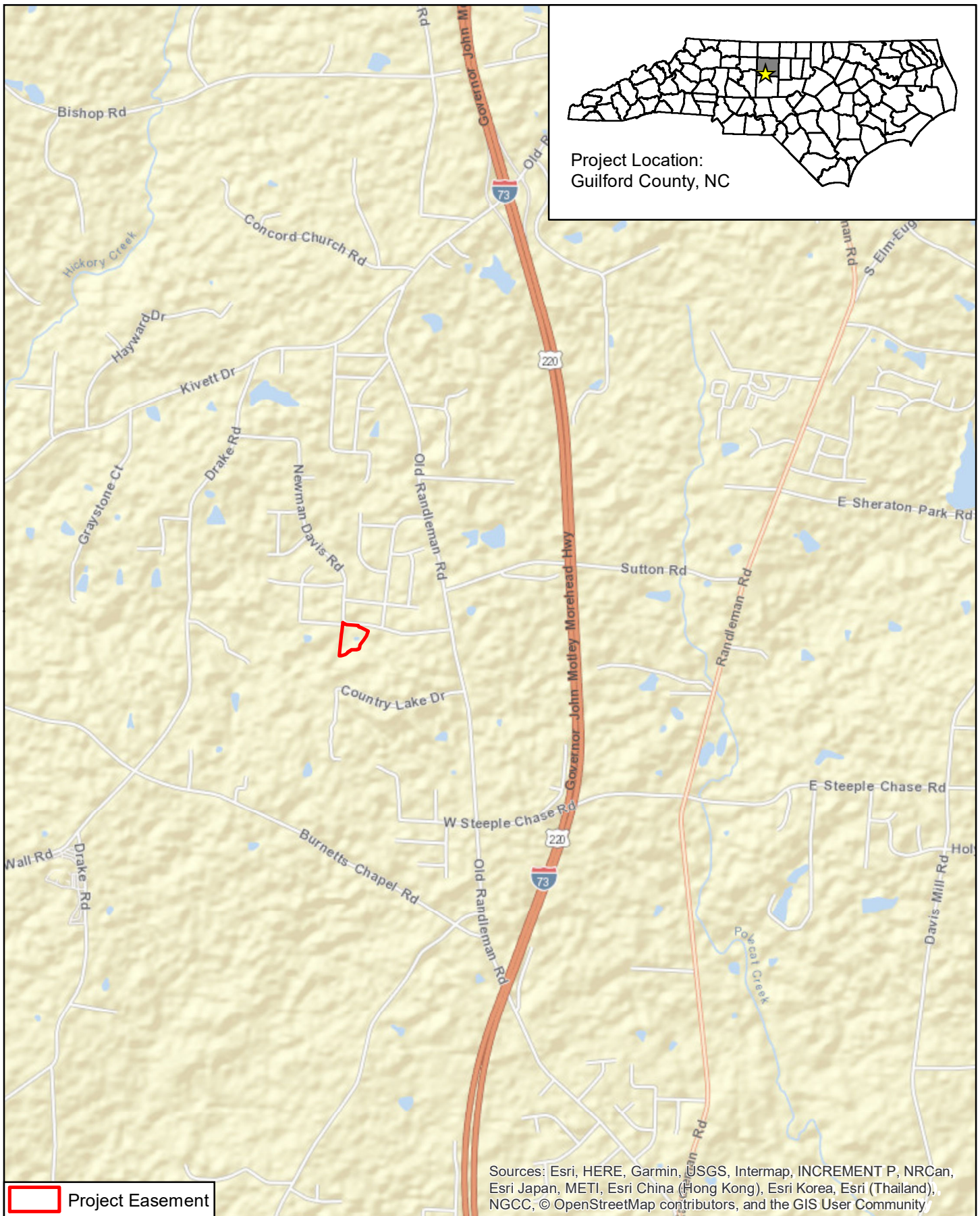
Plots must achieve an average stem density of 260 stems/acre after five years with a minimum of four native hardwood tree species or four native hardwood tree and native shrub species, where no one species is greater than 50 percent of stems. Native hardwood and native shrub volunteer species may be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

BASELINE CONDITIONS

Baseline monitoring was conducted on March 29, 2021. The baseline monitoring found an average of 745 planted stems per acre and 826 total stems per acre. All five plots had greater than 260 stems/acre and at least four native hardwood tree species, with no species making up greater than 50 percent of the stems. Since baseline vegetation monitoring was conducted before leaf out, many of the stems were identified as "Unknown." During the Monitoring Year 1 vegetation survey, these stems will be identified to species. The site boundary markers were intact and visible across the whole site. Monitoring Year 1 data collection is scheduled to take place in October 2021, 6 months after the baseline data collection.

APPENDIX A

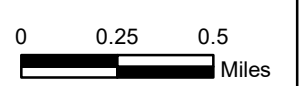
Background Tables and Site Maps



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

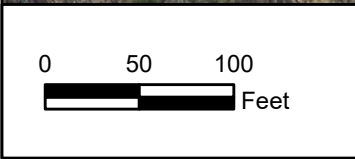
 Project Easement



**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					
TOTALS				217,858					148,337.845

APPENDIX B

Visual Assessment Data

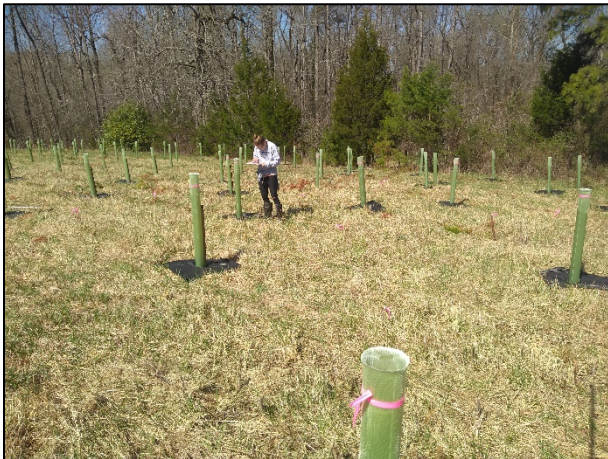
Vegetation Monitoring Plot Photos



Plot 1 MY00 – 3/29/2021



Plot 2 MY00 – 3/29/2021



Plot 3 MY00 – 3/29/2021



Plot R1 MY00 – 3/29/2021



Plot R2 MY00 – 3/29/2021

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

Species	Current Plot Data (MY00 2021)										Annual Means	
	Plot 01		Plot 02		Plot 03		Plot R1		Plot R2		MY00 (2021)	
	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total	Planted	Total
American Elm (<i>Ulmus americana</i>)					4	4	2	2	3	3	9	9
American Sycamore (<i>Platanus occidentalis</i>)					2	2					2	2
Black Gum (<i>Nyssa sylvatica</i>)	2	2									2	2
Eastern Red Cedar (<i>Juniperus virginiana</i>)								1				1
Oak (<i>Quercus</i> sp.)	5	5	5	5	2	2			1	1	13	13
River Birch (<i>Betula nigra</i>)	6	6	3	3					1	1	10	10
Silky Dogwood (<i>Cornus amomum</i>)			1	1							1	1
Swamp Chestnut Oak (<i>Quercus michauxii</i>)	1	1	1	1	2	2					4	4
Sweetgum (<i>Liquidambar styraciflua</i>)				1		7						8
Tulip Poplar (<i>Liriodendron tulipifera</i>)			1	1	3	3	1	1	1	1	6	6
Virginia Pine (<i>Pinus virginiana</i>)						1						1
White Oak (<i>Quercus alba</i>)					1	1					1	1
Willow Oak (<i>Quercus phellos</i>)							3	3	2	2	5	5
Unknown	8	8	6	6	9	9	8	8	8	8	39	39
Stem count	22	22	17	18	23	31	14	15	16	16	92	102
size (ares)	1		1		1		1		1		5	
size (ACRES)	0.025		0.025		0.025		0.025		0.025		0.12	
Species count	5	5	6	7	7	9	4	5	6	6	11	14
Stems per ACRE	890	890	688	728	931	1,255	567	607	647	647	745	826