



# MY2 Monitoring Report

White Mitigation Project Randolph County, NC Cape Fear River Basin

NCDMS Project No. 100112 NCDMS Contract No. 7860 NC DWR Project No. 2019-0884 RFP No. 16-007703

Randleman Lake Watershed 12 Digit HUC: 030300030106

Construction Completed: 2021

Data Collected: July 28, 2022 Report

Submitted: January 19, 2023

#### Prepared for:



NC Department of Environmental Quality Division of Mitigation Services 1652 Mail Service Center Raleigh, NC 27699-1652

#### Prepared by:



**HDR Engineering** 555 Fayetteville Street, Suite 900 Raleigh, NC 27601-3034

Davey Resource Group Contributing Staff: Ben Furr, Ryan Smith, Alex DiGeronimo, William Bailey, Yvette Mariotte, Michael Foster, Kevin Williams

This MY2 Baseline Monitoring Report has been written in conformance with the requirements of the following:

NCAC rule 15A NCAC 02B .0295, effective November 1, 2015 and Nutrients Offset Credit Trading 15A NCAC 02B. 0703, effective April 1, 2020 and DWR – 1998, Methodology and Calculations for determining Nutrient Reductions associated with Riparian Buffer Establishment



January 19, 2023

North Carolina Department of Mitigation Services 217 W Jones St #3000a Raleigh, NC 27603

Re: Task 6 Draft Monitoring Year 2 Report for the White Mitigation Project Cape Fear River Basin; CU# 03030003 Randolph County, North Carolina DMS ID No. 100112: Contract No. 7860

Ms. Dunnigan,

As per your letter concerning the White Mitigation Project MY2 Report, we have updated the reviewed report and addressed your comments as follows:

**Title Page:** Please add the full range of dates for site data collection.

RE: Data for MY2 was collected solely on July 28, 2022. Invasives were treated and visual site inspections were completed at other points in the year, but all pertinent MY2 data was collected on that date.

**Section 2.0 Annual Monitoring:** Please indicate the results of the conservation easement boundary integrity assessment.

RE: Comply. Conservation easement boundary integrity assessment results have been added to section 2.2.

**Section 2.2:** Suggest surveying a random vegetation plot(s) in the areas surrounding VP1 in MY3 to support visual assessment of stem survival outside VP1.

RE: A Random vegetation plot will be surveyed in the area near VP1 and included in the MY3 report if it fails to meet density criteria in MY3.

**Section 2.3 Adaptive Management Plan:** Due to the challenges seen with stem plantings at the site, are other measures such as soil sampling and herbaceous treatment being considered? Also, will ripping be proposed in any of the compacted pasture areas?

RE: Stem plantings are performing well across >90% of the site upon visual inspections. Invasives are currently being treated, and the area of overgrowth around VP5 will be mowed and replanted in February and March respectively. No soil tests have been conducted on site, and neither soil tests nor ripping have been proposed on the site.

**Appendix B:** Consider including a table when Summarizing plot stem counts including volunteers that can be counted toward success. When stems that cannot be counted towards success are included in Table 8, it can be difficult to tell which plots are meeting success requirements and what the correct stem count is with volunteers.

RE: Table 8 is generated by the CVS-EEP program. The highlighted cells in Table 8 contain stems per acre calculations using only planted stem counts and only planted stem data is used to determine the pass or failure of a vegetation plot. Volunteer stems (listed in the T column) do not count towards success criteria. Stems per acre calculations including volunteers can be found adjacent to the highlighted stems per acre counts in Table 8 in line with the T column.



If you have any questions or need additional information, please do not hesitate to give me a call (843.830.1536).

Sincerely,

Davey Resource Group, Inc.

Alex DiGeronimo

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## 1.0 Project Summary

## 1.1 Location and Background Information

The White Mitigation Project (Site) was selected by the NC Division of Mitigation Services (DMS) to provide Buffer Mitigation Units (BMUs) in the Randleman Lake Watershed (Hydrologic Unit Code 030300030106) (Figure 1). The Randleman Lake Watershed is located within the larger Cape Fear River Basin (Hydrologic Unit Code 03030003). The Site is located within the Southern Outer Piedmont, approximately 2.9 miles southeast of Archdale, NC (Figure 2). The 12.2 acre Site involved restoration and enhancement of 504,075 square feet of riparian buffers along Unnamed Tributary to (UT) Muddy Creek (UT MC) (UT MC, Index #17-9-(1)) and UT 1, UT 2, and UT 5 that were previously active cattle pasture (Table 1 and Figure 3).

#### Directions to the Site:

From Raleigh-Durham International Airport: I-40 west for 61.6 miles; keep left for I-85 S, go 17.6 miles to exit 113; turn left onto NC-62, go .2 miles; turn right onto Weant Rd, go to end; turn right onto Suits Rd, the project site will be on the left.

The final mitigation plan was submitted and accepted by North Carolina Division of Water Resources in November of 2020. Construction began in December 2020 and finished in March of 2021. Site planting finalized in February of 2021. LMG provided construction oversight services for the Site. LMG completed baseline vegetation monitoring on March 12, 2021.

Completed project activities, reporting history, completion dates, project contacts, and background information is summarized in Tables 2, 3, and 4 of Appendix A.

## 1.2 Project Goals and Objectives

The following goals and objectives address the primary issues within the watershed and assist DMS in meeting planning goals.

Primary goals for the Site, as detailed in the White Mitigation Project Mitigation Plan (HDR 2020) include:

- 1. Reduce water quality stressors associated with nutrient, sediment, and pathogen loading.
- 2. Enhance terrestrial and aquatic habitat.

The following objectives accomplish the goals listed above:

- 1. Reducing water quality stressors is directly tied to the following:
  - a) Reducing non-point source (i.e., cattle accessing the channels, stormwater runoff through pastures and feeding stations) pollution associated with on-site agricultural operations from the installation of exclusionary fencing to remove cattle and machinery from on-site streams and riparian buffers.
  - b) Reducing non-point pollution associated with on-site agricultural operations by the restoration and enhancement of riparian vegetative buffers on adjacent floodplains to treat surface water runoff from adjacent pastureland.
  - c) Further removal of agricultural equipment and cattle by providing and improving culverted agricultural crossings.
  - d) Treatment of pollution associated with off-site agricultural, institutional, and residential properties by the restoration and enhancement of riparian vegetative buffers on-site to attenuate nutrient and sediment laden floodwaters.

- 2. Enhancement of terrestrial and aquatic habitat is directly tied to
  - a) Restoration of native vegetation to the previously maintained and highly impacted riparian corridors in order to diversify flora and created a protected habitat corridor that provides an abundance of available foraging and cover habitat for a multitude of mammals and birds. Additionally, establishment of woody vegetation in the riparian corridor provides direct inputs of woody debris to adjacent conveyances that assist in increasing biomass and cover habitat for aquatic species.

## 2.0 Annual Monitoring

#### 2.1 Methods

Monitoring of the parameters listed in Table 5 (Appendix A) were conducted on July 28, 2022. Ten (10) permanent vegetation plots (totaling more than 2 percent of the planted area on Site) within the buffer restoration area were monitored using the Carolina Vegetation (CVS) protocols. Vegetative problem areas, invasive species, and project boundary encroachments have been mapped and included as part of Current Condition Plan View (Figure 4.1-4.5, Appendix A). Year 3 vegetation survey is anticipated to occur in September 2023.

#### 2.2 Results and Discussion

This section documents the conditions observed in Year 2 monitoring. Table 6 details specific vegetative data in relation to the Year 2 conditions (Appendix B).

The 1,830 feet of repaired stream bank has remained stable over the past year of monitoring. Livestakes and bare-root plantings along the majority stabilized streambanks have increased in vigor over the past monitoring year. One bare area measuring 20 feet in length was observed during the spring invasive species treatment at the confluence of UT 3 and UT MC. While the stream bank remains stable, livestakes will need to be reestablished in the subsequent monitoring year.

The areas of minor erosion observed during Year 1 monitoring have stabilized and filled with herbaceous vegetation as expected.

The conservation easement boundary is intact and functioning properly; furthermore, the owners of the property no longer own cattle.

Eight of the ten permanent vegetation plots are meeting or exceeding success criteria outlined in the Mitigation Plan. Vegetation plots 1 and 5 have failed to meet the success criteria of 260 stems per acre; however, the site is at 319 stems per acre.

Vegetation Plot 1 is demonstrating a planted stem density of 161 stems per acre after 2 years of monitoring. With the inclusion of volunteer stems the plot still fails to meet success criteria with only 242 stems per acre. It is unknown what is causing the high mortality of planted stems within the vegetation plot. Visual observations at the time of monitoring suggests that the stem density of VP1 is not indicative of planted stem survival in the surrounding area and the plot will be reassessed during MY3 monitoring.

Vegetation plot 5 has failed to meet criteria for the second year in a row due to dense herbaceous growth. Knotweed (*Polygonum* spp.) and spiny pigweed (*Amaranthus spinosus*) have taken the place of fescue, stifling bare-root plantings in and around VP5. VP5 had a stem density of 81 stems per acre, with only two bare-root plantings surviving in the plot; others were either dead or unable to be located due to the dense vegetative growth.

Several areas of Chinese privet (*Ligustrum sinense*) and multiflora rose (*Rosa multiflora*) were treated in April 2021 (MY1). While the areas previously treated are dead, 38 new areas of invasive growth were discovered during vegetation monitoring in September 2021 and May 2022, and are depicted in Figures 4.1-4.5. It is important to note that the Site had dense growth of Chinese privet along the banks and floodplain of UT MC, UT 3, UT 4, and UT 5 that were treated and removed during construction. Much of the new growth is a result of stump coppicing and sprouting from a prevalent seed bank. New areas of invasive species growth were treated in May and July 2022. Further details of invasive species management procedures can be found in Section 2.3 of this document.

#### 2.3 Adaptive Management Plan

Approximately 38 instances of invasive species, mainly Chinese privet and multiflora rose, were spot treated using a 6% solution of aquatic glyphosate. Treatments were made during May 2022 and July 2022. Invasive species will be monitored and treated as needed in subsequent monitoring years.

Dense herbaceous vegetation observed along the right bank of UT2 near VP5 has choked out planted stems. This area is depicted in the Current Condition Plan Review (Figure 4.1-4.5). It is anticipated that approximately 1 acre of area will be replanted at a density of 360 stems per acre (Figure 6) in March 2023. Table 7 outlines species and quantities chosen for the replant based on the approved planting plan in the Mitigation Plan. Prior to replanting this area, the dense herbaceous layer of vegetation may be moved to allow planted stems time to establish.

Livestakes will be clipped from black willow (*Salix nigra*) and tag alder (*Alnus serrulata*) on site and reestablished in the bare area observed between UT 3 and UT MC.

## 3.0 References

- HDR Engineering Inc. of the Carolinas (HDR) 2020. Mitigation Plan White Mitigation Project. Randolph County, North Carolina. October 29, 2020.
- Lee, Michael & Peet, Robert & D. Roberts, Steven & Wentworth, Thomas. 2018. CVS-EEP Protocol for Recording Vegetation All Levels of Plot Sampling, Version 4.2.
- North Carolina Administrative Code (NCAC). Title 15A Environmental Quality. Chapter 02 Environmental Management. Subchapter B. 15A NCAC 02B .0295. *Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers*. Accessed on September 20, 2019.
  - http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2002%20-%20environmental%20management/subchapter%20b/15a%20ncac%2002b%20.0295.pdf
- Schafale, M.P. and A.S. Weakley. 1990. Classification of the Natural Communities of North Carolina: Third Approximation. North Carolina Natural Heritage Program, Division of Parks and Recreation, North Carolina Department of Environment, Health, and Natural Resources. Raleigh, North Carolina.

Randolph County, NC Page 3 January 19, 2023

**Appendix A – Background Tables and Figures** 

Table 1. White Farms Buffer Mitigation Site, DMS Project No. 100112, Project Credits

Cape Fear - Randleman Project Area													l	MCDIVIS F	roject No	5. 100112
	N,	/A		N Credit Conversion	on Ratio (ft²/pou	nd)										
	N,			P Credit Conversion	n Ratio (ft²/pour	nd)										
Credit Type	Location	Subject? (enter NO if ephemeral or ditch <sup>1</sup> )	Feature Type	Mitigation Activity	Min-Max Buffer Width (ft)	Feature Name		Total (Creditable) Area of Buffer Mitigation (ft <sup>2</sup> )	Ratio (X.1)	% Full Credit	Final Credit Ratio (x:1)	Convertible to Riparian Buffer?	Riparian Buffer Credits	Convertible to Nutrient Offset?	Delivered Nutrient Offset: N (lbs)	Delivered Nutrient Offset: P (lbs)
Buffer	Rural	Yes	I/P	Restoration	0-100	UT to Muddy Creek, UT1, UT2, UT5	450,765	445,147	1	100%	1.00000	Yes	445,147.000	N/A	-	-
Buffer	Rural	Yes	I/P	Restoration	101-200	UT to Muddy Creek, UT1, UT2, UT5	46,268	45,812	1	33%	3.03030	Yes	15,117.975	N/A	-	-
Buffer	Rural	Yes	I/P	Enhancement via Cattle Exclusion	0-100	UT to Muddy Creek, UT5	13,174	13,116	2	100%	2.00000	Yes	6,558.000	N/A	-	_
													-		_	_
													_		_	_
													-		_	_
													_		_	_
													_		_	_
						Totals:	510 207	504 075								

Enter Preservation	on Credits Belov	v		eservation (ft <sup>2</sup> ):	168,025							
Credit Type					Min-Max Buffer Width (ft)	Feature Name	Total Area (sf)	Total (Creditable) Area for Buffer Mitigation (ft²)	Initial Credit Ratio (x:1)	% Full Credit	Final Credit Ratio (x:1)	Riparian Buffer Credits
												_
												_
												_
												_
Buffer				Preservation								_
												_
												_
												_
												_

<sup>1.</sup> The Randleman Lake buffer rules allow some ditches to be classified as subject according to 15A NCAC 028.0250 (5)(a).

Preservation Area Subtotal (ft²):

O.0%

Preservation as % Total Area of Buffer Mitigation:

Ephemeral Reaches as % Total Area of Buffer Mitigation:

0.0%

TOTAL	TOTAL AREA OF BUFFER MITIGATION (TABM)									
Mitigatio	on Totals	Square Feet	Credits							
Restor	ration:	490,960	460,264.975							
Enhanc	ement:	13,116	6,558.000							
Preser	vation:	0	0.000							
Total Ripar	ian Buffer:	504,075	466,822.975							
TO	TAL NUTRIENT	OFFSET MITIG	GATION							
Mitigatio	on Totals	Square Feet	Credits							
Nutrient	Nitrogen:	0	0.000							
Offset:	Phosphorus:	3	0.000							

Table 2. Project Activity and Reporting History

	Data	Completion
Activity or Report	Collection	or Delivery
	Complete	
Mitigation Plan	August 2019	October 2020
Final Design – Planting and Construction Plans	November 2020	November 2020
Construction and Planting	March 2021	March 2021
Mitigation Plan/As-built (Year 0 Monitoring-Baseline)	March 12, 2021	March 22, 2021
Invasive Species Treatment		April 22, 2021
Year 1 Monitoring	September 9, 2021	
Invasive Species Treatment		October 22, 2021
MY1 Monitoring Report		November 2021
Year 2 Monitoring	July 28, 2022	
Invasive Species Treatment		May 22 & July 28, 2022
MY2 Monitoring Report		January 19, 2023
Year 3 Monitoring		
Year 4 Monitoring		
Year 5 Monitoring		

### Table 3. Project Contacts Table

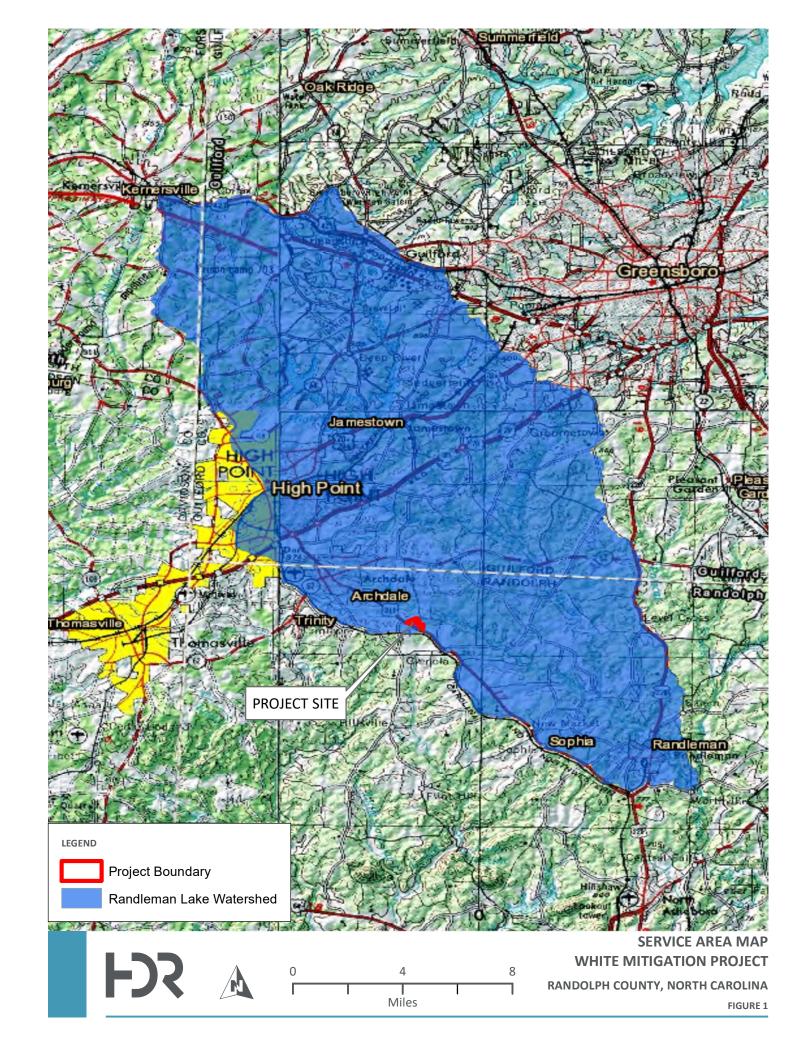
Designer	HDR Engineering						
	555 Fayetteville Street, Suite 900						
	Raleigh, North Carolina 27601-3034						
Primary project design POC	Vickie Miller (919) 232-6600						
Construction Contractor	KBS Earthworks, Inc.						
	5616 Coble Church Rd						
	Julian, NC 27283						
Construction Contractor POC	Chris Sizemore (336) 362-0289						
Planting Contractor	KBS Earthworks, Inc.						
	5616 Coble Church Rd						
	Julian, NC 27283						
Planting Contractor POC	Chris Sizemore (336) 362-0289						
Monitoring Performers	Davey Resource Group, Inc						
	3101 Poplarwood Court						
	Raleigh, North Carolina 27604						
	Michael Foster and William Bailey						
Vegetation Monitoring POC	Davey Resource Group, Inc						
	3101 Poplarwood Court						
	Raleigh, North Carolina 27604						
	Alex DiGeronimo (843) 830-1536						

Table 4. Project Information

Project Attributes									
Project Name	White Mitigation Project								
County	Randolph								
Project Area (acres)	12.2								
Project Coordinates (latitude and longitude)	35.887369, -79.927081								
River Basin	Cape Fear (03030003)								
Service Area	Randleman Lake Watershed								
14 digit HUC	03030003010060								
EPA level IV Ecoregion	Southern Outer Piedmont								
BMUs	466,747.935								

Table 5. Monitoring Plan Components

Parameter	Monitoring	Quantity	Frequency	Notes
	Method			
		10	Annual	Vegetation will be monitored using the
Vegetation	CVS Level 2	Vegetation		Carolina Vegetation Survey (CVS) Level 2
		plots (10 x		protocols. Data to be collected are the
		10 meter)		following: planted stem density, planted
				stem height and planted stem vigor.
Invasive and	Visual		Semi-	Locations of exotic and nuisance
nuisance			annual	vegetation will be mapped and treated,
vegetation				as necessary.
	Visual		Semi-	Areas of dense fescue were mapped and
Fescue			annual	treated. Fescue will be monitored to
				ensure the survivability of planted
				stems.
Dense	Visual		Semi-	Areas of dense herbaceous growth were
Herbaceous			annual	mapped. A treatment and replanting
Growth				plan have been developed and will be
(Knotweed,				implemented in March 2023.
Spiny Pigweed)				Herbaceous growth will be monitored to
				ensure the survivability of planted
				stems.
	Visual		Semi-	Mapping of fence damage, vegetation
Project			annual	damage, boundary encroachments, etc.
Boundary				will be mapped and addressed as
				necessary



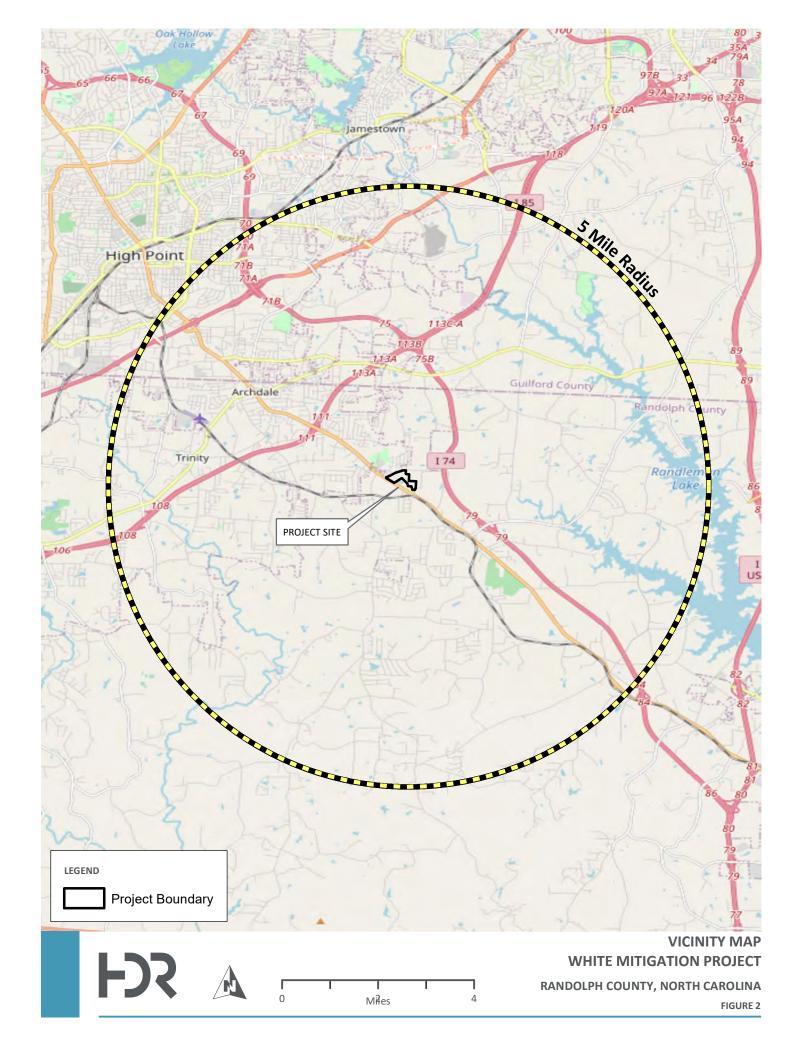
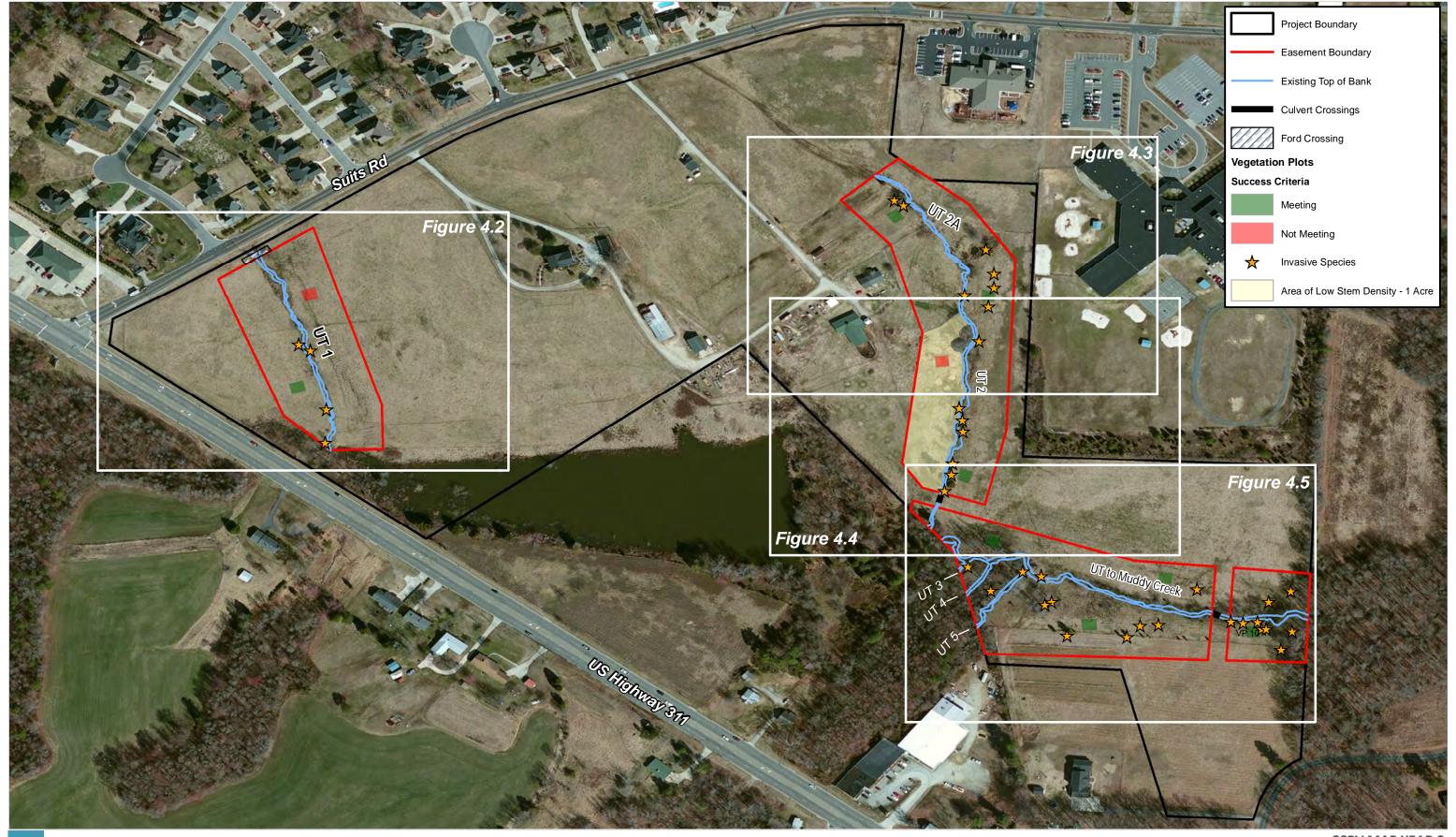








FIGURE 3. ASSET MAP
WHITE MITIGATION SITE
RANDOLPH COUNTY, NORTH CAROLINA



FJS









0 100

200 Feet



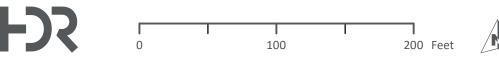




200 Feet

100





**Appendix B – Vegetation Plot Data and Site Photographs** 

**Table 8: Vegetation Monitoring Report** 

EEP Project Code 20.003.	uffer		Current Plot Data (MY2 2022)												Annual Means														
			20.003-01	1-0001	20.003-0	1-0002	20.0	003-01-0003	20.	003-01-	0004	20.003-01	-0005	20.	.003-01-	0006	20.0	003-01-0007	20.003-01-000	20.003	-01-0009	20.	003-01-0010	MY2 (202	22)	MY1 (20	21)	N	/IYO (2021)
Scientific Name	Common Name	Species Type	PnoLS P-all	T	PnoLS P-all	Т	PnoLS	P-all T	PnoLS	P-all	T	PnoLS P-all	T	PnoLS	S P-all	T	PnoLS	P-all T	PnoLS P-all T	PnoLS P-	all T	PnoLS	P-all T	PnoLS P-all	T	PnoLS P-all	T	PnoLS	P-all T
Apocynum cannabinum	Indianhemp							1	L																1				
Betula nigra	river birch	Tree			1	1 :	1		1	1 1	2	!			1 1	1	1 1	1	1 3 3	3 2	2	2 1	1 1	1 10 10	11	. 12 12	12	2 14	14 14
Carpinus caroliniana	American hornbeam	Tree					2	. 2 2	2 1	l 1	1	. 1	1 1	. :	1 1	1	1 1	. 1	1 1 1	1 1	1	1 2	2 2	2 10 10	10	11 11	. 17	2 13	3 13 1
Carya cordiformis	bitternut hickory	Tree					1	. 1 1	L								1	. 1	1	1	1	1 1	1 1	1 4 4	Δ	. 5 5	, [	13	3 13 1
Carya ovata	shagbark hickory	Tree																	1 1	1		1	l 1	1 2 2	2	3 3	, ?	3 11	1 11 1
Cornus florida	flowering dogwood	Tree							1	1 1	1				1 1	1	1							2 2	2	5 5	, [	12	2 12 17
Fraxinus pennsylvanica	green ash	Tree	2	2 :	2 1	1 :	1 1	. 1 1	1 1	1 1	1	. 1	1 1		3 3	3	3 1	1	1 2 2	2 1	1	1 1	1 1	1 14 14	14	12 12	17	2 14	14 1/
Liquidambar styraciflua	sweetgum	Tree			1																				1				
Liriodendron tulipifera	tuliptree	Tree																								2 2	2 2	2 12	2 12 17
Platanus occidentalis	American sycamore	Tree			2	2 2	2 1	. 1 1	1 1	1 1	1				1 1	1	1 1	1	1 1 1	2 1	1	1 2	2 2	2 10 10	11	. 14 14	. 14	14	14 1/
Quercus nigra	water oak	Tree			1 1	1 :	1 1	. 1 1	1	1 1	1				1 1	1	1 1	1	1	2	2	2		7 7	3	8 8	ع د	3 10	) 10 10
Quercus phellos	willow oak	Tree	1	1 :	1 2	2 2	2 1	. 1 1	L							1	1		1 1	1 2	2	2		7 7	3	7 7	ć	10	) 10 10
Salix nigra	black willow	Tree							1	1 1	1						1	1	1					2 2	2	2 2	2 2	2	2 2 7
Ulmus americana	American elm	Tree	1	1	1 1	1 :	1 1	. 1 1	1 2	2 2	4	ŀ			1 1	1	1 1	1	1 1 1	1 2	2	2 1	1 1	1 11 11	13	13 13	14	15	5 15 1!
		Stem count	4	4	5 8	8 8	8	8 8	9 9	9 9	12	2	2 2	2	9 9	10	8 0	8	8 10 10	11 12	12 1	2 9	9 9	9 79 79	87	94 94	1 98	3 140	0 140 140
		size (ares)	1	•	1			1		1	•	1	•		1	•		1	1	•	1		1	10		10	•		10
		size (ACRES)	0.02	2	0.0	2	1	0.02		0.02		0.02			0.02			0.02	0.02	0	.02		0.02	0.25		0.25			0.25
		Species count	3	3 !	5 6	6 6	5 7	7 7 8	3 8	3 8	8	2	2 2		7 7	8	8	8	8 7 7	7 8	8	8 7	7 7	7 11 11	13	12 12	12	2 12	2 12 1.
		Stems per ACRE	161.9 161.	.9 242.	3 323.7 323	.7 323.	7 323.7	323.7 364.2	364.2	364.2	485.6	80.94 80.9	4 80.94	364.	2 364.2	404.7	7 323.7	323.7 323.	7 <b>404.7 404.7 4</b>	5.2 485.6 4	85.6 485.	6 364.2	364.2 364.	2 319.7 319.7	352.1	380.4 380.4	₹ 396.f	566.6	566.6 566.6

Exceeds requirements by 10%
Exceeds requirements, but by less than 10%
Fails to meet requirements, by less than 10%

Fails to meet requirements by more than 10%

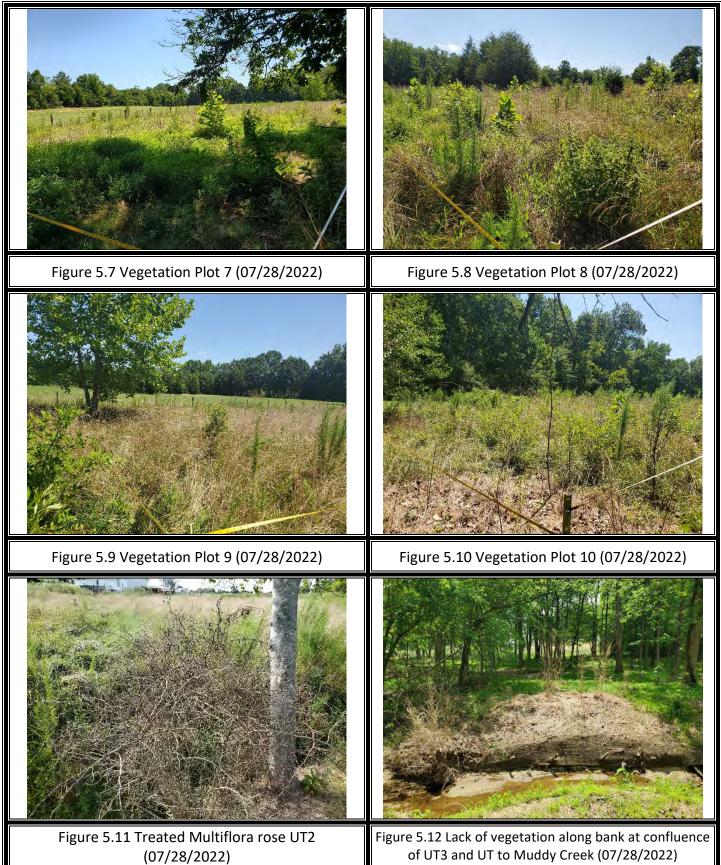
Randolph County, NC

### Figures 5.1 - 5.12 Vegetation Plots and Site Photographs



# **FD3**

Figures 5.1 - 5.12 Vegetation Plots and Site Photographs



# **Appendix C – Regulatory Considerations**

ROY COOPER Governor MICHAEL S. REGAN Secretary S. DANIEL SMITH Director



November 16, 2020

Division of Mitigation Services Attn: Jeremiah Dow/Kelly Phillips

(via electronic mail: <a href="mailto:jeremiah.dow@ncdenr.gov">jeremiah.dow@ncdenr.gov</a>, <a href="mailto:Kelly.Phillips@ncdenr.gov">Kelly.Phillips@ncdenr.gov</a>)

Re: White Farms Riparian Buffer Mitigation Plan Approval

Dear Mr. Dow,

The Division of Water Resources (DWR) received a draft Mitigation Plan (Plan) from the Division of Mitigation Services (DMS) for the White Farms site (Site) in 2020. The Plan was submitted to DWR for review and approval under 15A NCAC 02B .0295 to be used as a buffer mitigation project. DWR reviewed the Plan and provided comments and recommendations. DMS submitted a revised Plan that addressed all comments and recommendations provided by DWR. The table below summarizes the timeline of the Plan:

Project Site	DWR Project	Initial Mitigation	Revised Buffer Plan	Location/HUC
Name	ID#	Plan	Received	
		Received	(Final Draft)	
White Farms	2019-0884v1	July 20, 2020	November 10, 2020	Randleman Lake
				Watershed

By copy of this letter, the Final Draft of the Plan is *approved*. A copy of the final draft can be found online at:

https://edocs.deg.nc.gov/WaterResources/DocView.aspx?id=1349646&dbid=0&repo=WaterResources

Please feel free to call (919) 707-3637 if you have any questions regarding this correspondence.

Sincerely.

—Docusigned by: Katie Merritt

— A43C72700BD543E...

Katie Merritt

401 & Buffer Permitting Branch

cc: DWR File Copy

# **Appendix D – Adaptive Management Plan**







PROPOSED REPLANT AREA MAP WHITE BUFFER MITIGATION SITE RANDOLPH COUNTY, NORTH CAROLINA

Table 7. Replant Area Species, Source, and Quantities

Species Planted	Plant Source	Quantity to be Planted
Platanus occidentalis	Bare Root (3-4')	50
Betula nigra	Bare Root (3-4')	50
Ulmus americana	Bare Root (3-4')	50
Fraxinus pennsylvanica	Bare Root (3-4')	25
Carpinus caroliniana	1 Gallon Pot	20
Quercus phellos	1 Gallon Pot	20
Quercus nigra	1 Gallon Pot	50
Quercus phellos	Bare Root (3-4')	50
Quercus nigra	Bare Root (3-4')	50