



# Baseline Monitoring Report

May 16, 2019

## BURNETTS CHAPEL MITIGATION SITE-PHASE II

Guilford County, NC  
NCDEQ Contract No. 7430  
DMS ID No. 100045  
DWR Project Number 2011-0841

Randleman Lake Watershed  
Cape Fear River Basin  
HUC 03030003

RFP #: 16-007242

---

PREPARED FOR:



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

# BASELINE MONITORING REPORT

## BURNETTS CHAPEL MITIGATION SITE-PHASE II

Guilford County, NC  
NCDEQ Contract No. 7430  
DMS ID No. 100045

Randleman Lake Watershed  
Cape Fear River Basin  
HUC 03030003

PREPARED FOR:

---



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

PREPARED BY:

---



**Wildlands Engineering, Inc.**  
1430 South Mint Street, Suite 104  
Charlotte, NC 28203  
Phone: (704) 332-7754

**This Baseline Monitoring Plan has been written in conformance with the requirements of the following:**

- 15A NCAC 02B .0295 Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers.
- NCDEQ Division of Mitigation Services In-Lieu Fee Instrument signed and dated July 28, 2010.

**These documents govern DMS operations and procedures for the delivery of compensatory mitigation.**

### **Contributing Staff:**

Andrea Eckardt *Project Manager*  
Shawn Wilkerson, *Principal in Charge*  
Kristi Suggs, *Baseline Monitoring Plan*

Daniel Taylor, *Construction Administrator*  
Greg Pierce, *Monitoring Lead*  
Kirsten Gimbert, *Lead Quality Assurance*

## TABLE OF CONTENTS

<b>1.0</b>	<b>Mitigation Project Summary</b> .....	<b>1</b>
1.1	Project Goals.....	1
1.2	Pre-construction Site Conditions.....	1
<b>2.0</b>	<b>Determination of Credits</b> .....	<b>2</b>
<b>3.0</b>	<b>Baseline Summary</b> .....	<b>3</b>
3.1	Parcel Preparation .....	3
3.2	Riparian Area Restoration Activities.....	3
3.3	Riparian Area Preservation Activities .....	3
<b>4.0</b>	<b>Annual Monitoring and Performance Criteria</b> .....	<b>3</b>
4.1	Vegetation .....	4
4.2	Photo Reference Stations .....	4
4.3	Visual Assessments.....	4
4.4	Annual Reporting Performance Criteria .....	4
4.5	Maintenance and Contingency Plans .....	4
<b>5.0</b>	<b>References</b> .....	<b>4</b>

## APPENDICES

### **Appendix 1**      **General Figures and Tables**

- Figure 1      Vicinity Map
- Figure 2      Project Component/Asset Map
- Figure 3      Monitoring Plan View
- Table 1      Buffer Project Attributes
- Table 2      Buffer Project Areas and Assets
- Table 3      Monitoring Components

### **Appendix 2**      **DWR Correspondence**

- NC Division of Water Resources Site Viability for Buffer Mitigation and Nutrient Offset Letter –  
March 27, 2018
- NC Division of Water Resources On-Site Determination for Applicability to the Randleman Buffer  
Rules– March 27, 2018

### **Appendix 3**      **Record Drawings**

### **Appendix 4**      **Site Photographs**

### **Appendix 5**      **Vegetation Plot Data**

- Table 4 Planted and Total Stem Counts
- Vegetation Plot Photographs



## 1.0 Mitigation Project Summary

---

The Burnetts Chapel Mitigation Site-Phase II (Site) is a buffer restoration project located approximately three miles west of the Town of Pleasant Garden and four miles south of the City of Greensboro in Guilford County, NC (Figure 1). The Site is comprised of 7.50 acres along several unnamed tributaries to the Randleman Reservoir (Figure 2). The Site is surrounded by fields that are used for agriculture and is immediately adjacent to Phase I of the Burnetts Chapel Mitigation Project, which was successfully completed by Wildlands in 2017 for the North Carolina Division of Environmental Quality (NCDEQ) Division of Mitigation Services (DMS). The project expands the Phase I riparian buffer area from 50 feet to 100 to 200 feet on five of the original project streams and channels. The Site is expected to generate 280,577.321 riparian buffer credits.

The Site is located within the Hydrologic Unit Code (HUC) 03030003010050 and North Carolina Department of Water Resources (NCDWR) Sub-basin 03-06-08. Five unnamed tributaries on the Site flow into the Randleman Reservoir (Reaches B1-B5). All of these water bodies are classified as WS-IV, as the Randleman Reservoir is a major source of drinking water for the region.

### 1.1 Project Goals

The major goals of the proposed buffer restoration project are to provide ecological and water quality enhancements to the Randleman Reservoir watershed of the Cape Fear River Basin by creating a functional riparian corridor and restoring the riparian buffer. The proposed project supports specific goals identified in the 2009 Cape Fear River Basin Restoration Priorities Plan (RBRP) for the Cape Fear River Catalog Unit (CU) 03030003. As stated in the RBRP, "Protection of [federally endangered species] and improvement in water quality to waters draining to Randleman Reservoir are recommendations for the CU." Specific enhancements to water quality and ecological processes are outlined below:

- Decrease nutrient levels - Nutrient input will be decreased by filtering runoff from the agricultural fields through restored native buffer zones. The off-site nutrient input will also be absorbed on-site by dispersing flood flows through native vegetation, thereby reducing nutrient inputs to waters of the Randleman Reservoir.
- Decrease sediment input - Sediment from off-site sources will be deposited on restored floodplain areas where native vegetation will slow overland flow velocities, thereby reducing sediment inputs to waters of Randleman Reservoir.
- Create appropriate terrestrial habitat - Buffer areas will be restored by removing invasive vegetation and planting native vegetation. Improve wildlife habitat; restoring degraded riparian buffers.
- Permanently protect the Site from harmful uses - Establish a conservation easement on the Site. Protect aquatic habitat; protecting water supply waters.

### 1.2 Pre-construction Site Conditions

The buffer restoration project includes 7.50 acres of open pasture along several unnamed tributaries that drain into the Randleman Reservoir. The Site has historically been forested or used for agricultural purposes. Historic aerial photos date back to 1973, showing the site in various stages of timber clearing, row crop production, and open pasture. The current property owner has confirmed that the Site has been farmed for more than 100 years, including activities such as crop production, livestock pastures, and timber.

The Site contains five channels (B1, B2, B3, B4, and B5). Phase I of the project included an additional Reach A, that is not included in Phase II of the project. The first 50 feet from the streams and ephemeral channels of Reaches B1-B5 were restored as a forested riparian buffer as part of Phase I. Phase II



expands beyond that boundary for an additional 50 to 150 feet of buffer restoration on those reaches (Figure 2). The Buffer project attributes are listed in Table 1, located in Appendix 1.

On March 26, 2018, NCDWR conducted on-site determinations to review features and land use within the project boundary. The resulting NCDWR site viability letter and map confirming the Site as suitable for riparian buffer mitigation is located in Appendix 2. NCDWR also approved the five project reaches as appropriate for buffer mitigation as related to the rules set forth in the Randleman Lake Water Supply Watershed: Mitigation Program for Protection and Maintenance of Existing Riparian Buffers (15A NCAC 02B .0252). The on-site determination approval letter from NCDWR is also included in Appendix 2.

## 2.0 Determination of Credits

---

In addition to buffer restoration on subject streams, per the Consolidated Buffer Mitigation Rules (15A NCAC 02B 0.0295 (o)), alternative mitigation is proposed on the Site in the form of: buffer restoration on ephemeral channels and preservation of forested buffer on subject streams. The proposed project is in compliance with these rules in the following ways:

Buffer Restoration on Ephemeral Channels (15A NCAC 02B 0.0295(o)(7)):

- NCDWR performed an evaluation of the Site (Phase I in 2011 and Phase II in 2018) and identified the perennial, intermittent, and ephemeral channels on the property.
- The mitigation area on the Site's ephemeral channels is located completely within their drainage areas.
- The ephemeral channels are directly connected to intermittent or perennial stream channels and will be protected under the same contiguous easement boundary.
- The mitigation area on the ephemeral channels is less than 25% of the total buffer mitigation area on the Site (Table 2, Appendix 1).

Preservation on Subject Streams (15A NCAC 02B .0295 (o)(5)):

- The buffer width is at least 30 feet from the stream.
- The area meets the requirements of 15A NCAC 02R 0.0403(c)(7), (8), and (11) with no known structures, infrastructure, hazardous substances, solid waste, or encumbrances within the mitigation boundary.
- Preservation mitigation is being requested on no more than 25% of the total buffer mitigation area (Table 2, Appendix 1).

Mitigation credits are presented in Table 2 and Figure 2 in Appendix 1 and are based upon the as-built survey included in Appendix 3.



## 3.0 Baseline Summary

---

The Wildlands Team restored high quality riparian buffers along several unnamed tributaries on the Site. The project design ensured that no adverse impacts to wetlands or existing riparian buffers occurred. Figure 2 illustrates the conceptual design for the Site. Detailed descriptions of the proposed restoration activity follow in Sections 3.1 through 3.3. General site photographs are included in Appendix 4.

### 3.1 Parcel Preparation

Prior to planting the buffer restoration area was used as agricultural fields. These areas were tilled with a chisel plow to reduce soil compaction prior to planting. The fields within the project area contained only a few invasive species; therefore, only some selective spot herbicide treatments were required. The Site's ephemeral channels were located fully within the conservation easement area and were completely buffered as part of the project; therefore, no land disturbance to maintain diffuse flow was required.

### 3.2 Riparian Area Restoration Activities

The revegetation plan for the buffer restoration area included permanent seeding, planting bare root trees, live stakes, and herbaceous plugs. These revegetation efforts were coupled with the select treatment of invasive species to control their population. The specific species composition planted was selected based on the desired community type, observation of occurrence of species in riparian buffers adjacent to the Site, and best professional judgement on species establishment and anticipated site conditions in the early years following project implementation. The total number of tree species planted across the buffer areas are as follows: tulip poplar (*Liriodendron tulipifera*) 450 stems, willow oak (*Quercus phellos*) 900 stems, American sycamore (*Platanus occidentalis*) 900 stems, river birch (*Betula nigra*) 900 stems, green ash (*Fraxinus pennsylvanica*) 900 stems, and swamp chestnut oak (*Quercus michauxii*) 450 stems. In total, 4,500 stems were planted across the buffer areas of the site.

Trees were planted at a density sufficient to meet the performance standards outlined in the Rule 15A NCAC 02B .0295 of 260 trees per acre at the end of five years. No one tree species planted was greater than 50% of the established stems. An appropriate seed mix was applied as necessary to provide temporary ground cover for soil stabilization and reduction of sediment loss during rain events in disturbed areas. This was followed by an appropriate permanent seed mixture. Planting was completed on March 16, 2019.

Vegetation management and herbicide applications were implemented as needed during tree establishment in the restoration areas to prevent establishment of invasive species that could compete with the planted native species.

### 3.3 Riparian Area Preservation Activities

No work was done in the buffer preservation areas, as allowed under 15A NCAC 02B .0295(o). The preservation area will be protected in perpetuity under a conservation easement.

## 4.0 Annual Monitoring and Performance Criteria

---

The performance criteria for the Site follows approved performance criteria presented in the guidance documents outlined in RFP 16-007242 and the Consolidated Buffer Rule (15A NCAC 02B .0295). Annual monitoring and semi-annual site visits will be conducted to assess the condition of the finished project. The buffer restoration project has been assigned specific performance criteria components for vegetation. Performance criteria will be evaluated throughout the five-year post-construction monitoring. An outline of the performance criteria and monitoring components follows and are depicted in Figure 3 and included in Table 3, located in Appendix 1.



#### **4.1 Vegetation**

The final vegetative success criteria will be the survival of 260 planted stems per acre in the riparian corridor at the end of the required monitoring period (Monitoring Year (MY) 5). The extent of invasive species coverage will also be monitored and treated as necessary throughout the required monitoring period (five years).

Six vegetation monitoring quadrants were installed across the Site to measure the survival of the planted stems (Figures 3). Vegetation monitoring will follow the CVS-EEP Level 1 Protocol for Recording Vegetation (2008). Reference photographs of the vegetation plots and Site will be taken during the annual vegetation assessments. Appendix 5 includes the baseline (MY0) vegetation plot photographs and the planted and total stem counts.

#### **4.2 Photo Reference Stations**

Photographs will be taken within the project area once a year to visually document stability for five years following construction. Permanent markers were established and located with GPS equipment so that the same locations and view directions on the Site are photographed each year. Photograph reference stations are shown on Figure 3.

#### **4.3 Visual Assessments**

Visual assessments should support the specific performance standards for each metric as described above. Visual assessments will be performed within the Site on a semi-annual basis during the five-year monitoring period. Problem areas with vegetative health will be noted (e.g. low stem density, vegetation mortality, invasive species or encroachment). Areas of concern will be mapped and photographed accompanied by a written description in the annual report. Problem areas will be re-evaluated during each subsequent visual assessment

#### **4.4 Annual Reporting Performance Criteria**

Using the DMS Riparian Buffer and Nutrient Offset Buffer Baseline and Annual Monitoring Report Template version 2.0 (May 2017), monitoring reports will be prepared in the fall of each monitoring year and submitted to DMS. Annual monitoring reports will be based on the above referenced DMS Template (May 2017). The monitoring period will extend five years beyond completion of construction or until performance criteria have been met.

#### **4.5 Maintenance and Contingency Plans**

Adaptive management will be performed during the monitoring years to address minor issues as necessary. If, during annual monitoring it is determined the Site's ability to achieve Site performance standards are jeopardized, Wildlands will notify the members of DMS/NCDWR and work with the DMS/NCDWR to develop contingency plans and remedial actions. Any actions implemented will be designed to achieve the success criteria specified previously and will include a work schedule and updated monitoring criteria (if applicable).

## **5.0 References**

- 
- Lee, Michael T. Peet, Robert K., Steven D. Wentworth, Thomas R. 2008. CVS-EEP Protocol for Recording Vegetation Version 4.2. <http://cvs.bio.unc.edu/protocol/cvs-EEP-protocol-v4.2-lev1-2.pdf>
- Natural Resources Conservation Service (NRCS). Web Soil Survey of Guilford County. <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>



North Carolina Department of Environmental Quality, Division of Mitigation Services (NCDMS), 2009.  
Cape Fear Basin Restoration Priorities.

[http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=864e82e8-725c-415e-8ed9-c72dfcb55012&groupId=60329](http://portal.ncdenr.org/c/document_library/get_file?uuid=864e82e8-725c-415e-8ed9-c72dfcb55012&groupId=60329)

North Carolina Division of Environmental Quality, Division of Water Resources (NCDWR) 2011. Surface Water Classifications. <http://deq.nc.gov/about/divisions/water-resources/planning/classification-standards/classifications>

North Carolina Department of Environmental Quality, Division of Mitigation Services (NCDMS), 2017. Riparian Buffer and Nutrient Offset Buffer Baseline and Annual Monitoring Report Template version 2.0





**APPENDIX 1**

---

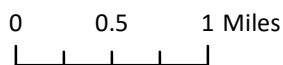
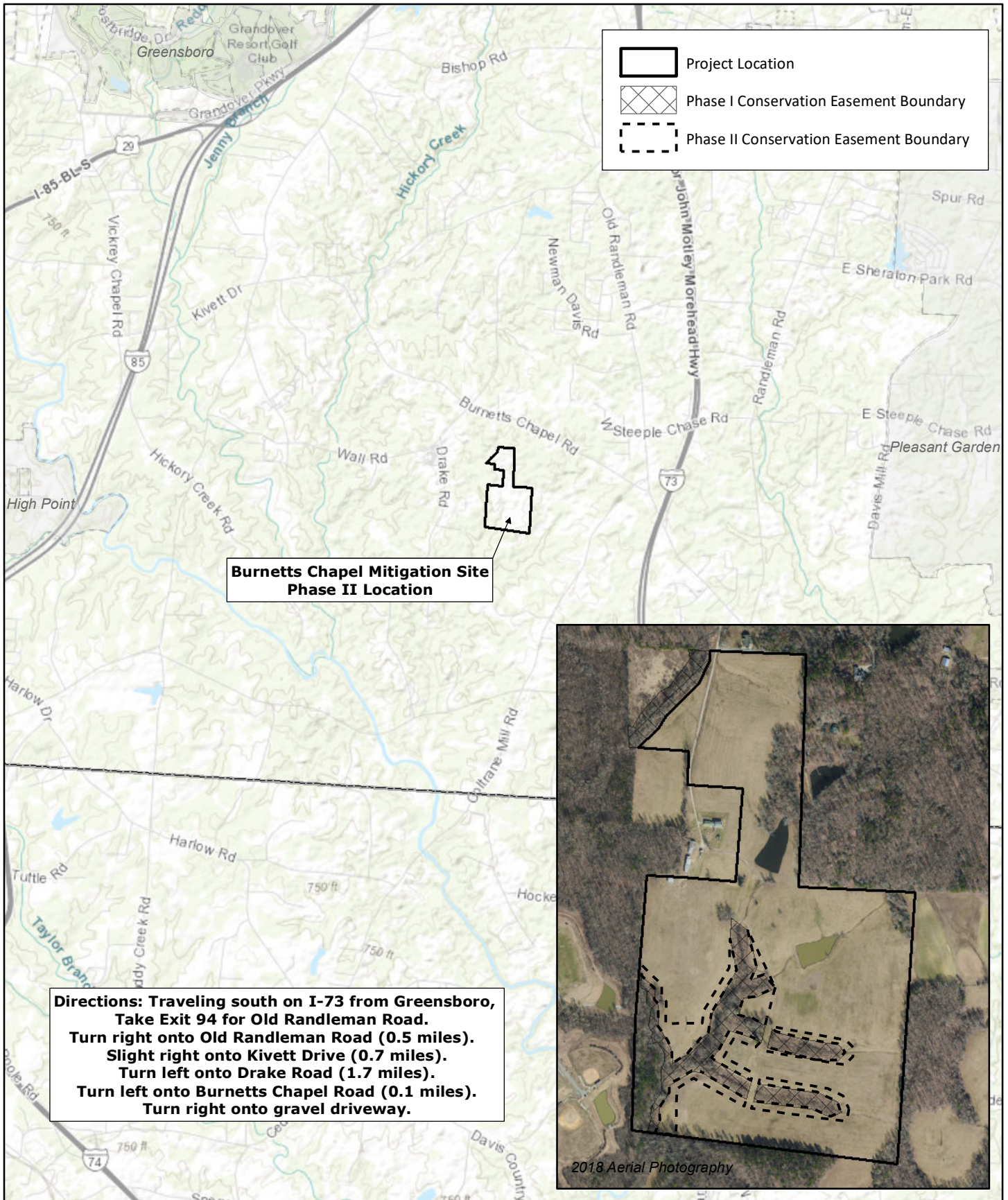


Figure 1 Vicinity Map  
 Burnetts Chapel Mitigation Site - Phase II  
 Baseline Monitoring Report (MYO)  
 Cape Fear River Basin (03030003)  
 Guilford County, NC

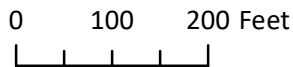
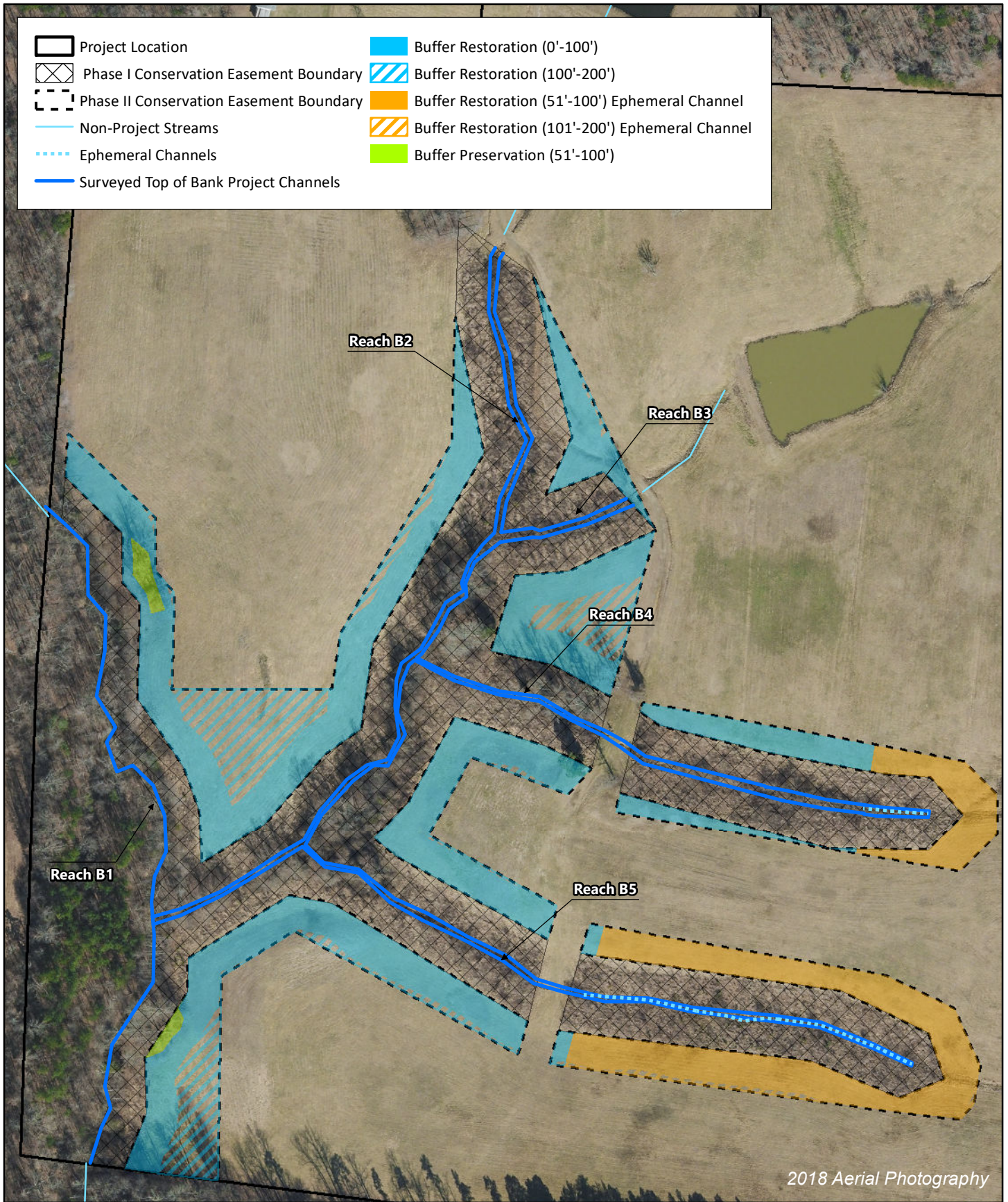


Figure 2 Project Component/Asset Map  
 Burnetts Chapel Mitigation Site - Phase II  
 Baseline Monitoring Report (MY0)  
 Cape Fear River Basin (03030003)

Guilford County, NC

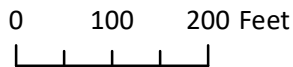
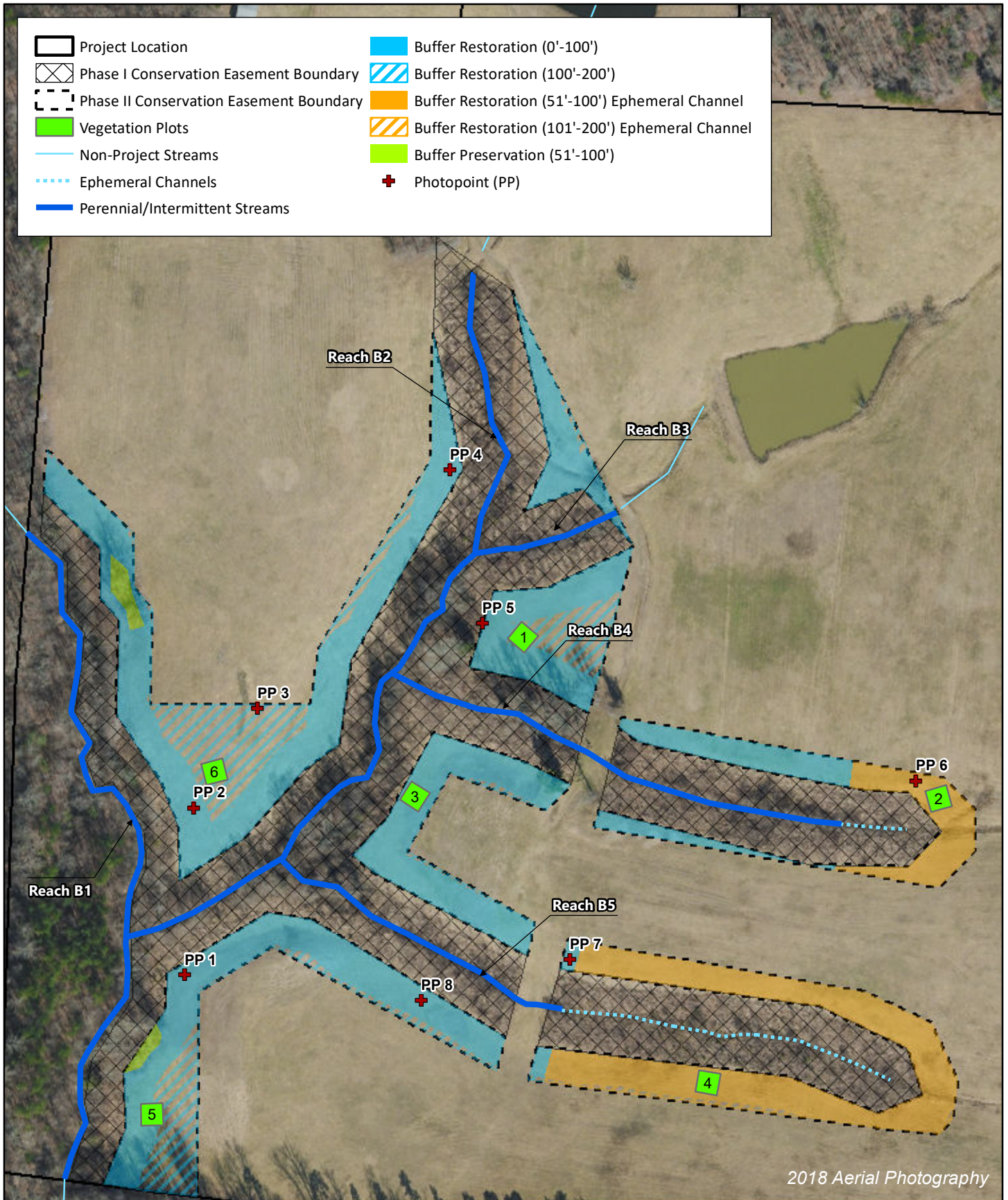


Figure 3 Monitoring Plan View  
 Burnetts Chapel Mitigation Site - Phase II  
 Baseline Monitoring Report (MY0)  
 Cape Fear River Basin (03030003)

Guilford County, NC

**Table 1. Buffer Project Attributes**

Burnetts Chapel Mitigation Site - Phase II

**Monitoring Year 0 - 2019**

Project Name	Burnetts Chapel Mitigation Site – Phase II
Hydrologic Unit Code	03030003010050
River Basin	Cape Fear
Geographic Location (Lat, Long)	35° 56' 46.0"N, 79° 50' 44.2"W
Site Protection Instrument (DB, PG)	8127 / 2755
Total Credits (BMU)	280,577.321
Types of Credits	Riparian Buffer
Mitigation Plan Date	Sep-19
Initial Planting Date	Mar-19
Baseline Report Date	May-19
MY1 Report Date	Nov-19
MY2 Report Date	Nov-20
MY3 Report Date	Nov-21
MY4 Report Date	Nov-22
MY5 Report Date	Nov-23

**Table 2. Buffer Project Areas and Assets**

Burnetts Chapel Mitigation Site - Phase II

Monitoring Year 0 - 2019

Location	Jurisdictional Streams	Method	Feature Name	Min-Max Buffer Width (ft)	Total Area (sf)*	Creditable Area (sf)	Initial Credit Ratio (x:1)	% Full Credit	Final Credit Ratio (x:1)	Riparian Buffer Credits
Rural or Urban	Subject or Nonsubject	Restoration	~	20-29	-	-	1	75%	1.33333	-
Rural or Urban	Subject or Nonsubject	Restoration	Ephemeral	0-100	70,473	70,473	1	100%	1.00000	70,473.000
Rural or Urban	Subject or Nonsubject	Restoration	Streams	0-100	188,792	188,792	1	100%	1.00000	188,792.000
Rural or Urban	Subject or Nonsubject	Restoration	Ephemeral	101-200	2,837	2,837	1	33%	3.03030	936.211
Rural or Urban	Subject or Nonsubject	Restoration	Streams	101-200	60,573	60,573	1	33%	3.03030	19,989.110
Rural or Urban	Subject or Nonsubject	Enhancement	~	20-29	-	-	2	75%	2.66667	-
Rural or Urban	Subject or Nonsubject	Enhancement	~	0-100	-	-	2	100%	2.00000	-
Rural or Urban	Subject or Nonsubject	Enhancement	~	101-200	-	-	2	33%	6.06061	-
<b>SUBTOTALS</b>						<b>322,675</b>				<b>280,190.321</b>

**ELIGIBLE PRESERVATION AREA 107,558**

Location	Jurisdictional Streams	Method	Feature Name	Min-Max Buffer Width (ft)	Total Area (sf)*	Creditable Area (sf)	Initial Credit Ratio (x:1)	% Full Credit	Final Credit Ratio (x:1)	Riparian Buffer Credits
Rural	Subject	Preservation	~	20-29	-	-	10	75%	13.33333	-
Rural	Subject	Preservation	Streams	0-100	3,870	3,870	10	100%	10.00000	387.000
Rural	Subject	Preservation	~	101-200	-	-	10	33%	30.30303	-
Rural	Nonsubject	Preservation	~	20-29	-	-	5	75%	6.66667	-
Rural	Nonsubject	Preservation	~	0-100	-	-	5	100%	5.00000	-
Rural	Nonsubject	Preservation	~	101-200	-	-	5	33%	15.15152	-
Urban	Subject or Nonsubject	Preservation	~	20-29	-	-	3	75%	4.00000	-
Urban	Subject or Nonsubject	Preservation	~	0-100	-	-	3	100%	3.00000	-
Urban	Subject or Nonsubject	Preservation	~	101-200	-	-	3	33%	9.09091	-
<b>SUBTOTALS</b>						<b>3,870</b>				<b>387.000</b>
<b>TOTALS</b>						<b>326,545</b>				<b>280,577.321</b>

\*Differences in total area compared to the total area listed in the Mitigation Plan are due to the increased accuracy of the surveyed data

**Table 3. Monitoring Components**

Burnetts Chapel Mitigation Site - Phase II

Monitoring Year 0 - 2019

Parameter	Monitoring Feature	Quantity/Length by Reach					Frequency
		B1	B2	B3	B4	B5	
Vegetation	CVS Level 1	6					Annual
Visual Assessment		Y	Y	Y	Y	Y	Semi-Annual
Exotic and nuisance vegetation		Y	Y	Y	Y	Y	Semi-Annual
Project Boundary		Y	Y	Y	Y	Y	Semi-Annual
Reference Photos	Photographs	8					Annual

**APPENDIX 2**

---





ROY COOPER  
*Governor*  
 MICHAEL S. REGAN  
*Secretary*  
 LINDA CULPEPPER  
*Interim Director*

March 27, 2018

DWR ID# 2011-0841v2  
 Guilford County

Wildlands Engineering, Inc.  
 Attn: Andrea Eckardt  
 1430 South Mint Street Suite 104  
 Charlotte, NC  
 (via electronic mail: [aekardt@wildlandseng.com](mailto:aekardt@wildlandseng.com) )

Re: Site Viability for Buffer Mitigation & Nutrient Offset – Burnetts Chapel Phase II Site  
 1323 Burnetts Chapel Road, Greensboro, NC  
 Randleman Lake Watershed

Dear Ms. Eckardt

On March 26, 2018, Katie Merritt, with the Division of Water Resources (DWR), assisted you and staff with Division of Mitigation Services (DMS) at the proposed Burnetts Chapel Mitigation Site (Site) in Greensboro, NC. The Site is located in the Randleman Lake WS of the Cape Fear River Basin within the 8-digit Hydrologic Unit Code 03030003. The Site is being proposed as part of a full-delivery buffer mitigation project for the DMS (RFP # 16-007242). At your request, on March 26, 2018, Ms. Merritt performed an onsite assessment of riparian land uses adjacent to streams onsite, which are shown on the attached map labeled “Site Map”. This site is adjacent to an existing DMS full-delivery buffer mitigation site known as “Burnetts Chapel Mitigation Site” (DWR# 2011-0841) where fifty-foot riparian buffers were restored.

Ms. Merritt’s evaluation of the features onsite and their associated mitigation determination for the riparian areas are provided in the table below. This evaluation was made from 51’ out to 200’ from the top of bank from each feature for buffer mitigation pursuant to 15A NCAC 02B .0295 (effective November 1, 2015).

<u>Feature</u>	<u>Classification</u>	<u><sup>1</sup>Subject to Buffer Rule</u>	<u>Riparian Land uses adjacent to Feature (51-200')</u>	<u>Buffer Credit Viable</u>	<u><sup>2</sup>Nutrient Offset Viable at 2,273 lbs/acre</u>	<u>Mitigation Type Determination w/in riparian areas</u>
B1	Stream	Yes	Hay crop fields	Yes	N/A	Fields - Restoration Site per 15A NCAC 02B .0295 (n)
B2	Stream	Yes	Hay crop fields	Yes	N/A	Fields - Restoration Site per 15A NCAC 02B .0295 (n)
B3	Stream	Yes	Hay crop fields	Yes	N/A	Fields - Restoration Site per 15A NCAC 02B .0295 (n)
B4 Above DWR 2011 flag (green)	Wetland / Swale	No	N/A	No	N/A	N/A

Burnetts Chapel Phase II Site  
Wildlands  
March 27, 2018

<u>Feature</u>	<u>Classification</u>	<u><sup>1</sup>Subject to Buffer Rule</u>	<u>Riparian Land uses adjacent to Feature (51-200')</u>	<u>Buffer Credit Viable</u>	<u><sup>2</sup>Nutrient Offset Viable at 2,273 lbs/acre</u>	<u>Mitigation Type Determination w/in riparian areas</u>
B4 At DWR 2011 flag	Ephemeral	No	Hay crop fields	Yes <sup>4</sup>	N/A	<b>Fields</b> - Restoration Site per 15A NCAC 02B .0295 (o)(7)  <i>Must meet additional requirements under .0295 (o)(7) to be viable for buffer mitigation</i>
B4 At DWR 2010 flag	Stream	Yes	Hay crop fields	Yes	N/A	<b>Fields</b> - Restoration Site per 15A NCAC 02B .0295 (n)
B5 Above DWR 2011 flag (green)	Wetland / Swale	No	N/A	No	N/A	N/A
B5 At DWR 2011 flag	Ephemeral	No	Hay crop fields	Yes <sup>4</sup>	N/A	<b>Fields</b> - Restoration Site per 15A NCAC 02B .0295 (o)(7)  <i>Must meet additional requirements under .0295 (o)(7) to be viable for buffer mitigation</i>
B5 At DWR 2010 flag	Stream	Yes	Hay crop fields	Yes	N/A	<b>Fields</b> - Restoration Site per 15A NCAC 02B .0295 (n)

<sup>1</sup>Subjectivity calls for the features were determined by DWR in correspondence dated March 27, 2018 using the 1:24,000 scale quadrangle topographic map prepared by USGS and the most recent printed version of the soil survey map prepared by the NRCS

<sup>2</sup> NC Division of Water Resources - Methodology and Calculations for determining Nutrient Reductions associated with Riparian Buffer Establishment

<sup>3</sup>The area of preservation credit within a buffer mitigation site shall comprise of no more than 25 percent (25%) of the total area of buffer mitigation per 15A NCAC 0295 (o)(5) and 15A NCAC 0295 (o)(4). Site cannot be a Preservation only site to comply with this rule.

<sup>4</sup>The area of the mitigation site on ephemeral channel shall comprise no more than 25 percent (25%) of the total area of buffer mitigation per 15A NCAC 02B .0295 (o)(7).

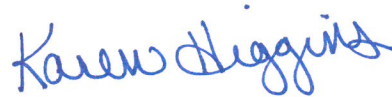
The attached map (Site Map) showing the project site and features was provided by Wildlands Engineering and was initialed by Ms. Merritt on March 27, 2018. This letter should be provided in any future stream, wetland, buffer and/or nutrient offset mitigation plans for this Site.

This letter does not constitute an approval of this site to generate mitigation credits. Pursuant to 15A NCAC 02B .0295, a mitigation proposal and a mitigation plan shall be submitted to DWR for written approval **prior** to conducting any mitigation activities in riparian areas and/or surface waters for buffer mitigation credit. Pursuant to 15A NCAC 02B .0240, a proposal regarding a proposed nutrient load-reducing measure for nutrient offset credit shall be submitted to DWR for approval prior to any mitigation activities in riparian areas and/or surface waters.

All vegetative plantings, performance criteria and other mitigation requirements for riparian restoration, enhancement and preservation must follow the requirements in 15A NCAC 02B .0295 to be eligible for buffer and/or nutrient offset mitigation credits. For any areas depicted as not being viable for nutrient offset credit above, one could propose a different measure, along with supporting calculations and sufficient detail to support estimates of load reduction, for review by the DWR to determine viability for nutrient offset in accordance with 15A NCAC 02B .0240. For any areas generating wetland mitigation credit, no buffer or nutrient offset credit can be generated.

This viability assessment will expire on March 27, 2020 or upon the submittal of an As-Built Report to the DWR, whichever comes first. Please contact Katie Merritt at (919)-807-6371 if you have any questions regarding this correspondence.

Sincerely,

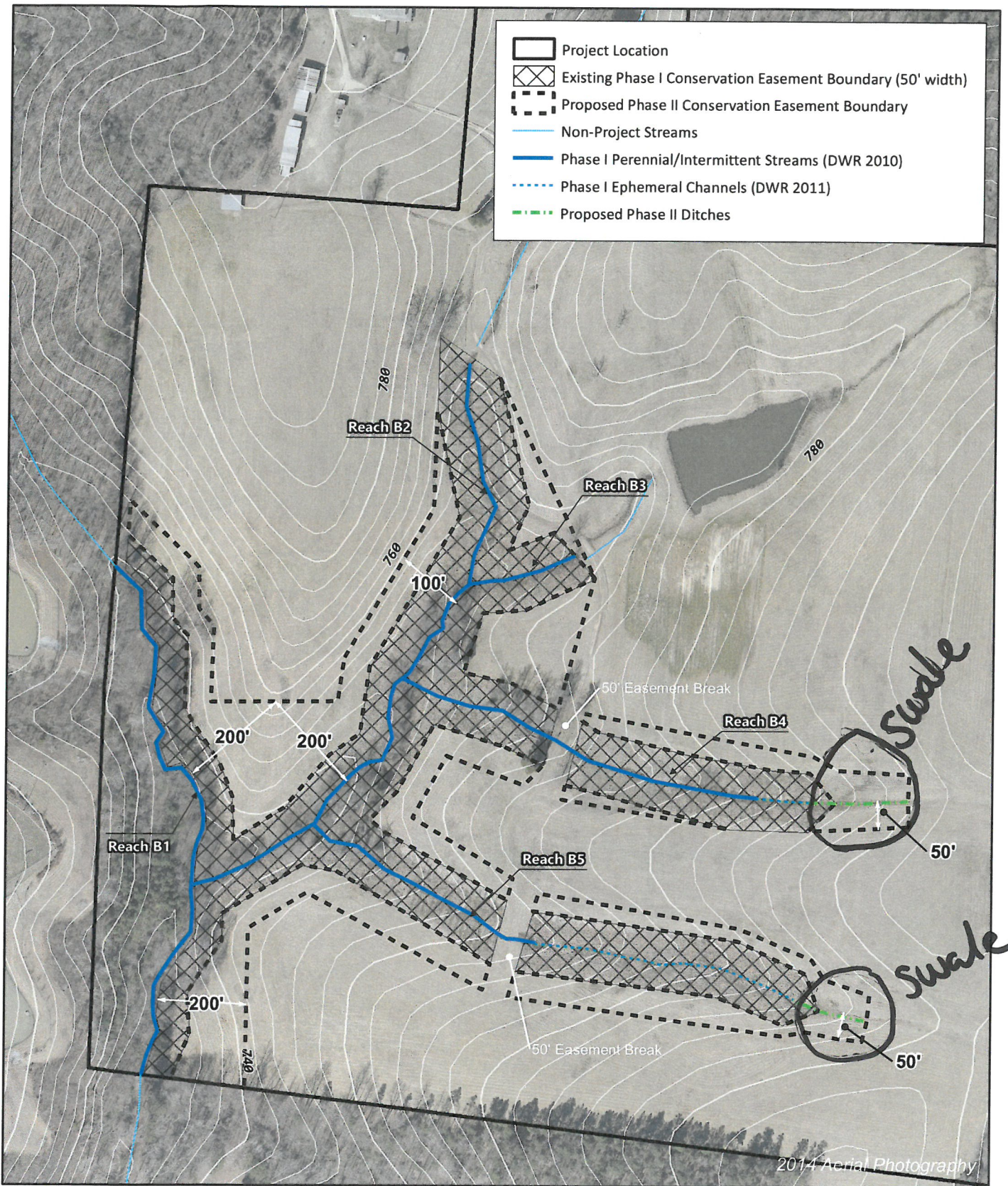


Karen Higgins, Supervisor  
401 and Buffer Permitting Branch

KAH/km

Attachments: Site Map

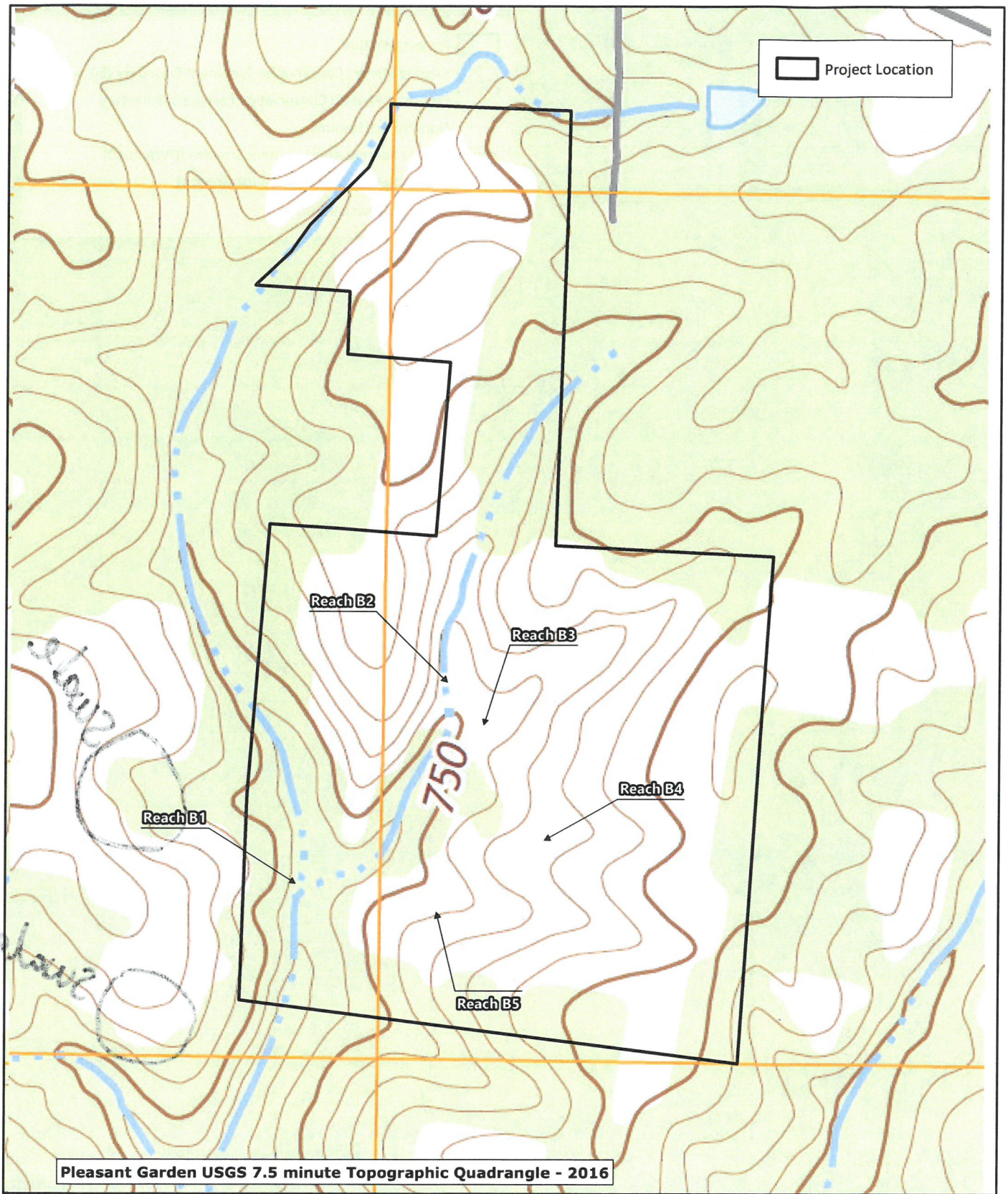
cc: File Copy (Katie Merritt)  
DMS - Jeff Schaffer (via electronic mail)



Site Map  
 Burnetts Chapel Mitigation Site - Phase II  
 Cape Fear River Basin (03030003)

Guilford County, NC

*Handwritten:* KRM 3/27/18





ROY COOPER  
*Governor*  
MICHAEL S. REGAN  
*Secretary*  
LINDA CULPEPPER  
*Interim Director*

March 27, 2018

Andrea Eckardt  
Wildlands Engineering Inc.  
1430 South Mint Street, Suite 104  
Charlotte NC 28203

**Subject:** On-Site Determination for Applicability to the Randleman Lake Buffer Rules (15A NCAC 2B .0250)

**Subject Property:** Burnett's Chapel Mitigation Site, 1323 Burnetts Chapel Rd, Greensboro NC  
Guilford County  
DWR# 2011-0841

Dear Ms. Eckardt:

On March 26, 2018, at your request, Sue Homewood conducted an on-site determination to review features located on the subject project for stream determinations with regards to the above noted state regulations. Katie Merritt with the Division of Water Resources (Division) was also present during the site visit.

During the site visit the upper portions of Reach B4 and Reach B5, as shown in green on the attached map, were reviewed. Both areas were representative of vegetated swales and had characteristics of wetlands and were therefore were determined not to be subject to the Randleman Buffer Rules as stated above.

The owner (or future owners) should notify the Division (and other relevant agencies) of this decision in any future correspondences concerning this property. This on-site determination shall expire five (5) years from the date of this letter.

Landowners or affected parties that dispute a determination made by the Division or Delegated Local Authority that a surface water exists and that it is subject to the buffer rule may request a determination by the Director. A request for a determination by the Director shall be referred to the Director in writing c/o 401 & Buffer Permitting Branch, 1650 Mail Service Center, Raleigh, NC 27699-1650. Individuals that dispute a determination by the Division or Delegated Local Authority that "exempts" surface water from the buffer rule may ask for an adjudicatory hearing. You must act within 60 days of the date that you receive this letter. Applicants are hereby notified that the 60-day statutory appeal time does not start until the affected party (including downstream and adjacent landowners) is notified of this decision. The Division recommends that the applicant conduct this notification in order to be certain that third party appeals are made in a timely manner. To ask for a hearing, send a written petition, which conforms to Chapter 150B of the North Carolina General Statutes to the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. This determination is final and binding unless you ask for a hearing within 60 days.

This letter only addresses the applicability to the buffer rules and does not approve any activity within Waters of the United States or Waters of the State or their associated buffers. If you have any additional questions or require additional information, please contact me at 336-776-9693 or [sue.homewood@ncdenr.gov](mailto:sue.homewood@ncdenr.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Sue Homewood". The signature is fluid and cursive, with a large loop at the end.

Sue Homewood  
Winston-Salem Regional Office

Enclosures: USGS Topo Map  
Wildlands Features Map

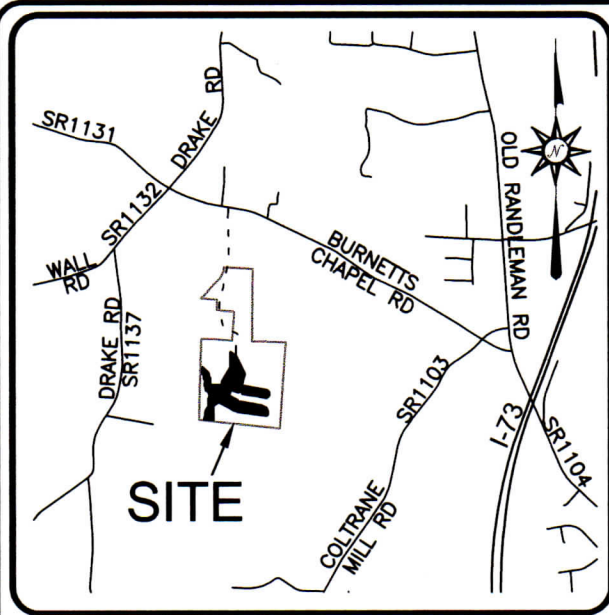
Cc: Rick & Val Ingram, 1323 Burnetts Chapel Rd, Greensboro NC 27406  
Katie Merritt, DWR (via email)  
DWR, Winston-Salem Regional Office

**APPENDIX 3**

---



# BURNETTS CHAPEL II



VICINITY MAP (NO SCALE)

Riparian Buffer Area:	SQ. FT.	Acres
Buffer Restoration 0'-100'	188,792	4.33
Buffer Restoration 100'-200'	60,573	1.4
Buffer Restoration Ephemeral 0'-100'	70,473	1.62
Buffer Restoration Ephemeral 100'-200'	2,837	0.06
Buffer Preservation 0'-100'	3,870	0.09
<b>Total Ph II CE Area</b>	<b>326,545</b>	<b>7.50</b>

I, ELISABETH G. TURNER, AS A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF NORTH CAROLINA, CERTIFY THAT THIS BUFFER MAP WAS DRAWN UNDER MY SUPERVISION, IS AN ACCURATE AND COMPLETE REPRESENTATION OF WHAT WAS CONSTRUCTED IN THE FIELD, THAT THE EASEMENT BOUNDARY IS BASED ON PLAT BOOK 199, PG 67 RECORDED IN GUILFORD COUNTY REGISTER OF DEEDS OFFICE, AND THAT THE BUFFER AREAS SHOWN ARE CALCULATED FROM AS-BUILT CONDITIONS EXCEPT WHERE OTHERWISE NOTED HEREON. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER, AND SEAL THIS 30th DAY OF APRIL, 2019.

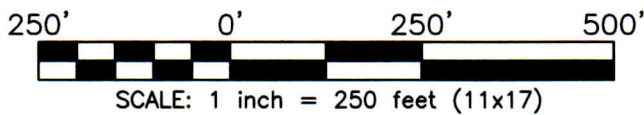
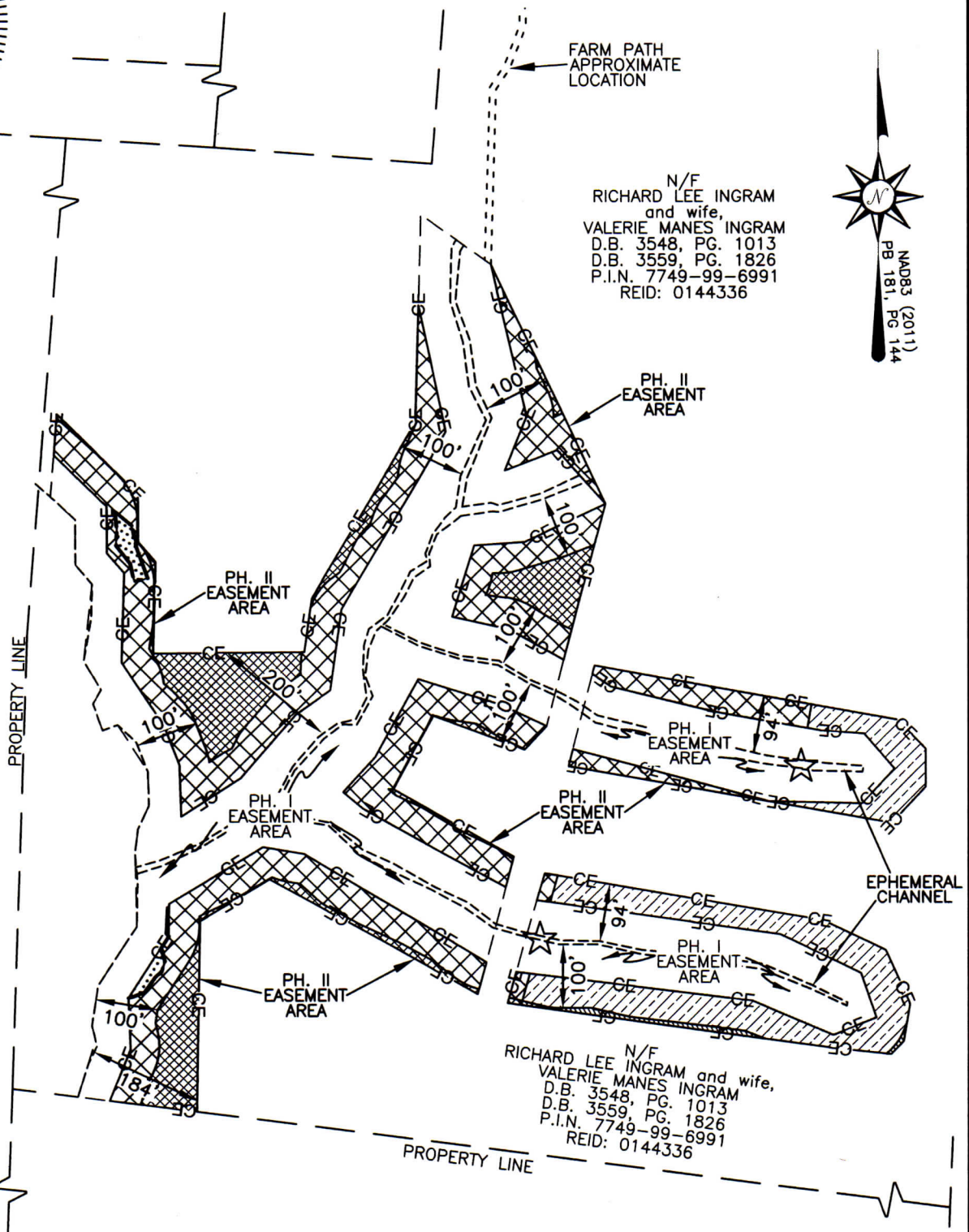
*Elisabeth G. Turner*  
 ELISABETH G. TURNER, P.L.S. #L-4440  
 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-4440  
 ELISABETH G. TURNER

LEGEND:

— CE —	BURNETTS CHAPEL PH. II CONSERVATION EASEMENT
- - - -	PH. I CONSERVATION EASEMENT
- - - -	CHANNEL TOP OF BANK
— — — —	TREE LINE
— — — —	RIGHT OF WAY
— — — —	PROPERTY LINE
☆	END EPHEMERAL CHANNEL

GENERAL NOTES:

- ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED.
- THE BASIS OF BEARINGS IS NCGS STATE PLANE NAD83(2011) DATUM.
- THE AREA SHOWN HEREON WAS COMPUTED USING THE COORDINATE COMPUTATION METHOD.
- THE PURPOSE OF THIS PLAT IS TO SHOW THE AS-BUILT AREAS FOR RIPARIAN BUFFER CREDITS WITHIN THE CONSERVATION EASEMENT. THIS PLAT IS NOT A BOUNDARY SURVEY. THE LAND PARCELS AND THEIR BOUNDARIES AFFECTED BY THIS CONSERVATION EASEMENT ARE NOT CHANGED BY THIS PLAT.
- LINE NOT SURVEYED ARE SHOWN AS A DASHED LINETYPE AND WERE TAKEN FROM INFORMATION REFERENCED ON THE FACE OF THIS PLAT.
- SUBJECT TO ALL EASEMENTS, RIGHT OF WAYS, AND/OR ENCUMBRANCES THAT MAY AFFECT THE PROPERTY(S).
- SEE BURNETTS CHAPEL II CONSERVATION EASEMENT MAP RECORDED IN PLAT BOOK 199, PG 67, AND BURNETTS CHAPEL BUFFER MITIGATION SITE CONSERVATION EASEMENT (PH I) RECORDED IN PLAT BOOK 181, PG 143-144 IN THE GUILFORD COUNTY REGISTER OF DEEDS OFFICE.



THIS MAP IS NOT FOR RECORDATION, SALES, OR CONVEYANCES AND DOES NOT COMPLY WITH G.S. 47-30 MAPPING REQUIREMENTS.

SHEET 1 of 1	FILE: BURNETTS CHAPEL PH. II BUFFER AS-BUILT SCALE: 1" = 250'	PROJECT: 18-015 REVIEWED BY: EGT DRAWN BY: EGT SURVEYED BY: DST DATE: 04/30/2019	AS-BUILT SURVEY FOR WILDLANDS ENGINEERING, INC. BURNETTS CHAPEL II		REVISIONS, DATE AND INITIAL:
			P.I.N.: 7749-99-6991 REID: 0144336 SUMNER TOWNSHIP	CAPE FEAR RIVER BASIN GUILFORD COUNTY	<b>TURNER</b> LAND SURVEYING P.O. BOX 148 SWANNANOVA, NC 28778 P-0702 (919) 827-0745 www.turnerlandsurveying.com Certified DBE/WBE

**APPENDIX 4**

---

## **Site Photographs**



**Photo 1** – B1 Left Bank downstream view (03/25/2019)



**Photo 2** – B1 Left Bank upstream view (03/25/2019)



**Photo 3** – B2 Right Bank downstream view (03/25/2019)



**Photo 4** – B2 Right Bank downstream view (03/25/2019)



**Photo 5** – B3 Left Bank upstream view (03/25/2019)



**Photo 6** – B4 Right Bank downstream view (03/25/2019)



**Photo 7** – B5 Right Bank upstream view (03/25/2019)



**Photo 8** – B5 Left Bank downstream view (03/25/2019)

**APPENDIX 5**

---

**Table 4. Planted and Total Stems**

Burnetts Chapel Mitigation Site - Phase II

DMS Project No. 100045

Monitoring Year 0 - 2019

Scientific Name	Common Name	Species Type	Current Plot Data (MY0 2019)																		Annual Means		
			Vegetation Plot 1			Vegetation Plot 2			Vegetation Plot 3			Vegetation Plot 4			Vegetation Plot 5			Vegetation Plot 6			MY0 (2019)		
			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
<i>Betula nigra</i>	River Birch	Tree	5	5	5	6	6	6	4	4	4	4	4	4	1	1	1				20	20	20
<i>Fraxinus pennsylvanica</i>	Green Ash	Tree	1	1	1	1	1	1	3	3	3	4	4	4	1	1	1	1	1	1	11	11	11
<i>Liriodendron tulipifera</i>	Tulip Poplar	Tree	1	1	1										3	3	3	5	5	5	9	9	9
<i>Platanus occidentalis</i>	Sycamore	Tree	2	2	2	3	3	3	1	1	1	2	2	2	2	2	2	3	3	3	13	13	13
<i>Quercus michauxii</i>	Swamp Chestnut Oak	Tree	4	4	4	5	5	5	2	2	2	2	2	2	7	7	7				20	20	20
<i>Quercus phellos</i>	Willow Oak	Tree	2	2	2				5	5	5	3	3	3	1	1	1	6	6	6	17	17	17
<b>Stem count</b>			15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	90	90	90
<b>Size (ares)</b>			1			1			1			1			1			1			6		
<b>Size (ACRES)</b>			0.02			0.02			0.02			0.02			0.02			0.02			0.15		
<b>Species count</b>			6	6	6	4	4	4	5	5	5	5	5	5	6	6	6	4	4	4	6	6	6
<b>Stems per ACRE</b>			607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607

- 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%
- Volunteers included

PnoLS: Number of planted stems excluding live stakes  
 P-All: Number of planted stems including live stakes  
 T: Total stems

## **Vegetation Plot Photographs**





**Vegetation Plot 1 (03/18/2019)**



**Vegetation Plot 2 (03/18/2019)**



**Vegetation Plot 3 (03/18/2019)**



**Vegetation Plot 4 (03/18/2019)**



**Vegetation Plot 5 (03/18/2019)**



**Vegetation Plot 6 (03/18/2019)**