

**YEAR 3 (2014) ANNUAL MONITORING REPORT**  
**WALL RIPARIAN BUFFER MITIGATION SITE**

RANDOLPH COUNTY, NORTH CAROLINA  
EEP PROJECT ID: 95007

DATA COLLECTED AUGUST 2014  
CONSTRUCTION COMPLETED MARCH 2012  
**MONITORING REPORT SUBMITTED OCTOBER 2014**



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## EXECUTIVE SUMMARY

Restoration Systems, LLC has established the Wall Riparian Buffer Mitigation Site (Site), designed specifically to assist in fulfilling the North Carolina Ecosystem Enhancement Program riparian buffer mitigation goals. The Site is located approximately 0.5 mile west of Randleman and three miles northwest of Asheboro, in northern Randolph County (Figure 1, Appendix A), and positioned within the 14-digit Cataloging Unit 03030003010070 of the Cape Fear River Basin. The Site is located within the Carolina Slate Belt ecoregion of the Piedmont province of North Carolina. This ecoregion is characterized by dissected irregular plains, some hills, linear ridges, and isolated monadnocks; low to moderate gradient streams with mostly boulder and cobble substrates (Griffith 2002). The Site watershed is characterized primarily by agriculture with forest land in riparian corridors and upper headwater depressions, and low-density residential development scattered along roadways. Unnamed Site streams drain to a reach of the Deep River that was listed on the NCDWQ final 2010 303(d) list for a standard violation due to reduced aquatic life integrity (NCDWQ 2010).

Measuring 12.6 acres and protected in perpetuity by a conservation easement, the Site includes five unnamed tributaries which flow to the Deep River. Site streams were impacted from channel straightening, clearing of native forest vegetation, continual maintenance, and hoof shear through livestock grazing. The primary goal of this riparian buffer restoration project is to provide 9.8 Riparian Buffer Mitigation Units. Success of this goal is based on the following criteria.

1. Removing nonpoint sources of pollution associated with agricultural production including a) removing livestock and b) ceasing the broadcast application of fertilizer, pesticides, and other agricultural materials into and adjacent to Site streams through treatment of runoff within the forested buffer.
2. Reducing sedimentation within onsite and downstream receiving waters by a) reducing bank erosion, vegetation maintenance, plowing, and hoof shear adjacent to Site streams and b) removing livestock from the Site.
3. Restoring and reestablishing natural community structure, habitat diversity, and functional continuity by the creation of a forested riparian buffer adjacent to stream channels.
4. Promoting floodwater attenuation by increasing frictional resistance on floodwaters crossing Site floodplains.
5. Improving aquatic habitat by enhancing stream bed shading and natural detritus input.
6. Providing a terrestrial wildlife corridor and refuge in an area extensively developed for agricultural production.
7. Protecting the Site's full potential of stream and riparian buffer functions and values in perpetuity.

Construction activities at the Site included the removal of a small farm pond and farm road, the installation of shallow marsh wetland treatment areas, and the restoration of 9.8 acres of riparian buffer by planting pasture with native forest vegetation. Earthwork associated with the Site Mitigation Plan (dam and road removal) was delayed; therefore, in an effort to meet the seasonal planting window, Site planting occurred prior to the initiation of earthwork. The total area associated with earthwork equaled 0.8 acres. Through agency correspondence it was deemed acceptable to proceed with planting prior to earthwork. Areas disturbed by earthwork were planted with 40 3-gallon Green ash (*Fraxinus pennsylvanica*) and 2100 bare root trees in February of 2013 as follows.

700 American elm (*Ulmus americana*)  
500 Ironwood (*Carpinus caroliniana*)  
300 Swamp chestnut oak (*Quercus michauxii*)  
600 Green ash (*Fraxinus pennsylvanica*)

During the winter of 2013/2014, 5000 bare root saplings from the original planting list were planted along UT 5, the upper portion of UT 1, and along UT 3 and 4. Additionally, during the spring of 2014, a site-wide fescue treatment occurred. Newly planted stems appear vigorous, though fescue is repopulating throughout much of the Site.

Four vegetation plots (10-meter by 10-meter in size; Plots 1-4) were established and permanently monumented following Site planting. During the comment and review process associated with the Site's *Baseline Monitoring Document & Asbuilt Baseline Report*, the North Carolina Ecosystem Enhancement Program requested an additional four monitoring plots be installed. The additional monitoring plots (Plots 5-8) were installed and baseline data was collected on March 8, 2013.

All plots (Plots 1-8) were surveyed in August 2014 for the Year 3 (2014) monitoring season following guidelines established in *CVS-EEP Protocol for Recording Vegetation, Version 4.2* (Lee et al. 2008). Vegetation sampling across the Site was above the required average density with 769 planted stems per acre (excluding livestock) surviving. In addition, each individual plot was above success criteria based on planted stems alone. Additional vegetation data can be found in Appendix B.

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## 1.0 PROJECT BACKGROUND

### 1.1 Location and Setting

Located approximately 0.5 mile west of Randleman and three miles northwest of Asheboro, in northern Randolph County (Figure 1, Appendix A), the Site is situated within the Carolina Slate Belt ecoregion of the Piedmont physiographic province of North Carolina, and within the United States Geological Survey (USGS) HUC 03030003 (North Carolina Division of Water Quality [NCDWQ] Subbasin Number 03-06-08) of the Cape Fear River Basin. The Site is positioned near the southwest corner of the 14-digit USGS Cataloging Unit 03030003010070.

The Carolina Slate Belt ecoregion is characterized by dissected irregular plains, some hills, linear ridges, and isolated monadnocks; low to moderate gradient streams with mostly boulder and cobble substrates (Griffith 2002). Onsite elevations range from 750 to 708 feet at the Site outfall (National Geodetic Vertical Datum, [NGVD]) (Randleman, North Carolina USGS 7.5-minute topographic quadrangle). The Site watershed is characterized primarily by agriculture with forest land in riparian corridors and upper headwater depressions, and low-density residential development scattered along roadways. Impervious surfaces account for less than two percent of the watershed land surface. Site streams were historically impacted from channel straightening, clearing of native forest vegetation with continual maintenance, and hoof shear through livestock grazing. Historical land use for the Site was primarily livestock grazing and hay production.

Directions to the Site from the City of Asheboro, NC:

- Travel north on I-73 for approximately 7.9 miles
- Exit onto US 311 toward High Point, NC
- Turn left onto US 311 North/US 311 Extension
- Travel north on US 311 for approximately 2.5 miles
- Turn right onto Wall Brothers Road
- Travel approximately 0.5 mile to Site entrance gate located on the left side of the road.
- Latitude: 35.825437°N, Longitude: 79.850840°W

### 1.2 Project Goals / Objectives

Project goals include the following:

- Improving Water Quality
  - Removing nonpoint sources of pollution associated with agricultural production including a) removing livestock and b) ceasing the broadcast application of fertilizer, pesticides, and other agricultural materials into and adjacent to Site streams through treatment of runoff within the forested buffer.
  - Reducing sedimentation within onsite and downstream receiving waters by a) reducing bank erosion, vegetation maintenance, plowing, and hoof shear adjacent to Site streams and b) removing livestock from the Site.
- Enhancing Flood Attenuation
  - Promoting floodwater attenuation by increasing frictional resistance on floodwaters crossing Site floodplains.

- Restoring Wildlife Habitat
  - Improving aquatic habitat by enhancing stream bed shading and natural detritus input.
  - Providing a terrestrial wildlife corridor and refuge in an area extensively developed for agricultural production.
  - Restoring and reestablishing natural community structure, habitat diversity, and functional continuity.
  - Protecting the Site’s full potential of stream and riparian buffer functions and values in perpetuity.

Project goals will be accomplished by providing a minimum of 9.8 Riparian Buffer Mitigation Units, as calculated in accordance with the requirements stipulated in RFP #16-003567. The achievement of the following objectives will insure the success of providing said mitigation units.

Objective	Buffer Restoration Activity
Removing a pond impounding a reach of UT3 and UT4.	Pond removal occurred in April 2012 – see permanent photo point #4 on Figure 2 (Appendix B).
Removing a section of paved road at the upper reach of UT5.	Paved road removal occurred in April 2012 and planting of the area occurred in early 2013.
Removing invasive species along the upper reach of UT2.	Invasive species removal and monitoring will be ongoing throughout the monitoring period, with the first treatment in early 2013.
Installing shallow marsh wetland treatment areas on two ephemeral ditches entering the Site from Wall Brothers Road.	Shallow marsh wetland treatment areas were installed in April 2012 including log outfalls, planting with erosion control seed, and planting native forest vegetation.
Restoring approximately 9.8 acres of riparian buffer by planting with native forest vegetation.	Site revegetation occurred in March 2012, with supplemental planting of disturbed areas occurred in early 2013 (Appendix C).
Protecting the Site in perpetuity with a conservation easement.	The Site is protected by a conservation easement held by the State of North Carolina (SPO # 76-BD).

### 1.3 Project Structure, Restoration Type, and Approach

#### Project Structure

The Site includes 5 unnamed tributaries that drain to Randleman Lake and the Deep River (Figure 1, Appendix A). The lower reach of UT1 is depicted as a perennial stream on the USGS 7.5-minute topographic quadrangle while the upper reach of UT1 and the entirety of UT2 are depicted as intermittent streams [USGS Randleman, NC 7.5-minute topographic quadrangle (1981, 2010)]. UTs 3, 4, and 5 are not depicted on the USGS topographic quadrangle, but exhibited characteristics of ditched intermittent streams during field investigations. Geomorphology scores for these streams are generally low due to historical manipulation and disturbance.

#### **Existing Stream Characteristics**

Stream Reach	USGS Stream Order	<sup>1</sup> USGS Stream Classification	Field Stream Classification	NCDWQ Stream Identification Form Score
UT1	1-2	intermittent/perennial	Perennial	30.5
UT2	1	intermittent	Perennial	36.25
UT3	0-1	not shown/intermittent	Ephemeral / Intermittent	11/22
UT4	0	not shown	Ephemeral	11
UT5	0	not shown	Intermittent	22

<sup>1</sup>USGS Stream Classification: UT3 is depicted only downstream of the pond on the USGS 7.5-minute topographic quadrangle.

### Restoration Type and Approach

Site restoration activities include the cessation of agricultural practices; removal of an agricultural pond and abandoned road crossing; installation of marsh treatment areas; and revegetation with native, forest communities. These activities will ultimately result in the generation of 9.8 Riparian Buffer Mitigation Units.

Completed project activities, reporting history, completion dates, and project contacts are summarized in Tables 1-3 (Appendix A).

## **2.0 ANNUAL MONITORING**

Monitoring of restoration efforts will be performed for a minimum of 5 years or until success criteria are fulfilled. Monitoring activities for the Site, including relevant structures, project features, specific project structures, and monitoring features are detailed in the monitoring plan view in Figure 2 (Appendix A).

### **2.1 Vegetation**

Monitoring of planted vegetation will follow the *Carolina Vegetation Survey (CVS)-North Carolina Ecosystem Enhancement Program (EEP) Protocol for Recording Vegetation, Version 4.2* (Lee et al. 2008). The Site will be measured between June 1 and September 30 until the vegetation success criteria are achieved. A total of eight 10-meter by 10-meter vegetation plots have been installed within the 9.8 acres of restored riparian buffer (Figure 2, Appendix A). Vegetation will receive a visual evaluation on a periodic basis to ascertain the degree of overtopping of planted elements by nuisance species.

Invasive exotic species will be located and treated on a yearly basis, dependent upon species, by a NC Department of Agriculture & Consumer Services licensed pesticide applicator.

#### **2.1.1 Vegetation Success Criteria**

Success criteria have been established to verify that the vegetation component supports community elements necessary for forest development. Success criteria are dependent upon the density and growth of characteristic forest species. Additional success criteria are dependent upon the density and growth of “Characteristic Tree Species.” Characteristic Tree Species include planted species, species identified through visual inventory of an approved, relatively undisturbed, reference forest community, and species outlined in Schafale and Weakley (1990) for a Piedmont/Low Mountain Alluvial Forest. An average density of 320 stems per acre of Character Tree Species must be surviving after five monitoring years.

#### **2.1.2 Vegetative Contingency Plan**

If vegetation success criteria are not achieved based on average density calculations from combined plots over the entire restoration area, supplemental planting may be performed with tree species approved by regulatory agencies. Supplemental planting may be performed as needed until achievement of vegetation success criteria.

#### **2.1.3 Vegetative Problem Areas**

Earthwork associated with the Site Mitigation Plan (dam and road removal) was delayed; therefore, in an effort to meet the seasonal planting window Site planting occurred prior to the initiation of earthwork. The total area associated with earthwork equals 0.8 acre and it was deemed acceptable to proceed with planting prior to earthwork. Areas disturbed by earthwork were planted with 40 3-gallon Green ash (*Fraxinus pennsylvanica*) and 2100 bare root trees in February of 2013. In addition, portions of the Site with low stem densities were replanted with 5000 bare root plants in late 2013/early 2014, and Site-wide fescue

treatments occurred in the spring of 2014 (Figure 2, Appendix A). Additional vegetation data can be found in Appendix B.

### 3.0 CONCLUSIONS

Vegetation sampling across the Site was above the required average density with 769 planted stems per acre surviving. In addition, each individual plot was above success criteria based on planted stems alone.

#### Summary of Planted Vegetation Plot Results

Plot	Planted Stems/Acre Counting Towards Success Criteria				
	Year 1 (2012)	Year 2 (2013)	Year 3 (2014)	Year 4 (2015)	Year 5 (2016)
1	648	324	728		
2	567	567	1174		
3	648	445	971		
4	486	243	648		
5*	--	202	648		
6*	--	526	486		
7*	--	1093	1093		
8*	--	486	405		
<b>Average of All Plots</b>	<b>587</b>	<b>486</b>	<b>769</b>		

\*Plots 5-8 were installed in March 2013 prior to Year 2 (2013) monitoring in response to agency comments during the review of baseline documentation/data.

### 4.0 REFERENCES

Griffith, G.E., J.M. Omernik, J.A. Comstock, M.P. Schafale, W.H. McNab, D.R. Lenat, T.F. MacPherson, J.B. Glover, and V.B. Shelbourne. 2002. Ecoregions of North Carolina and South Carolina. U.S. Geological Survey, Reston, Virginia.

Lee, Michael T., R.K. Peet, S.D. Roberts, and T.R. Wentworth. 2008. CVS-EEP Protocol for Recording Vegetation, Version 4.2. (online). Available: <http://cvs.bio.unc.edu/methods.htm>.

North Carolina Division of Water Quality (NCDWQ). 2010. Final North Carolina Water Quality Assessment and Impaired Waters List (2010 Integrated 305(b) and 303(d) Report) (online). Available:

[http://h2o.enr.state.nc.us/tmdl/documents/draft\\_2010\\_Cat\\_5.pdf](http://h2o.enr.state.nc.us/tmdl/documents/draft_2010_Cat_5.pdf) [February 1, 2011]. North Carolina Department of Environment and Natural Resources, Raleigh, North Carolina.

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.



## **Appendix A: General Tables and Figures**

Table 1. Site Restoration Structures and Objectives

Table 2. Project Activity and Reporting History

Table 3. Project Contacts

Table 4. Project Baseline Information & Attributes

Figure 1. Site Location

Figure 2. Monitoring Plan

**Table 1. Site Restoration Structure and Objectives**

Wall Riparian Buffer Restoration Site, Randolph County, EEP Contract #: 003985

Mitigation Credits				
Riparian Buffer				
Restoration			Restoration Equivalent	
9.8			--	
Projects Components				
Existing Acreage	Restoration/Restoration Equivalent	Restoration Acreage	Mitigation Ratio	Comment
9.8	Restoration	9.8	1:1	Cessation of current land use practices, removing an agricultural pond and road crossing, removing invasive species, and planting with native forest vegetation.
Component Summation				
Restoration Level		Riparian Buffer (acreage)		
Restoration		9.8		
<b>Totals</b>		<b>9.8</b>		
<b>Mitigation Units</b>		<b>9.8 Riparian BMUs</b>		

**Table 2: Project Activity and Reporting History**

Wall Riparian Buffer Restoration Site, Randolph County, EEP Contract #: 003985

Activity or Report	Data Collection Complete	Completion or Delivery
CE Document	NA	February - 2012
Conservation Easement	NA	April - 2012
Mitigation Plan	NA	February - 2012
Construction	NA	March - 2012
Bare Root Planting	NA	March - 2012
Baseline Monitoring Document	April-2012	October 2012
Annual Monitoring Year 1 (2012)	September 2012	November 2012
Planting Disturbed Areas	NA	January/February 2013
Annual Monitoring Year 2 (2013)	July 2013	October 2013
Annual Monitoring Year 3 (2014)	August 2014	October 2014
Annual Monitoring Year 4 (2015)		
Annual Monitoring Year 5 (2016)		

**Table 3: Project Contacts Table**

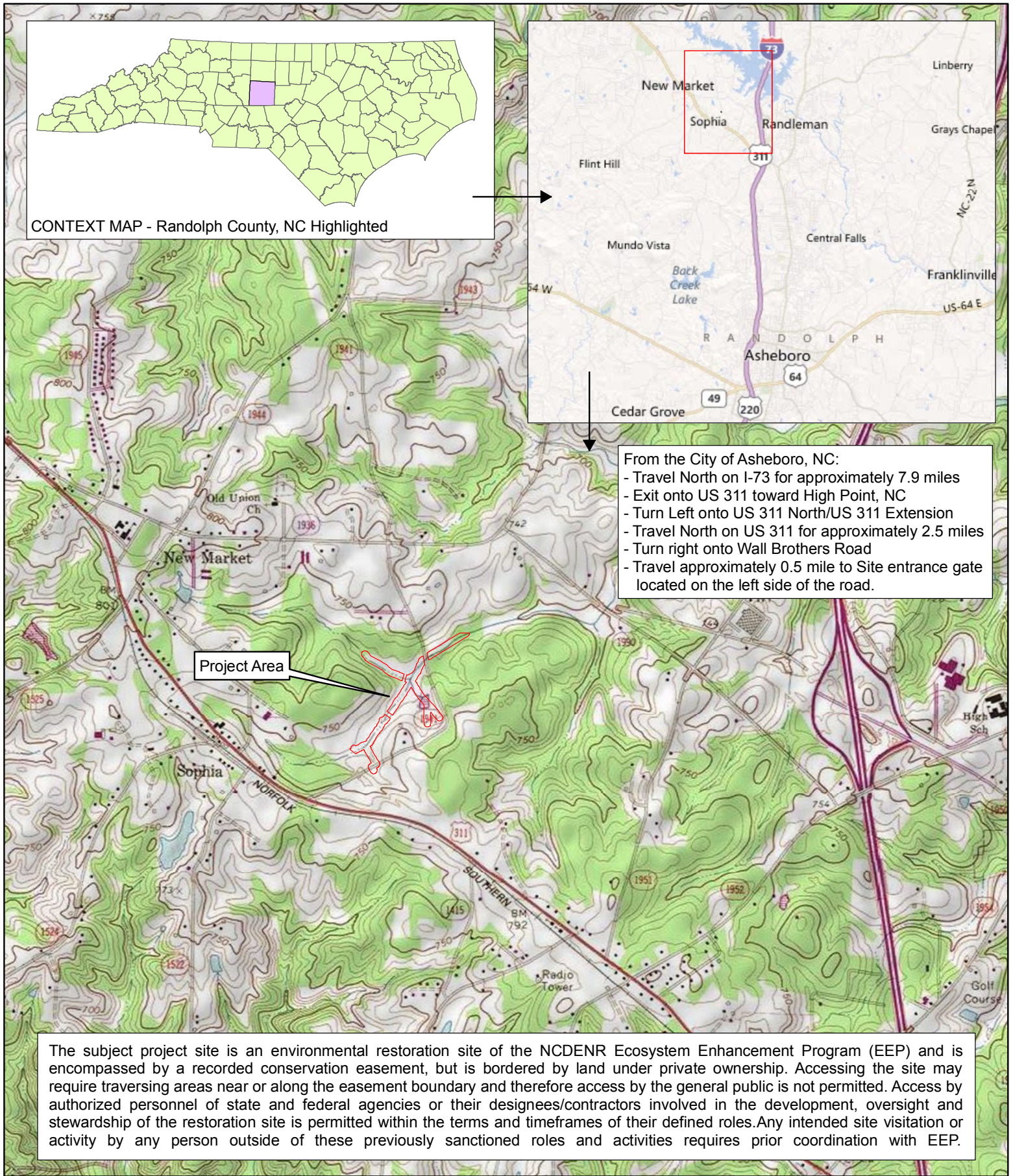
Wall Riparian Buffer Restoration Site, Randolph County, EEP Contract #: 003985

	<b>Firm</b>	<b>POC &amp; Address</b>
<b>Full Delivery Provider</b>	Restoration Systems, LLC	1101 Haynes Street, Suite 211 Raleigh, North Carolina 27604 George Howard and John Preyer 919-755-9490
<b>Designer:</b>	Axiom Environmental, Inc.	Grant Lewis; 919.215.1693 218 Snow Ave. Raleigh, NC 27603
<b>Construction Contractor:</b>	Axiom Green Build.	Grant Lewis; 919.215.1693 218 Snow Ave. Raleigh, NC 27603
<b>Planting Contractor:</b>	Carolina Silvics	Dwight McKinney 252.482.8491 908 Indian Trail Road Edenton, NC 27932
<b>Seeding Contractor:</b>	Axiom Green Build	Grant Lewis; 919.215.1693 218 Snow Ave. Raleigh, NC 27603
<b>Nursery Stock Suppliers:</b>	ArborGen	1.888.888.7158
<b>Baseline Data Collection</b>	Restoration Systems, LLC	Ray Holz; 919.604.9314 1101 Haynes St. Raleigh, NC 27604
<b>Annual Monitoring:</b>	Axiom Environmental, Inc	Grant Lewis; 919.215.1693 218 Snow Ave. Raleigh, NC 27603

**Table 4: Project Baseline Information & Attributes Table**

Wall Riparian Buffer Restoration Site, Randolph County, EEP Contract #: 003985

<b>Project Information</b>			
Project Name		Wall	
County		Randolph	
Project Area (acres)		12.6	
Project Coordinates (latitude and longitude)		35.4927319589, -79.5056974787 (NAD 83/WGS 84)	
<b>Project Watershed Summary Information</b>			
Physiographic Province		Northern Inner Piedmont section of Carolina Slate Belt	
River Basin		Cape Fear	
USGS Hydrologic Unit 8-digit	03030003	USGS Hydrologic Unit 14-digit	03030003010070
DWQ Sub-basin		03-06-08	
Project Drainage Area, Total Outfall (acres)		+/- 448	
Project Drainage Area Percentage of Impervious Area		< 5%	
CGIA Land Use Classification		Cropland and Pasture	
<b>Reach Summary Information</b>			
Parameters	UT 1 & UT 2	UT 3 & UT 4	UT 5
Length of reach (linear feet)	2,030	850	400
Valley classification	VIII	VIII	VIII
Drainage area (acres)	+/- 448		
NCDWQ stream identification score	UT 1 – 30.5 UT 2 – 35.25	UT 3 & UT 4 (above pond) – 11	UT 5 – 22
NCDWQ Water Quality Classification	Portion of Deep River where unnamed tributaries enter ( (Randleman Lake): WS-IV; CA		
Morphological description (stream type)	Perennial	Intermittent / Ephemeral	Intermittent
Drainage class	Rural	Rural	Rural
303d listed?	No	No	No
Upstream of a 303d listed	Yes	Yes	Yes
Dominant Soil Series	Georgeville silty clay loam	Badin-Tarrus complex	Georgeville silty clay loam
Soil Hydric status	Non-Hydric	Non-Hydric	Non-Hydric
Slope	8-15 %	2-8 %	8-15 %
Native vegetation community	Piedmont/Low Mountain Alluvial Forest (Schafale and Weakley 1990)		
Percent exotic invasive vegetation	< 5%		
<b>Regulatory Considerations</b>			
Regulation	Applicable?	Resolved?	Supporting Documentation
Waters of the United States – Section 404	No		
Waters of the United States – Section 401	No		
Endangered Species Act	No		
Historic Preservation Act	No		
Coastal Zone Management Act [CZMA/Coastal Area Management Act (CAMA)]	No		
FEMA Floodplain Compliance	No		
Essential Fisheries Habitat	No		
Sediment & Erosion Control Plan (S&EC)	No		



**RESTORATION SYSTEMS, LLC**  
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 FAX : 919.755.9492

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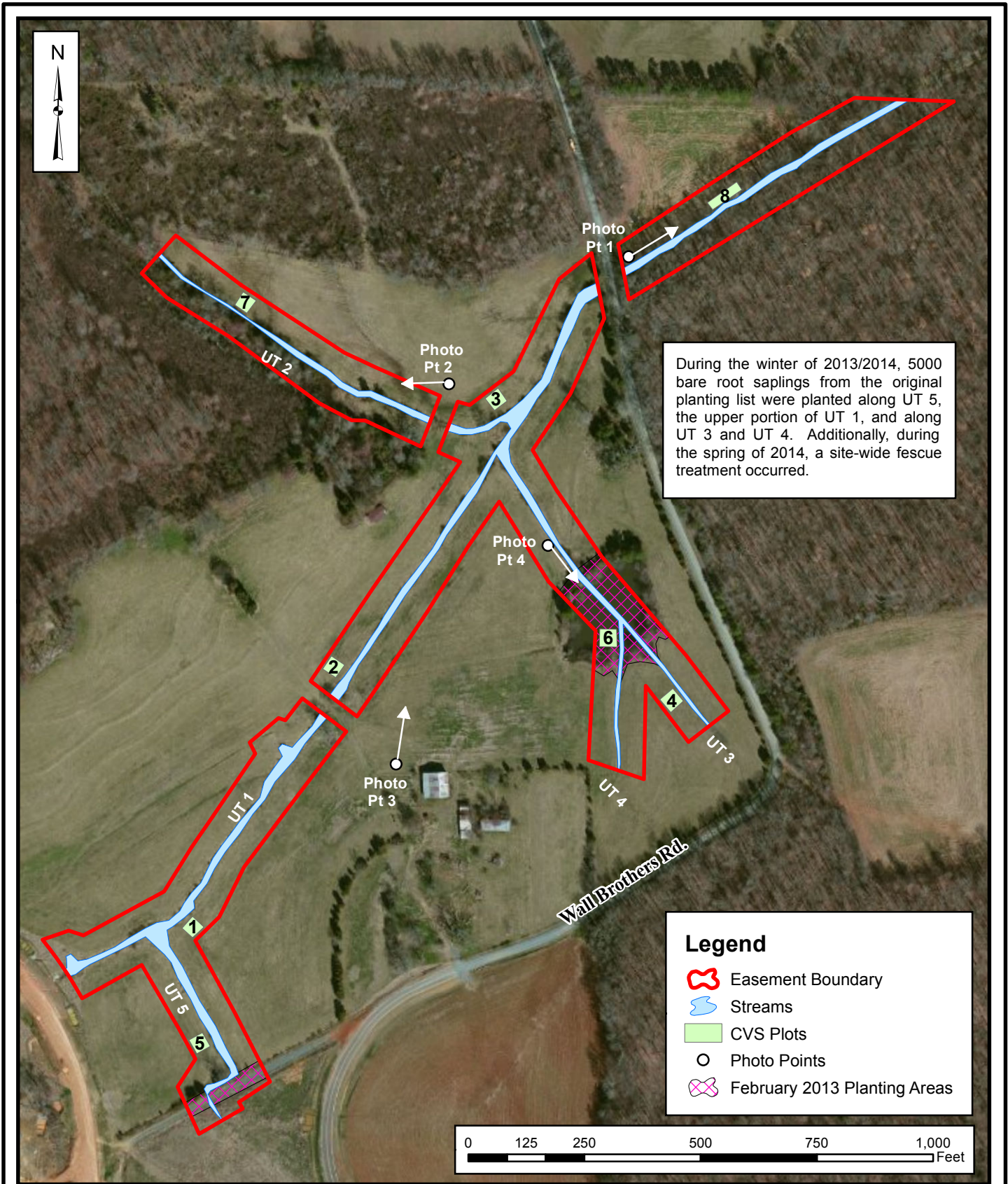
SCALE: 1 inch = 2,000 feet  
 DATE: June - 2012  
 PROJECT: Wall

**FIGURE 1:  
 SITE LOCATION MAP**

Figure indicates where the Site's physical location is along with directions to the Site

**Wall Riparian Buffer Mitigation Site**  
 RFP # 16-003571 Contract # 003985  
 Randolph County, North Carolina

Aerial Imagery USGS Topographical Map  
 COORDINATE SYSTEM: NAD 1983 NC FEET



Axiom Environmental  
218 Snow Ave  
Raleigh, NC 27603

**CURRENT CONDITIONS PLAN VIEW  
WALL RIPARIAN BUFFER RESTORATION SITE  
Randolph County, North Carolina**

Dwn. by:  
WGL/KRJ  
Date:  
Oct 2014  
Project:  
10-001

FIGURE  
**2**

## **APPENDIX B: VEGETATION DATA**

Table 5 - 2014 (Year 3) Planted Stem and Natural Recruit Totals by Plot  
2014 (Year 3) Vegetation Monitoring Photographs  
2014 (Year 3) Photo Point Photographs

Table 5. 2014 (Year 3) Planted Stem and Natural Recruit Totals by Plot  
 CVS Project Code Wall. Project Name: Wall Riparian Buffer Mitigation Site

		Current Plot Data (MY3 2014)																								
Scientific Name	Common Name	Species Type	Wall-RS-0001			Wall-RS-0002			Wall-RS-0003			Wall-RS-0004			Wall-01-0005			Wall-01-0006			Wall-01-0007			Wall-01-0008		
			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	PnoLS	P-all	T
Acer floridanum	Southern Sugar Maple,	Tree																						1	1	1
Acer rubrum	red maple	Tree																								6
Asimina triloba	pawpaw	Tree																								
Carpinus caroliniana	American hornbeam	Tree							1	1	1				1	1	1									
Carya ovata	shagbark hickory	Tree									2												6	6	12	
Cephalanthus occidentalis	common buttonbush	Shrub				7	7	7	1	1	1									8	8	8				
Cornus amomum	silky dogwood	Shrub													1	1	1									
Cornus florida	flowering dogwood	Tree																								
Diospyros virginiana	common persimmon	Tree	1	1	1							3	3	3												
Fraxinus pennsylvanica	green ash	Tree	8	8	8	11	11	11	5	5	5	3	3	3	10	10	10	5	5	5	13	13	13	1	1	1
Liquidambar styraciflua	sweetgum	Tree																								7
Liriodendron tulipifera	tuliptree	Tree	1	1	1	1	1	6	6	6	12	3	3	3												15
Morus rubra	red mulberry	Tree																								1
Quercus	oak	Tree				2	2	2	1	1	1															
Quercus michauxii	swamp chestnut oak	Tree	1	1	1	5	5	5	8	8	8	7	7	7	1	1	1	6	6	6	3	3	3			
Quercus pagoda	cherrybark oak	Tree	6	6	6	3	3	3	2	2	2				3	3	3				2	2	2			
Salix nigra	black willow	Tree																								29
Ulmus alata	winged elm	Tree																								
Ulmus americana	American elm	Tree	1	1	1			1										1	1	2	1	1	1			
Unknown		Shrub or Tree																								
<b>Stem count</b>			18	18	18	29	29	35	24	24	32	16	16	16	16	16	16	12	12	42	27	27	40	10	10	58
<b>size (ares)</b>			1			1			1			1			1			1			1			1		
<b>size (ACRES)</b>			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02		
<b>Species count</b>			6	6	6	6	6	7	7	7	8	4	4	4	5	5	5	3	3	4	5	5	7	5	5	6
<b>Stems per ACRE</b>			728.4	728.4	728.4	1174	1174	1416	971.2	971.2	1295	647.5	647.5	647.5	647.5	647.5	647.5	485.6	485.6	1700	1093	1093	1619	404.7	404.7	2347

**Color for Density**

- 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%

- PnoLS = Planted excluding livestakes
- P-all = Planting including livestakes
- T = All planted and natural recruits including livestakes
- T includes natural recruits



**Table 6**

**Vegetation Condition Assessment**

**Wall I Riparain Buffer Mitigation Site - EEP Contract #: 003997; EEP Project ID: 95007; RFP # 16-003567**

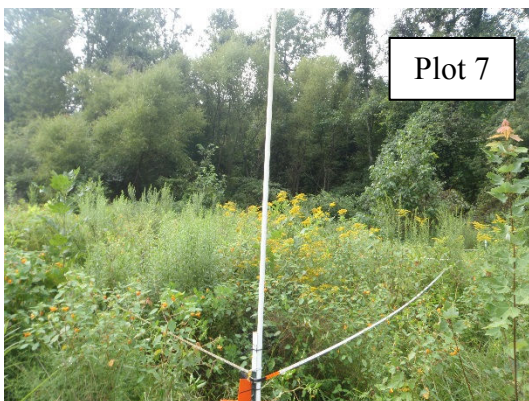
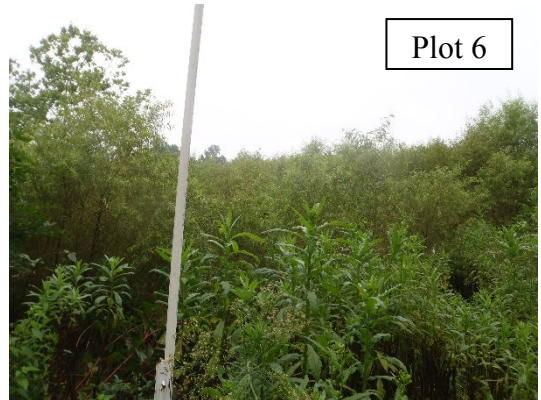
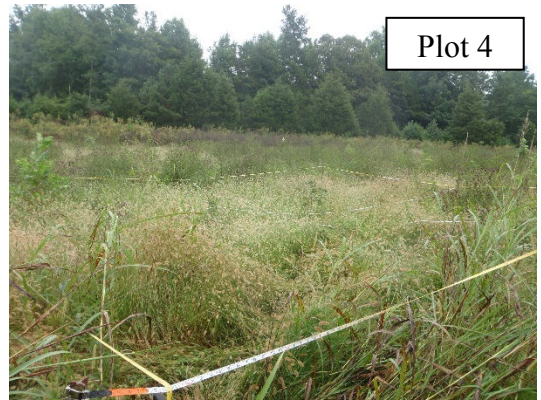
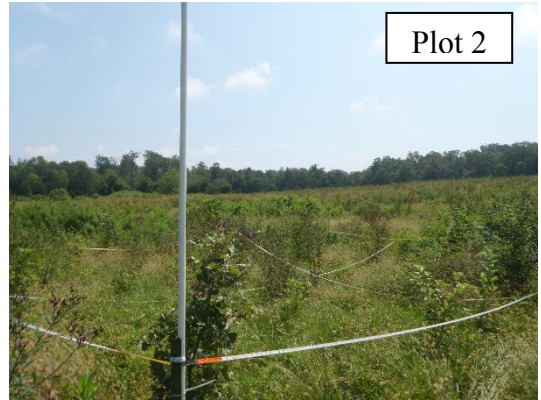
Planted Acreage 10.6

Vegetation Category	Definitions	Mapping Threshold	CCPV Depiction	Number of Polygons	Combined Acreage	% of Planted Acreage
1. Bare Areas	NA	NA	NA	NA	NA	NA
2. Low Stem Density Areas	NA	NA	NA	NA	NA	NA
Total				0	0.00	0.0%
3. Areas of Poor Growth Rates or Vigor	NA	NA	NA	NA	NA	NA
Cumulative Total				0	0.00	0.0%

Easement Acreage 12.6

Vegetation Category	Definitions	Mapping Threshold	CCPV Depiction	Number of Polygons	Combined Acreage	% of Easement Acreage
4. Invasive Areas of Concern	There is some Johnson Grass and Chinese privet scattered within the easement that is not affecting planted stems at this time.	NA	NA	NA	1.30	10.3%
5. Easement Encroachment Areas	NA	NA	NA	NA	NA	NA

**Wall Buffer**  
**2014 (Year 3) Vegetation Monitoring Photographs**  
**Taken August 2014**



**Wall Buffer  
2014 (Year 3) Photo Point Photographs  
Taken August 2014**



## **APPENDIX C: AGENCY CORRESPONDENCE**

May 15, 2012

Ms. Kristie Corson  
DENR-Ecosystem Enhancement Program  
1652 Mail Service Center  
Raleigh, North Carolina  
27699-1652

Subject: Task IV Construction, Contact #: 003997

Dear Ms. Corson:

I wanted to provide you with an update regarding the status of construction and planting at the Wall Riparian Buffer Mitigation Project in Randolph County. Due to the late closing date on the property (April 11<sup>th</sup>), we opted to plant the site in March and then due the construction following closing. On March 22<sup>nd</sup>, Carolina Silvics planted the entire site except for two small areas totaling 0.8 acres. During the week of April 23<sup>rd</sup>, Axiom Green Build worked in these two areas to remove a) short section of gravel road along with a concrete culvert and b) a small earthen dam. Attached is a figure showing both the area planted and the area of construction.

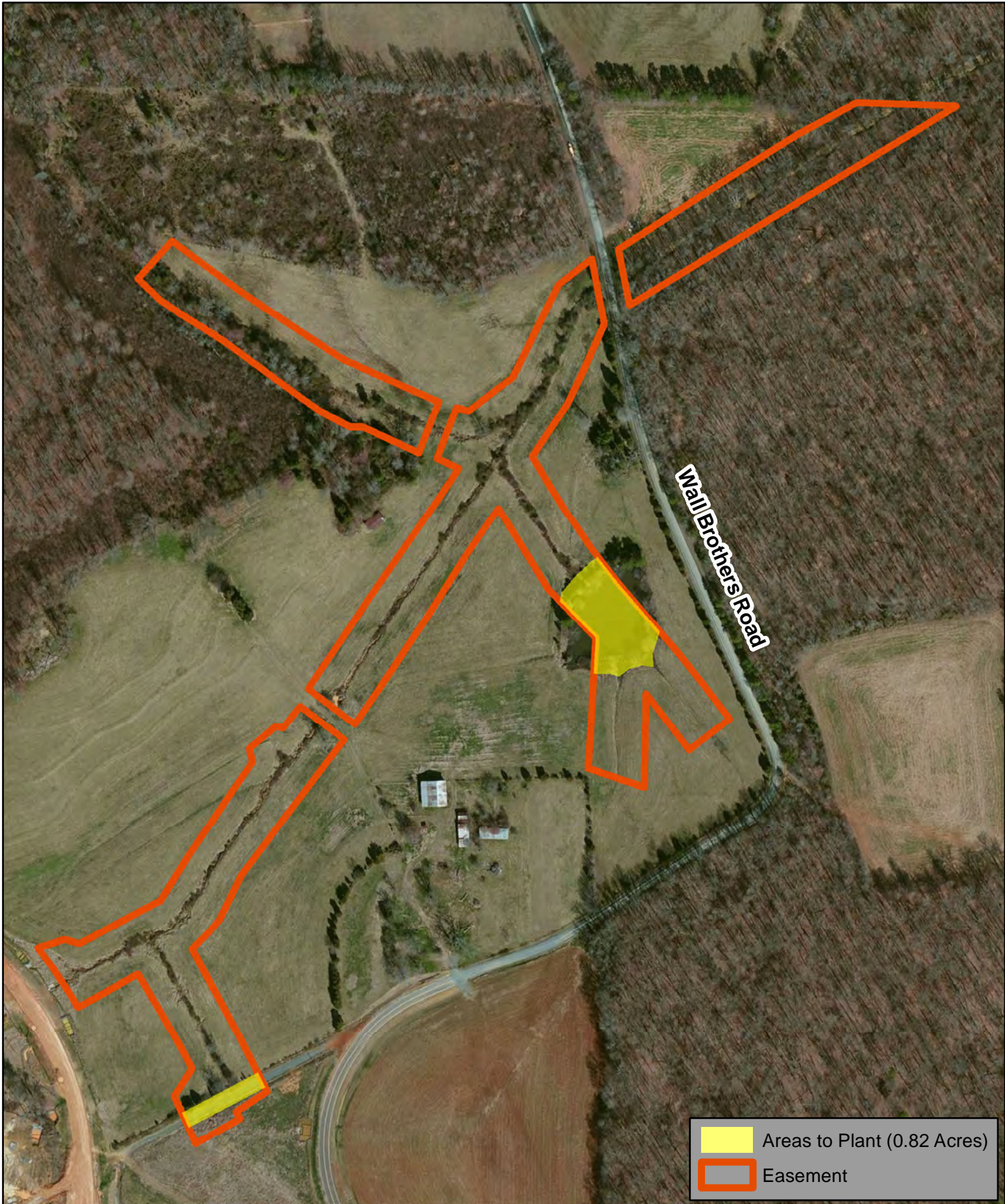
As a result of doing the construction after the planting season had passed, the two areas totaling 0.8 acres still need to be planted. I had hoped to do this immediately following construction but due to the unseasonably warm weather it simply would not be successful. If agreeable to you, I would like to use this year's growing season for the first year of monitoring with the stipulation that during the winter of 2012/2013 we will plant the 0.8 acre area with 1-gallon containerized trees (as opposed to bare root seedlings).



Removal of the road and dam were successful and we are waiting for the bottom of the impoundment to dry out a bit more before  
Please feel free to contact at me 919.334.9112 if you have any questions.

Sincerely,

Travis Hamrick, Project Manager

Attachments (3): Invoice Task IV  
Figure- Planting Needs  
Project History



	Areas to Plant (0.82 Acres)
	Easement


**RS**  
RESTORATION SYSTEMS, LLC

**Restoration Systems, LLC**  
1101 Haynes St. Suite 211  
Raleigh, NC 27604  
tel: 919.755.9490

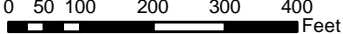
**Figure 1:**  
Construction Status

**Wall Buffer Restoration Project**  
Randolph County, NC

1:3,188



0 50 100 200 300 400 Feet



## Raymond Holz

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**From:** Raymond Holz  
**Sent:** Monday, October 22, 2012 6:13 PM  
**To:** Kristie.Corson@ncdenr.gov  
**Cc:** Travis Hamrick (travis@restorationsystems.com)  
**Subject:** Wall Riparian Buffer Mitigation Site: Additional Vegetation Monitoring Plots  
**Attachments:** Additional Monitoring Plots at Wall.pdf

Afternoon Kristie,

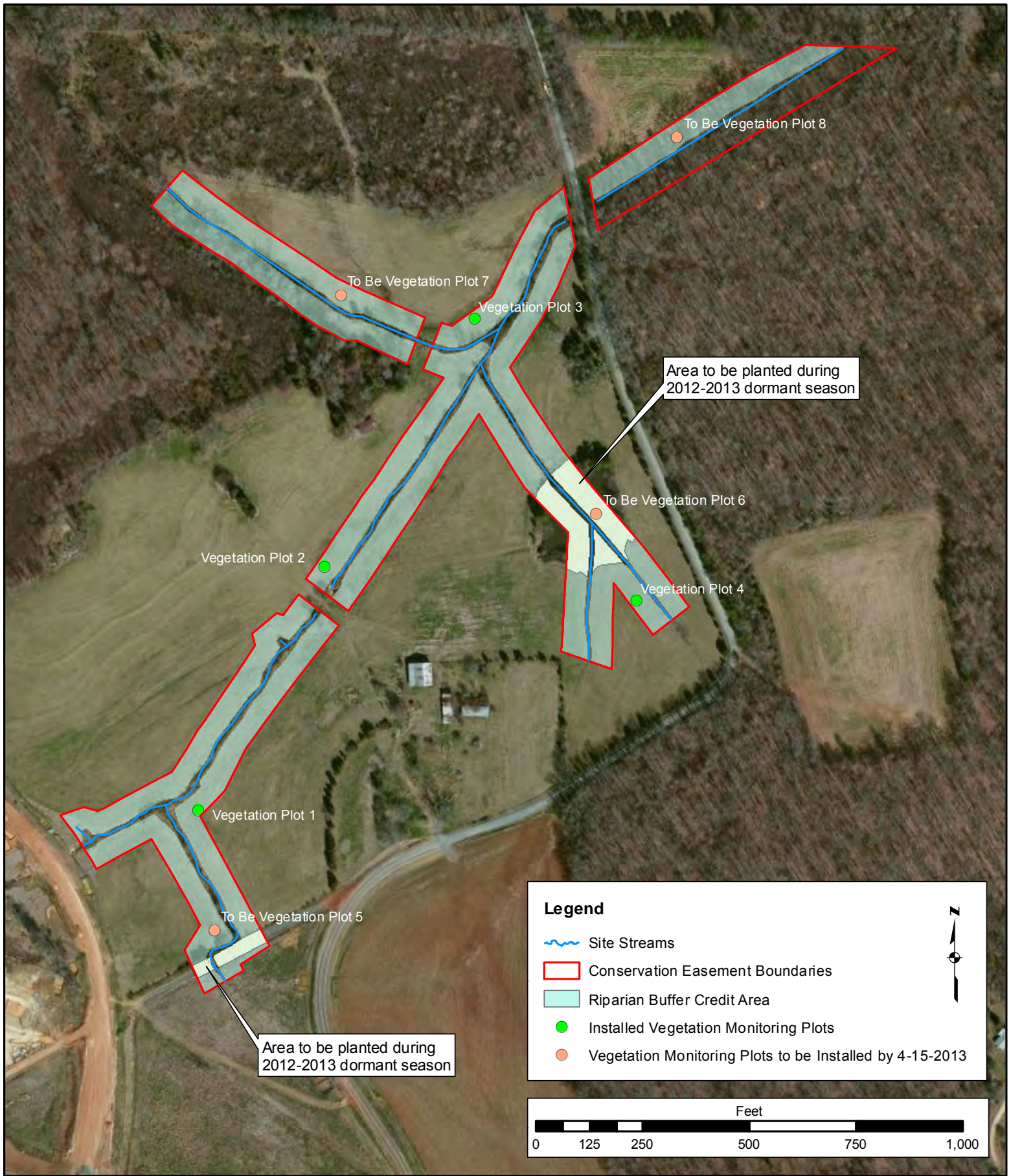
After receiving and reviewing the comments you provided regarding the Wall Riparian Buffer Mitigation Site's Draft Baseline Monitoring Document and As Built Baseline Report dated October 16, 2012 Restoration Systems (RS) is prepared to install an additional four (4) vegetation monitoring plots as requested. CVS protocol stipulates that baseline vegetation data be collected within 30 days of the project being planted. Additionally, 60 day must pass between vegetation baseline data collection and EEP as-built review. With this in mind and with an EEP on-site as built review already conducted (September 20, 2012), RS recommends the additional four monitoring plots be installed no later than April 1<sup>st</sup> of 2013.

Restoration Systems is recommending this timeline because an additional .80 acres of the Site must be planted during the 2012 – 2013 dormant season. It is planned that one of the four additional monitoring plots will be located in the soon to be planted area. Baseline vegetation data will be conducted simultaneously with the installation of the additional plots and will be included within the 2013, year 2, annual monitoring report. RS understands the addition of these monitoring plots will not prolong the vegetation monitoring of the Site, so long as all current and additional monitoring plots achieve the success criteria outlined in the Mitigation Plan. Installation of the additional monitoring plots will follow CVS protocol and will measure 10 by 10 meters. Please see the attached figure depicting the approximate location of these additional monitoring plots, as well as the areas to be planted during the 2012 – 2013 dormant season.

Thank you for your time, please contact me at 919.604.9314 if you have any questions.

Sincerely,

Raymond Holz



**RESTORATION SYSTEMS, LLC**

1101 HAYNES ST, SUITE 211  
 RALEIGH, NC 27604  
 PHONE : 919.755.9490  
 FAX : 919.755.9492

This map and all data contained within are supplied as is with no warranty. Restoration Systems, LLC expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map is compatible with the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.

SCALE: 1 inch = 292 feet  
 DATE: October - 2012  
 PROJECT: Wall

**Location of Additional Vegetation Monitoring Plots**

Figure indicates where the physical location of all monitoring devices.

Wall Riparian Buffer Mitigation Site  
 RFP # 16-003571 Contract # 003985  
 Randolph County, North Carolina

Aerial Imagery USGS Topographical Map  
 COORDINATE SYSTEM: NAD 1983 NC FEET