BEAMON'S RUN BUFFER AND WETLAND RESTORATION SITE (BARNHILL FARM) MONITORING REPORT (2011)

Greene County, North Carolina
EEP Project No. 24

Prepared for:
North Carolina Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

Status of Plan: Final
Project Planted: 2000
Data Collected: 2011
Submission Date: November 2011

Monitoring Firm:

Stantec Consulting Services Inc
801 Jones Franklin Road, Suite 300
Raleigh, NC 27606

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EXECUTIVE SUMMARY

The purpose of Beamon's Run Riparian Wetland and Buffer Restoration project is to improve water quality by providing a more ecologically effective and efficient riparian buffer. The establishment and protection of a vegetated buffer along the floodplain of any stream provides a number of benefits, which include streambank stability from mature root systems, in-stream shade from the overhanging leaf canopy, organic detritus that fuels food chains, habitat and travel corridors for native wildlife species, and filtering of sediments and other potential pollutants from surface and subsurface flow (NCSRI, 2003). The natural riparian buffer along the project's section of Beamon's Run had been disturbed by past agricultural practices and portions of it had been used as a tire dump. The tires and associated debris were removed and the buffer was planted with native wetland species to restore functionality to the buffer. The primary objective of the project was to protect and improve water quality by removing and transforming pollutants with buffers and wetlands.

The goals as listed in the NC Wetlands Restoration Program (WRP) Project Summary were to:

1. Restore agricultural land to riparian buffer to increase removal of nutrients

2. Improve wildlife habitat

The conservation easement of the project is made up of two tracts: Tract A encompasses 47.53 acres along the right bank of Beamon's Run (including a 2.11 acre open pit area); Tract B encompasses 32.38 acres along the left bank of Contentnea Creek. Beamon's Run is a warm water stream in the Neuse River Basin of the Coastal Plain region in Greene County, North Carolina. Site investigation and design services were provided by PBS&J, Inc. The records available at this time indicated that construction and the bulk of the planting at the site occurred over the winter of 2000. Using the 2000 as-built plan, areas that did not appear to contain any of the planted species, were outside the 200' buffer limit, or exhibited a much older mature plant community were excluded from the monitoring effort. Based on the revised areas, the project consists of 10.001 acres of Neuse River riparian buffer restoration, 195 feet of streambank stabilization, and 0.15 acres of wetland restoration.

No monitoring plan was originally prepared for this site and no monitoring program began at this site when construction was completed. NCSU staff from the Biological and Agricultural Engineering Department and the Water Resources Research Institute made an initial monitoring visit on October 14, 2003. They compiled the first monitoring report submitted in March of 2004. In 2009, Stantec began monitoring the site's vegetation. Monitoring in 2011 revealed that 6 of the 12 plots (50%) of plots meet planted success requirements, however, 83% of the plots have >320 planted and volunteer native hardwood stems per acre. It is difficult to discern the exact reasons for poor planted species survival in the vegetation plots and elsewhere on the site since it has been 11 years since vegetation installation.

During the initial assessment conducted in March 2011, several beaver dams were observed on-site near vegetation plots 3, 8A, and 12A. Despite the presence of the beaver dams no recent signs of beaver activity were observed in the vegetation plots. It was also noted during the initial assessment that vegetation in areas that had been previously mowed and/or damaged by beavers appears to be regenerating. Plants that were resprouting from stumps as well as numerous small saplings of desired species were observed.

The annual vegetation monitoring occurred on August 18th and 19th, 2011 and found that little change has occurred over the past year at Beamon's Run. The beaver dams are still in place near vegetation plots 3, 8A, and 12A with no recent beaver damage in the vegetation plots. There was some minor damage to vegetation outside the vegetation plots that occurred from strong winds. This wind damage occurred near vegetation plots 7, 8A, 9, and 10; however the only vegetation plot impacted was vegetation plot 7. Vegetation plot 7 had a tree (outside the plot) fall into the plot and on top of two planted stems, both stems are still alive and should recover without incident (see Photo 7). Areas that were previously mowed continue to regenerate, except for a small strip (~1 m wide) parallel to the farm path and inside the easement that extends approximately from vegetation plot 8A to vegetation plot 10. This area appears to have been sprayed with some type of herbicide, but did not negatively impact any vegetation plots or planted areas. Common invasives onsite still include *Lespedeza* and Japanese honeysuckle but have not expanded since 2010 and do not seem to be a major concern for desirable vegetation establishment. *Lespedeza* occurs along the field edges while Japanese honeysuckle is prevalent across the entire site. A few areas, particularly in the eastern portions of the site, the honeysuckle is dense and could cause problems in the future. Currently the invasives are not affecting planted woody vegetation. It is recommended that the invasives continued to be monitored for potential issues in the future.

Credit is not being sought for the stream stabilization or wetland restoration conducted for the project. Therefore, as per NCEEP, no stream assessment or hydrologic monitoring took place at the Beamon's Run Buffer and Wetland Restoration Site.

Summary information/data related to the occurrence of items such as beaver or encroachment and statistics related to performance of various project and monitoring elements can be found in the tables and figures in the report appendices. Narrative background and supporting information formerly found in these reports can be found in the Baseline Monitoring Report (formerly Mitigation Plan) and in the Mitigation Plan (formerly Restoration Plan) documents available on NCEEP's website. All raw data supporting the tables and figures in the appendices is available from NCEEP upon request.

1.0 Methodology

Vegetation onsite was first visually assessed to determine the general areas of viable planted vegetation. Using the 2000 as-built plan, areas that did not appear to contain any of the planted species, were outside the 200' buffer limit, or exhibited a much older mature plant community were excluded from the monitoring effort. These areas are shown on the maps in Appendix B. The 200' buffer was taken from the normal edge of the surface water.

Twelve vegetative sample plots were randomly selected using GIS and established within the project easement in 2009. The plots were quantitatively monitored during the 2011 growing season on August 18th and 19th, 2011. Species composition, density, and survival were observed during the site visit. The Carolina Vegetation Survey (CVS, 2008) methodology was utilized for vegetative monitoring. Level 2 (planted and natural stems) methodology was completed on all monitored plots. It must be noted that due to the age of the planted species, in some plots, it was difficult to distinguish planted species from volunteers during the 2009 monitoring effort. However, best professional judgment along with knowledge of project planting zones by species enabled vegetation data to be collected. The planted vegetation zones included oak mix, longleaf pine, river birch, and cypress.

The vegetative success criteria are based on the North Carolina rule 15A NCAC 2B 0242 *Neuse River Basin: Nutrient Sensitive Waters Management Strategy: Mitigation Program for Protection and Maintenance of Existing Riparian Buffers* (2000). The final vegetative success criteria will be the survival of 320 planted native hardwood stems per acre after 5 years. As per NCEEP, the cypress wetland area was only monitored for vegetation within the 200' riparian buffer, and not wetland hydrology. Streams were also not monitored as part of this project.

2.0 References

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

NCEEP. 2010. *Procedural Guidance and Content Requirements for EEP Monitoring Reports*. North Carolina Department of Environment and Natural Resources, Ecosystem Enhancement Program. Raleigh, NC. Version 1.3 January 15, 2010.

NCSRI. 2003. *Stream Restoration – A Natural Channel Design Handbook*. North Carolina Stream Restoration Institute. Raleigh, NC.

NC Administrative Code: 15A NCAC 2B 0242, *Neuse River Basin: Nutrient Sensitive Waters Management Strategy: Mitigation Program for Protection and Maintenance of Existing Riparian Buffers,* Raleigh, NC. 2000.

Appendix A. Project Vicinity Map and Background Tables

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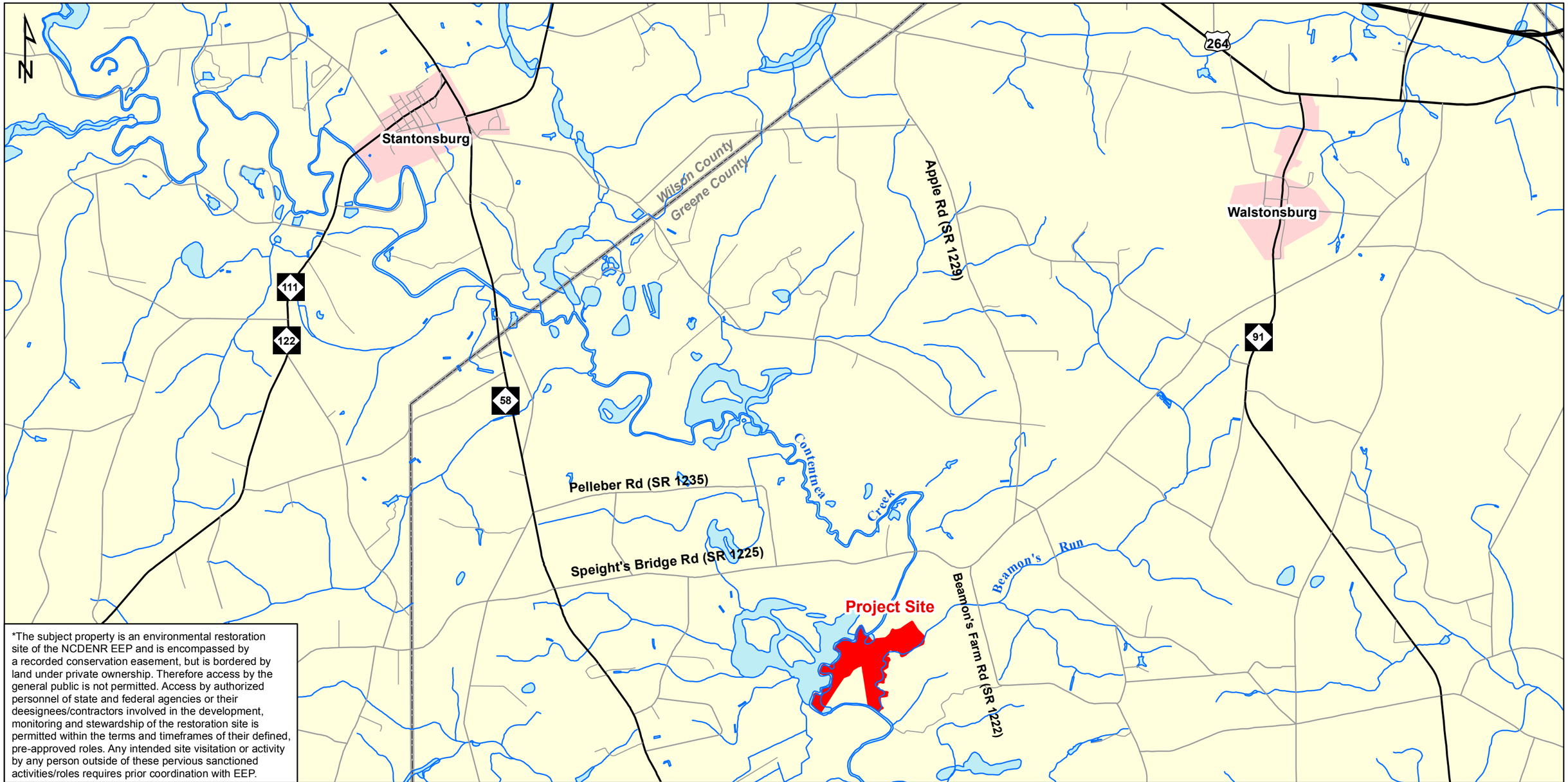
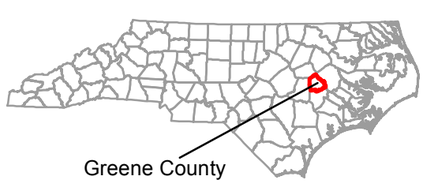


*The subject property is an environmental restoration site of the NCDENR EEP and is encompassed by a recorded conservation easement, but is bordered by land under private ownership. Therefore access by the general public is not permitted. Access by authorized personnel of state and federal agencies or their deesignees/contractors involved in the development, monitoring and stewardship of the restoration site is permitted within the terms and timeframes of their defined, pre-approved roles. Any intended site visitation or activity by any person outside of these pervious sanctioned activities/roles requires prior coordination with EEP.



Directions: From Raleigh, follow US 264 East toward Wilson. Take exit 49 and turn right onto NC 58 South toward Wilson. Travel approximately 5.2 miles on NC 58. This will take you into Stantonsburg. You will continue through Stantonsburg, and after traveling 4 miles past Stantonsburg, turn left onto Speight's Bridge Road (SR 1225). Travel approximately 3.5 miles down SR 1225 and turn right on a farm path before you approach Beamon's Farm Rd. The farm path is behind a brick ranch style house close to SR 1225.

Roads

Hydrography

Municipal Boundaries

Project Site

1 0.5 0 1 Miles

Figure 1 - Location Map

Beamon's Run Wetland and Buffer Restoration Project
EEP Project Number 24
Greene County, NC

Monitoring Report
November, 2011

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Table 1a. Project Components								
Beamon's Run Buffer and Wetland Restoration Site/EEP Project No. 24								
Reach ID	**Existing Feet/Acres**	**Type**	**Approach**	**Footage or Acreage**	**Stationing**	**Mitigation Ratio**	**Mitigation Units**	**Comment**
Riverine Wetland Restoration (ac)	0.15	R	Prepare and plant wetland areas	0.15				Cypress community near Contentnea Creek. Credit not being sought for wetland restoration.
Neuse Riparian Buffer Restoration (lf)	10.00	R	Prepare and plant buffers	10		1:1	10.00	Within 200' buffer along both Beamon's Run and Contentnea Creek
Streambank Stabilization (lf)	195	S	Construction and installation of brush mattresses for bank stabilization	195				In three areas along both Beamon's Run and Contentnea Creek. Credit not being sought for stream stabilization.
R = Restoration								
S = Stabilization								

Table 1b. Component Summations							
Beamon's Run Buffer and Wetland Restoration Site/EEP Project No. 24							
Restoration Level	Stream (lf)	Riparian Wetland (Ac)		Non-Riparian (Ac)	Upland (Ac)	Buffer (Ac)	BMP
		Riverine	Non-Riverine				
Restoration						10.00	
Enhancement							
Enhancement I							
Enhancement II							
Creation							
Preservation							
HQ Preservation							
Totals						**10.00**	BMP Count
MU Totals						**10.00**	
	= Non-Applicable						

Table 2. Project Activity and Reporting History		
Beamon's Run Buffer and Wetland Restoration Site/EEP Project No. 24		
Activity or Deliverable	**Data Collection Complete**	**Completion or Delivery**
Restoration Plan	unknown	unknown
Final Design - 90%	unknown	unknown
Construction	2000	2000
Temporary S&E mix applied to entire project area	2000	2000
Permanent seed mix applied to entire project area	2000	2000
Bare Root Seedling Installation	2000	2000
Mitigation Plan / As-built (Year 0 Monitoring - baseline)	May, 2000	May, 2000
Final Report	unknown	unknown
Monitoring Report (NCSU)	Mar, 2004	Mar, 2004
Monitoring Report (Stantec) 2009	Dec, 2009	Dec, 2009
Monitoring Report (Stantec) 2010	Oct, 2010	Nov, 2010
Monitoring Report (Stantec) 2011	Aug, 2011	Nov, 2011

Table 3. Project Contacts Table	
Beamon's Run Buffer and Wetland Restoration Site/EEP Project No. 24	
Designer	PBS&J
	1616 East Millbrook Road
	Suite 310
	Raleigh, NC 27609
Construction Contractor	unknown
Planting Contractor	unknown
Seeding Contractor	unknown
Seed Mix Sources	unknown
Nursery Stock Suppliers	Denton's Nursery (longleaf)
	3535 NC 42 West
	Wilson, NC 27893
	NC Division of Forest Resources (bare roots)
	762 Claridge Nursery Road
	Goldsboro, NC 27530
Monitoring Performers (2003)	NCSU BAE Dept & Water Quality Group
	Campus Box 7637
	Raleigh NC 27695
	(919) 515-8240
Monitoring Performers (2009 - 2010)	Stantec Consulting Services, Inc.
	801 Jones Franklin Road, Ste 300
	Raleigh, NC 27606
Vegetation Monitoring POC	Larry Hobbs (919)851-6866
	Amber Coleman (919)851-6866

Table 4 . Project Attribute Table	
Beamon's Run Buffer and Wetland Restoration Site/EEP Project No. 24	
Project County	Greene
Physiographic Region	Coastal Plain
Ecoregion	Southeastern Floodplains and Low Terraces
Project River Basin	Neuse
USGS HUC for Project (14 digit)	03020203050010
NCDWQ Sub-basin for Project	03-04-07
Within Extent of EEP Watershed Plan?	No
WRC Class (Warm, Cool, Cold)	Warm
% of project easement fenced or demarcated	Field edges demarcated
Beaver activity observed during design phase?	U
Restoration Component Attribute Table	
	Buffer, Wetland, and Stream
Drainage Area	8.5 sq mi
Stream Order	3rd order
Restored length (feet)	N/A
Perennial or Intermittent	Perennial
Watershed type (Rural, Urban, Developing, etc)	Rural
NCDWQ AU/Index number	27-86-13
NCDWQ Classification	C SW NSW
303d listed?	No
Upstream of a 303d listed segment?	No
Reasons for 303d listing or stressor	N/A
Total acreage of easement	79.9
Total vegetated acreage within the easement	79.9
Total planted acreage as part of the restoration	24.5
Rosgen classification of pre-existing	N/A
Rosgen classification of As-built	N/A
Valley type	N/A
Valley slope	N/A
Valley side slope range	N/A
Valley toe slope range	N/A
Cowardin Classification	PFO1A - Palustrine, Forested, Broad-leaved deciduous, temp. flooded (dominant classification)
Trout waters designation	N/A
Species of concern, endangered etc.? (Y/N)	U
Dominant soil series characteristics	
Series	Kenansville fine sand
Depth	>72 inches
Clay %	7
K	0.1
T	5 tons/acre/year

Appendix B. Visual Assessment

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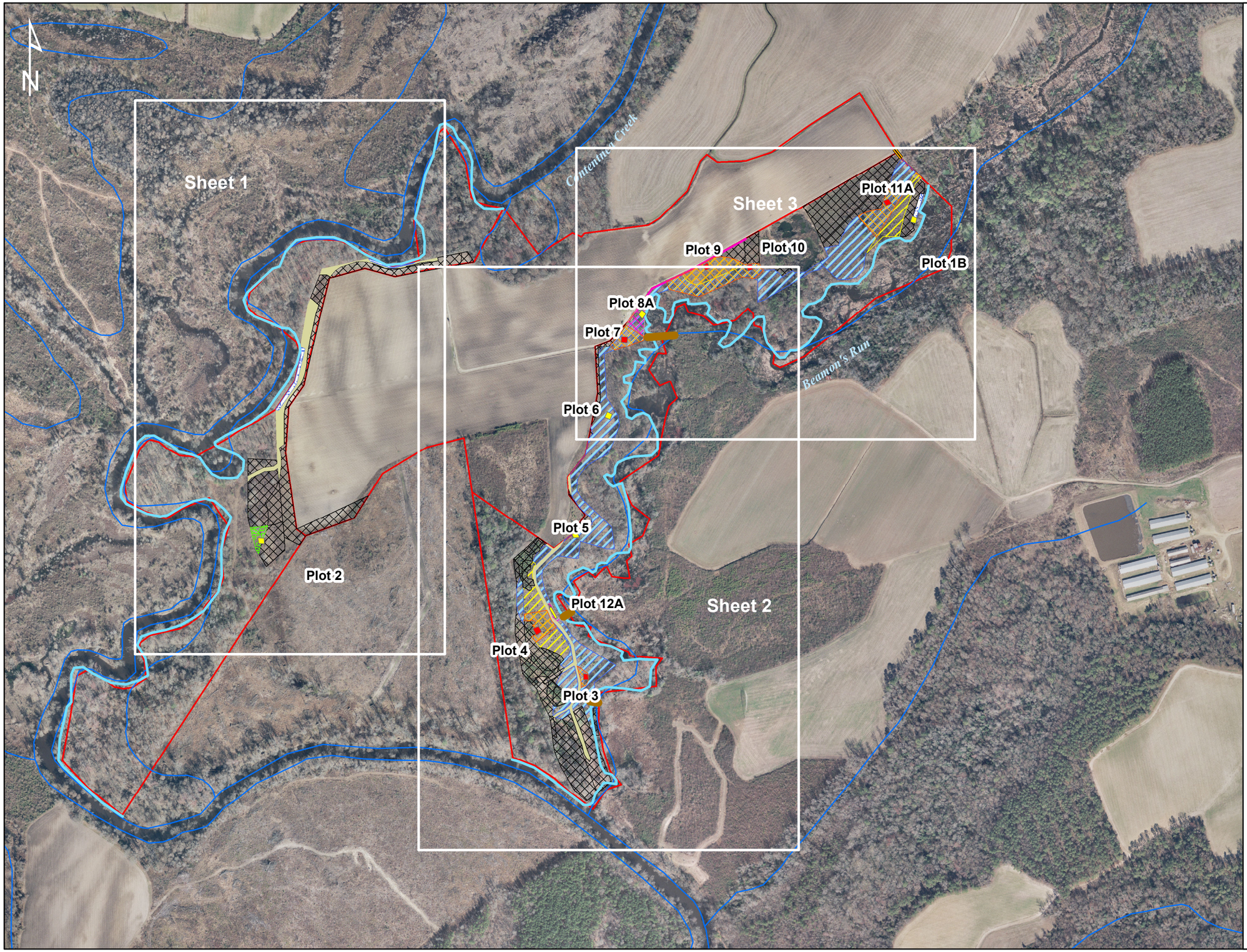

Figure 2 - Overview

Current Condition Plan View

Beamon's Run Wetland and
Buffer Restoration Project
EEP Project 24
Greene County, North Carolina

November 2011

- Stream Edge
- Streams
- Gate
- Parcel Boundaries
- Current Beaver Dams

Veg Plots

- Failing <320 stems/ac
- Succesful >320 stems/ac

Plantings

- Poor Growth Rates or Vigor
- Low Stem Density
- Sprayed Area (2011)
- Excluded*
- Cypress
- Long leaf pine
- River birch
- Oak Mix
- Previously Mowed (<2009)

*Excluded areas include: mature forest, active farm, loblolly pines, not planted, and >200 ft from streams

0 200 400 800 Feet

Ecosystem Enhancement Program

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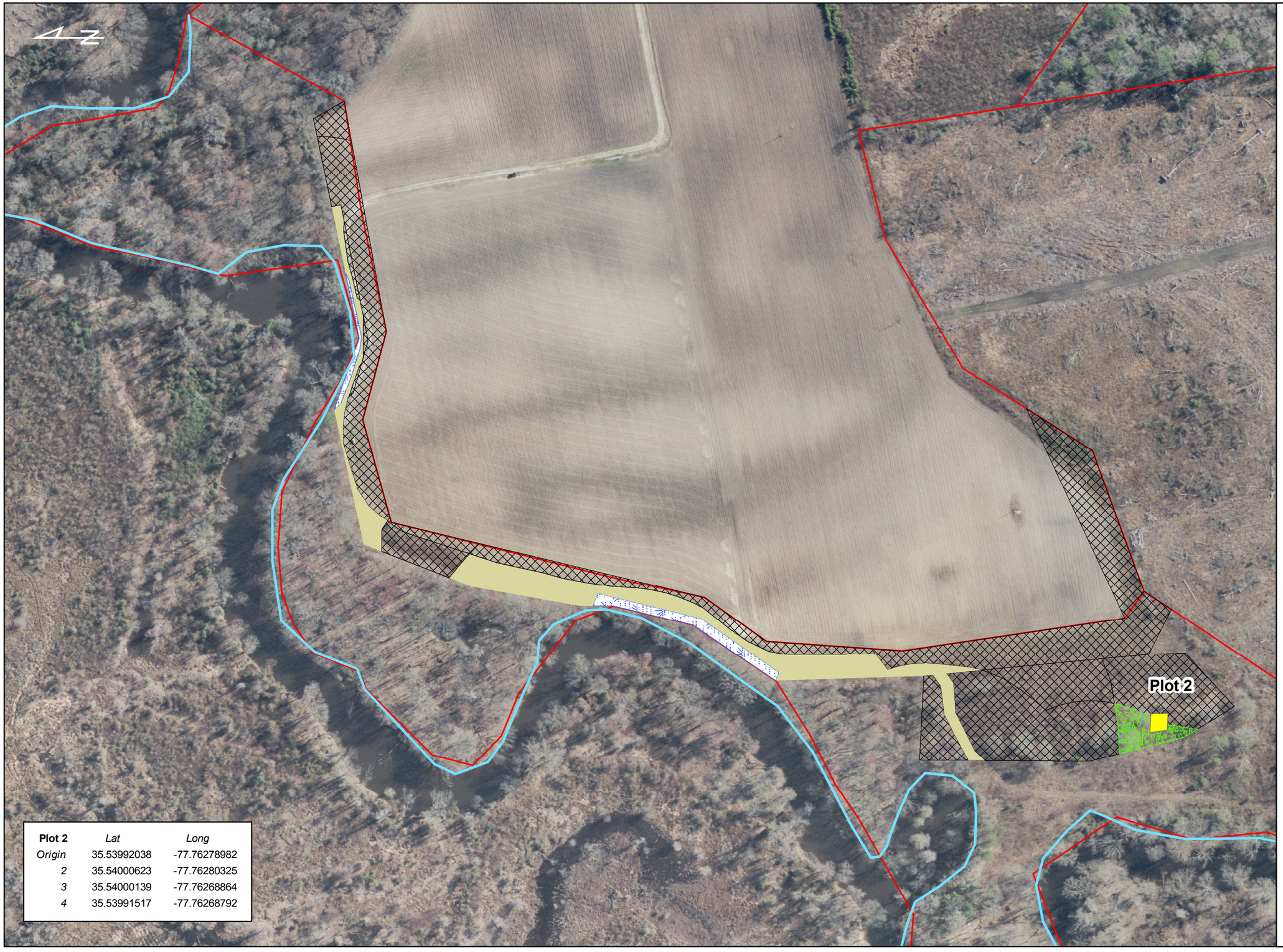

Plot 2	*Lat*	*Long*
Origin	35.53992038	-77.76278982
2	35.54000623	-77.76280325
3	35.54000139	-77.76268864
4	35.53991517	-77.76268792

Figure 2 - Sheet 1

Current Condition Plan View

Beamon's Run Wetland and
Buffer Restoration Project
EEP Project # 24
Greene County, North Carolina

Monitoring Report
November 2011

Stream Edge
Parcel Boundaries

Veg Plots

Successful >320 stems/ac

Plantings

Excluded*
Cypress
River birch
Mowed

*Excluded areas include: mature forest, active farm, loblolly pines, not planted, and >200 ft from streams

0 75 150 300 Feet

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Plot 5	Lat	Long
Origin	35.540002	-77.757186
2	35.540030	-77.757093
3	35.539946	-77.757163
4	35.539950	-77.757055

Plot 12A	Lat	Long
Origin	35.538791	-77.757472
2	35.538948	-77.757575
3	35.538920	-77.757609
4	35.538766	-77.757502

Plot 4	Lat	Long
Origin	35.538581	-77.757753
2	35.538662	-77.757808
3	35.538628	-77.757907
4	35.538533	-77.757846

Plot 3	Lat	Long
Origin	35.537874	-77.757014
2	35.537870	-77.756921
3	35.537956	-77.756940
4	35.537961	-77.757019

Coordinates for Plots 6-10 shown on sheet 3

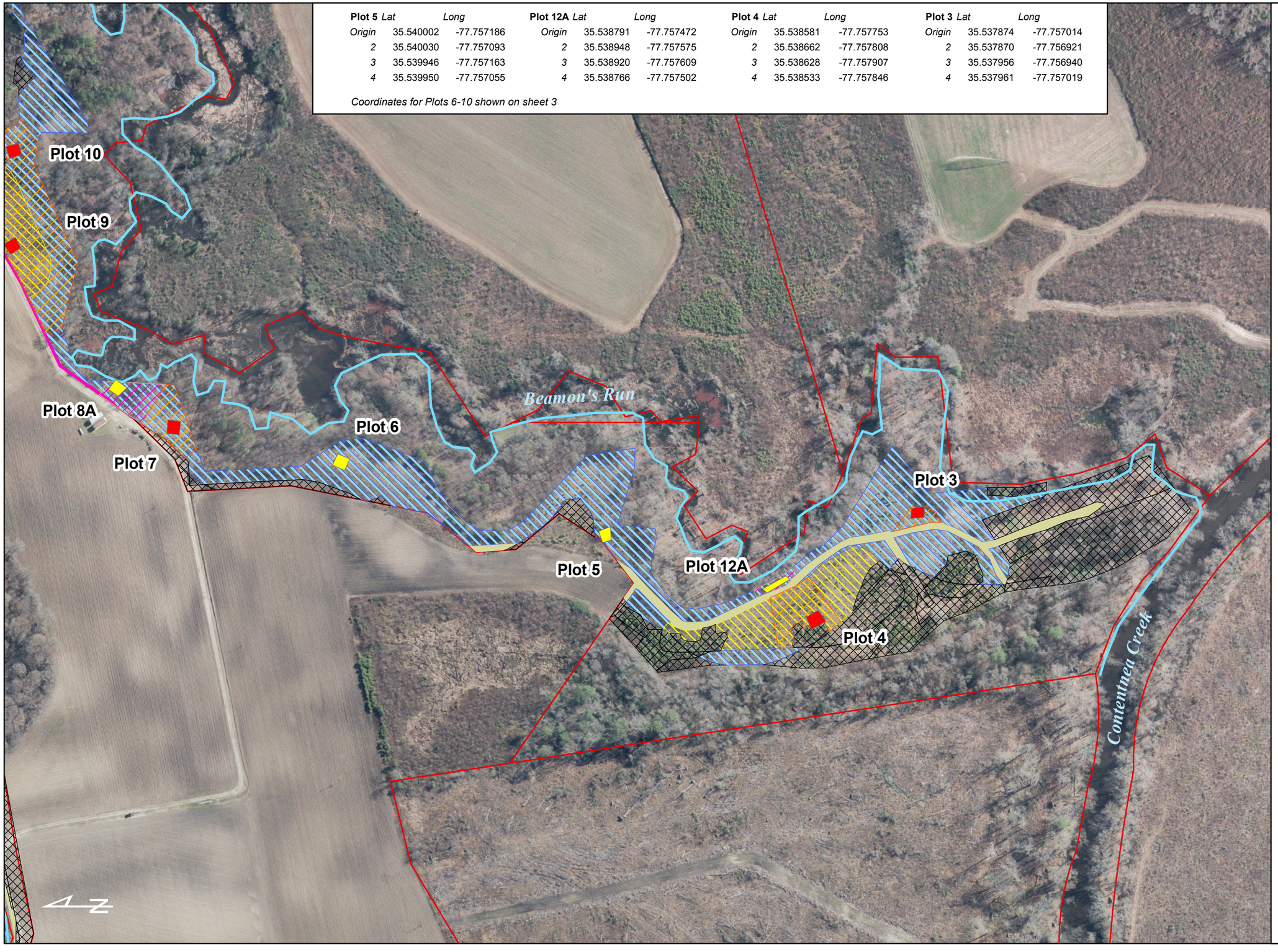

Figure 2 - Sheet 2

Current Condition Plan View

Beamon's Run Wetland and Buffer Restoration Project
EEP Project Number 24
Greene County, North Carolina

Monitoring Report
November 2011

Stream Edge
Parcel Boundaries

Veg Plots

Failing <320 stems/ac
Successful >320 stems/ac

Plantings

Poor Growth Rates or Vigor
Low Stem Density
Sprayed Area (2011)
Excluded*
Long leaf pine
Oak Mix
Previously Mowed (<2009)

*Excluded areas include: mature forest, active farm, loblolly pines, not planted, and >200 ft from streams

0 75 150 300
Feet

Ecosystem Enhancement Program

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Plot 6	Lat	Long
Origin	35.541784	-77.756530
2	35.541704	-77.756575
3	35.541668	-77.756479
4	35.541747	-77.756438
Plot 7	*Lat*	*Long*
Origin	35.542795	-77.756267
2	35.542784	-77.756161
3	35.542870	-77.756147
4	35.542877	-77.756256
Plot 8A	*Lat*	*Long*
Origin	35.543196	-77.755950
2	35.543136	-77.755883
3	35.543210	-77.755814
4	35.543262	-77.755894

Plot 9	Lat	Long
Origin	35.543828	-77.754738
2	35.543863	-77.754653
3	35.543943	-77.754707
4	35.543894	-77.754791
Plot 10	*Lat*	*Long*
Origin	35.543836	-77.753893
2	35.543916	-77.753917
3	35.543896	-77.754013
4	35.543814	-77.753983
Plot 11A	*Lat*	*Long*
Origin	35.544844	-77.751455
2	35.544811	-77.751551
3	35.544735	-77.751502
4	35.544775	-77.751400

Plot 1B	Lat	Long
Origin	35.544557	-77.750951
2	35.544589	-77.751036
3	35.544500	-77.751071
4	35.544479	-77.750975

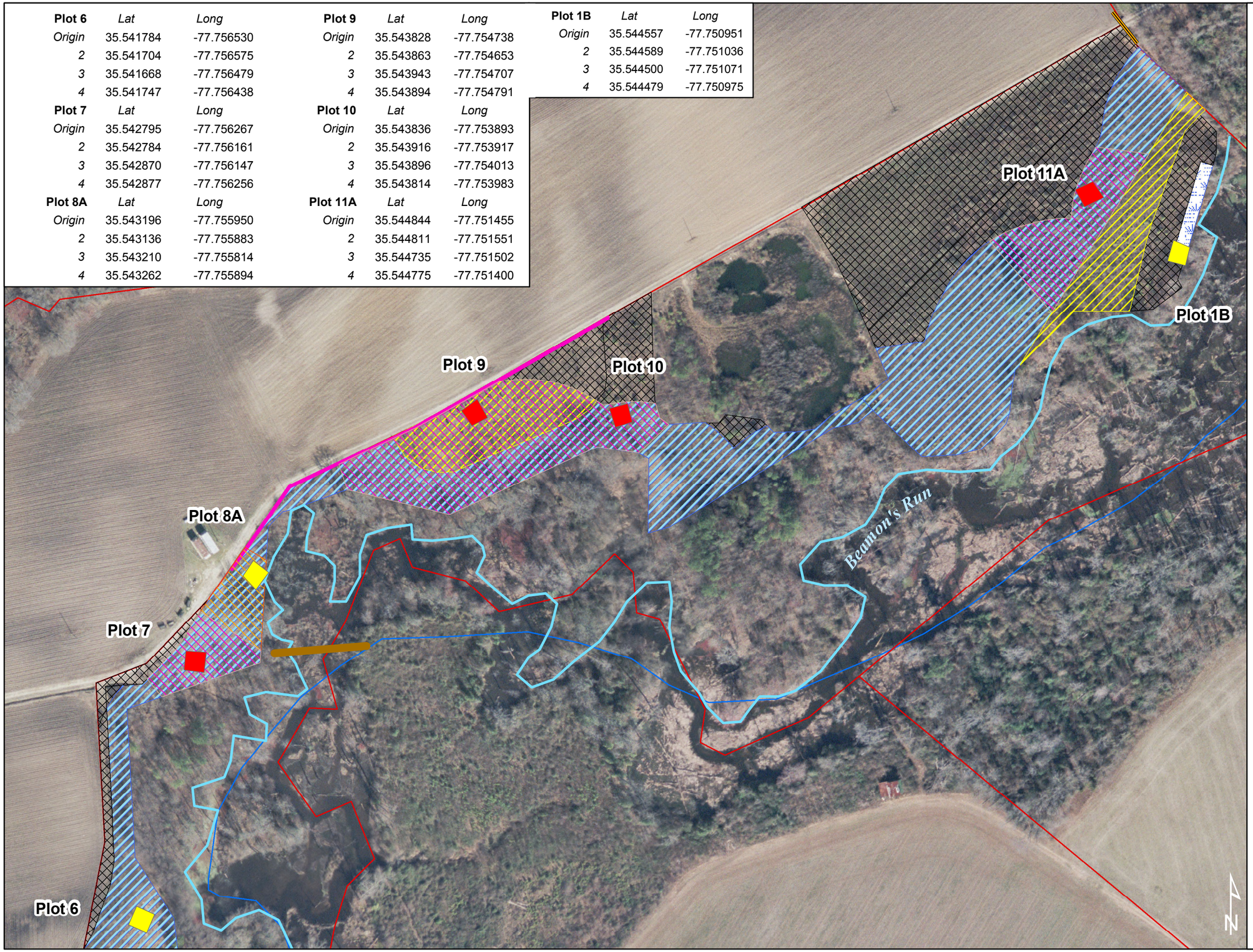

Figure 2 - Sheet 3

Current Condition Plan View

Beamon's Run Wetland and Buffer Restoration Site
EEP Project # 24
Greene County, North Carolina

Monitoring Report
November 2011

- Stream Edge
- Streams
- Gate
- Parcel boundaries
- Current Beaver Dam

Veg Plots

- Failing <320 stems/ac
- Successful >320 stems/ac

Plantings

- Poor Growth Rates or Vigor
- Low Stem Density
- Sprayed Area (2011)
- Excluded*
- Long leaf pine
- River birch
- Oak Mix

*Excluded areas include: mature forest, active farm, loblolly pines, not planted, and >200 ft from streams

Note:
The area on this sheet depicted in the planting plan as river birch is actually bigger than originally shown. The entirety of Plot 1B is planted with River Birch.

0 75 150 300 Feet

Ecosystem Enhancement Program

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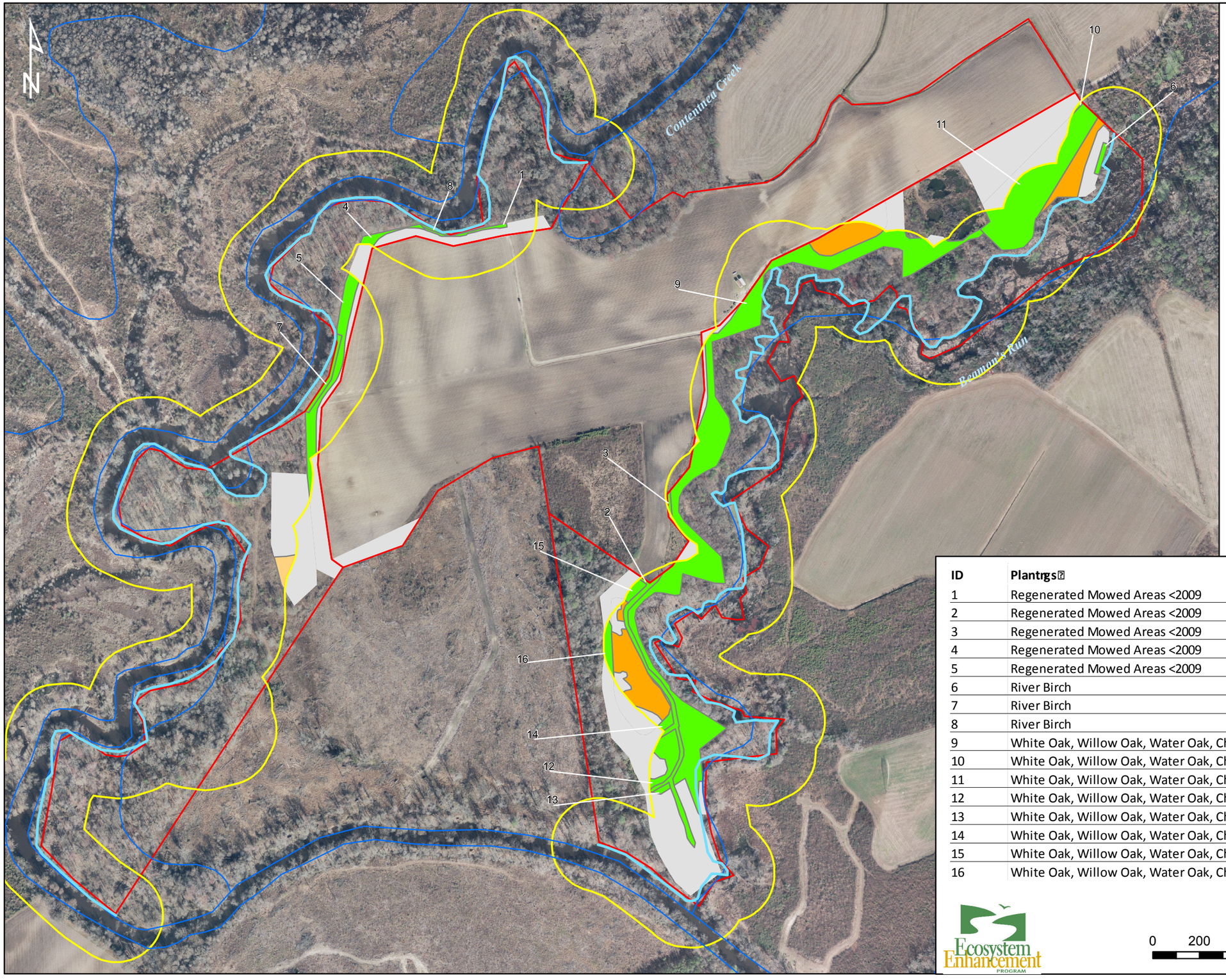

Figure 3 - Overview

Asset Map

Beamon's Run Wetland and
Buffer Restoration Project
EEP Project 24
Greene County, North Carolina

March 2012

- 200ft Buffer
- Stream Edge
- Streams
- Parcel Boundaries
- Original Planting Areas
- Neuse Riparian Buffer Credit (10.001 ac)

Excluded Planted Softwoods

- Cypress (0.153 ac)
- Long Leaf Pine (2.152 ac)

ID	Plantings	Area (ac)
1	Regenerated Mowed Areas <2009	0.080305
2	Regenerated Mowed Areas <2009	0.611223
3	Regenerated Mowed Areas <2009	0.030871
4	Regenerated Mowed Areas <2009	0.114178
5	Regenerated Mowed Areas <2009	0.718204
6	River Birch	0.063724
7	River Birch	0.137185
8	River Birch	0.035717
9	White Oak, Willow Oak, Water Oak, Chestnut Oak, Yellow Poplar, and Green Ash	5.440725
10	White Oak, Willow Oak, Water Oak, Chestnut Oak, Yellow Poplar, and Green Ash	0.014959
11	White Oak, Willow Oak, Water Oak, Chestnut Oak, Yellow Poplar, and Green Ash	2.037628
12	White Oak, Willow Oak, Water Oak, Chestnut Oak, Yellow Poplar, and Green Ash	0.349979
13	White Oak, Willow Oak, Water Oak, Chestnut Oak, Yellow Poplar, and Green Ash	0.037572
14	White Oak, Willow Oak, Water Oak, Chestnut Oak, Yellow Poplar, and Green Ash	0.086365
15	White Oak, Willow Oak, Water Oak, Chestnut Oak, Yellow Poplar, and Green Ash	0.089948
16	White Oak, Willow Oak, Water Oak, Chestnut Oak, Yellow Poplar, and Green Ash	0.152871

Ecosystem Enhancement Program

0 200 400 800 Feet

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Table 6. Vegetation Condition Assessment					
Beamon's Run Buffer and Wetland Restoration Site/EEP Project No. 24					
Planted acreage	16.9				
Vegetation Category	**Definitions**	**CCPV Depiction**	**Number of Polygons**	**Combined Acreage**	**% of Planted Acreage**
1. Bare Areas (sprayed areas)	Very limited cover of woody material	Magenta polygon	1	0.06	0.4%
2. Low Stem Density	Woody stem densities below target levels for stem count success criteria	Orange hatched polygons	5	2.52	14.9%
		Total	6	2.58	15.3%
3. Areas of Poor Growth Rates or Vigor	Areas with woody stems of a size class that are obviously small given the monitoring year	Pink hatched polygons	2	0.27	1.6%
		Total	8	2.85	16.9%
Easement acreage	79.9				
Vegetation Category	**Definitions**	**CCPV Depiction**	**Number of Polygons**	**Combined Acreage**	**% of Planted Acreage**
4. Invasive areas of concern		None	0	0	0.0%
5. Encroachment areas	Mowed areas prior to 2009	Beige polygons	4	1.64	9.7%

Vegetation Plot Photos

Photo Station 1 – Vegetation Plot 1B

Photo Station 2 – Vegetation Plot 2

Photo Station 3 – Vegetation Plot 3

Photo Station 4 – Vegetation Plot 4

Photo Station 5 – Vegetation Plot 5

Photo Station 6 – Vegetation Plot 6

Photo Station 7 – Vegetation Plot 7

Photo Station 8 – Vegetation Plot 8A

Photo Station 9 – Vegetation Plot 9

Photo Station 10 – Vegetation Plot 10

Photo Station 11 – Vegetation Plot 11A

Photo Station 12 – Vegetation Plot 12A

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Appendix C. Vegetation Plot Data

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Table 7. Veg Plot Criteria Attainment		
Beamon's Run Buffer and Wetland Restoration Site/EEP Project No. 24		
Vegetation Plot ID	Vegetation Survival Threshold Met?	Tract Mean
VP1B	Y (688)	50%
VP2	Y (405)	
VP3	N (202)	
VP4	N (0)	
VP5	Y (445)	
VP6	Y (567)	(337 stems/acre)
VP7	N (81)	
VP8A	Y (526)	
VP9	N (0)	
VP10	N (162)	
VP11A	N (81)	
VP12A	Y (728)	

Table 8. CVS Vegetation Plot Metadata	
Beamon's Run Buffer and Wetland Restoration Site/EEP Project No. 24	
Report Prepared By	Alex Baldwin
Date Prepared	10/10/2011 11:15
database name	Stantec_Beamon2011_A_MTLFixed.mdb
database location	U:\175613003\Beamon\project\site_data\cvs
computer name	BALDWINA
file size	34480128
DESCRIPTION OF WORKSHEETS IN THIS DOCUMENT----------	
Metadata	Description of database file, the report worksheets, and a summary of project(s) and project data.
Proj, planted	Each project is listed with its PLANTED stems per acre, for each year. This excludes live stakes.
Proj, total stems	Each project is listed with its TOTAL stems per acre, for each year. This includes live stakes, all planted stems, and all natural/volunteer stems.
Plots	List of plots surveyed with location and summary data (live stems, dead stems, missing, etc.).
Vigor	Frequency distribution of vigor classes for stems for all plots.
Vigor by Spp	Frequency distribution of vigor classes listed by species.
Damage	List of most frequent damage classes with number of occurrences and percent of total stems impacted by each.
Damage by Spp	Damage values tallied by type for each species.
Damage by Plot	Damage values tallied by type for each plot.
Planted Stems by Plot and Spp	A matrix of the count of PLANTED living stems of each species for each plot; dead and missing stems are excluded.
ALL Stems by Plot and spp	A matrix of the count of total living stems of each species (planted and natural volunteers combined) for each plot; dead and missing stems are excluded.
PROJECT SUMMARY----------	
Project Code	BR
project Name	Beamon's Run Restoration Project
Description	
River Basin	Neuse
length(ft)	
stream-to-edge width (ft)	
area (sq m)	
Required Plots (calculated)	
Sampled Plots	0

Table 9. CVS Stem Count Total and Planted by Plot and Species

Beamon's Run Buffer and Wetland Restoration Site/EEP Project No. 24

			Current Plot Data (MY10 2011)																													Annual Means								
			EBR-AC/NJ-11A			EBR-AC/NJ-12A			EBR-AC/NJ-8A			EBR-LH/AC-0002			EBR-LH/AC-0003			EBR-LH/AC-0004			EBR-LH/AC-0005			EBR-LH/AC-0006			EBR-LH/AC-1B			EBR-LH/RA-0007			EBR-LH/RA-0009			EBR-LH/RA-0010			MY10 (2011)			MY9 (2010)			MY8 (2009)		
Scientific Name	**Common Name**	**Species Type**	**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**	**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 negundo	boxelder	Tree																																											1
Acer rubrum	red maple	Tree			5			3			15									130			20						86						3			17			279			98			114.2
Baccharis halimifolia	eastern baccharis	Shrub			2																					1			4												7			11			22
Betula nigra	river birch	Tree																								6	17	17	17											17	17	23	17	17	39	17	17	52
Carpinus	hornbeam	Tree																																											1
Carpinus caroliniana	american hornbeam	Tree						9																														2			11			12			9
Chamaecyparis thyoides	atlantic white cedar	Softwood Tree																											2												2						
Crataegus	hawthorn	Tree																																										4			5
Crataegus monogyna	oneseed hawthorn	Tree												4			1																								5						
Fraxinus pennsylvanica	green ash	Tree						1	7	7	8	2	2	2							1	1	1	1	1	1													11	11	13	11	11	13	11	11	13
Ilex decidua	possumhaw	Shrub						9									1						16																		26			27			19
Ilex opaca	american holly	Tree			2			1												5			1			2			3												14			11			9
Ligustrum sinense	chinese privet	Exotic												1															2												3			4			3
Liquidambar styraciflua	sweetgum	Tree			4			5			31									25			9			1			18			3			2			27			125			93			108.5
Liriodendron tulipifera	tuliptree	Tree			1																								4												5			3			5
Mimosa	mimosa	Exotic																														1									1						
Morella cerifera	wax myrtle	Shrub			1																								2												3			2			2
Nyssa biflora	swamp tupelo	Tree																																										1			1
Nyssa sylvatica	blackgum	Tree									1																															1						
Pinus palustris	longleaf pine	Softwood Tree			1													1	1	1															3	3	3				4	4	5	4	4	5	4	4	4
Pinus taeda	loblolly pine	Softwood Tree			6			1						2			3			50			2			13									1			2			80			44			45.5
Prunus serotina	black cherry	Tree						1																																	1			2			1
Quercus alba	white oak	Tree	2	2	2	1	1	1	1	1	3				2	2	2				7	7	40	4	4	4				2	2	2				1	1	3	20	20	57	19	19	49	20	20	78
Quercus falcata	southern red oak	Tree																																											1
Quercus lyrata	overcup oak	Tree																																										1			
Quercus michauxii	swamp chestnut oak	Tree																						6	6	6									2				6	6	8	6	6	8			1
Quercus montana	rock chestnut oak	Tree																																											6	6	6
Quercus nigra	water oak	Tree				16	16	47	4	4	6			2						5																2	2	2	22	22	62	22	22	37	24	24	31
Quercus phellos	willow oak	Tree				1	1	1	1	1	1	8	8	14	3	3	3			10	3	3	12	3	3	3			10						1	1	1	1	20	20	56	20	20	36	20	20	38
Quercus rubra	northern red oak	Tree									1															41									1						43			49			46
Salix nigra	black willow	Tree																																				1			1			1			2
Toxicodendron radicans	eastern poison ivy	Vine																																												300
Unknown	unknown	unknown			1																																				1						
Vaccinium	blueberry	Shrub						1																																	1						
		Stem count	2	2	14	18	18	69	13	13	66	10	10	22	5	5	6	0	0	175	11	11	83	14	14	64	17	17	138	2	2	5	0	0	9	4	4	53	96	96	704	95	95	457	98	98	522.7
		size (ares)	1			1			1			1			1			1			1			1			1			1			1			1			12			11			12		
		size (ACRES)	0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.30			0.27			0.30		
		Species count	1	1	5	3	3	9	4	4	8	2	2	4	2	2	3	0	0	5	3	3	6	4	4	8	1	1	6	1	1	2	0	0	5	3	3	7	6	6	16	6	6	17	6	6	20
		Stems per ACRE*	80.94	80.94	566.6	728.4	728.4	2792	526.1	526.1	2671	404.7	404.7	890.3	202.3	202.3	242.8	0	0	7082	445.2	445.2	3359	566.6	566.6	2590	688	688	5585	80.94	80.94	202.3	0	0	364.2	161.9	161.9	2145	323.7	323.7	2374	349.5	349.5	1681	330.5	330.5	1763

*Only includes native hardwood trees

Appendix D. Stream Survey Data

No stream assessment took place at the Beamon's Run Buffer and Wetland Restoration Site

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Appendix E. Hydrology Data

No hydrologic monitoring took place at the Beamon's Run Buffer and Wetland Restoration Site.