FINAL MITIGATION PLAN

Green Valley Farm Site
Riparian Buffer Restoration

Randolph County, North Carolina
EEP Project ID Number 003994-EEP Site 95012

Cape Fear River Basin
HUC 03030003010070

Prepared for:

Ecosystem Enhancement PROGRAM

NC Department of Environment and Natural Resources
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

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EXECUTIVE SUMMARY

"This mitigation plan has been written in conformance with the requirements of the following:

- Federal rule for compensatory mitigation project sites as described in the Federal Register Title 33 Navigation and Navigable Waters Volume 3 Chapter 2 Section § 332.8 paragraphs (c)(2) through (c)(14).
- NCDENR Ecosystem Enhancement Program In-Lieu Fee Instrument signed and dated July 28, 2010.

These documents govern NCEEP operations and procedures for the delivery of compensatory mitigation."

The Green Valley Buffer Mitigation Project was identified as an opportunity to improve water quality and habitat within the Randleman Lake watershed (03030003 Catalog Unit) through 8.74 to 9.6 acres (380,714 to 418,176 square feet) of riparian buffer restoration. The Green Valley Buffer Mitigation Site is located on Hockett Dairy Road (SR 1938) in Randolph County approximately 12 miles north of Asheboro, NC. The site includes four unnamed tributaries that drain into Randleman Lake.

The project's watershed is primarily used for agricultural production. Much of the surrounding land use is currently row crop production for dairy silage. The tributaries have limited hardwood trees present within the buffer, and lack significant ground cover. The mature trees are less than 100 stems per acre. The project area has been in agricultural use for several decades.

There are few known constraints at the Green Valley Farms site. Three farm access crossings are present on buffer restoration reaches. These crossings are necessary for property access, and will remain in place. The crossings will be improved with properly sized and embedded corrugated pipe, and embankment stabilization. The crossings will be constructed such that farm equipment will have access, and to prevent future degradation. No overhead or underground utilities are located within the proposed buffer. No existing land uses (such as residential) will constrain the proposed mitigation design. The proposed mitigation site is not located within five miles of an air transport facility. An existing ford crossing will be improved with appropriately sized rock and filter fabric. There are no active livestock uses on the proposed site; therefore, no fencing is proposed for the easement boundary.

The riparian buffer is in poor condition throughout most of the project area. Most of the riparian buffer is devoid of trees or shrubs, and row crops are actively cultivated up to the edge of the existing channel. Current buffer conditions demonstrate significant degradation with a loss of stabilizing vegetation because of continued agricultural activities and past land management actions. Field counts of woody vegetation greater than five inches dbh, where present, document the absence of a forested buffer. Saplings necessary for buffer regeneration were minimal or absent.

Buffer restoration is proposed along four channels. Buffer restoration will include removal of invasive species where present and planting appropriate bottomland hardwood species. One un-buffered stream reach enters UT 1 on the left bank. The target natural community will be a Piedmont Alluvial Forest as described in Schafale and Weakley (1990). This type of community is common throughout Piedmont drainages and when established will provide numerous water quality and ecological benefits.

The result will be a restored riparian habitat that functions to filter nutrient and sediment inputs from the surrounding uplands, provide soil stability, and increase dissolved oxygen concentrations through shading/cooling of the channel. The permanent conservation easement will extend a minimum of 50 feet from the top of bank on all outside bends and will be marked with metal poles and signs.

The site will be monitored on a regular basis and a physical inspection of the site will be conducted a minimum of once per year throughout the post-construction monitoring period or until performance standards are met. These site inspections will identify site components and features that require routine maintenance. The measure of vegetative success for the site will be the survival of at least 320 5-year old planted trees per acre at the end of year five of the monitoring period. Annual monitoring data will be reported using the EEP monitoring template. The monitoring report will provide a project data chronology that will facilitate an understanding of project status and trends, population of EEP databases for analysis, research purposes, and assist in decision making regarding project closeout.

Upon approval for closeout by the NC Division of Water Quality, the site will be transferred to the State of North Carolina (State). The State shall be responsible for periodic inspection of the site to ensure that restrictions required in the conservation easement or the deed restriction document(s) are upheld.

TABLE OF CONTENTS

List of Figures

List of Tables

APPENDICES

1.0 RESTORATION PROJECT GOALS AND OBJECTIVES

The Green Valley Buffer Mitigation Project is located in the 03030003 Catalog Unit (CU), in the Cape Fear River Basin. Assets of this CU include the Deep River, the Randleman Reservoir, and major communities including High Point, Asheboro, Siler City, and Sanford. Restoration goals for CU 03030003 as identified in the 2009 Cape Fear River Basin RBRP include protection of several species of mussel and the Cape Fear Shiner. Additional goals include the improvement in water quality to waters draining to Randleman Reservoir.

The Project is located within the Randleman Lake watershed. It will generate buffer mitigation credits in accordance with the Randleman Lake Water Supply Watershed Buffer Rules (15A NCAC 02B .0250) and the Randleman Lake Water Supply Watershed Buffer Mitigation Rules (15A NCAC 02B .0252).

The Green Valley Buffer Mitigation Project was identified as a buffer opportunity to improve water quality and habitat within the CU. The project goals address stressors identified in the CU. The following table lists the project goals and the project objectives through which the goals will be addressed:

Goals	Objectives
1. Nutrient removal 2. Sediment removal 3. Runoff filtration 4. Increase dissolved oxygen concentration 5. Restore riparian habitats 6. Reduce water temperature	• Restore minimum 50-foot riparian buffer by planting appropriate bottomland hardwood species to filter runoff. • Convert active farm fields to forested buffers. • Plant buffer vegetation to shade channel. • Restore riparian buffer habitat to appropriate bottomland hardwood ecosystem. • Restore canopy tree species in the stream buffer areas to shade channel. • Eliminate and control exotic invasive species. • Replace three (two culverts and one ford) undersized and/or failing channel crossings with appropriately sized structures.

2.0 SITE SELECTION

2.1 Directions

The Green Valley Farms Riparian Buffer Mitigation Site is located on Hockett Dairy Road (SR 1938) in Randolph County approximately 12 miles north of Asheboro, NC (**Figure 1**). The site is located in the Cape Fear River Basin within Cataloging Unit 03030003010070 (NCDWQ sub-basin 03-06-08). The site has four unnamed tributaries (UT) that drain into Randleman Lake. The proposed project consists of 8.74 to 9.6 acres of buffer restoration.

2.2 Physiography, Topography, and Land Use

The Green Valley Farms Buffer site is located in the Piedmont Physiographic Province and in the Carolina Slate Belt. The region is underlain by felsic metavolcanic rocks, which can be seen in the streambed of UT 1 and UT 3. The topography of the project area is generally rolling with elevations ranging from 670 to 760 feet (F**igure 2**). The four unnamed tributaries to Randleman Lake comprise the principle drainage features. The project's watershed is primarily used for agricultural production. Much of the site is currently used for row crop production for dairy silage. These tributaries have limited hardwood trees present within the buffer and lack significant ground cover. The mature trees are less than 100 stems per acres. The project area has been in agricultural use for several decades (**Figure 3**).

2.3 Soils

The Randolph County Soil Survey (NRCS, 2006), shows four mapping units across the project site (**Figure 4**). The map units are Chewacla loam with a slope phase of 0 to 2 percent slopes and subject to frequently flooding, Mecklenburg clay loam with a slope phases of 8 to 15 percent, Wynott-Enon complex with a slope phase of 8 to 15 percent, and Wynott-Enon complex with a slope phase of 8 to 15 percent that is moderately eroded. The Wynott-Enon complex is 59 percent Wynott or similar soils and 33 percent Enon or similar soils.

The Chewacla soils formed in recent alluvium along major streams and drainage ways. This very deep soil is somewhat poorly drained, 0.5 foot to 1.5 feet to a seasonal high water table, have moderate permeability, and runoff is slow. Chewacla soil has a low shrink-swell potential. Theses soils occur on nearly level to slightly concave floodplains. The Mecklenburg and Wynott-Enon complex soils formed residuum weathered from mafic high-grade metamorphic or igneous rocks. These moderate to very deep soils are well drained, greater than six feet to a seasonal high water table, have slow permeability, and medium runoff. Wynott-Enon soils have a high shrink-swell potential and Mecklenburg soils have a moderate shrink-swell potential. Theses soils occur across a range of landforms including summits, ridges, and sideslopes. Wynott soils are 20 to 40 inches to soft bedrock and 40 to more than 60 inches to hard bedrock. Enon and Mecklenburg soils are more than 60 inches to bedrock. Theses soils occur on Piedmont upland summits, ridges, and hill slopes. All soils within the watershed are classified as hydrologic soil group C. Only the Chewlaca soil is listed on the National Hydric Soil List as potentially having hydric inclusions (5 percent).

2.4 Water Quality

Water quality assessments are based upon published resource information and field observations. The project is in a mostly rural watershed draining into Randleman Lake, a water supply watershed. Small farms, forested areas, and rural home sites are the most common land uses. Agricultural fields, dairy operations, and home sites are two common disturbances to the natural communities in the project vicinity. Potential threats to stream quality in this area are increased soil erosion and excessive nutrient input, both non-point sources of pollution.

The Cape Fear Basin-wide Assessment Report (October 2005) list a number of impaired waters within the 03-06-08 sub-basin where the project study area is located. The sub-basin watershed is 13 percent urbanized and includes portions of the municipalities of Archdale, Greensboro, Highpoint, Kernersville and Randleman. Nearly 55 percent is forested and 25 percent is managed pastureland. Streams are rated as impaired due to fecal coliform violations and impaired benthic communities due to stressor that include sedimentation, habitat degradation and urban runoff. Where a TMDL has been developed for these streams significant reduction in fecal coliform is called for.

The site drains directly into Randleman Lake. The Randleman Lake has a best usage classification of Water Supply IV (WS-IV);CA: These waters are protected and used as sources of water supply for drinking, culinary or food processing purposes and are also protected for Class C uses. WS-IV waters are generally in moderately to highly developed watersheds. The CA designation identifies waters that are within a designated Critical Supply Watershed and are subject to a special management strategy specified in 15A NCAC 2B .0248. The 100yr. floodplain (FEMA Zone AE) is located along UT 1 and the lower portion of UT 2 (**Figure 5**). The US fish and Wildlife Service does not show National Wetlands Inventory (NWI) wetlands within the project area (**Figure 5**).

2.5 Constraints

There are few known constraints at the Green Valley Farms Site. Three farm access crossings are present on buffer restoration reaches (**Figure 6**). These crossings are necessary for property access and will remain. The crossings will be improved with properly sized and embedded corrugated pipe, and embankment stabilization. The crossings will be constructed such that farm equipment will have access and to prevent future degradation. No overhead or underground utilities are located within the proposed buffer. No existing land uses (such as residential) will constrain the proposed mitigation design. The proposed mitigation site is not located within five miles of an air transport facility. An existing ford crossing will be improved with appropriately sized rock and filter fabric. There are no active livestock uses on the proposed site, therefore, no fencing is proposed for the easement boundary.

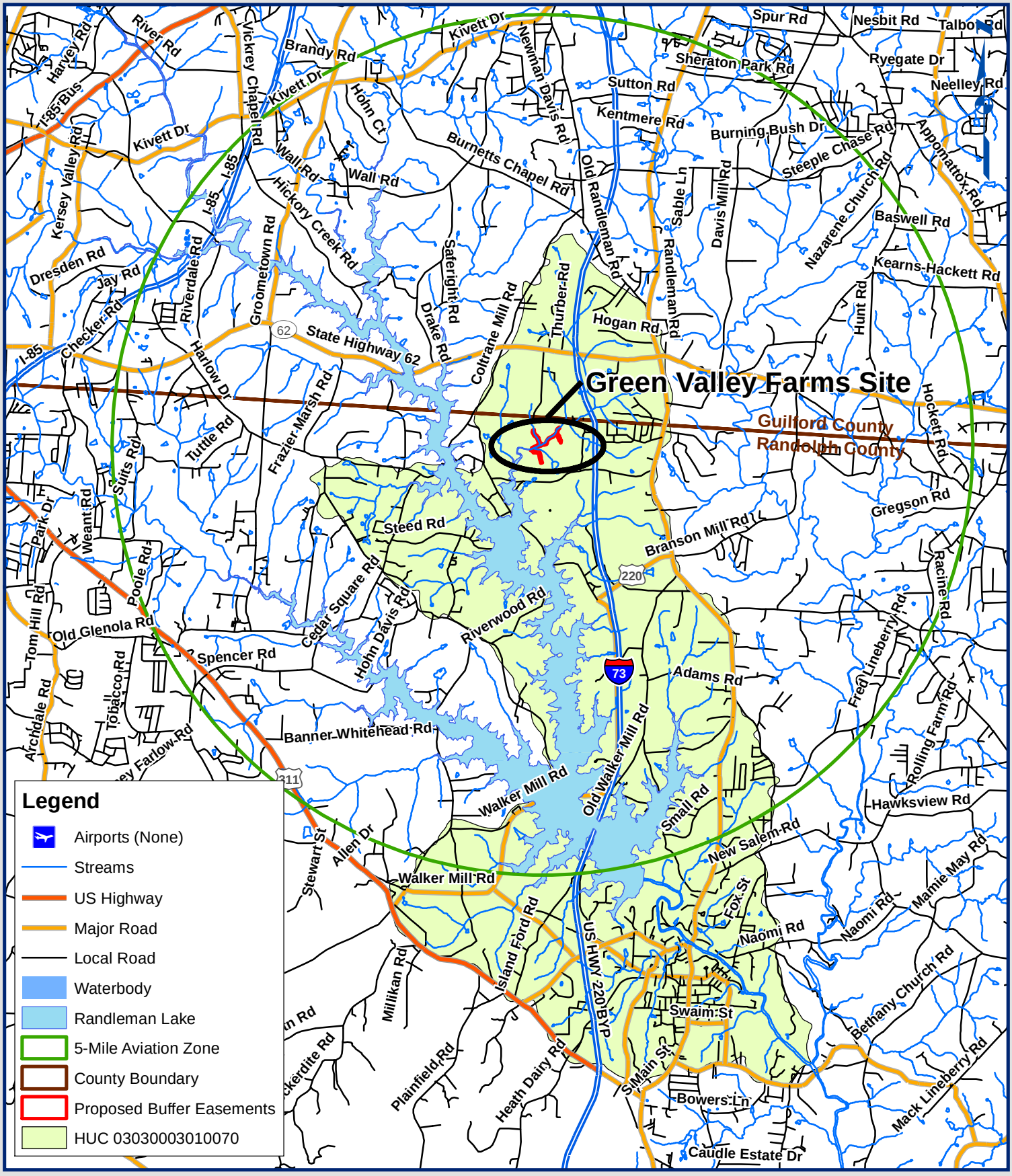


Figure 1.
Project Vicinity Map
Green Valley Farms Buffer Restoration Site

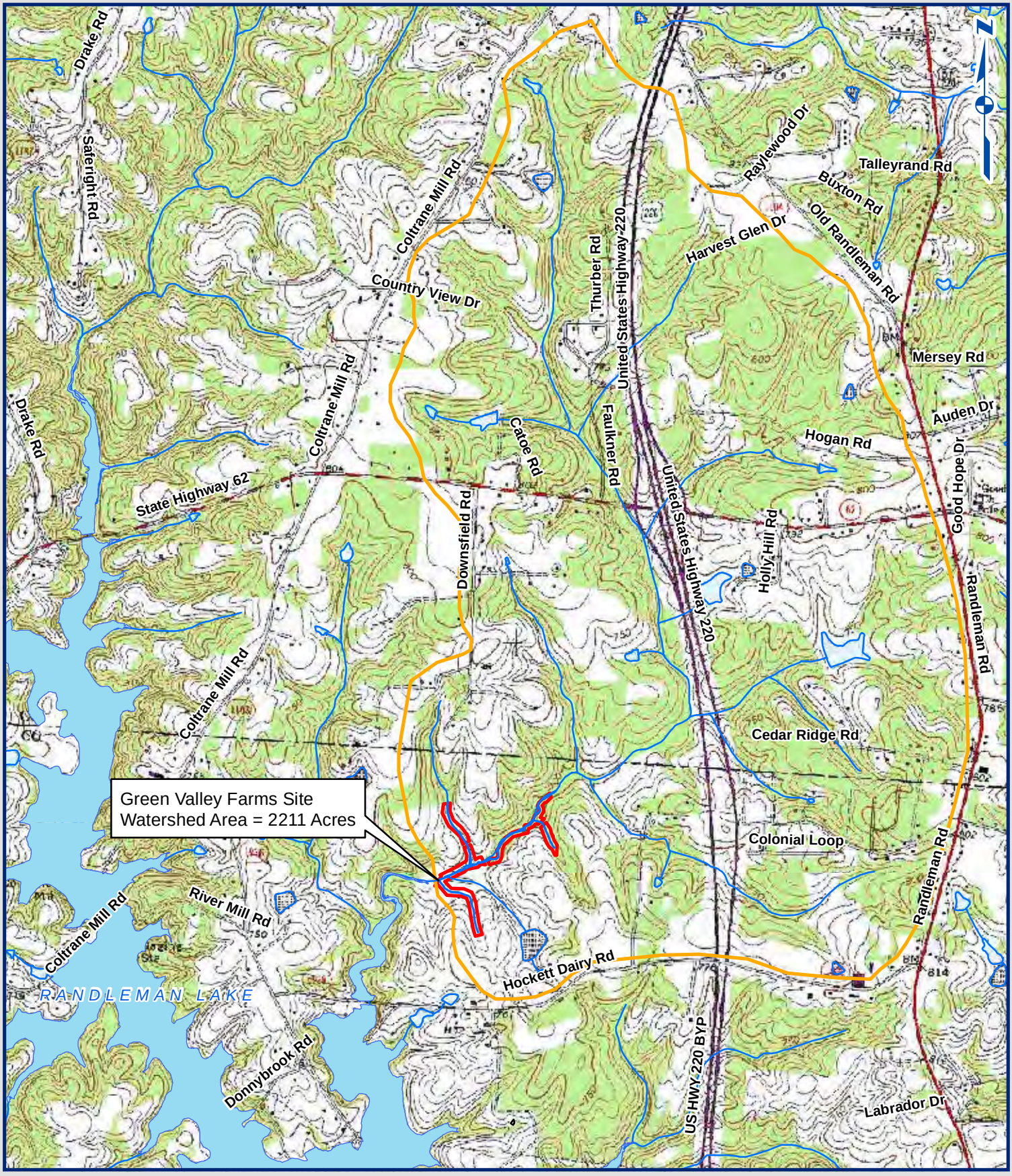


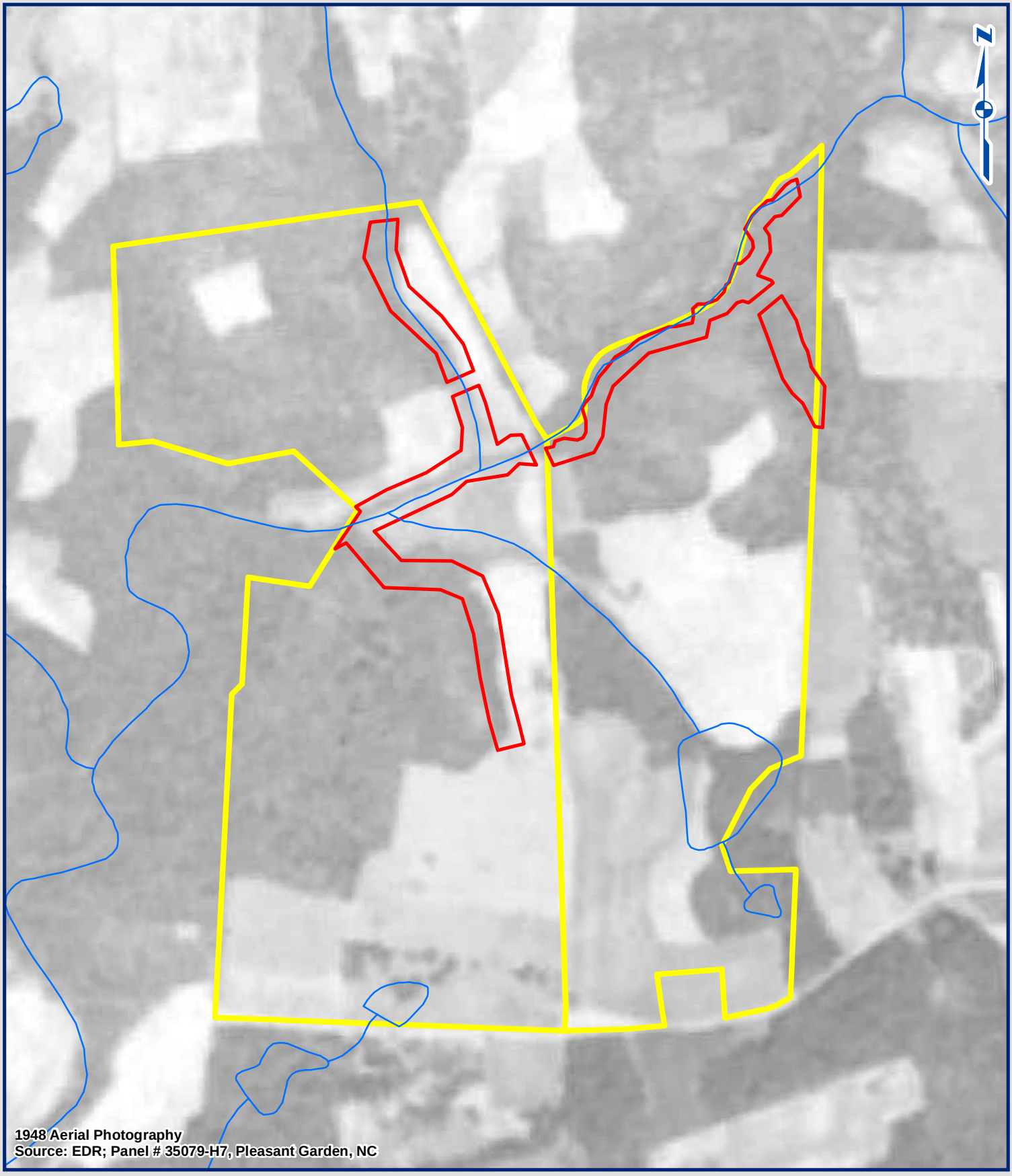
Figure 2.
USGS/Watershed Map
Green Valley Farms Buffer Restoration Site

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

Legend

- Streams
- Randleman Lake
- Drainage Area
- Proposed Buffer Easement



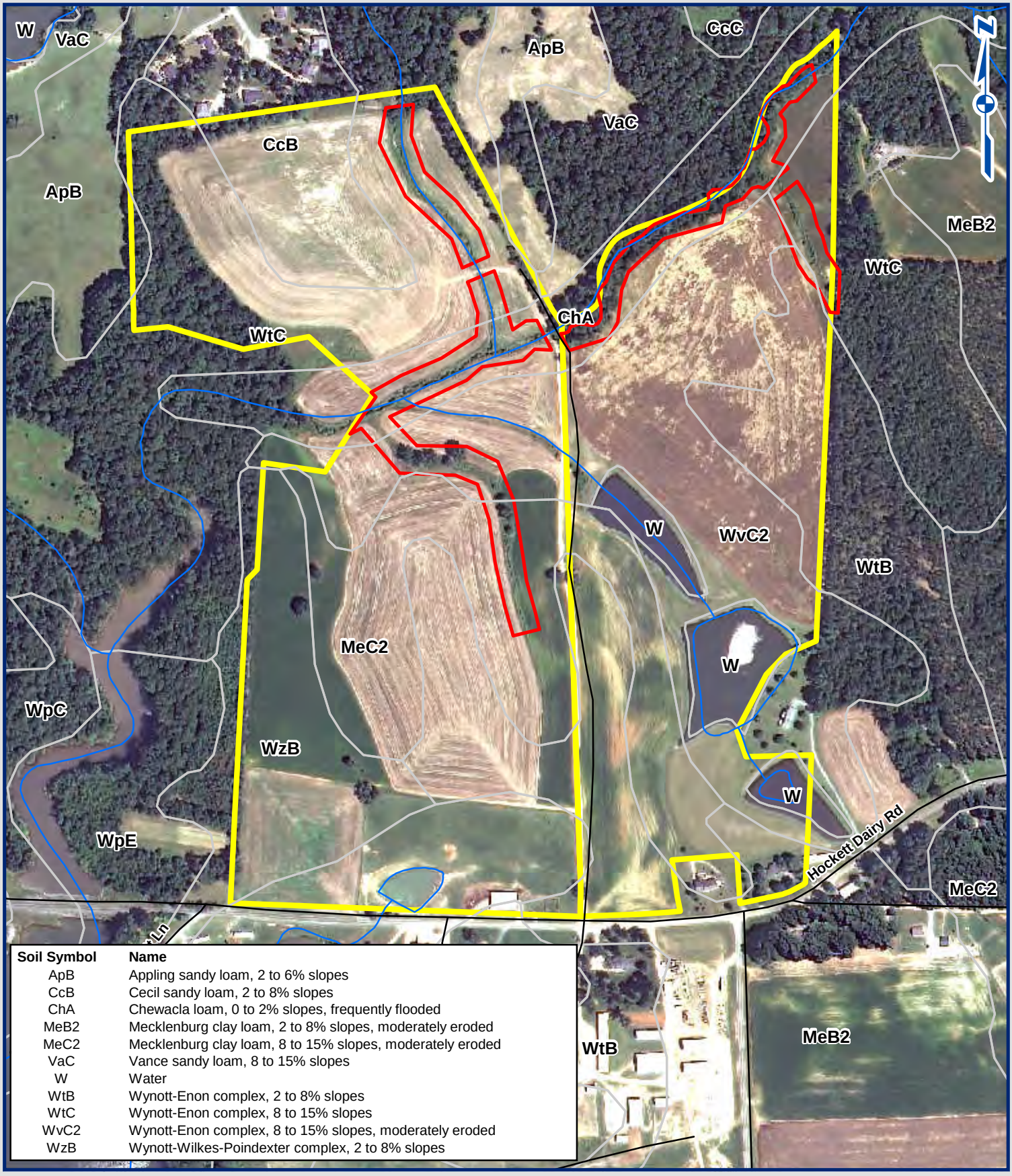
EBX

Figure 3.
1948 Historical Aerial Map
Green Valley Farms Buffer Restoration Site

0 250 500 1,000 Feet

1 inch = 500 feet

Streams
Proposed Buffer Easement
Target Parcels



Soil Symbol	Name
ApB	Appling sandy loam, 2 to 6% slopes
CcB	Cecil sandy loam, 2 to 8% slopes
ChA	Chewacla loam, 0 to 2% slopes, frequently flooded
MeB2	Mecklenburg clay loam, 2 to 8% slopes, moderately eroded
MeC2	Mecklenburg clay loam, 8 to 15% slopes, moderately eroded
VaC	Vance sandy loam, 8 to 15% slopes
W	Water
WtB	Wynott-Enon complex, 2 to 8% slopes
WtC	Wynott-Enon complex, 8 to 15% slopes
WvC2	Wynott-Enon complex, 8 to 15% slopes, moderately eroded
WzB	Wynott-Wilkes-Poindexter complex, 2 to 8% slopes

EBX

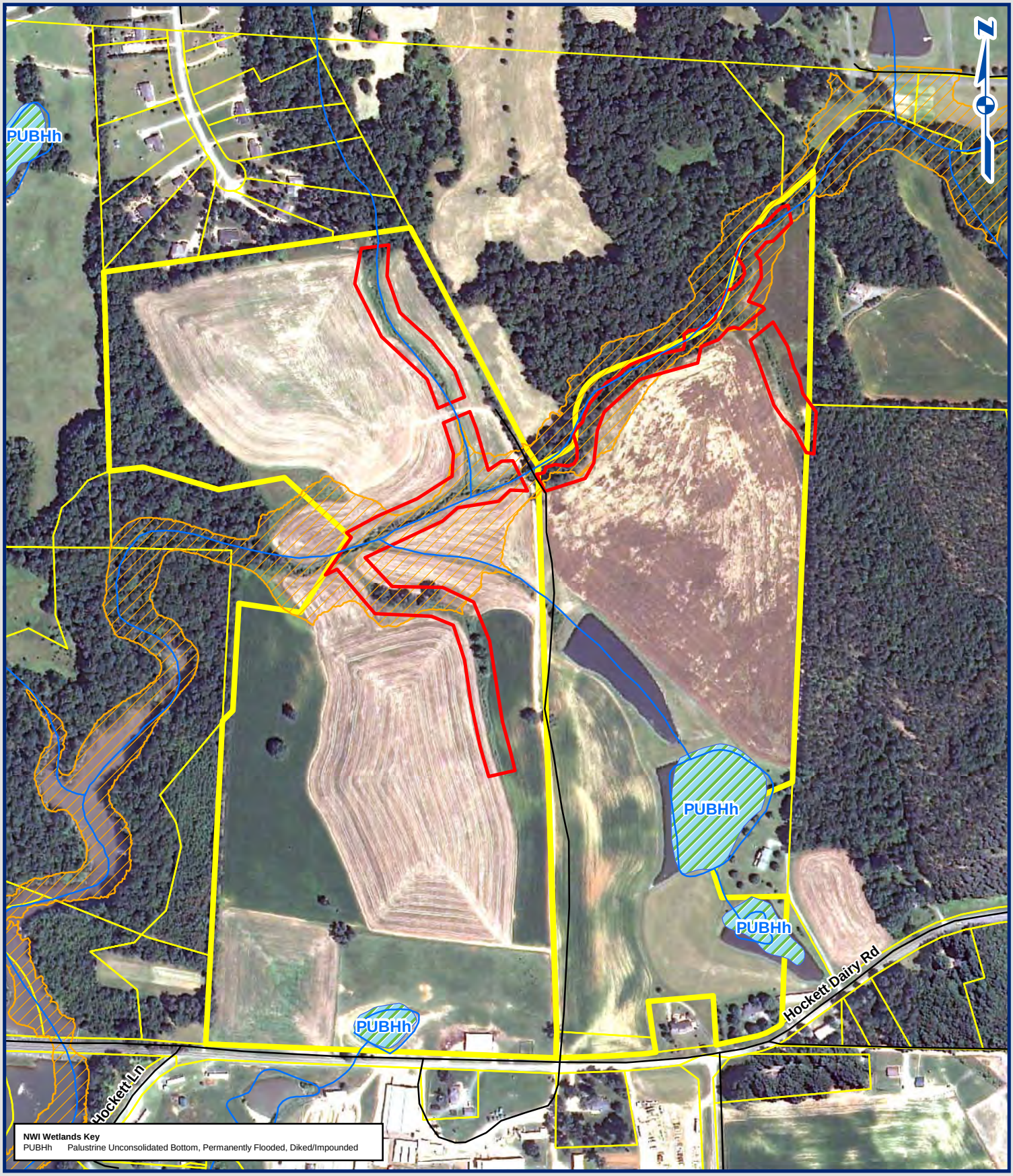
Figure 4.
Soils Map
Green Valley Farms Buffer Restoration Site

0 250 500 1,000 Feet

1 inch = 500 feet

Legend

- Streams
- Randolph County Soils
- Proposed Buffer Easement
- Target Parcels



EBX

Figure 5.
FEMA Flood Insurance and NWI Map
Green Valley Farms Buffer Restoration Site

0 250 500 1,000 Feet

1 inch = 500 feet

Legend

- Streams
- Proposed Buffer Easement
- NWI Wetlands
- Target Parcels
- FEMA Zone AE - Detailed 100yr. Floodplain

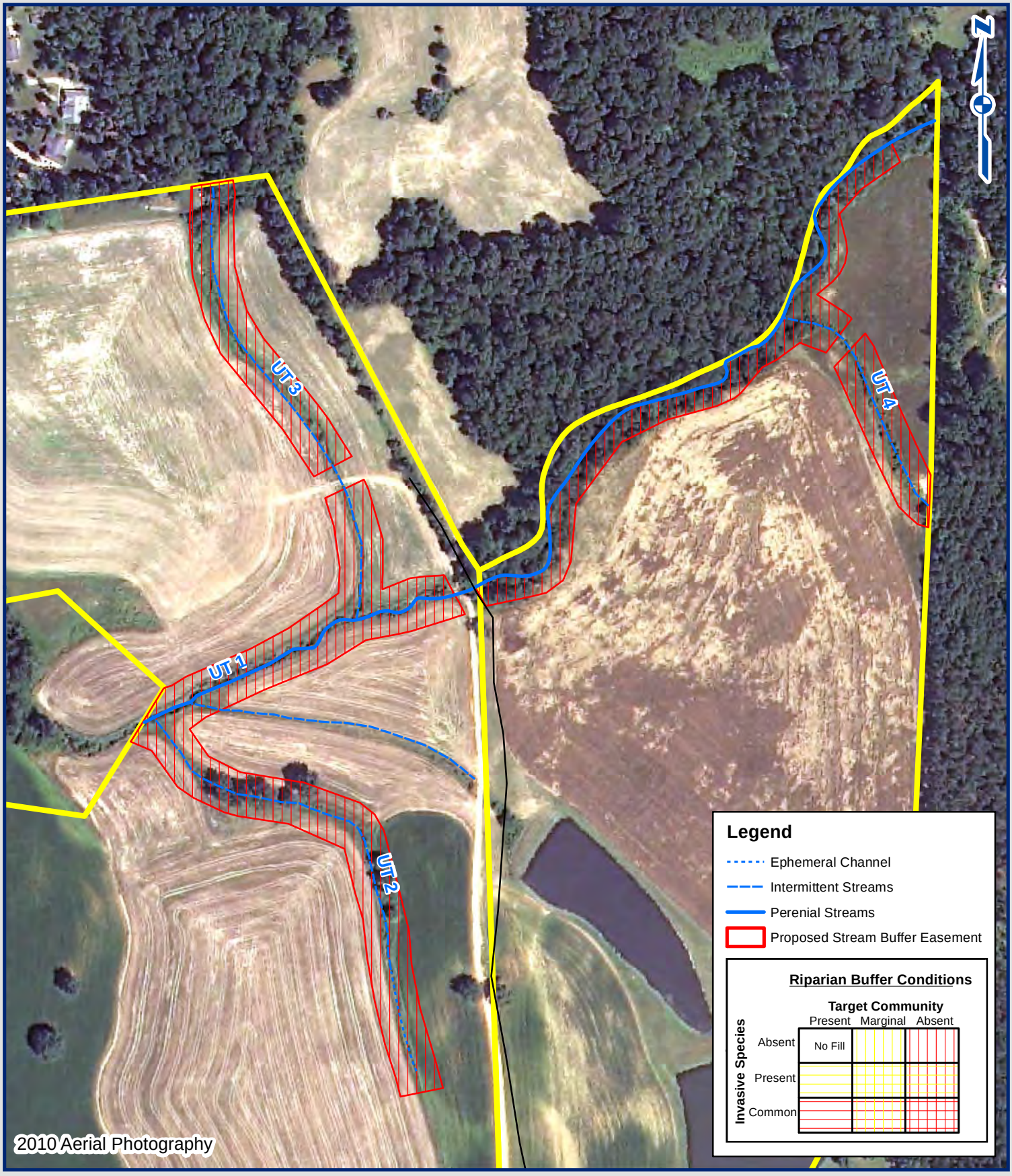
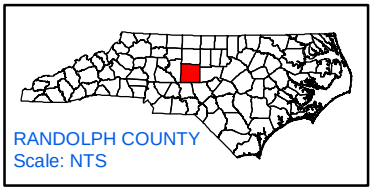


Figure 6.
Current Conditions Plan View
Green Valley Farms Buffer Restoration Site

0 150 300
Feet

1 inch = 300 feet



2.6 Site Photographs

UT1: Facing upstream showing absent riparian buffer.

UT2: Facing downstream showing current conditions along UT2.

UT3: Facing downstream at existing conditions and bedrock grade control.

UT4: Facing upstream along UT4 at existing conditions and buffer.

3.0 SITE PROTECTION INSTRUMENT

The land required for the construction, management, and stewardship of this mitigation project includes portions of the following parcels. A copy of the land protection instrument (draft conservation easement plat and sample conservation easement) is included in **Appendix A**.

Table 1. Landowners in Site Protection Instrument

Parcel ID	Landowner	PIN	County	Site Protection Instrument	Deed Book & Page Number	Acreage Protected
A	Hockett, H. N. Jr.	7758254510	Randolph	Easement	P.B. 118, PG. 98	6.44
B	Hockett, H. N. Jr.	7758353599	Randolph	Easement	P.B. 118, PG. 98	3.22

When available, the recorded document(s) will be provided.

4.0 BASELINE INFORMATION

4.1 Protected Species

The US Fish and Wildlife Service (USFWS) database (updated 22 September 2010) lists two endangered species for Randolph County, North Carolina: Cape Fear shiner and Schweinitz's sunflower (**Table 1**). No protected species or potential habitat for protected species was observed during preliminary site evaluations.

In addition to the USFWS database, the NC Natural Heritage Program (NHP) GIS database was consulted to determine whether previously cataloged occurrences of protected species were mapped within one mile o f the project site. Results from NHP indicated that there were no known occurrences within a one-mile radius of the project area. Based on initial site investigations no impacts to federally protected species are anticipated as a result of the proposed project. The environmental screening phase of the project included USFWS coordination to confirm these findings.

Table 2. Federally Protected Species in Randolph County

Common Name	Scientific name	Federal Status	Record Status
Vertebrate:			
American eel	*Anguilla rostrata*	FSC	Current
Cape Fear shiner	*Notropis mekistocholas*	E	Current
Carolina darter	*Etheostoma collis collis*	FSC	Obscure
Carolina redhorse	*Moxostoma* sp. 2	FSC	Current
Invertebrate:			
Atlantic pigtoe	*Fusconaia masoni*	FSC	Current
Brook floater	*Alasmidonta varicosa*	FSC	Current
Carolina creekshell	*Villosa vaughaniana*	FSC	Current
Savannah lilliput	*Toxolasma pullus*	FSC	Current
Yellow lampmussel	*Lampsilis cariosa*	FSC	Current
Vascular Plant:			
Georgia aster	*Symphyotrichum georgianum*	C	Current
Prairie birdsfoot-trefoil	*Lotus unifoliolatus* var. *helleri*	FSC	Current
Schweinitz's sunflower	*Helianthus schweinitzii*	E	Current
E = endangered. T = threatened. " C = candidate. FSC = federal species of concern.		USFWS 09-22-2010 http://www.fws.gov/raleigh/ Accessed 02 February 2012	

4.2 Cultural Resources

On February 3, 2011, the North Carolina State Historic Preservation Office (SHPO) website (http://gis.ncdcr.gov) database was reviewed to determine if any listed or potentially eligible historic or archeological resources in the proposed project area existed. This search did not reveal any occurrence within the project area. The Coltrane Mill Historic District (RD0031,RD0033) is located within 1.5 miles of the project area. The Green Valley Farms project will not threaten or impact this historic district. The environmental screening phase of this project included SHPO coordination to confirm these findings Four unnamed tributaries to Randleman Lake comprise the principle drainage features. Buffer restoration is proposed on four unnamed tributaries to improve water quality and to protect these waters in perpetuity. The right bank of the upstream portion of UT 1 is wooded and not part of this project. The project's

watershed is primarily used for agricultural production. Much of the site is currently used for row crop production for dairy silage. These tributaries have limited hardwood trees present, and lack significant ground cover. Regular maintenance is performed to remove woody vegetation along the banks of the tributaries. The mature trees are less than 100 stems per acres. The project area has been in agricultural use for several decades. The environmental screening phase of the project included SHPO coordination to confirm these findings.

4.3 Existing Conditions

Stream Channels
The Green Valley Farms Buffer Mitigation Site is composed of four stream channels: UT1, UT2, UT3, and UT4 (**Figure 6**). UT 1 flows directly into Randleman Lake from the subject property within 300 feet downstream of the project limits. The remaining 3 streams (UT2, UT3, and UT4) drain into UT1. The proposed buffer restoration is partially located within FEMA mapped flood zone AE-detailed 100 year floodplain. There are no NWI mapped wetlands within the proposed easement area. Photographs and NC DWQ Stream Identification Forms for the four stream reaches are included in **Appendix C**.

Unnamed Tributary 1
This is a perennial unnamed tributary, which flows directly into Randleman Lake. UT 1 has a drainage area of approximately 3.45 square miles. This channel runs through agriculture fields from the northeast property corner of the Green Valley Farms Site to the western side of the project property before entering into Randleman Lake. UT 1 is approximately 2,450 linear feet with a proposed buffer restoration of 3.51 acres. This stream channel is stable throughout; however, it does exhibit portions of near vertical banks and minor erosion. UT 1 is divided into two segments by a farm crossing. The proposed conservation easement includes both sides of UT 1below the crossing but only one side, the south side, above the crossing.

The existing buffer upstream of the crossing consists of a thin strip of mature hardwood trees (five to 10-inch dbh) along the left bank, while the buffer along the right bank is wooded and in excellent condition. A total stem count in the existing buffer found only 77 trees per acre along the left bank within the upstream portion of UT 1. The dominant trees consist of American sycamore (*Platanus occidentalis*), northern red oak (*Quercus rubra*), red maple (*Acer rubrum*), and tulip poplar (*Liriodendron tulipifera*). There are very few invasive exotic species present and present no threat to the success of the project. The existing downstream buffer consists primarily of herbaceous and weedy vegetation. A few stems of black willow (*Salix nigra*) are present along the stream banks, but are smaller than five-inch dbh.

Unnamed Tributary 2
This intermittent tributary flows into UT 1. This channel runs from the south to northeast for approximately 1,156 linear feet. The upstream portion of UT2 is a drainage ditch approximately 240 linear feet. The ditch originates at a headcut within the agriculture field. This ditch channel is stable within a natural valley feature. The stream channel is bound by active agricultural fields. Approximately 2.65 acres of buffer restoration is proposed along UT2. The existing buffer consists of agriculture crops and herbaceous vegetation. A total stem count in the existing buffer found only 9 trees (3 trees per acre) along this reach. The dominant trees consist of American sycamore, northern red oak, and sweetgum (*Liquidambar styraciflua*). There are very few invasive exotic species present and present no threat to the success of the project. The stream had moderate to strong flow at the time of the site visit in January 2011. The stream substrate consists of gravel and sand. The stream is stable with little erosion along the banks and adjacent buffer.

Unnamed Tributary 3
UT 3 is a first order intermittent tributary that flows from north to south across the project property and empties into UT 1. UT 3 has a drainage area of approximately 64 acres. This stream channel had strong

flow at the time of visit in early January 2011. UT 3 exhibits multiple segments of bedrock providing grade control and streambed stability. This stable tributary lies within a natural valley and is bound by agriculture fields. An existing culvert crossing is present. The channel is approximately 1,105 linear feet with a proposed buffer restoration of 2.3 acres. The existing buffer consists primarily of agriculture crops, woody vines, and herbaceous vegetation. Dominate species found include winged sumac (*Rhus copallinum*), blackberry (*Rubus argutus*), sugarberry (*Celtis laevigata*), greenbriar (*Smilax* sp.), and Japanese honeysuckle. No mature trees or stems with a five-inch dbh or greater were found within the existing stream buffer. Upstream of the project property, UT 3 is surrounded by a mature hardwood forested buffer.

Unnamed Tributary 4

UT 4 is an intermittent to perennial tributary that flows directly into UT 1 and has an approximate drainage area of 19.5 acres. This tributary runs from the eastern property line of the Green Valley Farms property to the northeast before entering UT 1. UT 4 lies within a valley bottom and exhibits multiple stream characteristics. Water appearance within UT 4 was turbid with an abundant amount of iron oxidizing bacteria present. The existing buffer has no mature trees with a five-inch dbh or larger. The sparse existing buffer consists primarily of black willow with scattered red maple stems. Vegetative coverage is mostly from fescue grasses (*Festuca* sp.), herbaceous weeds, and cattails (T*ypha latifolia*). The stream had a strong flow at the time of the site visit in January 2011. Substrate consists of silt, sand, and gravel throughout. An existing culvert crossing is present near the bottom of this channel. The stream is stable despite the lack of a mature vegetative buffer.

UT 4 has been impacted by agricultural practices resulting in sediment deposits in the upper reach. As a result, the channel is partially filled and lacks a defined bed and bank. Herbaceous wetland vegetation is also present in the channel bottom. The intermittent nature of this channel was indeterminate during the DWQ site visit due to sediment from grazing and stabilization activities. A NCDWQ site visit determined the upper 400 linear feet of channel, in its current state, is not subject to the Randleman Buffer Rules and not suitable for restoration. However, the lower 190 linear feet is subject to the buffer rules and consists of 0.28 acres of proposed buffer restoration. EBX believes that restoring the buffer and limiting sediment input along the entire reach, a total of 590 linear feet, will result in a defined channel within the 5-year monitoring period. It is anticipated that the buffer restoration along UT 4 will ultimately yield 1.14 acres of buffer restoration. Additional documentation of the NCDWQ coordination is included in Appendix B.

Table 3. Project Information

Project Name	Green Valley Farm Site - Riparian Buffer Restoration
County	Randolph
Project Area (acres)	11.45
Project Coordinates (latitude and longitude)	35° 54' 17.672" N, 79° 50' 3.490"W

Table 4. Project Watershed Summary Information

Physiographic Province	Piedmont Physiographic Province
River Basin	Cape Fear River Basin
USGS Hydrologic Unit 8-digit	03030003
USGS Hydrologic Unit 14-digit	03030003010070
DWQ Sub-basin	03-06-08
Project Drainage Area (acres)	389.1
Project Drainage Area Percentage of Impervious Area	1%
CGIA Land Use Classification	1.01 Residential 2.01 Cropland and Pasture 2.03 Confined Animal Operations 2.99 Other Agricultural Land 3.02 Passively Managed Forest Stands

Table 5. Reach Summary Information

Parameters	Reach UT1	Reach UT2	Reach UT3	Reach UT4*
Length of reach (linear feet)	2,450	1,156	1,105	190 to 590
Valley Classification	X	X	X	X
Drainage area (acres)	221	18.5	64	19.4
NCDWQ stream identification score	38	20.5	23	26
NCDWQ Water Quality Classification	WS-IV;CA	WS-IV;CA	WS-IV;CA	WS-IV;CA
Morphological Description (stream type)	C	C	C	C
Evolutionary trend	Stable	Stable	Stable	Stable
Underlying mapped soils	Chewacla loam ChA	Mecklenburg CL MeC2, Wynott-Enon complex WvC2	Wynott-Enon complex WtC	Wynott-Enon complex WtC
Drainage class	somewhat poorly drained	well drained	well drained	well drained
Soil Hydric status	Non-hydric	Non-hydric	Non-hydric	Non-hydric
Slope (ft/ft)	0.002	0.024	0.014	0.010
FEMA classification	Zone AE	Zone AE	Zone AE	N/A
Native vegetation community	Cultivated	Cultivated	Cultivated	Cultivated
Percent composition of exotic invasive vegetation	<1%	<1%	<1%	<1%

*Currently, the upper 400 LF of UT4 is not subject to the Randleman Buffer Rules; however, the lower 190 LF is subject to the buffer rules and consists of 0.28 acres of proposed buffer restoration. It is anticipated that performing buffer restoration along the entire reach (590 LF) will result in a defined channel within the 5-year monitoring period and ultimately yield 1.14 acres of buffer restoration.

4.4 Regulatory Considerations

Table 6. Regulatory Considerations

Regulation	Applicable	Resolved	Supporting Documentation
Waters of the United States - Section 404	Yes	Yes	see Appendix B
Waters of the United States - Section 401	Yes	Yes	see Appendix B
Endangered Species Act	Yes	Yes	see Appendix B
Historic Preservation Act	Yes	Yes	see Appendix B
Coastal Zone Management Act (CZMA)/Coastal Area Management Act (CAMA)	No	N/A	N/A
FEMA Floodplain Compliance	No	N/A	N/A
Essential Fisheries Habitat	No	N/A	N/A

5.0 DETERMINATION OF CREDITS

Mitigation credits presented in these tables are projections based upon site design. Upon completion of site construction, the project components and credits data will be revised to be consistent with the as-built condition.

Table 7. Mitigation Credits

Green Valley, Randolph County EEP Project ID Number 003994-EEP Site 95012									
Mitigation Credits									
	Stream		Riparian Wetland		Non-riparian Wetland		Buffer	Nitrogen Nutrient Offset	Phosphorous Nutrient Offset
Type	N/A	N/A	N/A	N/A	N/A	N/A	Restoration	N/A	N/A
Totals*	N/A	N/A	N/A	N/A	N/A	N/A	8.74 Ac. to 9.6 Ac.	N/A	N/A

Project Components						
Reach ID	Stationing/ Location	Existing Footage (LF)	Approach (PI, PII, etc.)	Restoration -or- Restoration Equivalent	Restoration Area (acres)	Mitigation Ratio
Reach UT1	N/A	2,450	N/A	Buffer Restoration	3.51	1:1
Reach UT2	N/A	1,156	N/A	Buffer Restoration	2.65	1:1
Reach UT3	N/A	1,105	N/A	Buffer Restoration	2.30	1:1
Reach UT4*	N/A	190 to 590	N/A	Buffer Restoration	0.28 to 1.14	1:1

Component Summation						
Restoration Level	**Stream (linear feet)**	**Riparian Wetland**		**Non-Riparian Wetland (acres)**	**Buffer (square feet)**	**Upland (acres)**
		Riverine	**Non-Riverine**			
Restoration*	N/A	N/A	N/A	N/A	380,714 to 418,176	N/A
Enhancement	N/A	N/A	N/A	N/A	N/A	N/A
Enhancement I	N/A	N/A	N/A	N/A	N/A	N/A
Enhancement II	N/A	N/A	N/A	N/A	N/A	N/A
Creation	N/A	N/A	N/A	N/A	N/A	N/A
Preservation	N/A	N/A	N/A	N/A	N/A	N/A
High Quality Preservation	N/A	N/A	N/A	N/A	N/A	N/A

BMP Elements			
Element	**Location**	**Purpose/Function**	**Notes**
N/A	N/A	N/A	N/A

*Currently, the upper 400 LF of UT4 is not subject to the Randleman Buffer Rules; however, the lower 190 LF is subject to the buffer rules and consists of 0.28 acres of proposed buffer restoration. It is anticipated that performing buffer restoration along the entire reach (590 LF) will result in a defined channel within the 5-year monitoring period and ultimately yield 1.14 acres of buffer restoration.

6.0 CREDIT RELEASE SCHEDULE

The Green Valley buffer restoration credit release will follow EEP and DWQ standard operating procedures. The Monitoring Plans shall be amended to specify a vegetation success rate of 320 trees per acre after five years within the stream buffers for which riparian buffer mitigation credit is specified. Monitoring of the riparian buffer restoration and enhancement shall be based on the **CVS-EEP Protocol for Recording Vegetation Level 1-2 Plot Sampling Only Version 4.0**., as indicated in the Monitoring Plans.

7.0 MITIGATION WORK PLAN

The Green Valley Farms mitigation project offers an opportunity for high quality riparian buffer restoration. Proposed mitigation for the Green Valley Farms Site involves buffering four streams that flow directly and indirectly into Randleman Lake. The proposed mitigation design divides the site into four distinct reaches (**Figure 7**). Buffer restoration is proposed along all four channels. Three existing farm access crossings will be upgraded and stabilized to prevent erosion.

7.1 Buffer Restoration Approach

Buffer restoration efforts along the tributaries to Randleman Lake will be accomplished through the planting, establishment, and protection of a hardwood forest community. The result will be a restored riparian habitat that functions to mitigate nutrient and sediments inputs from the surrounding uplands. This project will provide 8.74 to 9.6 acres of stream buffer restoration in the Randleman Lake watershed.

The riparian buffer is in poor condition throughout most of the project area. Most of the riparian buffer is devoid of trees or shrubs and row crops are actively cultivated up to the edge of the existing channel. Current buffer conditions demonstrate significant degradation with a loss of stabilizing vegetation because of continued agricultural activities and past land management actions. Field counts of woody vegetation, where present, of stems greater than five inches dbh document the absence of a woody adequate buffer. Saplings necessary for buffer regeneration were minimal or absent. The conceptual plan is provided in **Figure 7**. Specific restoration treatments for each reach are described below.

Buffer restoration will typically include removal of invasive species where present and planting appropriate bottomland hardwood species. Stabilization and implementation of dispersal techniques will be utilized where surface flows have become concentrated. One un-buffered stream reach enters UT 1 on the left bank. No fencing is required on the Green Valley Buffer Restoration Site since cattle or livestock are not present. Stable crossings will be constructed to access fields. The easement boundary will be marked with metal poles and signs.

7.2 Target Riparian Plant Communities

The riparian buffer restoration target natural community will be a Piedmont Alluvial Forest as described in Schafale and Weakley (1990). This type of community is common throughout Piedmont drainages and when established will provide numerous water quality and ecological benefits.

7.3 Vegetation Planting Plan

Buffer restoration will typically include removal of invasive species and debris where present and planting appropriate bottomland hardwood species. The Green Valley Farms Site permanent conservation easement will extend a minimum of 50 feet from the top of bank on all outside bends. **Table 7** details the proposed mitigation project. The project will provide up to 8.74 to 9.6 acres of buffer restoration along the streams in the Randleman Lake watershed.

Exotic invasive species will be removed and controlled with an appropriate herbicide. The application of herbicides will be specifically targeted to invasive species control. No grading beyond culvert replacement and crossing stabilization is planned. Cultivated fields will be ripped and disked to improve infiltration and root growth. No fertilization will be done on site.

Table 8 and **Appendix D** lists proposed bottomland tree seedlings to be planted at the site. A riparian seed mix will be utilized to provide a rapid herbaceous cover and stabilization of the site, especially at culvert/crossings and in existing cultivated areas. All disturbed areas will require a temporary seed mix.

Table 8. Proposed Tree Species

Common Name	Scientific Name	Percent Composition
Eastern Redbud	*Cercis canadensis*	10%
Green Ash	*Fraxinus pennsylvanica*	20%
American Sycamore	*Platanus occidentalis*	20%
White Oak	*Quercus alba*	10%
Willow Oak	*Quercus phellos*	15%
Water Oak	*Quercus nigra*	10%
Northern Red Oak	*Quercus rubra*	15%

Planting density approximatley 680 stems per acre

7.4 Design Parameters.

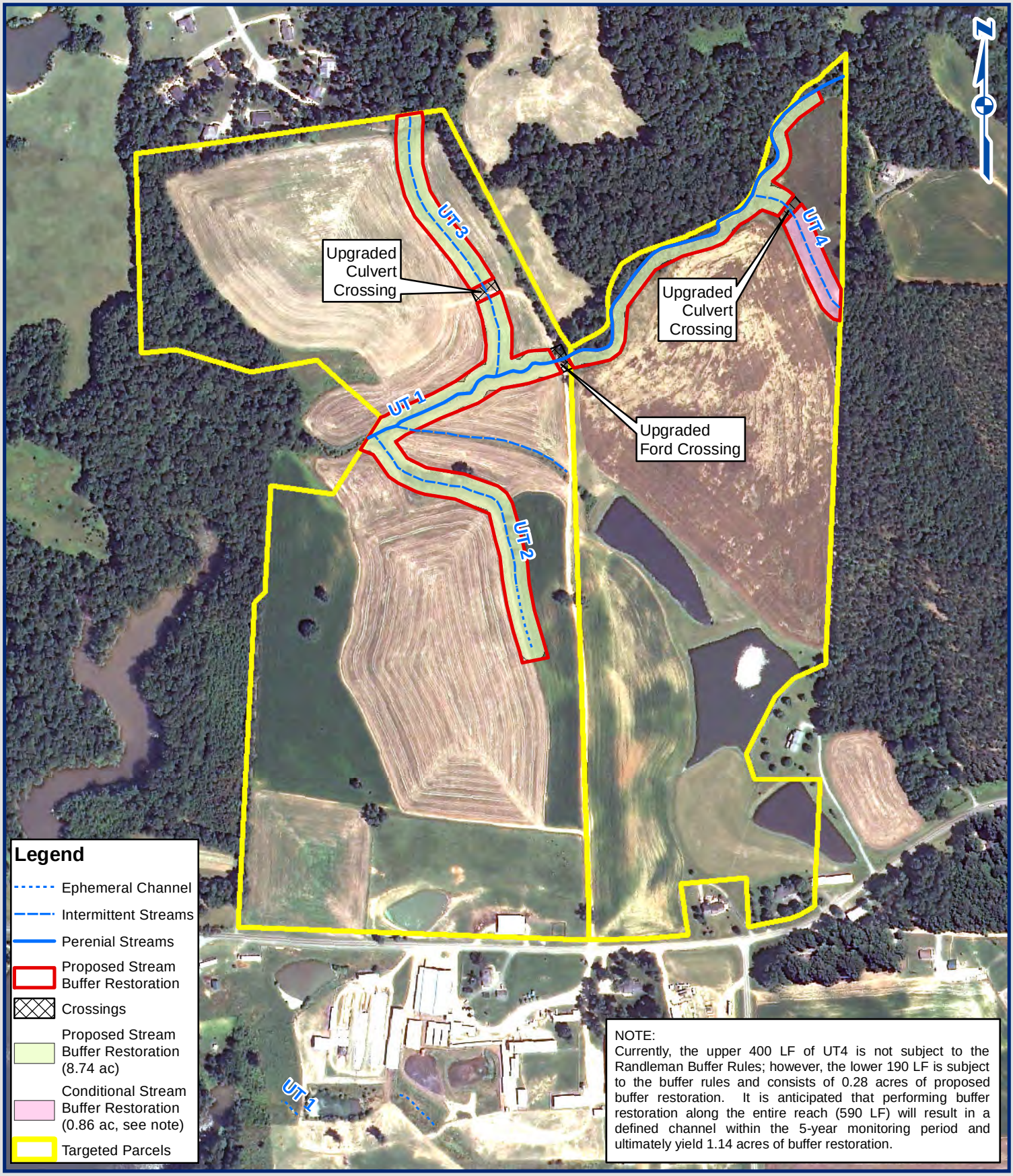
The mitigation approach for the channel buffers that comprise the Green Valley project are described in more detail below.

Unnamed Tributary 1
The buffer will be planted with bare root seedlings of appropriate native tree species. An herbaceous seed mix will be used to establish a ground cover quickly where existing vegetation is absent or removed. The existing farm crossing will be maintained as a ford and stabilized. A construction detail of the crossing is shown in (**Appendix D**). Upstream of the existing stream crossing, buffer restoration is proposed on the left stream bank. Downstream of the existing crossing, buffer restoration is proposed on both left and right stream banks.

Unnamed Tributary 2
The buffer will be planted with bare root seedlings of appropriate native tree species. An herbaceous seed mix will be used to establish a ground cover quickly where existing vegetation is absent or removed.

Unnamed Tributary 3
The buffer will be planted with appropriate native tree species. An herbaceous seed mix will be used to establish a ground cover quickly where existing vegetation is absent or removed. The existing farm-crossing culvert will be upgraded to a 36" corrugated metal pipe (CMP) and stabilized. A construction detail of the crossing is shown in **Appendix D**.

Unnamed Tributary 4
The buffer will be planted with appropriate native tree species. An herbaceous seed mix will be used to establish a ground cover quickly where existing vegetation is absent or removed. The existing farm crossing will be upgraded using a 36" CMP and stabilized. A construction detail of the crossing is shown in (**Appendix D**). The intermittent nature of this channel was indeterminate during the DWQ site visit due to sediment from cultivation activities.

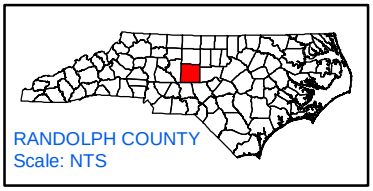


EBX

Figure 7.
Conceptual Design
Green Valley Farms Buffer Restoration Site

0 250 500 1,000 Feet

1 inch = 500 feet



8.0 MAINTENANCE PLAN

The site will be monitored on a regular basis and a physical inspection of the site will be conducted a minimum of once per year throughout the post-construction monitoring period until performance standards are met. These site inspections will identify site components and features that require routine maintenance. Routine maintenance should be expected most often in the first two years following site construction and may include the following:

Table 9. Proposed Maintenance Schedule

Component/Feature	Maintenance through project close-out
Vegetation	Vegetation shall be maintained to ensure the health and vigor of the targeted plant community. Routine vegetation maintenance and repair activities may include supplemental planting, pruning, mulching, and fertilizing. Exotic invasive plant species shall be controlled by mechanical and/or chemical methods. Any vegetation control requiring herbicide application will be performed in accordance with NC Department of Agriculture (NCDA) rules and regulations.
Site Boundary	Site boundaries shall be identified in the field to ensure clear distinction between the mitigation site and adjacent properties. Boundaries may be identified by fence, marker, bollard, post, tree-blazing, or other means as allowed by site conditions and/or conservation easement. Boundary markers disturbed, damaged, or destroyed will be repaired and/or replaced on an as needed basis.
Ford Crossing	Ford crossings within the site may be maintained only as allowed by Conservation Easement or existing easement, deed restrictions, rights of way, or corridor agreements.
Road Crossing	Road crossings within the site may be maintained only as allowed by Conservation Easement or existing easement, deed restrictions, rights of way, or corridor agreements.

9.0 PERFORMANCE STANDARDS

Vegetative Success Criteria
Specific and measurable success criteria for plant density within the riparian buffer on the site will be based on the recommendations found in the NCDENR Buffer Restoration guidance documents and correspondence from review agencies on buffer restoration sites recently approved. The measure of vegetative success for the site will be the survival of at least 320 5-year old planted trees per acre at the end of year five of the monitoring period.

Invasive and noxious species will be controlled so that none become dominant or alter the desired community structure of the site. If necessary, EBX will develop a species-specific control plan.

Vegetative Photo Reference Stations
Photographs will be used to document visually restoration success. Reference photos will be taken once a year and will be used to document visually restoration success. After construction has taken place, reference photo stations will be marked with wooden stakes. Reference stations will be photographed immediately following planting and continued annually for at least seven years following construction. Photographers will make every effort to maintain consistently the same area in each photo over time. Photographs will be used to evaluate subjectively vegetation establishment. A series of photos over time should indicate successional maturation of riparian vegetation.

Method of Reporting Success Criteria
A mitigation plan and as-built drawings documenting buffer restoration activities will be developed within 60 days of the planting completion on the mitigation site. The report will include all information required by NCEEP mitigation plan guidelines including photographs, sampling plot locations, and a description of initial species composition by community type. The report will also include a list of the species planted and the associated densities. Baseline vegetation monitoring will follow CVS-NCEEP Protocol for Recording Vegetation Version 4.0. Level 1 and Level 2 monitoring will be conducted. Baseline report will follow Baseline Monitoring Report Template and Guidance version 2.0 (10/14/10).

The monitoring program will be implemented to document system development and progress toward achieving the success criteria. The restored buffer vegetation will be assessed to determine the success of the mitigation. The monitoring program will be undertaken for five years or until the final success criteria are achieved, whichever is longer.

Monitoring reports will be prepared in the fall of each year of monitoring and submitted to NCEEP. The monitoring reports will include all information and be in the format required by NCEEP in Version 2.0 of the NCEEP Monitoring Report Template.

Photo Reference Stations
Photographs will be used to document visually restoration success. Reference stations will be photographed immediately following planting and continued for at least five years following construction. Reference photos will be taken once a year. After construction has taken place, reference stations will be marked with wooden stakes. Photographers should make every effort to maintain consistently the same area in each photo over time.

9.1 Vegetative Monitoring

The vegetative success criteria are defined in Section 8.0. In order to determine if the success criteria are achieved and the planted areas are developing toward the target community, NCEEP-CVS Protocol for Recording Vegetation Version 4.0 will be utilized. The vegetation monitoring will include Level I and Level II plots distributed across the planted area. An interim vegetation monitoring will occur in spring

after leaf-out has occurred. The CVS monitoring will be conducted toward the end of the growing season. Individual plot data for will be provided to NCEEP and CVS following NCEEP-CVS guidance.

9.2 Remedial Actions

In the event that the site or a specific component of the site fails to achieve the defined success criteria, EBX will develop necessary adaptive management plans and/or implement appropriate remedial actions for the site in coordination with NCEEP and the review agencies. Remedial action required will be designed to achieve the success criteria specified previously, and will include a work schedule and monitoring criteria that will take into account physical and climatic conditions.

10.0 MONITORING REQUIREMENTS

Annual monitoring data will be reported using the EEP monitoring template. The monitoring report shall provide a project data chronology that will facilitate an understanding of project status and trends, population of EEP databases for analysis, research purposes, and assist in decision making regarding project closeout.

Table 10. Annual Monitoring Requirements

Required	Parameter	Quantity	Frequency	Notes
X	Vegetation	11 Plots Located randomly across the project area	Annual	Vegetation will be monitored using the Carolina Vegetation Survey (CVS) protocols
X	Exotic and nuisance vegetation	N/A	Annual	Exotic vegetation will be evaluated and spot treatment applied as needed
X	Project boundary	N/A	Semi-annual	Locations of fence damage, vegetation damage, boundary encroachments, etc. will be mapped

11.0 LONG-TERM MANAGEMENT PLAN

Upon approval for closeout by the NC Division of Water Quality, the site will be transferred to the State of North Carolina (State). The State shall be responsible for periodic inspection of the site to ensure that restrictions required in the conservation easement or the deed restriction document(s) are upheld.

12.0 ADAPTIVE MANAGEMENT PLAN

Upon completion of site construction post-construction monitoring protocols previously defined in this document will be implemented. Project maintenance will be performed as described previously in this document. If, during the course of annual monitoring it is determined the site's ability to achieve site performance standards are jeopardized, EEP will be notified of the need to develop a Plan of Corrective Action.

13.0 FINANCIAL ASSURANCES

Pursuant to Section IV H and Appendix III of the Ecosystem Enhancement Program's In-Lieu Fee Instrument dated July 28, 2010, the North Carolina Department of Environment and Natural Resources has provided the U.S. Army Corps of Engineers Wilmington District with a formal commitment to fund projects to satisfy mitigation requirements assumed by EEP. This commitment provides financial assurance for all mitigation projects implemented by the program.

14.0 REFERENCES

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Appendix A – Site Protection Instrument(s)

Draft Conservation Easement/Deed Restriction

STATE OF NORTH CAROLINA

CONSERVATION EASEMENT PROVIDED PURSUANT TO FULL DELIVERY MITIGATION CONTRACT

_____ COUNTY

SPO File Number

Prepared by: Office of the Attorney General
Property Control Section
Return to: NC Department of Administration
State Property Office
1321 Mail Service Center
Raleigh, NC 27699-1321

THIS CONSERVATION EASEMENT DEED, made this _____day of _____, 20__, by _____*Landowner name goes here*_____, ("**Grantor**"), whose mailing address is _____*Landowner address goes here*_____, to the State of North Carolina, ("**Grantee**"), whose mailing address is State of North Carolina, Department of Administration, State Property Office, 1321 Mail Service Center, Raleigh, NC 27699-1321. The designations of Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine, or neuter as required by context.

WITNESSETH:

WHEREAS, pursuant to the provisions of N.C. Gen. Stat. § 143-214.8 et seq., the State of North Carolina has established the Ecosystem Enhancement Program (formerly known as the Wetlands Restoration Program) within the Department of Environment and Natural Resources for the purposes of acquiring, maintaining, restoring, enhancing, creating and preserving wetland and riparian resources that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; and

WHEREAS, this Conservation Easement from Grantor to Grantee has been negotiated, arranged and provided for as a condition of a full delivery contract between *(insert name and address of full delivery contract provider)* and the North Carolina Department of Environment and Natural Resources, to provide stream, wetland and/or buffer mitigation pursuant to the North Carolina Department of Environment and Natural Resources Purchase and Services Contract Number _____.

WHEREAS, The State of North Carolina is qualified to be the Grantee of a Conservation Easement pursuant to N.C. Gen. Stat. § 121-35; and

WHEREAS, the Department of Environment and Natural Resources, the North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District entered into a Memorandum of Agreement, (MOA) duly executed by all parties in Greensboro, NC on July 22, 2003, which recognizes that the Ecosystem Enhancement Program is to provide for compensatory mitigation by effective protection of the land, water and natural resources of the State by restoring, enhancing and preserving ecosystem functions; and

WHEREAS, the acceptance of this instrument for and on behalf of the State of North Carolina was granted to the Department of Administration by resolution as approved by the Governor and Council of State adopted at a meeting held in the City of Raleigh, North Carolina, on the 8th day of February 2000; and

WHEREAS, the Ecosystem Enhancement Program in the Department of Environment and Natural Resources, which has been delegated the authority authorized by the Governor and Council of State to the Department of Administration, has approved acceptance of this instrument; and

WHEREAS, Grantor owns in fee simple certain real property situated, lying, and being in _____ Township, _____ County, North Carolina (the "**Property**"), and being more particularly described as that certain parcel of land containing approximately _____ acres and being conveyed to the Grantor by deed as recorded in **Deed Book _____ at Page ____** of the _____ County Registry, North Carolina; and

WHEREAS, Grantor is willing to grant a Conservation Easement over the herein described areas of the Property, thereby restricting and limiting the use of the included areas of the Property to the terms and conditions and purposes hereinafter set forth, and Grantee is willing to accept such Conservation Easement. This Conservation Easement shall be for the protection and benefit of *(if known, insert name of stream, branch, river or waterway here)*.

NOW, THEREFORE, in consideration of the mutual covenants, terms, conditions, and restrictions hereinafter set forth, Grantor unconditionally and irrevocably hereby grants and conveys unto Grantee, its successors and assigns, forever and in perpetuity, a Conservation Easement along with a general Right of Access.

The Easement Area consists of the following:

Tracts Number _____ containing a total of _____ **acres** as shown on the plats of survey entitled "Final Plat, Conservation Easement for North Carolina Ecosystem Enhancement Program, Project Name: _____ Creek, SPO File No._____, EEP Site No. _____, Property of _____," dated _____, 2011 by *name of surveyor*, PLS Number _____ and recorded in the _____ County, North Carolina Register of Deeds at **Plat Book _____ Pages _____.**

See attached "**Exhibit A**", Legal Description of area of the Property hereinafter referred to as the "Easement Area"

The purposes of this Conservation Easement are to maintain, restore, enhance, construct, create and preserve wetland and/or riparian resources in the Easement Area that contribute to the protection and improvement of water quality, flood prevention, fisheries, aquatic habitat, wildlife habitat, and recreational opportunities; to maintain permanently the Easement Area in its natural condition, consistent with these purposes; and to prevent any use of the Easement Area that will significantly impair or interfere with these purposes. To achieve these purposes, the following conditions and restrictions are set forth:

I. DURATION OF EASEMENT

Pursuant to law, including the above referenced statutes, this Conservation Easement and Right of Access shall be perpetual and it shall run with, and be a continuing restriction upon the use of, the Property, and it shall be enforceable by the Grantee against the Grantor and against Grantor's heirs, successors and assigns, personal representatives, agents, lessees, and licensees.

II. GRANTOR RESERVED USES AND RESTRICTED ACTIVITES

The Easement Area shall be restricted from any development or usage that would impair or interfere with the purposes of this Conservation Easement. Unless expressly reserved as a compatible use herein, any activity in, or use of, the Easement Area by the Grantor is prohibited as inconsistent with the purposes of this Conservation Easement. Any rights not expressly reserved hereunder by the Grantor have been acquired by the Grantee. Any rights not expressly reserved hereunder by the Grantor, including the rights to all mitigation credits, including, but not limited to, stream, wetland, and riparian buffer mitigation units, derived from each site within the area of the Conservation Easement, are conveyed to and belong to the Grantee. Without limiting the generality of the foregoing, the following specific uses are prohibited, restricted, or reserved as indicated:

A. Recreational Uses. Grantor expressly reserves the right to undeveloped recreational uses, including hiking, bird watching, hunting and fishing, and access to the Easement Area for the purposes thereof.

B. Motorized Vehicle Use. Motorized vehicle use in the Easement Area is prohibited.

C. Educational Uses. The Grantor reserves the right to engage in and permit others to engage in educational uses in the Easement Area not inconsistent with this Conservation Easement, and the right of access to the Easement Area for such purposes including organized educational activities such as site visits and observations. Educational uses of the property shall not alter vegetation, hydrology or topography of the site.

D. Vegetative Cutting. Except as related to the removal of non-native plants, diseased or damaged trees, or vegetation that destabilizes or renders unsafe the Easement Area to persons or natural habitat, all cutting, removal, mowing, harming, or destruction of any trees and vegetation in the Easement Area is prohibited.

Add the language below only if fence maintenance is needed within the conservation easement area. Currently, the conservation easement area that is within a fence maintenance zone is not included for calculation of full compensatory mitigation credit.

Delete this block if no fence maintenance zone is needed in the conservation easement area.

Notwithstanding the foregoing, the Grantor reserves the right to mow and maintain vegetation inside the easement within 6 feet of the fence ***as shown on the Survey Plat*** and extending along the entire length of the fence. The Grantee is not responsible for fence maintenance, but reserves the right to maintain, repair or replace the fence at the sole discretion of the Grantee.

E. Industrial, Residential and Commercial Uses. All industrial, residential and commercial uses are prohibited in the Easement Area.

F. Agricultural Use. All agricultural uses are prohibited within the Easement Area including any use for cropland, waste lagoons, or pastureland.

G. New Construction. There shall be no building, facility, mobile home, antenna, utility pole, tower, or other structure constructed or placed in the Easement Area.

H. Roads and Trails. There shall be no construction of roads, trails, walkways, or paving in the Easement Area.

I. Signs. No signs shall be permitted in the Easement Area except interpretive signs describing restoration activities and the conservation values of the Easement Area, signs identifying the owner of the Property and the holder of the Conservation Easement, signs giving directions, or signs prescribing rules and regulations for the use of the Easement Area.

J. Dumping or Storing. Dumping or storage of soil, trash, ashes, garbage, waste, abandoned vehicles, appliances, machinery, or any other material in the Easement Area is prohibited.

K. Grading, Mineral Use, Excavation, Dredging. There shall be no grading, filling, excavation, dredging, mining, drilling; removal of topsoil, sand, gravel, rock, peat, minerals, or other materials.

L. Water Quality and Drainage Patterns. There shall be no diking, draining, dredging, channeling, filling, leveling, pumping, impounding or diverting, causing, allowing or permitting the diversion of surface or underground water in the Easement Area. No altering or tampering with water control structures or devices, or disruption or alteration of the restored, enhanced, or created drainage patterns is allowed. All removal of wetlands, polluting or discharging into waters, springs, seeps, or wetlands, or use of pesticide or biocides in the Easement Area is prohibited. In the event of an emergency interruption or shortage of all other water sources, water from within the Easement Area may temporarily be used for good cause shown as needed for the survival of livestock and agricultural production on the Property.

M. Subdivision and Conveyance. Grantor voluntarily agrees that no subdivision, partitioning, or dividing of the underlying Property owned by the Grantor in fee simple ("fee") that is subject to this Easement is allowed. Unless agreed to by the Grantee in writing, any future conveyance of the underlying fee and the rights conveyed herein shall be as a single block of property. Any future transfer of the fee simple shall be subject to this Conservation Easement. Any transfer of the fee is subject to the Grantee's right of unlimited and repeated ingress and egress over and across the Property to the Easement Area for the purposes set forth herein.

N. Development Rights. All development rights are permanently removed from the Easement Area and are non-transferrable.

O. Disturbance of Natural Features. Any change, disturbance, alteration or impairment of the natural features of the Easement Area or any intentional introduction of non-native plants, trees and/or animal species by Grantor is prohibited.

The Grantor may request permission to vary from the above restrictions for good cause shown, provided that any such request is not inconsistent with the purposes of this Conservation Easement, and the Grantor obtains advance written approval from the N.C. Ecosystem Enhancement Program, whose mailing address is 1652 Mail Services Center, Raleigh, NC 27699-1652.

III. GRANTEE RESERVED USES

A. Right of Access, Construction, and Inspection. The Grantee, its employees and agents, successors and assigns, receive a p erpetual Right of Access to the Easement Area over the Property at reasonable times to undertake any activities to restore, construct, manage, maintain, enhance, and monitor the stream, wetland and any other riparian resources in the Easement Area, in accordance with restoration activities or a l ong-term management plan. Unless otherwise specifically set forth in this Conservation Easement, the rights granted herein do not include or establish for the public any access rights.

B. Restoration Activities. These activities include planting of trees, shrubs and herbaceous vegetation, installation of monitoring wells, utilization of heavy equipment to grade, fill, and prepare the soil, modification of the hydrology of the site, and installation of natural and manmade materials as needed to direct in-stream, above ground, and subterraneous water flow.

C. Signs. The Grantee, its employees and agents, successors or assigns, shall be permitted to place signs and witness posts on the Property to include any or all of the following: describe the project, prohibited activities within the Conservation Easement, or identify the project boundaries and the holder of the Conservation Easement.

D. Fences. The Grantee, its employees and agents, successors or assigns, shall be permitted to place fencing on the Property to restrict livestock access. Although the Grantee is not responsible for fence maintenance, the Grantee reserves the right to repair the fence, at its sole discretion.

IV. ENFORCEMENT AND REMEDIES

A. Enforcement. To accomplish the purposes of this Conservation Easement, Grantee is allowed to prevent any activity within the Easement Area that is inconsistent with the purposes of this Easement and to require the restoration of such areas or features in the Easement Area that may have been damaged by such unauthorized activity or use. Upon any breach of the terms of this Conservation Easement by Grantor, the Grantee shall, except as provided below, notify the Grantor in writing of such breach and the Grantor shall have ninety (90) days after receipt of such notice to correct the damage caused by such breach. If the breach and damage remains uncured after ninety (90) days, the Grantee may enforce this Conservation Easement by bringing appropriate legal proceedings including an action to recover damages, as well as injunctive and other relief. The Grantee shall also have the power and authority, consistent with its statutory authority: (a) to prevent any impairment of the Easement Area by acts which may be unlawful or in violation of this Conservation Easement; (b) to otherwise preserve or protect its interest in the Property; or (c) to seek damages from any appropriate person or entity. Notwithstanding the foregoing, the Grantee reserves the immediate right, without notice, to obtain a temporary restraining order, injunctive or other appropriate relief, if the breach is or would irreversibly or otherwise materially impair the benefits to be derived from this Conservation Easement, and the Grantor and Grantee acknowledge that the damage would be irreparable and remedies at law inadequate. The rights and remedies of the Grantee provided hereunder shall be in addition to, and not in lieu of, all other rights and remedies available to Grantee in connection with this Conservation Easement.

B. Inspection. The Grantee, its employees and agents, successors and assigns, have the right, with reasonable notice, to enter the Easement Area over the Property at reasonable times for the purpose of inspection to determine whether the Grantor is complying with the terms, conditions and restrictions of this Conservation Easement.

C. Acts Beyond Grantor's Control. Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor for any injury or change in the Easement Area caused by third parties, resulting from causes beyond the Grantor's control, including, without limitation, fire, flood, storm, and earth movement, or from any prudent action taken in good faith by the Grantor under emergency conditions to prevent, abate, or mitigate significant injury to life, or damage to the Property resulting from such causes.

D. Costs of Enforcement. Beyond regular and typical monitoring expenses, any costs incurred by Grantee in enforcing the terms of this Conservation Easement against Grantor, including, without limitation, any costs of restoration necessitated by Grantor's acts or omissions in violation of the terms of this Conservation Easement, shall be borne by Grantor.

E. No Waiver. Enforcement of this Easement shall be at the discretion of the Grantee and any forbearance, delay or omission by Grantee to exercise its rights hereunder in the event of any breach of any term set forth herein shall not be construed to be a waiver by Grantee.

V. MISCELLANEOUS

A. This instrument sets forth the entire agreement of the parties with respect to the Conservation Easement and supersedes all prior discussions, negotiations, understandings or

agreements relating to the Conservation Easement. If any provision is found to be invalid, the remainder of the provisions of the Conservation Easement, and the application of such provision to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

B. Grantor is responsible for any real estate taxes, assessments, fees, or charges levied upon the Property. Grantee shall not be responsible for any costs or liability of any kind related to the ownership, operation, insurance, upkeep, or maintenance of the Property, except as expressly provided herein. Upkeep of any constructed bridges, fences, or other amenities on the Property are the sole responsibility of the Grantor. Nothing herein shall relieve the Grantor of the obligation to comply with federal, state or local laws, regulations and permits that may apply to the exercise of the Reserved Rights.

C. Any notices shall be sent by registered or certified mail, return receipt requested to the parties at their addresses shown herein or to other addresses as either party establishes in writing upon notification to the other.

D. Grantor shall notify Grantee in writing of the name and address and any party to whom the Property or any part thereof is to be transferred at or prior to the time said transfer is made. Grantor further agrees that any subsequent lease, deed, or other legal instrument by which any interest in the Property is conveyed subject to the Conservation Easement herein created.

E. The Grantor and Grantee agree that the terms of this Conservation Easement shall survive any merger of the fee and easement interests in the Property or any portion thereof.

F. This Conservation Easement and Right of Access may be amended, but only in writing signed by all parties hereto, or their successors or assigns, if such amendment does not affect the qualification of this Conservation Easement or the status of the Grantee under any applicable laws, and is consistent with the purposes of the Conservation Easement. The owner of the Property shall notify the U.S. Army Corps of Engineers in writing sixty (60) days prior to the initiation of any transfer of all or any part of the Property. Such notification shall be addressed to: Justin McCorkle, General Counsel, US Army Corps of Engineers, 69 Darlington Avenue, Wilmington, NC 28403

G. The parties recognize and agree that the benefits of this Conservation Easement are in gross and assignable provided, however, that the Grantee hereby covenants and agrees, that in the event it transfers or assigns this Conservation Easement, the organization receiving the interest will be a qualified holder under N.C. Gen. Stat. § 121-34 et seq. and § 170(h) of the Internal Revenue Code, and the Grantee further covenants and agrees that the terms of the transfer or assignment will be such that the transferee or assignee will be required to continue in perpetuity the conservation purposes described in this document.

VI. QUIET ENJOYMENT

Grantor reserves all remaining rights accruing from ownership of the Property, including the right to engage in or permit or invite others to engage in only those uses of the Easement Area that are expressly reserved herein, not prohibited or restricted herein, and are not inconsistent with the purposes of this Conservation Easement. Without limiting the generality of

the foregoing, the Grantor expressly reserves to the Grantor, and the Grantor's invitees and licensees, the right of access to the Easement Area, and the right of quiet enjoyment of the Easement Area

TO HAVE AND TO HOLD, the said rights and easements perpetually unto the State of North Carolina for the aforesaid purposes.

AND Grantor covenants that Grantor is seized of said premises in fee and has the right to convey the permanent Conservation Easement herein granted; that the same is free from encumbrances and that Grantor will warrant and defend title to the same against the claims of all persons whomsoever.

IN TESTIMONY WHEREOF, the Grantor has hereunto set his hand and seal, the day and year first above written.

_____ (SEAL)

NORTH CAROLINA
COUNTY OF _____

I, _____, a Notary Public in and for the County and State aforesaid, do he reby certify that _____, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and Notary Seal this the _____ day of _____, 2011.

_____

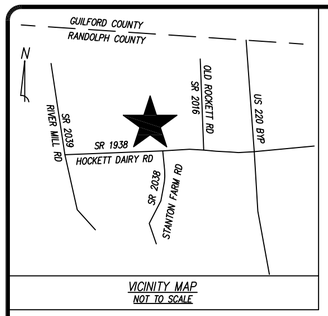
Notary Public

My commission expires:

_____

Exhibit A

[INSERT LEGAL DESCRIPTION]



VICINITY MAP
NOT TO SCALE

I, GUY V.COOKE, CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL GPS SURVEY MADE UNDER MY SUPERVISION; THAT THIS GPS SURVEY WAS PERFORMED TO THIRD ORDER, CLASS 1 FGCC SPECIFICATIONS AND THAT I USED VRS (VIRTUAL REFERENCE SYSTEM) GPS. GPS FIELD PROCEDURES AND COORDINATES WERE OBTAINED BY VRS NETWORK; THAT THIS SURVEY WAS PERFORMED ON JANUARY 2, 2012 USING A TRIMBLE 5800 RECEIVER ON A FIXED HEIGHT (2.0m) POLE AND ALL COORDINATES ARE BASED OM NC GRID NAD 83/2001.

GUY V. COOKE, PROFESSIONAL LAND SURVEYOR, L-4596

I, GUY V. COOKE, NCPLS NO. L-4596, CERTIFY THAT THIS PLAT IS OF A SURVEY OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY, OR OTHER EXCEPTIONTO THE DEFINITION OF SUBDIVISION.

GUY V. COOKE L-4596

I, GUY V COOKE, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION AS SHOWN ON THE FACE OF THIS MAP; THAT THE RATIO OF PRECISION IS GREATER THAN 1:10,000; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS DAY OF _____ A.D., 2012.

GUY V. COOKE, P.L.S. L-4596

PRELIMINARY DRAWING
DO NOT USE FOR
CONSTRUCTION, RECORDATION,
CONVEYANCES, OR SALES

GENERAL NOTES:

1. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES UNLESS OTHERWISE NOTED.
2. PROPERTY SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
3. AREAS COMPUTED BY COORDINATE METHOD.
4. PART OF THIS SURVEY IS IN A FEMA DESIGNATED FLOOD ZONE ACCORDING TO FEMA FIRM MAP NUMBER 3710775800K, MAP REVISED JANUARY 2, 2008.
5. SEE CONSERVATION EASEMENT AGREEMENT SECTION 3A INGRESS, EGRESS, REGRESS AND INSPECTION RIGHTS.

LEGEND

IRF	IRON ROD FOUND
℄	PROPERTY LINE

N/F HUBBARD ROCKETT
D.B. 1113, PG. 254

N/F MILDRED ROSENTHAL TRUSTEE
D.B. 1553, PG. 297

N/F HERSCHEL NEEDHAM HOCKETT, JR.
D.B. 2109, PG. 20

N/F HERSCHEL NEEDHAM HOCKETT, JR.
D.B. 2109, PG. 16

N/F KENNETH G. HOCKETT
D.B. 1959, PG. 270

N/F HERSCHEL NEEDHAM HOCKETT, JR.
PID #7758254510
TRACT #2
P.B. 118, PG. 98

N/F B.W. COLTRANE
D.B. 2011, PG. 114
(GUILFORD COUNTY REGISTER OF DEEDS)

N/F HERSCHEL NEEDHAM HOCKETT, JR.
PID #7758353599
TRACT #1
P.B. 118, PG. 98

N/F HERSCHEL NEEDHAM HOCKETT, JR.
PID #7758353599
TRACT #1
P.B. 118, PG. 98

N/F PIEDMONT TRIAD REGIONAL WATER AUTHORITY
D.B. 1667, PG. 557

N/F PIEDMONT TRIAD REGIONAL WATER AUTHORITY
D.B. 1377, PG. 898

N/F PIEDMONT TRIAD REGIONAL WATER AUTHORITY
D.B. 1667, PG. 557

N/F JAMES J. MARTIN
D.B. 1883, PG. 1487

N/F STANLEY MATEER
D.B. 1744, PG. 2214

N/F GARLAND HENLEY
D.B. 1371, PG. 441

PHASE FOUR
DOWNSFIELD MEADOWS
P.B. 63, PG. 62

SENEPOLE RD

STANTON FARM RD-SR 2038

HOCKETT DAIRY RD - S.R. 1938
60'R/W

NC GRID NAD 83

RIPARIAN BUFFER LINE

CONSERVATION EASEMENT LINE

60' AGRICULTURAL ACCESS RESERVATION (NOT INCLUDED IN CONSERVATION EASEMENT AND/OR RIPARIAN BUFFER)

CENTERLINE EXISTING DITCH IS PROPERTY LINE
D.B. 1056, PG 235

TRAVERSE LINE
P.B. 118, PG. 98

ACCESS PATH "SEE NOTE 5"

(TIE LINE)
N46°02'20"E
1451.74'

L1 (TIE LINE)
N01°59'06"W 934.02'

N01°59'06"W 1357.37' (IRF TO IRF IN HOCKET DAIRY RD)

S25°51'02"E
942.86'

CONTROL POINT
NC GRID NAD 83
N 785339.39
E 1752914.81
COMBINED FACTOR = 0.999907485

CONTROL POINT
NC GRID NAD 83
N 783982.84
E 1752961.83

IRF

CENTERLINE EXISTING DITCH

RIPARIAN BUFFER LINE

40' DRAINAGE EASEMENT

20' DRAINAGE EASEMENT

CONSERVATION EASEMENT AREA	173,001± SQ. FT. 3.97± AC.
RIPARIAN BUFFER AREA	132,989± SQ. FT. 3.05± AC.
DIFFERENCE	40,012± SQ. FT. 0.92± AC.
NUMBER OF EASEMENT CORNERS TO BE SET	32

CONSERVATION EASEMENT AREA	325,894± SQ. FT. 7.48± AC.
RIPARIAN BUFFER AREA	287823± SQ. FT. 6.61± AC.
DIFFERENCE	38,071± SQ. FT. 0.87± AC.
NUMBER OF EASEMENT CORNERS TO BE SET	45

GRAPHIC SCALE
0 50 100 200 300 400 500
SCALE: 1"=200'

REV. NO.	DESCRIPTION	DATE
	REVISIONS	

PROJECT MANAGER	GVC
DRAWN BY	JRM
APPROVED BY	GVC
FILE NAME	Green Valley ease
DRAWING SCALE	1"200'
PROJECT DATE	JAN 2012
PROJECT NUMBER	2011017700RA
PLOT DATE	

WK DICKSON
community infrastructure consultants

909 MARKET STREET
WILMINGTON, NC 28401
(910) 762-4200

Office Locations: North Carolina
South Carolina
Georgia
NC LICENSE NO. F-0374

RELEASED FOR	DATE
APPROVALS	
BIDDING	
CONSTRUCTION	
RECORD DWG.	

CONSERVATION EASEMENT SURVEY
FOR THE
STATE OF NORTH CAROLINA
S.P.O. FILE # 76-BB
NCEEP RFP # 16-003567
NCEEP PROJECT # 003994-EEP SITE 95012
NCEEP PROJECT NAME "GREEN VALLEY FARM SITE".

CONSERVATION EASEMENT
HERSCHELL NEEDHAM HOCKETT, JR. PROPERTY
PID #7758353599 AND PID #7758254510
LEVEL CROSS TOWNSHIP, RANDOLPH COUNTY
NORTH CAROLINA

1/2

3/15/2012 11:11 AM
R:\Projects\Environ Banc & Exchange\2011017700RA - Green Valley Farms Buffer Mitigation\CADD\Land-Green Valley\Conservation Easement\dwg\Green valley ease.dwg

R:\Projects\Environ Banc & Exchange\2011017700RA - Green Valley Farms Buffer Mitigation\CADD\Land-Green Valley\Conservation Easement\dwg\Green valley ease.dwg

3/15/2012 11:12 AM

CONSERVATION EASEMENT

LINE TABLE		
LINE	LENGTH	BEARING
L1	245.30	S27°16'52"W
L2	104.63	S76°57'40"W
L3	121.42	N15°45'42"W
L4	170.04	N12°09'33"W
L5	168.67	N08°22'35"W
L6	142.55	N17°54'53"W
L7	92.14	N67°44'49"W
L8	217.55	N87°35'15"W
L9	227.30	N40°24'05"W
L10	49.39	S63°03'22"W
L11	175.53	N34°40'38"E
L12	26.00	N45°35'27"W
L13	133.76	N61°12'58"E
L14	169.41	N66°32'32"E
L15	160.35	N57°12'55"E
L16	88.91	N03°56'32"E
L17	103.96	N17°47'46"W
L18	20.95	N20°38'01"W
L19	60.06	N20°38'01"W
L20	118.95	N20°38'01"W
L21	242.14	N46°58'02"W
L22	230.02	N26°32'51"W
L23	139.50	N10°30'50"E
L24	106.92	N83°12'23"E
L25	119.95	S03°35'03"W
L26	150.44	S19°39'26"E
L27	170.17	S47°43'44"E
L28	140.59	S37°40'59"E
L29	108.00	S20°22'50"E
L31	69.07	S20°22'50"E
L32	169.58	S16°13'06"E
L33	63.08	N55°59'04"E
L34	42.38	N87°40'31"E
L35	65.44	N87°40'31"E
L36	54.66	S25°51'02"E
L37	111.45	S66°52'02"W
L38	111.18	S66°52'02"W
L39	134.77	S83°12'23"W
L43	129.50	S25°51'02"E
L44	65.65	N86°31'10"W
L45	62.88	S45°59'32"W
L46	160.13	S81°04'43"W
L47	78.67	S48°48'29"W
L48	330.96	S64°38'05"W
L49	153.48	S43°08'53"E
L50	194.21	S89°04'00"E
L51	132.60	S64°19'03"E
L52	161.11	S22°45'26"E

LINE TABLE		
LINE	LENGTH	BEARING
L53	317.64	S09°03'55"E
L54	195.06	S14°30'33"E
L56	163.96	N72°29'58"E
L57	90.60	N02°21'53"W
L58	132.60	N25°01'07"E
L59	103.70	N36°31'07"E
L60	158.00	N55°21'07"E
L61	167.10	N74°53'07"E
L62	164.20	N63°56'07"E
L63	247.04	N33°17'07"E
L64	104.20	N05°39'53"W
L65	133.35	N47°36'07"E
L66	64.93	N54°56'07"E
L67	17.46	S12°08'13"E
L68	102.54	S44°49'11"W
L69	26.98	S78°51'32"W
L70	60.46	S40°27'42"W
L71	31.30	S34°36'41"E
L72	64.26	S03°43'18"E
L73	104.33	S28°37'06"W
L74	56.57	S69°29'39"E
L75	12.71	S34°24'12"E
L76	60.20	S34°24'12"E
L77	110.95	S30°43'50"E
L78	82.44	S16°02'48"E
L79	44.89	S26°55'39"E
L80	63.83	S14°05'54"E
L81	89.09	S34°56'16"E
L82	160.84	S02°37'45"W
L83	31.27	N81°54'18"W
L84	100.62	N27°17'50"W
L85	58.27	N45°56'27"W
L86	65.55	N34°06'50"W
L87	265.94	N20°18'00"W
L89	24.06	N72°47'25"W
L90	121.74	S50°56'30"W
L91	114.60	S50°56'30"W
L94	23.18	S73°05'49"W
L95	56.28	S41°39'06"W
L96	71.88	S68°53'32"W
L97	66.05	S11°46'13"W
L98	232.49	S74°26'06"W
L99	187.74	S47°10'09"W
L100	75.38	S20°14'06"W
L101	125.80	S06°25'34"W
L102	69.88	S29°01'03"W
L103	163.44	S72°24'09"W
L105	79.71	S25°51'02"E

CONSERVATION EASEMENT

COORDINATE TABLE		
POINT	NORTH	EAST
1000	787308.63	1753858.01
1001	787242.41	1753872.25
1002	787169.68	1753799.97
1003	787164.47	1753773.50
1004	787118.47	1753734.26
1005	787092.71	1753752.04
1006	787028.58	1753756.21
1007	786937.00	1753706.24
1008	786917.18	1753759.23
1009	786906.53	1753766.52
1010	786857.03	1753800.42
1011	786761.65	1753857.12
1012	786682.42	1753879.91
1013	786642.40	1753900.24
1014	786580.49	1753915.79
1015	786507.46	1753966.81
1016	786346.79	1753959.43
1017	786351.19	1753928.47
1018	786440.61	1753882.33
1019	786481.13	1753840.46
1020	786535.39	1753803.70
1021	786784.81	1753711.43
1022	786829.99	1753671.87
1023	786837.10	1753648.90
1024	786830.36	1753626.72
1025	786788.30	1753589.31
1026	786762.42	1753522.25
1027	786697.75	1753508.77
1028	786635.35	1753284.73
1029	786507.71	1753147.05
1030	786436.99	1753120.98
1031	786311.98	1753106.90
1032	786250.87	1753073.00
1033	786201.46	1752917.21
1035	786203.19	1752849.70
1036	786207.17	1752784.17
1037	786163.48	1752738.94
1038	786138.65	1752580.74
1039	786086.84	1752521.54

COORDINATE TABLE		
POINT	NORTH	EAST
1040	785945.06	1752222.49
1041	785833.08	1752327.45
1042	785829.92	1752521.64
1043	785772.45	1752641.14
1044	785623.88	1752703.46
1045	785310.21	1752753.51
1046	785121.73	1752802.30
1047	785097.77	1752700.45
1048	785214.62	1752667.47
1049	785380.84	1752631.65
1050	785547.71	1752607.08
1051	785683.34	1752563.23
1052	785718.24	1752477.95
1053	785727.40	1752260.60
1054	785900.49	1752113.28
1055	785878.11	1752069.25
1056	786040.65	1752150.54
1057	786105.06	1752267.77
1058	786172.50	1752423.18
1059	786259.32	1752557.98
1060	786348.02	1752564.10
1061	786466.62	1752524.94
1062	786522.82	1752503.78
1063	786634.14	1752461.86
1064	786799.38	1752284.87
1065	787005.15	1752182.06
1066	787142.30	1752207.51
1067	787154.95	1752313.68
1068	787035.24	1752306.18
1069	786893.57	1752356.79
1070	786779.10	1752482.71
1071	786667.84	1752568.65
1072	786566.60	1752606.26
1073	786510.29	1752627.18
1074	786445.55	1752651.24
1075	786282.72	1752698.60
1076	786318.01	1752750.89
1077	786319.73	1752793.23

PRELIMINARY DRAWING
DO NOT USE FOR
CONSTRUCTION, RECORDATION,
CONVEYANCES, OR SALES

REV. NO.	DESCRIPTION	DATE
	REVISIONS	

PROJECT MANAGER	GVC
DRAWN BY	JRM
APPROVED BY	GVC
FILE NAME	Green Valley ease
DRAWING SCALE	1"200'
PROJECT DATE	JAN 2012
PROJECT NUMBER	2011017700RA
PLOT DATE	

WK DICKSON
community infrastructure consultants
909 MARKET STREET
WILMINGTON, NC 28401
(910) 762-4200
Office Locations: North Carolina
South Carolina
Georgia
NC LICENSE NO. F-0374

RELEASED FOR	DATE
APPROVALS	
BIDDING	
CONSTRUCTION	
RECORD DWG.	

CONSERVATION EASEMENT SURVEY
FOR THE
STATE OF NORTH CAROLINA
S.P.O. FILE # 76-BB
NCEEP RFP # 16-003567
NCEEP PROJECT # 003994-EEP SITE 95012
NCEEP PROJECT NAME "GREEN VALLEY FARM SITE".

CONSERVATION EASEMENT
HERSCHELL NEEDHAM HOCKETT, JR. PROPERTY
PID #7758353599 AND PID #7758254510
LEVEL CROSS TOWNSHIP, RANDOLPH COUNTY
NORTH CAROLINA

Appendix B – DWQ Correspondence

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Water Quality
Beverly Eaves Perdue
Governor
Coleen H. Sullins
Director
Dee Freeman
Secretary

November 10, 2011

Kristie Corson
NC Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

Re: Hockett Dairy Buffer Mitigation Site
Green Valley Farms Buffer Mitigation Site
Randolph County

Dear Ms. Corson:

The Division of Water Quality (DWQ) Winston-Salem Regional Office has reviewed the Minutes submitted by EBX submitted to EEP on October 6, 2011 (attached). These minutes accurately summarizes all discussions conducted during a site visit to the Hockett Dairy and Green Valley Farms Buffer Mitigation Sites as well as all follow up correspondence.

The Division concurs that that the proposed buffer planting areas as depicted in the attached October 6, 2011 minutes and maps should qualify for buffer restoration credits in the Randleman Lake watershed provided that the plantings are shown to meet the buffer mitigation success criteria established in 15A NCAC 02B .0252.

If you have any questions related to our comments or this mitigation project, please feel free to contact me at 336-771-4964 or sue.homewood@ncdenr.gov.

Sincerely,

Sue Homewood
DWQ Winston-Salem Regional Office

Cc: DWQ-WSRO

North Carolina Division of Water Quality, Winston-Salem Regional Office
Location: 585 Waughtown St. Winston-Salem, North Carolina 27107
Phone: 336-771-5000 \ FAX: 336-771-4630 \ Customer Service: 1-877-623-6748
Internet: www.ncwaterquality.org

HOCKETT DAIRY AND GREEN VALLEY FARMS DWQ SITE VISIT SUMMARY

On September 1, 2011 NCDWQ met with NCEEP, EBX, and WK Dickson personnel to review the eligibility of the proposed Hockett Dairy and Green Valley Farms Buffer Mitigation sites in Randolph County, NC. The meeting attendees were:

- Sue Homewood, NCDWQ Surface Water Protection, Winston-Salem Regional Office
- Tim Baumgartner, NCEEP, Full Delivery Manager
- Martin Hovis, EBX
- Daniel Ingram, WK Dickson

The NCDWQ comments for each project site are summarized below. This memorandum also presents EBX's response to the NCDWQ comments.

HOCKETT DAIRY

UT1 –Ms. Homewood (NCDWQ) agreed that buffer restoration would be advantageous at this location due to the immediate proximity of Randleman Lake and the direct nutrient and sediment input from the cattle operations. However, Ms. Homewood felt this drainage lacked a defined channel and was not subject to the Randleman Buffer rules. Ms. Homewood stated that if the channel was contained in a gully such as the one on the back of the upstream dam, then the channel would qualify for buffer restoration credit. Ms. Homewood also stated that she could not define the top of bank location and would not be able to establish the buffer zones. For these reason Ms. Homewood felt the drainage feature was not suitable for mitigation. She did state that if a channel formed by the end of the five-year monitoring then the credits would be allowed. This results in a loss of 0.20 acres of buffer restoration and continued degradation of Randleman Lake.

EBX feels this determination is not appropriate for several reasons. The contributing watershed is 17.6 acres at the downstream end. Recent research by NCDWQ in this ecoregion (Carolina Slate Belt-A) has shown that stream channels form at a mean watershed size of 11.2 acres and intermittent channels are present in 75 percent of 14.47 acre watersheds (Mapping Headwater Streams: Intermittent and Perennial Headwater Stream Model Development and Spatial Application North Carolina Division of Water Quality Final Report for Federal Highway Administration Contract: Feasibility Study WBS: 36486.4.2, January 29, 2008). The upstream pond (Farm Pond 1) also provides hydrologic storage limiting channel forming flows. WK Dickson personnel observed seasonal stream flow in UT1 during the fall of 2010 and winter of 2011. Lastly, Keith Hockett, principle dairy farmer, stated that the UT1 channel was formerly gullied from cattle access and dam failures but was repaired at the request of NCDWQ. There is a defined drainage swale with FACW and OBL vegetation. EBX proposes the extent of the hydrophytic vegetation be considered the channel and buffer restoration be allowed for 50 feet extending outward from that point.

Farm Pond 1 – Ms. Homewood agreed that buffer restoration would be advantageous at this location due to the immediate proximity of Randleman Lake and the direct nutrient

and sediment input from the cattle operations. However, Ms. Homewood felt that Farm Pond 1 lacked a connection to a downstream water body due to UT1 not being subject to the Randleman Buffer Rules. As a result, Farm Pond 1 is not subject to the Randleman Buffer rules. For these reasons Ms. Homewood felt the pond was not suitable for mitigation. She did state that if UT1 was contained in a defined channel then the Pond 1 buffer restoration credits would be allowed. This results in a loss of 0.50 acres of buffer restoration and continued degradation of Randleman Lake. In addition, a supplemental planted area (not for credit) of 0.63 acres is located adjacent to the proposed buffer restoration and would not be included in the project if no buffer credit is allowed on Farm Pond 1. NCDWQ had previously recommended planting this denuded area during a farm inspection.

EBX feels this determination is not appropriate for the reasons discussed above. UT1 should be considered an intermittent stream and subject to the Randleman Buffer Rules and allowing buffer restoration on Farm Pond 1.

UT2 – Ms. Homewood agreed with the Technical Proposal that the proposed 1.52 acres of UT2 buffer restoration is allowable and appropriate under the Randleman Buffer Rules.

Farm Pond 2 – Ms. Homewood agreed with the Technical Proposal that the proposed 0.46 acres of Farm Pond 2 buffer restoration is allowable and appropriate under the Randleman Buffer Rules.

UT3 – Ms. Homewood agreed with the Technical Proposal that the proposed 1.44 acres of UT3 buffer restoration is allowable and appropriate under the Randleman Buffer Rules.

Farm Pond 3 – Ms. Homewood agreed with the Technical Proposal that the proposed 0.54 acres of Farm Pond 3 buffer restoration is allowable and appropriate under the Randleman Buffer Rules.

UT4 – Ms. Homewood agreed with the Technical Proposal that the proposed 4.35 acres of UT4 buffer restoration is allowable and appropriate under the Randleman Buffer Rules.

UT5 – Ms. Homewood agreed with the Technical Proposal that the proposed 1.00 acres of UT5 buffer restoration is allowable and appropriate under the Randleman Buffer Rules.

UT6 – Ms. Homewood agreed with the Technical Proposal that the proposed 1.78 acres of UT6 buffer restoration is allowable and appropriate under the Randleman Buffer Rules.

GREEN VALLEY FARMS

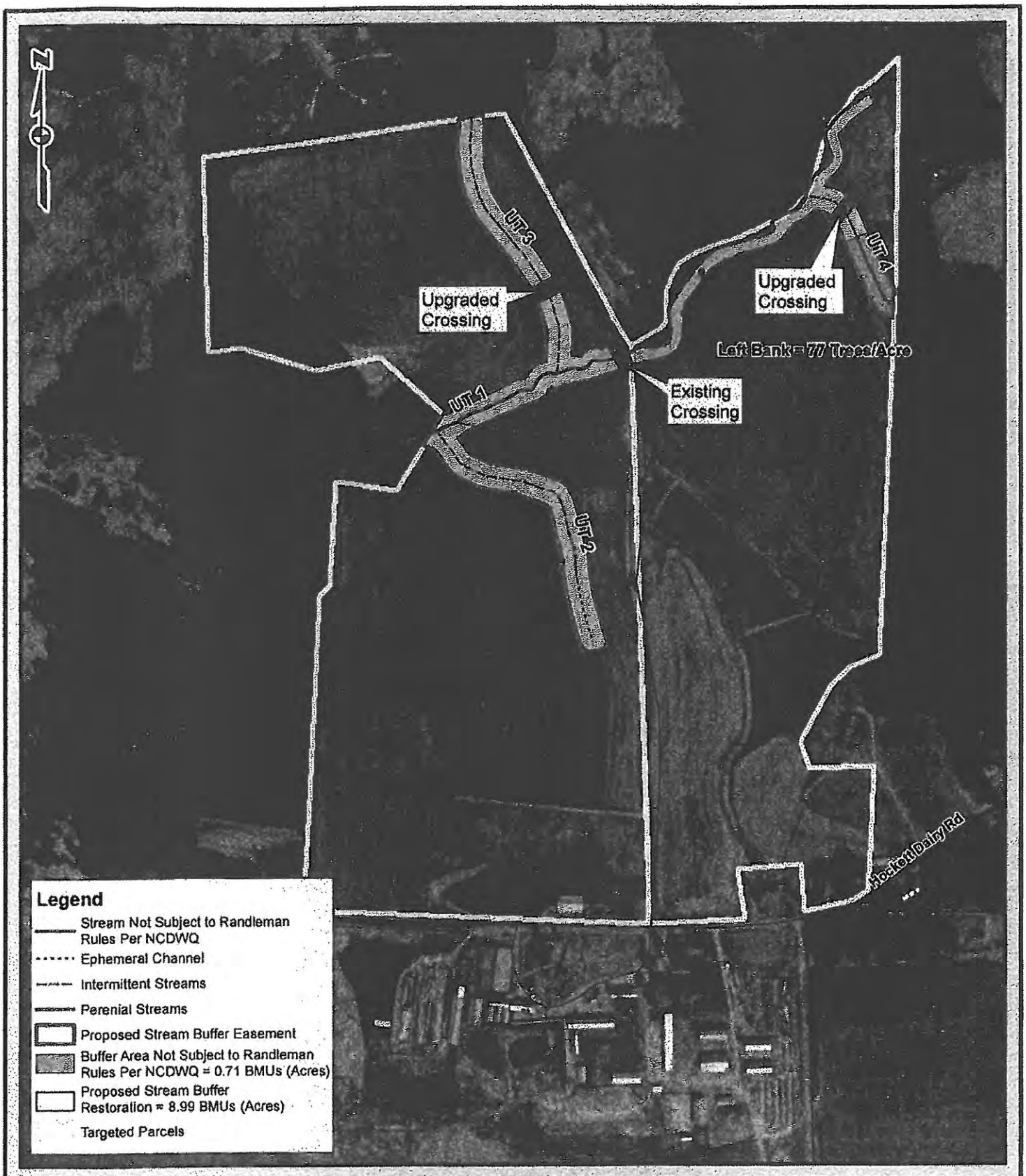
UT1 – Ms. Homewood agreed with the Technical Proposal that the proposed 3.55 acres of UT1 buffer restoration is allowable and appropriate under the Randleman Buffer Rules.

UT2 – Ms. Homewood agreed with the Technical Proposal that the proposed 2.65 acres of UT2 buffer restoration is allowable and appropriate under the Randleman Buffer Rules.

UT3 – Ms. Homewood agreed with the Technical Proposal that the proposed 2.30 acres of UT3 buffer restoration is allowable and appropriate under the Randleman Buffer Rules.

UT4 –Ms. Homewood Ms. Homewood felt the upper 400 linear feet (approximate) of this drainage feature was a linear wetland that lacked a defined channel and was not subject to the Randleman Buffer rules. Ms. Homewood also stated that she could not define the top of bank location and would not be able to establish the buffer zones. For these reason Ms. Homewood felt the upper UT4 drainage feature was not suitable for mitigation. She did state that if a channel formed by the end of the five-year monitoring then the credits would be allowed. This results in a loss of 0.92 acres of buffer restoration and continued degradation of Randleman Lake. Ms. Homewood agreed with the Technical Proposal that the lower 190 linear feet of UT4 buffer restoration is allowable and appropriate under the Randleman Buffer Rules, resulting in 0.28 acres of buffer restoration.

EBX feels this determination is not appropriate for several reasons. The contributing watershed is 19.2 acres. Recent research by NCDWQ in this ecoregion (Carolina Slate Belt-A) has shown that stream channels form at a mean watershed size of 11.2 acres and intermittent channels are present in 75 percent of 14.47 acre watersheds (Mapping Headwater Streams: Intermittent and Perennial Headwater Stream Model Development and Spatial Application North Carolina Division of Water Quality Final Report for Federal Highway Administration Contract: Feasibility Study WBS: 36486.4.2, January 29, 2008). Further, agricultural activities have resulted in heavy sediment loads entering the channel and filling/obscuring the channel. This is supported by the presence of a defined channel in the forested upstream reach. WK Dickson personnel observed seasonal stream flow in UT4 during the fall of 2010 and winter of 2011 and completed a NCDWQ Stream Identification Form that scored 26 points (intermittent). There is a defined drainageway swale with FACW and OBL vegetation. EBX proposes the extent of the hydrophytic vegetation be considered the channel and buffer restoration be allowed for 50 feet extending outward from that point.



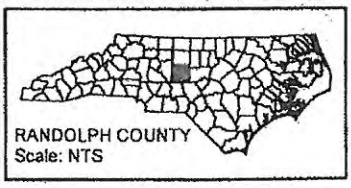
EBX

11/10/11

NCDWQ Stream Classifications & Stem Counts
Green Valley Farms Buffer Restoration Site

0 250 500 1,000 Feet

1 Inch = 500 feet



Daniel Ingram

From: Martin Hovis [martin@ebxusa.com]
Sent: Tuesday, February 28, 2012 12:53 PM
To: Daniel Ingram
Subject: RE: Hockett Dairy and Green Valley Farms Buffer Site Cape Fear 03

From: Homewood, Sue [mailto:sue.homewood@ncdenr.gov]
Sent: Monday, February 27, 2012 12:37 PM
To: Martin Hovis
Subject: RE: Hockett Dairy and Green Valley Farms Buffer Site Cape Fear 03

Hi Martin,

I confirm that these statements are all accurate. If there are intermittent or perennial streams in these locations, as determined by the NCDWQ Stream Determination Manual that is in use at that time, then buffer credit would be allowed.

Sue Homewood
NC DENR Winston-Salem Regional Office
Division of Water Quality
585 Waughtown Street
Winston-Salem, NC 27107
Voice: (336) 771-4964
FAX: (336) 771-4630

From: Martin Hovis [mailto:martin@ebxusa.com]
Sent: Friday, February 24, 2012 1:44 PM
To: Homewood, Sue
Subject: Hockett Dairy and Green Valley Farms Buffer Site Cape Fear 03

Mrs. Homewood
I hope you are doing well.
We are in the process of developing our Mitigation Plans for the Hockett Dairy and Green Valley Farms Buffer sites we were awarded for RFP# 16-003567.
Would you please confirm the following statement to be true regarding the buffer acreage for both Sites?

On September 01, 2011 the NCEEP, NCDWQ and EBX visited the Green Valley Farms and Hockett Dairy Buffer sites. Upon viewing the sites NCDWQ, Sue Homewood, noted two sections of concern.
Hockett Dairy UT1 –Ms. Homewood (NCDWQ) agreed that buffer restoration would be advantageous at this location due to the immediate proximity of Randleman Lake and the direct nutrient and sediment input from the cattle operations. However, Ms. Homewood felt this drainage lacked a defined channel and was not subject to the Randleman Buffer rules. Ms. Homewood stated that if the channel was contained in a gully, such as the one on the back of the upstream dam, then the channel would qualify for buffer restoration credit. Ms. Homewood also stated that she could not define the top of bank location and would not be able to establish the buffer zones. For these reasons Ms. Homewood felt the drainage feature was not suitable for mitigation. She did state that if a channel formed by the end of the five-year monitoring then the credits would be allowed.
Farm Pond 1 – Ms. Homewood agreed that buffer restoration would be advantageous at this location due to the

immediate proximity of Randleman Lake and the direct nutrient and sediment input from the cattle operations. However, Ms. Homewood felt that Farm Pond 1 lacked a connection to a downstream water body due to UT1 not being subject to the Randleman Buffer Rules. As a result, Farm Pond 1 is not subject to the Randleman Buffer rules. For these reasons Ms. Homewood felt the pond was not suitable for mitigation. She did state that if UT1 was contained in a defined channel then the Pond 1 buffer restoration credits would be allowed

Green Valley UT4 –Ms. Homewood felt the upper 309 linear feet of this drainage feature was a linear wetland that lacked a defined channel and was not subject to the Randleman Buffer rules. Ms. Homewood also stated that she could not define the top of bank location and would not be able to establish the buffer zones. For these reason Ms. Homewood felt the upper UT4 drainage feature was not suitable for mitigation. She did state that if a channel formed by the end of the five-year monitoring then the credits would be allowed. Ms. Homewood agreed with the Technical Proposal that the lower 190 linear feet of UT4 buffer restoration is allowable and appropriate under the Randleman Buffer Rules, resulting in 0.28 acres of buffer restoration.

EBX plans to plant trees and place a conservation easement over the areas in question (Hockett Dairy UT1 and Farm Pond 1, and Green Valley Farm's UT4 upper 309 Linear Feet) in anticipation that at the end of the 5 year monitoring period there will be a defined channel. We feel the watershed size and defined drainage swale would develop a channel formation if the access of equipment and cattle was eliminated.

Environmental Banc & Exchange, LLC
Martin W. Hovis
Project Manager
909 Capability Drive, Suite 3100
Dir: 919-829-9909 ext 24
Cell: 919-648-3661
Fax: 919-829-9913
www.ebxusa.com

Appendix C – Baseline Information Data

NCDWQ Stream Classification Forms
EEP Categorical Exclusion Form

Green Valley Farms Site

NC DWQ Stream Identification Form Version 4.11

Date: 1-6-2011	**Project/Site:** Green Valley Farms Reach UT1 upstream	**Latitude:**
Evaluator: BSH	**County:** Randolph	**Longitude:**
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 38	**Stream Determination (circle one)** Ephemeral Intermittent (Perennial)	**Other** *e.g. Quad Name:*

A. Geomorphology (Subtotal = 23)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	2	(3)
2. Sinuosity of channel along thalweg	0	1	2	(3)
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	(2)	3
4. Particle size of stream substrate	0	1	(2)	3
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	0	1	(2)	3
7. Recent alluvial deposits	0	1	(2)	3
8. Headcuts	0	1	(2)	3
9. Grade control	0	0.5	(1)	1.5
10. Natural valley	0	0.5	(1)	1.5
11. Second or greater order channel	No = 0		Yes = (3)	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 9)				
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	(1.5)	1	0.5	0
15. Sediment on plants or debris	0	0.5	(1)	1.5
16. Organic debris lines or piles	0	(0.5)	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = (3)	

C. Biology (Subtotal = 6)				
18. Fibrous roots in streambed	(3)	2	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 1-6-2011	**Project/Site:** Green Valley Farms Reach UT1 Downstream	**Latitude:**
Evaluator: BSH	**County:** Randolph	**Longitude:**
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 39	**Stream Determination (circle one)** Ephemeral Intermittent (Perennial)	**Other** *e.g. Quad Name:*

A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	2	(3)
2. Sinuosity of channel along thalweg	0	1	(2)	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	(3)
4. Particle size of stream substrate	0	1	2	(3)
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	0	1	(2)	3
7. Recent alluvial deposits	0	1	2	(3)
8. Headcuts	0	1	(2)	3
9. Grade control	0	0.5	(1)	1.5
10. Natural valley	0	0.5	(1)	1.5
11. Second or greater order channel	No = 0		Yes = (3)	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 8)				
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria	0	(1)	2	3
14. Leaf litter	(1.5)	1	0.5	0
15. Sediment on plants or debris	0	0.5	(1)	1.5
16. Organic debris lines or piles	0	0.5	1	(1.5)
17. Soil-based evidence of high water table?	No = (0)		Yes = 3	

C. Biology (Subtotal = 6)				
18. Fibrous roots in streambed	(3)	2	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NCDWQ STREAM CLASSIFICATION FORMS

NC DWQ Stream Identification Form Version 4.11

Date: 1-6-2011	**Project/Site:** Green Valley Farms Reach UT 2	**Latitude:**
Evaluator: BSH	**County:** Randolph	**Longitude:**
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 20.5	**Stream Determination (circle one)** Ephemeral (Intermittent) Perennial	**Other** *e.g. Quad Name:*

A. Geomorphology (Subtotal = 10)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	(2)	3
2. Sinuosity of channel along thalweg	(0)	1	2	3
3. In-channel structure: ex. riffle-pool, step-poo, ripple-pool sequence	0	(1)	2	3
4. Particle size of stream substrate	0	(1)	2	3
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	0	1	(2)	3
8. Headcuts	0	(1)	2	3
9. Grade control	(0)	0.5	1	1.5
10. Natural valley	0	0.5	(1)	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7.5)				
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	1.5	(1)	0.5	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	0	(0.5)	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = (3)	

C. Biology (Subtotal = 3)				
18. Fibrous roots in streambed	3	2	(1)	0
19. Rooted upland plants in streambed	3	2	(1)	0
20. Macrobenthos (note diversity and abundance) –	0	1	2	3
21. Aquatic Mollusks –	0	1	2	3
22. Fish –	0	0.5	1	1.5
23. Crayfish –	0	0.5	1	1.5
24. Amphibians –	0	0.5	1	1.5
25. Algae	0	0.5	(1)	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 1-6-2011	**Project/Site:** Green Valley Farms Reach UT 3	**Latitude:**
Evaluator: BSH	**County:** Randolph	**Longitude:**
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 23	**Stream Determination (circle one)** Ephemeral (Intermittent) Perennial	**Other** *e.g. Quad Name:*

A. Geomorphology (Subtotal = 14.5)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	(2)	3
2. Sinuosity of channel along thalweg	0	(1)	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	(2)	3
4. Particle size of stream substrate	0	1	(2)	3
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	0	(1)	2	3
7. Recent alluvial deposits	0	(1)	2	3
8. Headcuts	0	(1)	2	3
9. Grade control	0	0.5	1	(1.5)
10. Natural valley	0	0.5	(1)	1.5
11. Second or greater order channel	No = (0)		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 4.5)				
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	1.5	(1)	0.5	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	0	(0.5)	1	1.5
17. Soil-based evidence of high water table?	No = (0)		Yes = 3	

C. Biology (Subtotal = 9)				
18. Fibrous roots in streambed	3	(2)	1	0
19. Rooted upland plants in streambed	3	(2)	1	0
20. Macrobenthos (note diversity and abundance) –	0	1	2	3
21. Aquatic Mollusks –	0	1	2	3
22. Fish –	0	0.5	1	1.5
23. Crayfish –	0	0.5	1	1.5
24. Amphibians –	0	0.5	1	1.5
25. Algae –	0	0.5	1	1.5
26. Wetland plants in streambed –	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 1-6-2011	**Project/Site:** Green Valley Farms Reach UT 4	**Latitude:**
Evaluator: BSH	**County:** Randolph	**Longitude:**
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 26	**Stream Determination (circle one)** Ephemeral Intermittent Perennial	**Other** *e.g. Quad Name:*

A. Geomorphology (Subtotal = 12)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	(2)	3
2. Sinuosity of channel along thalweg	0	(1)	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	(1)	2	3
4. Particle size of stream substrate	0	1	(2)	3
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	0	(1)	2	3
7. Recent alluvial deposits	0	(1)	2	3
8. Headcuts	(0)	1	2	3
9. Grade control	0	0.5	(1)	1.5
10. Natural valley	0	0.5	(1)	1.5
11. Second or greater order channel	No = (0)		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 11)				
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria	0	1	2	(3)
14. Leaf litter	1.5	(1)	0.5	0
15. Sediment on plants or debris	0	(0.5)	1	1.5
16. Organic debris lines or piles	0	(0.5)	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = (3)	

C. Biology (Subtotal = 3)				
18. Fibrous roots in streambed	3	2	(1)	0
19. Rooted upland plants in streambed	3	2	(1)	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	(1)	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

Appendix A

Categorical Exclusion Form for Ecosystem Enhancement Program Projects
Version 1.4

Note: Only Appendix A should to be submitted (along with any supporting documentation) as the environmental document.

Part 1: General Project Information	
Project Name:	Green Valley Farms Buffer Restoration Site
County Name:	Randolph
EEP Number:	
Project Sponsor:	Environmental Banc & Exchange, LLC
Project Contact Name:	Norton Webster
Project Contact Address:	909 Capability Drive, Suite 3100, Raleigh, NC 27606
Project Contact E-mail:	Norton@EBXUSA.com
EEP Project Manager:	

Project Description

The Green Valley site has been identified by NC Ecosystem Enhancement Program to provide compensatory mitigation for unavoidable buffer impacts. This site is currently cultivated land surrounding Green Valley Farms in Randolph County, NC. The proposed project consists of approximately 9.7 acres of buffer restoration on four unnamed tributaries that drain into Randleman Lake. The project will improve water quality and protect these waters in perpetuity.

For Official Use Only

Reviewed By:

11-18-11 — Kristie T. Cabe

Date — **EEP Project Manager**

Conditional Approved By:

Date — **For Division Administrator FHWA**

☐ **Check this box if there are outstanding issues**

Final Approval By:

11-17-11 — [signature]

Date — **For Division Administrator FHWA**

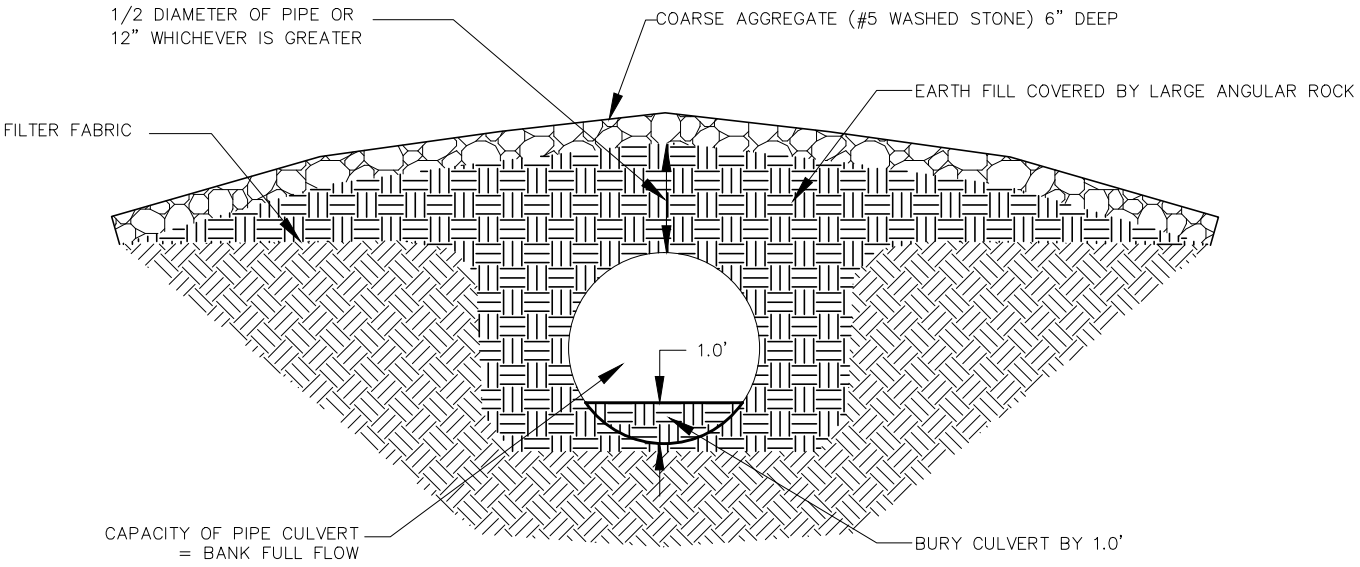
Part 2: All Projects Regulation/Question	Response
Coastal Zone Management Act (CZMA)	
1. Is the project located in a CAMA county?	☐ Yes ☑ No
2. Does the project involve ground-disturbing activities within a CAMA Area of Environmental Concern (AEC)?	☐ Yes ☐ No ☑ N/A
3. Has a CAMA permit been secured?	☐ Yes ☐ No ☑ N/A
4. Has NCDCM agreed that the project is consistent with the NC Coastal Management Program?	☐ Yes ☐ No ☑ N/A
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	
1. Is this a "full-delivery" project?	☑ Yes ☐ No
2. Has the zoning/land use of the subject property and adjacent properties ever been designated as commercial or industrial?	☐ Yes ☑ No ☐ N/A
3. As a result of a limited Phase I Site Assessment, are there known or potential hazardous waste sites within or adjacent to the project area?	☐ Yes ☑ No ☐ N/A
4. As a result of a Phase I Site Assessment, are there known or potential hazardous waste sites within or adjacent to the project area?	☐ Yes ☐ No ☑ N/A
5. As a result of a Phase II Site Assessment, are there known or potential hazardous waste sites within the project area?	☐ Yes ☐ No ☑ N/A
6. Is there an approved hazardous mitigation plan?	☐ Yes ☐ No ☑ N/A
National Historic Preservation Act (Section 106)	
1. Are there properties listed on, or eligible for listing on, the National Register of Historic Places in the project area?	☐ Yes ☑ No
2. Does the project affect such properties and does the SHPO/THPO concur?	☐ Yes ☐ No ☑ N/A
3. If the effects are adverse, have they been resolved?	☐ Yes ☐ No ☑ N/A
Uniform Relocation Assistance and Real Property Acquisition Policies Act (Uniform Act)	
1. Is this a "full-delivery" project?	☑ Yes ☐ No
2. Does the project require the acquisition of real estate?	☑ Yes ☐ No ☐ N/A
3. Was the property acquisition completed prior to the intent to use federal funds?	☐ Yes ☑ No ☐ N/A
4. Has the owner of the property been informed: * prior to making an offer that the agency does not have condemnation authority; and * what the fair market value is believed to be?	☑ Yes ☐ No ☐ N/A

Part 3: Ground-Disturbing Activities Regulation/Question	Response
American Indian Religious Freedom Act (AIRFA)	
1. Is the project located in a county claimed as "territory" by the Eastern Band of Cherokee Indians?	☐ Yes ☑ No
2. Is the site of religious importance to American Indians?	☐ Yes ☐ No ☑ N/A
3. Is the project listed on, or eligible for listing on, the National Register of Historic Places?	☐ Yes ☐ No ☑ N/A
4. Have the effects of the project on this site been considered?	☐ Yes ☐ No ☑ N/A
Antiquities Act (AA)	
1. Is the project located on Federal lands?	☐ Yes ☑ No
2. Will there be loss or destruction of historic or prehistoric ruins, monuments or objects of antiquity?	☐ Yes ☐ No ☑ N/A
3. Will a permit from the appropriate Federal agency be required?	☐ Yes ☐ No ☑ N/A
4. Has a permit been obtained?	☐ Yes ☐ No ☑ N/A
Archaeological Resources Protection Act (ARPA)	
1. Is the project located on federal or Indian lands (reservation)?	☐ Yes ☑ No
2. Will there be a loss or destruction of archaeological resources?	☐ Yes ☐ No ☑ N/A
3. Will a permit from the appropriate Federal agency be required?	☐ Yes ☐ No ☑ N/A
4. Has a permit been obtained?	☐ Yes ☐ No ☑ N/A
Endangered Species Act (ESA)	
1. Are federal Threatened and Endangered species and/or Designated Critical Habitat listed for the county?	☑ Yes ☐ No
2. Is Designated Critical Habitat or suitable habitat present for listed species?	☐ Yes ☑ No ☐ N/A
3. Are T&E species present or is the project being conducted in Designated Critical Habitat?	☐ Yes ☐ No ☑ N/A
4. Is the project "likely to adversely affect" the species and/or "likely to adversely modify" Designated Critical Habitat?	☐ Yes ☐ No ☑ N/A
5. Does the USFWS/NOAA-Fisheries concur in the effects determination?	☐ Yes ☐ No ☑ N/A
6. Has the USFWS/NOAA-Fisheries rendered a "jeopardy" determination?	☐ Yes ☐ No ☑ N/A

Executive Order 13007 (Indian Sacred Sites)	
1. Is the project located on Federal lands that are within a county claimed as "territory" by the EBCI?	☐ Yes ☑ No
2. Has the EBCI indicated that Indian sacred sites may be impacted by the proposed project?	☐ Yes ☐ No ☑ N/A
3. Have accommodations been made for access to and ceremonial use of Indian sacred sites?	☐ Yes ☐ No ☑ N/A
Farmland Protection Policy Act (FPPA)	
1. Will real estate be acquired?	☑ Yes ☐ No
2. Has NRCS determined that the project contains prime, unique, statewide or locally important farmland?	☑ Yes ☐ No ☐ N/A
3. Has the completed Form AD-1006 been submitted to NRCS?	☑ Yes ☐ No ☐ N/A
Fish and Wildlife Coordination Act (FWCA)	
1. Will the project impound, divert, channel deepen, or otherwise control/modify any water body?	☑ Yes ☐ No
2. Have the USFWS and the NCWRC been consulted?	☑ Yes ☐ No ☐ N/A
Land and Water Conservation Fund Act (Section 6(f))	
1. Will the project require the conversion of such property to a use other than public, outdoor recreation?	☐ Yes ☑ No
2. Has the NPS approved of the conversion?	☐ Yes ☐ No ☑ N/A
Magnuson-Stevens Fishery Conservation and Management Act (Essential Fish Habitat)	
1. Is the project located in an estuarine system?	☐ Yes ☑ No
2. Is suitable habitat present for EFH-protected species?	☐ Yes ☐ No ☑ N/A
3. Is sufficient design information available to make a determination of the effect of the project on EFH?	☐ Yes ☐ No ☑ N/A
4. Will the project adversely affect EFH?	☐ Yes ☐ No ☑ N/A
5. Has consultation with NOAA-Fisheries occurred?	☐ Yes ☐ No ☑ N/A
Migratory Bird Treaty Act (MBTA)	
1. Does the USFWS have any recommendations with the project relative to the MBTA?	☐ Yes ☐ No
2. Have the USFWS recommendations been incorporated?	☐ Yes ☐ No ☐ N/A
Wilderness Act	
1. Is the project in a Wilderness area?	☐ Yes ☑ No
2. Has a special use permit and/or easement been obtained from the maintaining federal agency?	☐ Yes ☐ No ☑ N/A

Appendix D – Construction Details

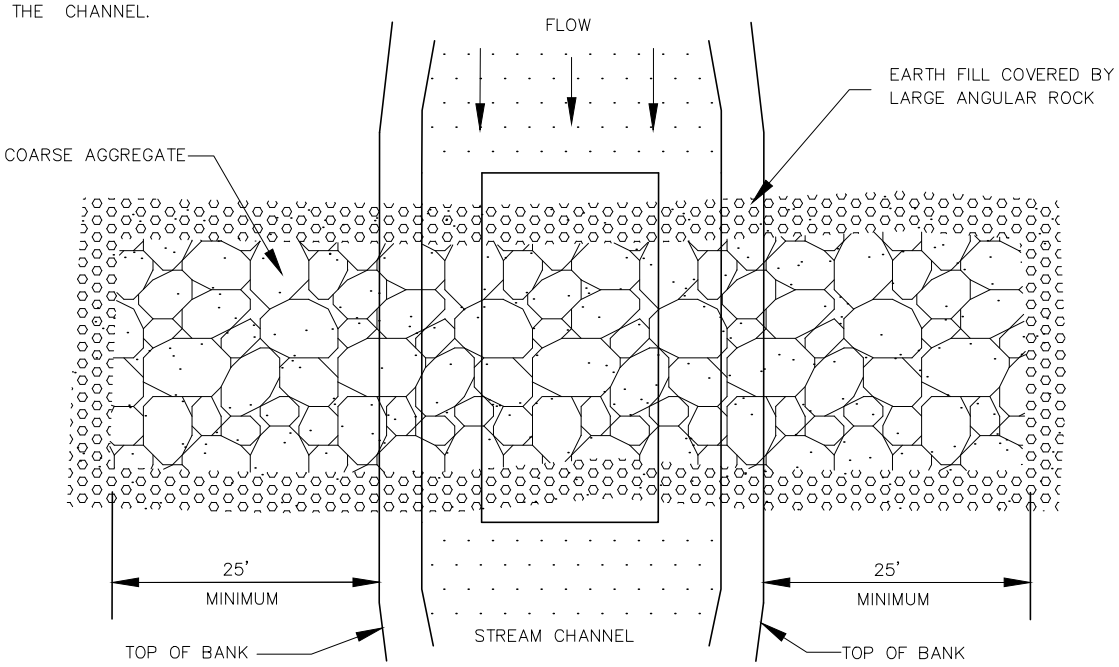
1 Culvert Crossing
2 Ford Stream Crossing
3 Bare Root Planting
4 Seeding Schedule



ELEVATION

NOTES:
1. CONSTRUCT STREAM CROSSING WHEN FLOW IS LOW.
2. INSTALL STREAM CROSSING PERPENDICULAR TO FLOW.
3. CONTRACTOR TO COORDINATE APPROPRIATE BEDDING MATERIAL WITH MANUFACTURER.
4. FILTER FABRIC USED SHALL BE NCDOT TYPE 2 ENGINEERING FABRIC OR EQUIVALENT.
5. WIDTH OF THE CROSSING SHALL BE SUFFICIENT (12' MIN.) TO ACCOMMODATE THE LARGEST VEHICLE CROSSING THE CHANNEL.

REACH	CULVERT SIZE/TYPE
UT-3	36" CMP
UT-4	36" CMP



PLAN

CULVERT CROSSING

NOT TO SCALE

PROJECT MANAGER	DRAWING SCALE
DPI	NTS
DRAWN BY	PROJECT DATE
FM	03/2012
APPROVED BY	PROJECT NUMBER
DPI	2011017700RA
FILE NAME	PLOT DATE
DETAILS	03/2012

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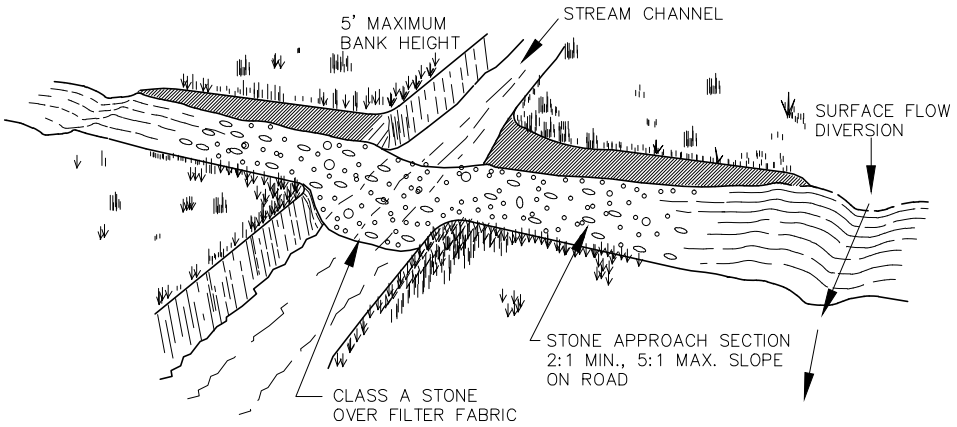

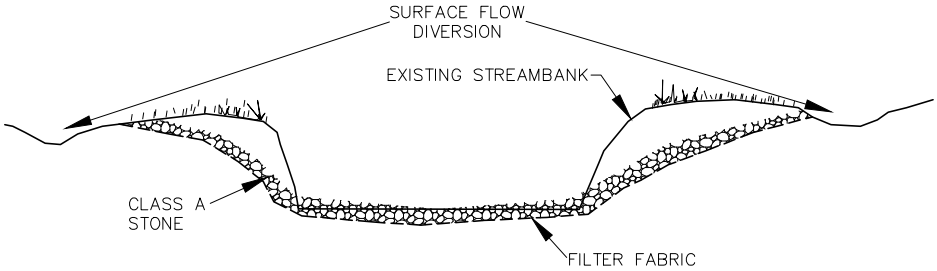

NOTES:

1. CONSTRUCT STREAM CROSSING WHEN FLOW IS LOW.
2. HAVE ALL NECESSARY MATERIALS AND EQUIPMENT ON-SITE BEFORE WORK BEGINS.
3. MINIMIZE CLEARING AND EXCAVATION OF STREAMBANKS. DO NOT EXCAVATE CHANNEL BOTTOM. COMPLETE ONE SIDE BEFORE STARTING ON THE OTHER SIDE.
4. INSTALL STREAM CROSSING PERPENDICULAR TO FLOW.
5. GRADE SLOPES TO A MINIMUM OF 2:1 SLOPE, MAXIMUM
6. MAINTAIN CROSSING SO THAT RUNOFF IN THE CONSTRUCTION ROAD DOES NOT ENTER EXISTING CHANNEL.
7. A STABILIZED PAD OF NATURAL CLASS A STONE, 6 INCHES THICK, LINED WITH FILTER FABRIC SHALL BE USED OVER THE BERM AND ACCESS SLOPES.
8. FILTER FABRIC USED SHALL BE NCDOT TYPE 2 ENGINEERING FABRIC OR EQUIVALENT.
9. WIDTH OF THE CROSSING SHALL BE SUFFICIENT (12' MIN.) TO ACCOMMODATE THE LARGEST VEHICLE CROSSING THE CHANNEL.
10. CONTRACTOR SHALL DETERMINE AN APPROPRIATE RAMP ANGLE ACCORDING TO EQUIPMENT UTILIZED.

FORD STREAM CROSSING

NOT TO SCALE

PROJECT MANAGER	DRAWING SCALE
DPI	NTS
DRAWN BY	PROJECT DATE
FM	03/2012
APPROVED BY	PROJECT NUMBER
DPI	2011017700RA
FILE NAME	PLOT DATE
DETAILS	03/2012

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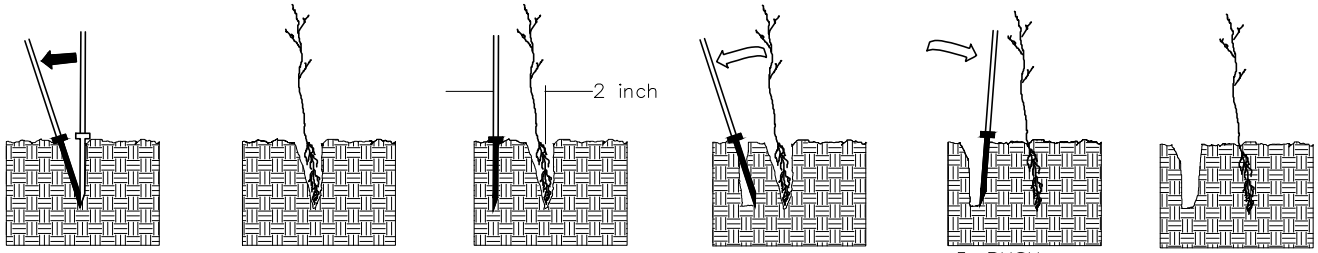
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



1. INSERT PLANTING BAR AS SHOWN AND PULL HANDLE TOWARD PLANTER.

2. REMOVE PLANTING BAR AND PLACESEEDING AT CORRECT DEPTH.

3. INSERT PLANTING BAR 2 INCHES TOWARD PLANTER FROM SEEDING.

4. PULL HANDLE OF BAR TOWARD PLANTER, FIRMING SOIL AT BOTTOM.

5. PUSH HANDLE FORWARD FIRMING SOIL AT TOP.

6. LEAVE COMPACTION HOLE OPEN. WATER THOROUGHLY.

PLANTING NOTES:

PLANTING BAG
DURING PLANTING, SEEDLINGS SHALL BE KEPT IN A MOIST CANVAS BAG OR SIMILAR CONTAINER TO PREVENT THE ROOT SYSTEMS FROM DRYING.

KBC PLANTING BAR
PLANTING BAR SHALL HAVE A BLADE WITH A TRIANGULAR CROSS SECTION, AND SHALL BE 12 INCHES LONG, 4 INCHES WIDE AND 1 INCH THICK AT CENTER.

ROOT PRUNING
ALL SEEDLINGS SHALL BE ROOT PRUNED, IF NECESSARY, SO THAT NO ROOTS EXTEND MORE THAN 10 INCHES BELOW THE ROOT COLLAR.

NOTES:
BARE ROOTS SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

COMMON NAME	SCIENTIFIC NAME	PERCENT COMPOSITION
Eastern Redbud	*Cercis canadensis*	10
Green Ash	*Fraxinus pennsylvanica*	20
American Sycamore	*Platanus occidentalis*	20
White Oak	*Quercus alba*	10
Willow Oak	*Quercus phellos*	15
Water Oak	*Quercus nigra*	10
Northern Red Oak	*Quercus rubra*	15

BARE ROOT PLANTING

NOT TO SCALE

PROJECT MANAGER	DRAWING SCALE
DPI	NTS
DRAWN BY	PROJECT DATE
FM	03/2012
APPROVED BY	PROJECT NUMBER
DPI	2011017700RA
FILE NAME	PLOT DATE
DETAILS	03/2012

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Temporary Riparian Seeding

Seed Mix A - Winter

Common Name	Scientific Name
Barley	*Hordeum sp.*
Winter Rye	*Secale cereale*

Seed Mix B - Summer

Common Name	Scientific Name
Browntop Millet	*Panicum ramosum*
Pearl Millet	*Pennisetum glaucum*
Sudangrass	*Sorghum bicolor*
German Foxtail Millet (Foxtail bristlegrass)	*Setaria italica*
Japanese Millet	*Echinochloa frumentacea*

Planting rate is 20 lb/acre.

Seeding dates

Summer: May through September plant summer mix; July 15 through September plant summer mix and replant with winter mix in October.

Winter: October through April plant winter mix; February 15 through April plant winter mix and replant with summer mix in May.

Soil amendments

Follow recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

Mulch

Apply 4,000 lb/acre straw. Anchor straw by netting or a mulch anchoring tool. Asphalt shall not be used.

Maintenance

Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

Permanent Riparian Seeding

Seed Mix

Common Name	Scientific Name	% Composition
Broomsedge Bluestem	*Andropogon virginicus*	10
Sedge, Fringed	*Carex crinita*	5
Sedge, Tussock	*Carex stricta*	5
Virginia Wildrye	*Elymus virginicus*	10
Purple Lovegrass	*Eragrostis spectabilis*	10
Hairawn Muhly	*Muhlenbergia capillaris*	15
Deertongue	*Panicum clandestinum*	10
Beaked Panic Grass	*Panicum anceps*	15
Little Blue Stem	*Schizachyrium scoparium*	10
Eastern Gamagrass	*Tripsacum dactyloides*	10

Planting rate is 15 lb/acre.

Soil amendments

Apply lime and fertilizer according to soil test, or apply 2500 lb/acre ground agricultural limestone (use the lower rate on sandy soils) and 600 lb/acre 10-10-10 fertilizer.

Mulch

Apply 3,000-4,000 lb/acre grain straw or equivalent cover of another suitable mulching material. Anchor mulch by roving or netting. Netting is the preferred anchoring method on steep slopes. Asphalt shall not be used.

SEEDING SCHEDULE

PROJECT MANAGER: DPI	DRAWING SCALE: NTS
DRAWN BY: FM	PROJECT DATE: 03/2012
APPROVED BY: DPI	PROJECT NUMBER: 2011017700RA
FILE NAME: DETAILS	PLOT DATE: 03/2012

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