Final Mitigation Plan Tar River Headwaters Stream and Ditch Buffer

Parcel of Tar River Headwater Wetland Restoration Site (Project ID 97071)

Person County, NC

NCDEQ Contract #007016

Tar-Pamlico River Basin

HUC 03020101-0102



PREPARED FOR:

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

MITIGATION PLAN CONTRIBUTORS:

Richard Mogensen – Mogensen Mitigation Daniel Kuefler – Mogensen Mitigation Gerald Pottern – Mogensen Mitigation Heather Smith – Ecological Engineering Lane Sauls – Ecological Engineering Lindsay Crocker - DMS

November 2016

This mitigation plan was written in conformance with the following:

North Carolina consolidated buffer mitigation rule 15A NCAC 02B .0295, effective November 1, 2015 and the Nutrient Offsets Payments Rule 15A NCAC 02B. 0240, amended effective September 1, 2010.

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1.0 Mitigation Project Summary

1.1 Narrative

The Tar River Headwaters Stream and Ditch Buffer ("the Project") is a part of the Tar-Pamlico river basin, 12-digit HUC # 03020101- 0102, and is proposed for riparian buffer and/or nutrient offset credits per 15A NCAC 02B .0295 and 15A NCAC 02B .0240.

The project site is presently a cattle pasture dominated by forage grasses interspersed with native and non-native herbs. Several large trees were left standing to provide shade for the cattle when the site was cleared in the 1940s, and a few younger trees have sprouted and survived. This site was in continuous agricultural use for about 70 years, and land use in the surrounding area has changed little over the past several decades. Several drainage ditches were constructed in the 1940s to dewater the area sufficiently for pasture use.

A north-south flowing ditch runs through the existing pasture and is hydrologically connected with an intermittent stream downstream of a ford crossing, which later flows into a perennial stream offsite. A conservation easement was acquired on 9.98 acres, which includes the entire ditched network described above and the upslope pasture. The ditch and intermittent stream features are the focus of this mitigation plan. This mitigation plan will provide riparian buffer or nutrient offset credits along the main north-south ditch and riparian buffer credits along the hydrologically connected intermittent stream from riparian restoration.

This riparian restoration section will connect a DMS full-delivery wetland mitigation project ('Tar River Headwaters Wetland Restoration Site' located in the conservation easement and north of the buffer section) to the adjacent private bank project 'Tar River Headwaters Riparian Buffer and Nutrient Offset Mitigation Bank' project below (located south in a separate conservation easement). Both projects are designed and implemented by Mogensen Mitigation, Inc. (MMI).

Based on LIDAR topographic mapping (from Person County GIS) the watershed draining to the wetland restoration site is approximately 50 to 80 acres with an average slope of 2%. This watershed is undeveloped, containing natural hardwood forest, planted pines, cropland, pasture, and a powerline. The only man-made structures in the watershed are two powerline towers. The project ditch feature measures between 2 and 3' deep and was confirmed to meet requirements of (o)(8) in a 10/24/2016 DWR viability letter.

The project includes installing livestock exclusion fencing and planting native hardwood buffer trees at a minimum of 50' from top of bank on both sides of the ditch and at a minimum of 30' from top of bank on the eastern portion of the intermittent stream. The proposed work restores approximately 1 acre (43,560 sq ft) of riparian areas. Establishment of a forested riparian area and cattle exclusion will reduce soil erosion and nutrient-enriched runoff from the adjacent pasture within its watershed and help retain agricultural chemicals. This riparian area is also expected to improve water quality through removal of bacterial and agricultural inputs and slow surface water runoff.

1.2 Project location

The Project is located in eastern Person County, between Roxboro and Oxford, North Carolina, within the Piedmont Physiographic Province (Figure 1). The project is located on a 228- acre farm owned by Roy and Joyce Huff at 333 Bunnie Huff Road, Oxford NC 27565. The access road into the TRHWR site is at Latitude = 36.3913, Longitude = -78.8171.

Directions to TRHWR site: From Raleigh, follow NC-50 north to Creedmoor, NC. Continue north and west on NC-56, Brodgen Rd, Old Rte-75, Culbreth Rd, NC-158, and Old Roxboro Rd. At the Granville/Person County line Old Roxboro Rd becomes Denny Store Rd, and 1.5 miles past the county line turn right (north) on Bunnie Huff Road. Go 0.4 mile to a gravel driveway on the left (just past the Huffs' house and sign) and follow it through the farm gate and across the creek to the TRHWR site.

2.0 Regulatory Considerations

2.1 Determination of Credits

Project Component	Existing Riparian Area (SF)	Creditable Riparian Area (SF)	Mitigation Type	Mitigation Ratio (X:1)	Riparian Buffer Credit Type (SF)		Nutrient Offset Credits Type Nitrogen (lbs/ac/30 yrs)	Nutrient Offset Credit Type Phosphorus (lbs/ac/30 yrs)
BUFFER								
Ditch TOB-50' (F1a)	0	44,217	R	1	44,217	OR	2,308	149
Stream (F1b) TOB-30'	0	7,122	R	1	7,122			
TOTAL		51,339			51,339			

Credit determination for a riparian restoration site follows North Carolina consolidated buffer mitigation rule 15A NCAC 02B .0295, effective November 1, 2015 and the Nutrient Offsets Payments Rule 15A NCAC 02B. 0240, amended effective September 1, 2010.

Methodology used for determining nutrient offset credits from riparian restoration is the "NC Division of Water Resources – Methodology and Calculations for determining Nutrient Reductions associated with Riparian Buffer Establishment."

3.0 Implementation Plan

3.1 Site Preparation

The site preparation for the Project will occur to control weed competition and kill fescue with glyphosate following NC Pesticide regulations. The site will be aerated to a depth of 6" to improve infiltration and break up surface compaction. Soil amendments will be based on USDA recommendations from soil samples.

3.2 Materials & Methods

Trees will be selected from species listed below and planted to achieve success criteria of 260 stems by year five (5). At least five different species from the table below will be planted in the riparian areas of the Project.

Common Name	Scientific Name	Wetland Status
River Birch	Betula nigra	FACW
Black Gum	Nyssa sylvatica	FAC
Green Ash	Fraxinus pennsylvaticum	FACW
Tulip Poplar	Liriodendron tulipifera	FAC
Swamp White Oak	Quercus bicolor	FACW
Cherrybark Oak	Quercus pagoda	FACU
American Sycamore	Plantanus occidentalis	FACW
American Elm	Ulmus americana	FACW
Laurel Oak	Quercus laurifolia	FACW
Pin Oak	Quercus palustris	FACW
Overcup Oak	Quercus lyrata	FACW
Hornbeam (Musclewood)	Carpinus caroliniana	FAC
Swamp Blackgum	Nyssa biflora	FACW

The Project Site planting plan attempts to restore a native vegetation community similar to what presumably occurred on the site prior to its conversion to pasture use in the 1940s. The project site contains about a dozen large trees, several of which appear older than 70 years and probably predate the conversion to pasture. These include willow oak, swamp white oak, silver maple (*Acer saccharinum*), boxelder (*Acer negundo*), sweetgum (*Liquidambar styraciflua*), black gum (*Nyssa sylvatica*) and loblolly pine (*Pinus taeda*). The target community for the planting plan is based on the existing remnant species in the pasture, species in adjacent forests, and published descriptions for this community type (Schafale and Weakley 1990; LeGrand 2007). As previously mentioned, livestock exclusion fencing will be installed to prevent damage to plants and covert the land use from pasture to riparian buffer.

No adverse impacts to federally listed species or cultural resources will occur. Attached concurrence letters from US Fish and Wildlife Service (FWS) and NC State Historic Preservation Office (SHPO) are provided in the Appendix. Historical environmental site assessment data was

obtained from Environmental Data Resources, Inc. (EDR) to evaluate the potential for on-site or nearby soil and water contamination. The project site is not listed in any of the databases searched by EDR, and there are no federal or state records of "recognized environmental conditions" within a one-mile radius of the project site.

4.0 Monitoring Plan

4.1 Monitoring

Vegetation monitoring plots will be installed and monitored across the Site in accordance with the NC Division of Mitigation Services' Riparian Buffer and Nutrient Offset Buffer Annual Monitoring Report Template (ver. 1.0) dated Feb. 2, 2014, to include a level 2 CVS Monitoring protocol. At least 2% of the planted area be surveyed for vegetation. For this site, at least two (2) permanent vegetation plots will be established. Vegetation monitoring will occur annually in the fall (between September and November), prior to the loss of leaves for a period of five monitoring years following planting.

4.2 Reporting

Annual monitoring data will be reported using the NC Division of Mitigation Services' Riparian Buffer and Nutrient Offset Buffer Annual Monitoring Report Template (ver. 1.0) dated Feb. 2, 2014. The monitoring report shall provide a project data chronology that will facilitate an understanding of project status and trends, population of NC Division of Mitigation Services' databases for analysis, research purposes, and assist in decision making regarding project close-out. The following table outlines monitoring requirements for this project; monitoring parameter descriptions follow.

Required	Parameter	Quantity	Frequency	Notes
Yes	Vegetation	Two plots located: 1) within the proposed ditch buffer and 2) within the proposed stream buffer will be installed at the as-built	Annual	Vegetation will be monitored for a period of five years or until success criteria are met. Visual monitoring of the site will be done all five years. Analysis of vegetation will be recorded using level 2 CVS Monitoring protocol.
Yes	Project boundary		Annual	Locations of fence damage, vegetation damage, boundary encroachments, etc. will be mapped.

5.0 Project Success Criteria

Performance standards were established to verify that the vegetation component supports community elements necessary for forest development and the maintenance of diffuse flow through the riparian buffer in accordance with North Carolina Division of Water Resources Administrative Code 15A NCAC 02B.0295 (Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers). Performance standards are dependent upon the density and growth of at least four native hardwood tree species where no one species is greater than 50% of the stems. After five years of monitoring, an average density of 260 woody stems per acre must be surviving and diffuse flow maintained.

6.0 Long-Term Management

Upon approval for closeout by the NC Division of Water Resources, the site will be transferred to Division of Environmental Quality Stewardship Program. This party 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.

DMS shall monitor the site and conduct a physical inspection of the site a minimum of once per year throughout the post-construction monitoring period until performance standards are met. These site inspections may 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:

Component/Feature	Maintenance through project close-out	Remedial Measures
Vegetation	Vegetation shall be maintained to ensure survival. Routine vegetation maintenance and repair activities may include supplemental planting. The site will also be evaluated to ensure diffuse flow is still occurring.	Any remedial activities performed will be documented in the annual monitoring reports.
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.	Any remedial activities performed will be documented in the annual monitoring reports.

7.0 References

LeGrand, H.E. Jr., 2007. Natural Areas Inventory of Person County, NC. NC Natural Heritage Program, Raleigh NC.

Schafale, M.P., Weakley, A.S.,1990. Classification of the Natural Communities of North Carolina, Third Approximation. NC Natural Heritage Program, Raleigh, NC.

Schafale, M.P., Weakley, A.S. (2012). Classification of the Natural Communities of North Carolina, Fourth Approximation. NC Natural Heritage Program, Raleigh, NC.

United States Department of Agriculture, Natural Resources Conservation Service, 1995. Soil Survey of Person County, North Carolina.

United States Department of Agriculture, Natural Resources Conservation Service, 2016. Web Soil Survey. Available: http://websoilsurvey.nrcs.usda.gov/app/

United States Geological Survey, 2013. 7.5 Minute Topographic Quadrangle, Triple Springs.

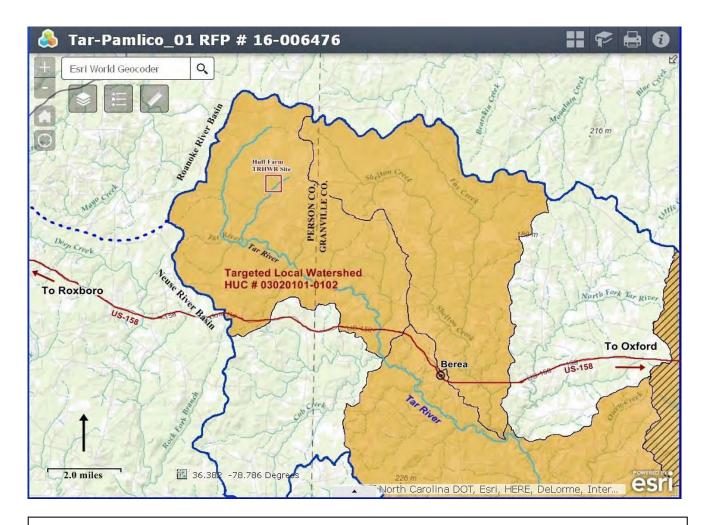


Figure 1. Project vicinity and watershed map, Upper Tar-Pamlico River Basin. DMS Targeted Local Watersheds (TLW) are highlighted in gold. Tar River Headwaters Wetland Restoration Site, on Huff Farm, Person County NC.

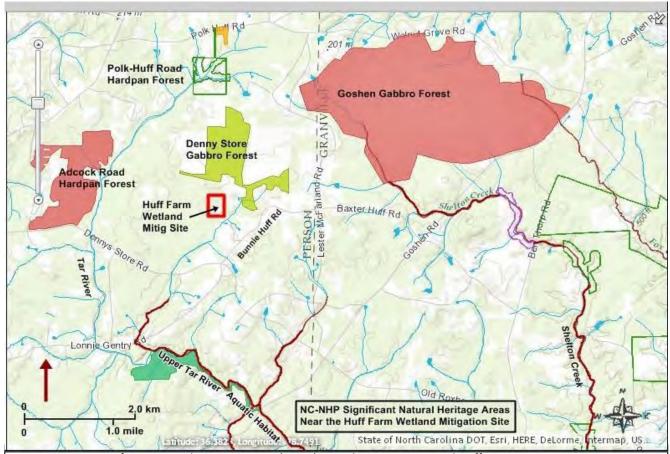


Figure 2. NHP Significant Natural Heritage Areas (SNHA) near the TRHWR site and Huff Farm. Stream segments colored brown (Upper Tar River Aquatic Habitat) are known to support rare species.

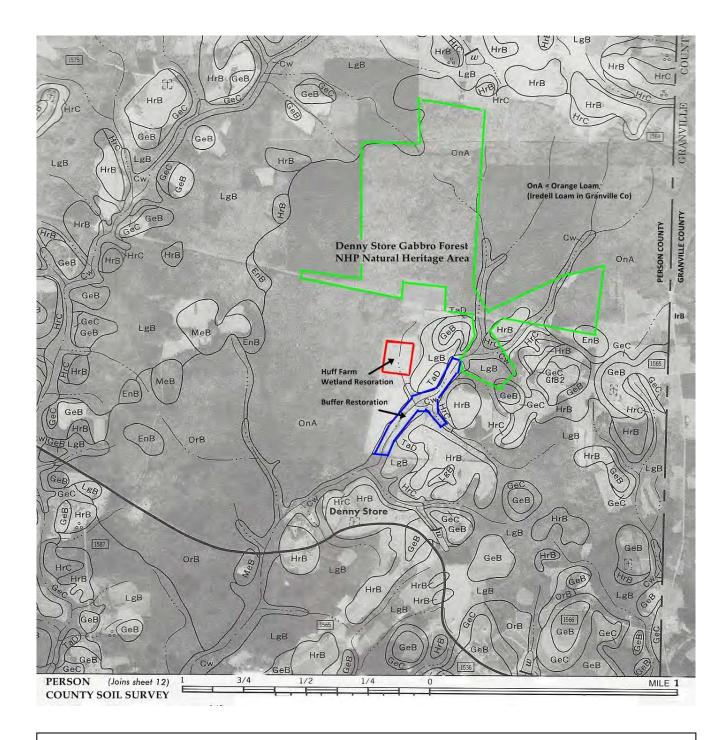


Figure 3. Person County Soil Survey Map, Tar River Headwaters Wetland Restoration Site (Proposed), Stream Buffer Restoration Site (approved, in progress), and Denny Store Gabbro Forest, a NHP Natural Heritage Area.

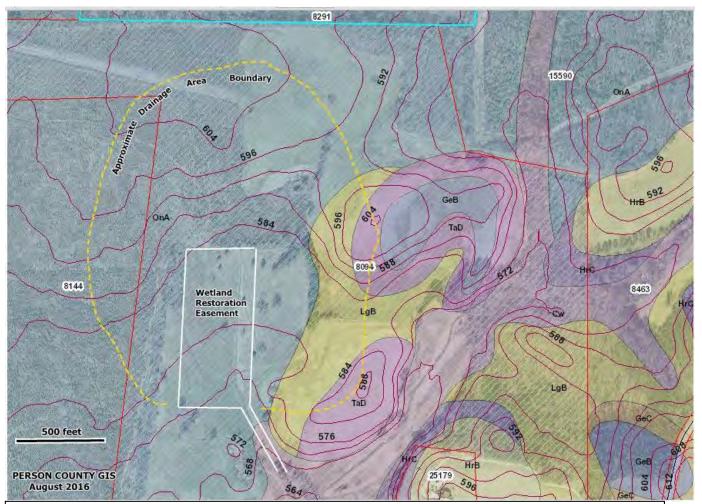


Figure 4. LIDAR topography and project watershed boundary (approximately 60 acres), from Person County GIS. Tar River Headwaters Wetland Restoration Site, Person County NC.

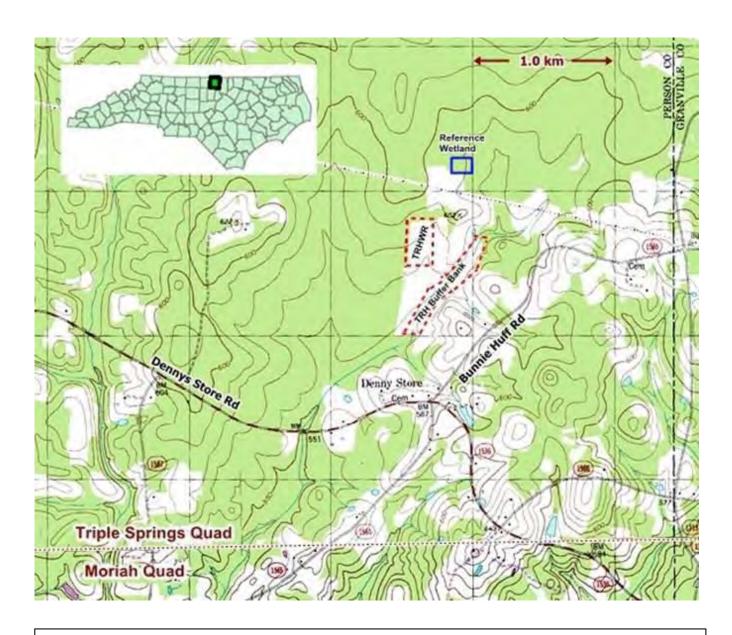


Figure 5. USGS Topographic Quadrangles: Triple Springs and Moriah Quads. Tar River Headwaters Wetland Restoration Site and Stream & Nutrient Buffer Offset Bank, Huff Farm, Person County NC.

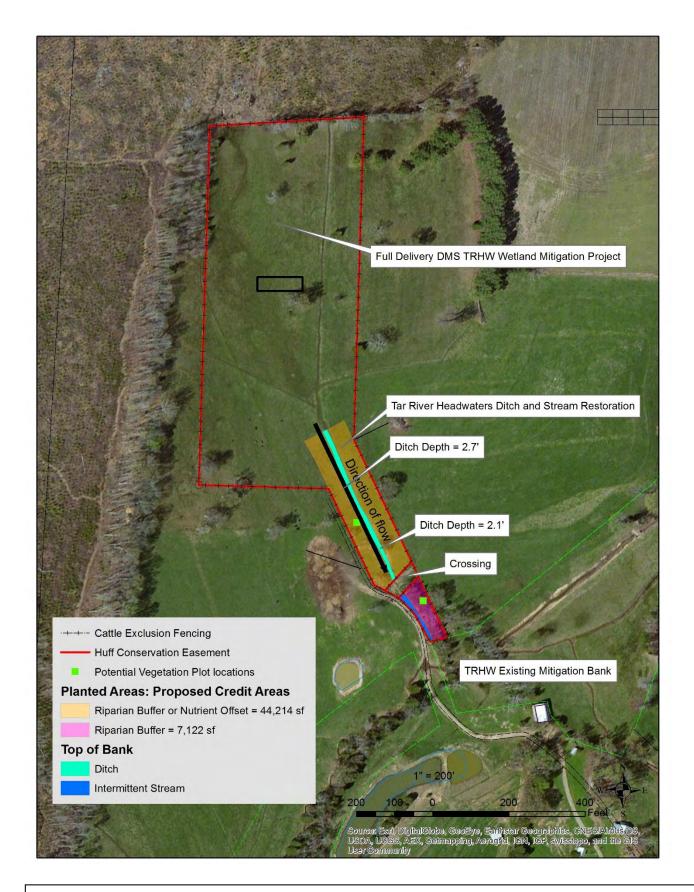


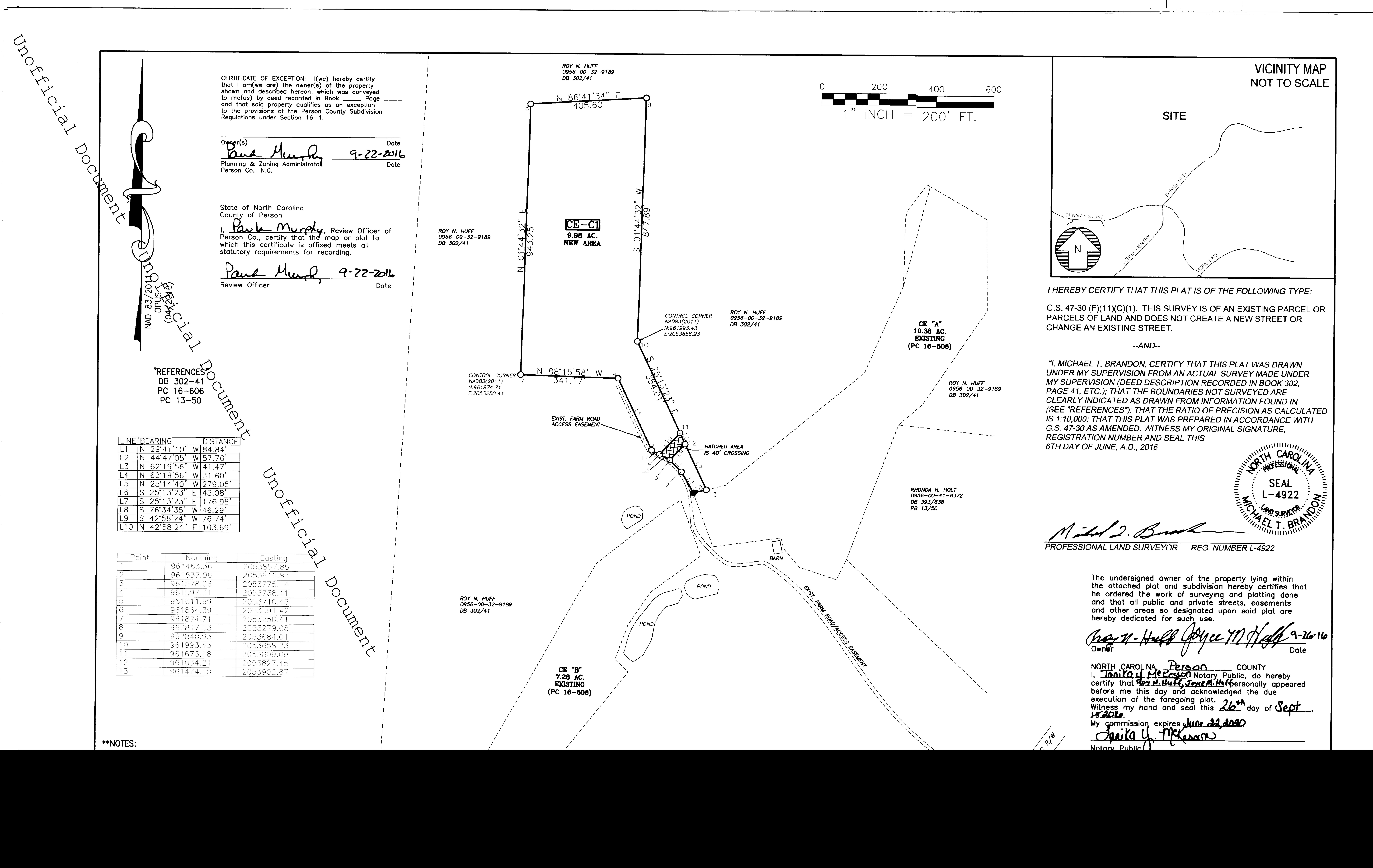
Figure 6. Existing Conditions and Proposed Project Assets.

APPENDIX A. 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 site protection instrument(s) is included below.

Landowner	County	Site Protection Instrument	Deed Book and Page Number	Acreage protecte d
		Conservation		
Roy and Joyce Huff	Person	Easement and	933/619	9.98
		Right of Access		

All site protection instruments require 60-day advance notification to the State prior to any action to void, amend, or modify the document. No such action shall take place unless approved by the State.



APPENDIX B. DWR CORRESPONDENCE

NCDENR

North Carolina Department of Environment and Natural Resources Division of Water Quality

Pat McCroy Governor Thomas A. Reeder Acting Director

John E. Skvarla, III Secretary

Rich Mogensen, PWS Mogensen Mitigation, Inc. P. O. Box 690429 Charlotte, NC 28227	June 28, 2013	Subject: Surface Water Determination Letter NBRRO#13-145 Person County
Determination Type:		- Hour county
Buffer Call	Isolated or EIP Ca	II.
 Neuse (15A NCAC 2B .0233) ∑ Tar-Pamlico (15A NCAC 2B .0259) ☐ Jordan (15A NCAC 2B .0267) 		ermittent/Perennial Determination and Determination
Location/Directions: Subject prop	eadwaters Mitigation Bearty is a proposed miting the following the following store Rd in the fol	gation bank located west of Bunnie

Determination Date: June 11, 2013

Staff: Martin Richmond

Feature	E/I/P*	Not Subject	Subject	Start@	Stop@	Soil Survey	USGS Topo
A	P		X	Throughout		X	X
В	P		X	Throughout		X	X
C	I		X	DWQ Flag		X	21

^{*}E/I/P = Ephemeral/Intermittent/Perennial

Explanation: The feature(s) listed above has or have been located on the Soil Survey of Person County, North Carolina or the most recent copy of the USGS Topographic map at a 1:24,000 scale. Each feature that is checked "Not Subject" has been determined not to be a stream or is not present on the property. Features that are checked "Subject" have been located on the property and possess characteristics that qualify it to be a stream. There may Naturally

Subject Stream:

UT to Tar River

Tar River Headwater Mitigation Bank Person County June 27, 2013 Page 2 of 2

other streams located on your property that do not show up on the maps referenced above but, still may be considered jurisdictional according to the US Army Corps of Engineers and/or to the Division of Water Quality.

This on-site determination shall expire five (5) years from the date of this letter. Landowners or affected parties that dispute a determination made by the DWQ or Delegated Local Authority may request a determination by the Director. An appeal request must be made within sixty (60) days of date of this letter or from the date the affected party (including downstream and/or adjacent owners) is notified of this letter. A request for a determination by the Director shall be referred to the Director in writing c/o Karen Higgins, DWQ WeBSCaPe Unit, 1650 Mail Service Center, Raleigh, NC 27699.

This determination is final and binding unless, as detailed above, you ask for a hearing or appeal within sixty (60) days.

The owner/future owners should notify the Division of Water Quality (including any other Local, State, and Federal Agencies) of this decision concerning any future correspondences regarding the subject property (stated above). This project may require a Section 404/401 Permit for the proposed activity. Any inquiries should be directed to the Division of Water Quality (Central Office) at (919)-807-6300, and the US Army Corp of Engineers (Raleigh Regulatory Field Office) at (919)-554-4884.

If you have questions regarding this determination, please feel free to contact Martin Richmond at (919) 791-4200.

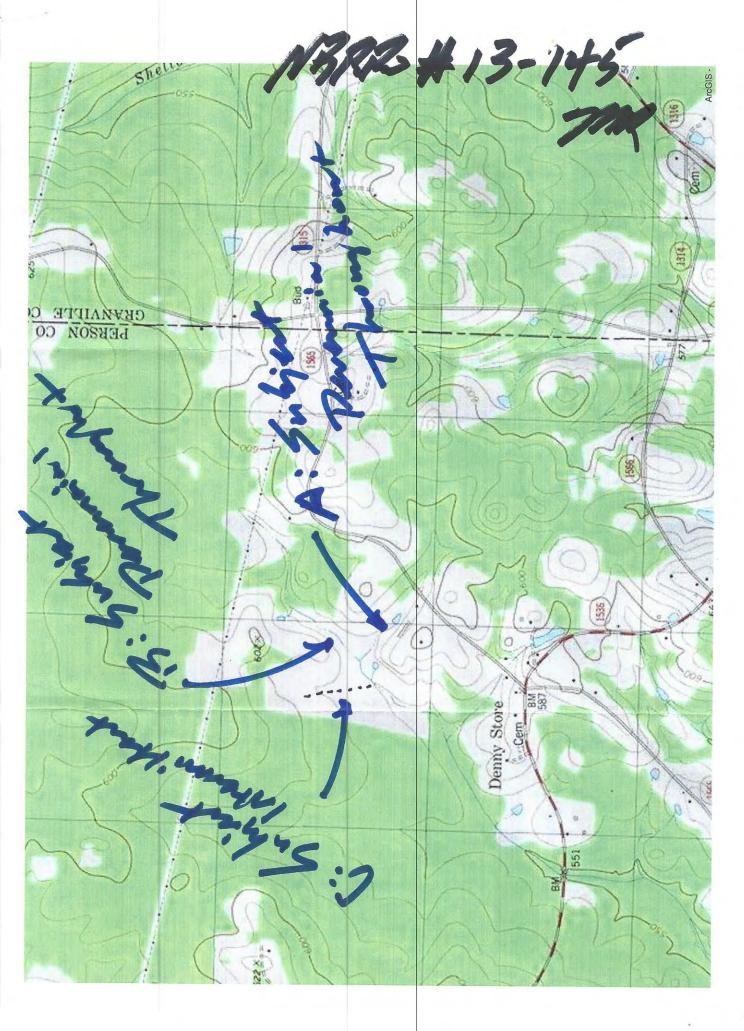
Respectfully,

Danny Smith

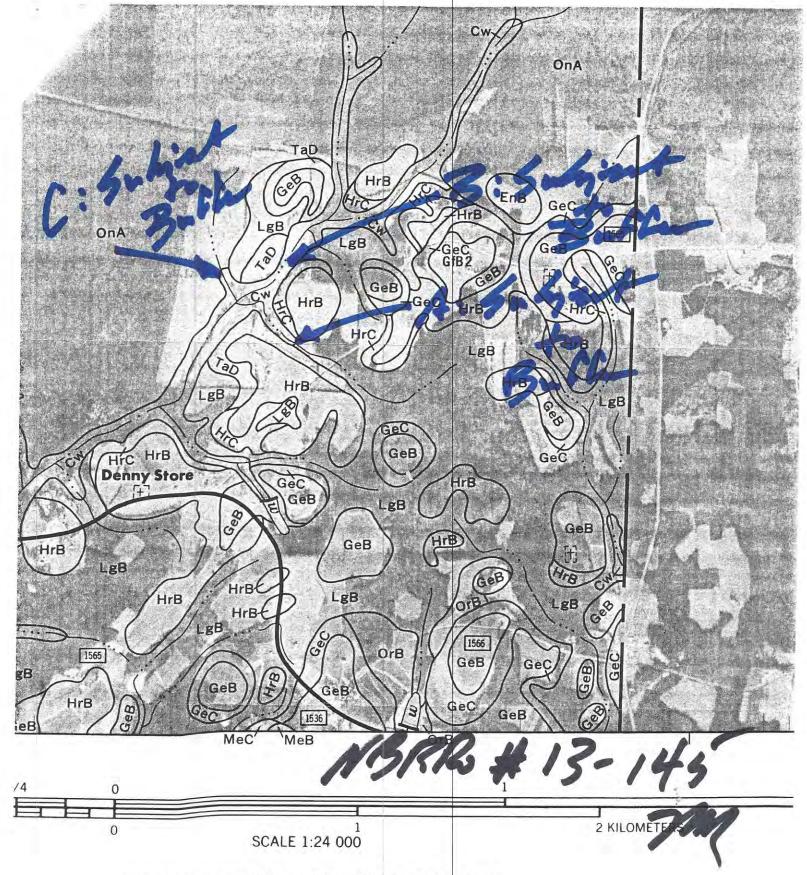
Regional Supervisor

cc:

RRO/SWP File Copy



6/28/2013 9:04 AM



PERSON COUNTY, NORTH CAROLINA NO. 8



DONALD R. VAN DER VAART

Secretary
S. JAY ZIMMERMAN

Director

October 19, 2016

Lindsay Crocker DMS 217 W. Jones St Raleigh, NC 27603 (via electronic mail)

Re: Site Viability for Buffer Mitigation & Nutrient Offset - Tar River Headwaters Wetland Site

333 Bunnie Huff Rd, Oxford, NC

Person County

Dear Ms. Crocker,

On August 2, 2016, Katie Merritt, with the Division of Water Resources (DWR), received a request from Division of Mitigation Services (DMS), for a site visit near the above-referenced site in the 8-digit Hydrologic Unit Code 03020101 of the Tar-Pamlico River Basin to determine the potential for riparian buffer mitigation and nutrient offset. On September 12, 2016, Ms. Merritt performed a site assessment of the subject site, which is more accurately shown in the attached aerial initialed by Ms. Merritt on October 5, 2016. The features in the table below flow directly into a perennial stream that is currently part of the Tar River Headwaters Stream Mitigation Bank and the Tar-River Headwaters Buffer and Nutrient Offset Bank owned by Mogensen Mitigation, Inc. (MMI), who is the Bank Sponsor. The perennial stream and its riparian areas are within a protected conservation easement with MMI as the Grantee.

Ms. Merritt's evaluation of the features onsite and their associated mitigation determination is provided in the table below. The evaluation was made from Top of Bank (TOB) out to 200' for buffer mitigation pursuant to 15A NCAC 02B .0295 (effective November 1, 2015) and nutrient offset credits pursuant to 15A NCAC 02B .0240.

<u>Feature</u>	Classification	1Subject to Buffer Rule	Riparian Land uses (0-200')	Buffer Credit Viable	Nutrient Offset Viable at 2,273 lbs/acre	Mitigation Type Determination
F1 (a)	ditch	No	Actively grazed pasture		Yes	Restoration site as described in 15A NCAC 02B .0295 (o)(n)(2) for nutrient offset only Additional information is required to assess this feature's viability for generating buffer mitigation credits pursuant to 15A NCAC 02B .0295 (o)(8). Provide confirmation to DWR that ditch meets 15A NCAC 02B .0295 (o)(8)(B) & (D) in addition to the watershed drainage requirements listed in this part of the Rule.

<u>Feature</u>	Classification	1Subject to Buffer Rule	Riparian Land uses (0-200')	Buffer Credit Viable	³ Nutrient Offset Viable at 2,273 lbs/acre	Mitigation Type Determination
F1 (b) (at DWR flag)	Stream	Yes	Actively grazed pasture	Yes	Yes	Restoration site as described in 15A NCAC 02B .0295 (n)

¹Subjectivity calls were determined by DWR in correspondence dated June 28, 2013 using the 1:24,000 scale quadrangle topographic map prepared by USGS and the most recent printed version of the soil survey map prepared by the NRCS ²15A NCAC 02B .0295 (o)(5) - The area of preservation credit within a buffer mitigation site shall comprise of no more than 25% of the total area of buffer mitigation. Therefore, where Preservation Sites were identified, this rule must be applied to determine the potential creditable acreage.

³ NC Division of Water Resources - Methodology and Calculations for determining Nutrient Reductions associated with Riparian Buffer Establishment

A map showing the project site and the features is provided and initialed by Ms. Merritt on October 5, 2016. This letter should be provided in all future stream, wetland, buffer or nutrient offset mitigation plans for this Site.

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

All vegetative plantings, performance criteria and other mitigation requirements for riparian restoration must follow the requirements in 15A NCAC 02B .0295 to be eligible for buffer and/or nutrient offset mitigation credits.

Please contact Katie Merritt at (919)-807-6371 if you have any questions regarding this correspondence.

Sincerely,

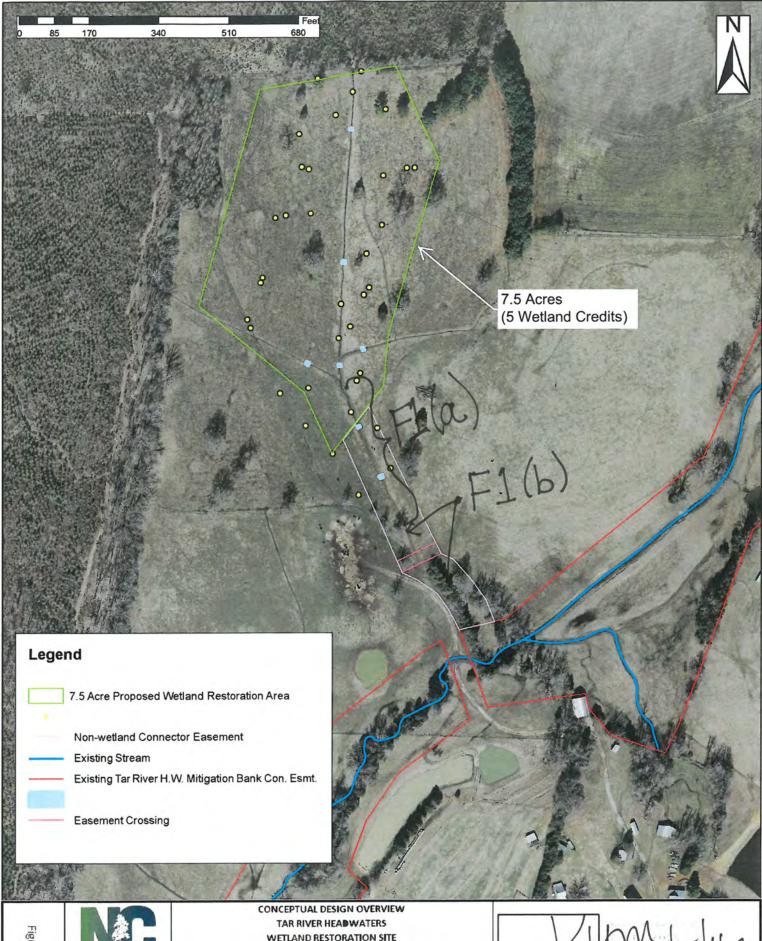
Karen Higgins, Supervisor 401 and Buffer Permitting Branch

Attachments: Site Aerial prepared by MMI

cc: File Copy (Katie Merritt)

KAH/km

Rich Mogensen – Mogensen Mitigation Inc. (via electronic mail)



WETLAND RESTORATION SITE

PERSON COUNTY NORTH CAROLINA

APPENDIX C. APPROVED CATEGORICAL EXCLUSION

Appendix A -- Categorical Exclusion Form for Ecosystem Enhancement Program Projects -- version 1.4 (Aug 2005)

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

Part 1: General Project Information						
Project Name:	Tar River Headwaters Wetland Restoration Site (TRHWR)					
County Name:	Person Co					
EEP Number: 16-006476						
Project Sponsor: Mogensen Mitigation Inc						
Project Contact Name: Richard Mogensen						
Project Contact Address:	P.O. Box 690429, Charlotte NC 28227					
Project Contact E-mail:	rich@mogmit.com, gpottern@rjgacarolina.com					
EEP Project Manager:	Lindsay Crocker					
	Project Description					
The TRHWR project site is currently a cattle pasture with drainage ditches, located in a former headwater depression wetland in eastern Person County, USGS HUC # 03020101-010010. The project site comprises about 8 acres and is adjacent to a stream and buffer restoration project (about 19 acres), both of which are on a 240 acre parcel owned by Roy and Joyce Huff. The						

headwater depression wetland in eastern Person County, USGS HUC # 03020101-010010. The project site comprises about 8 acres and is adjacent to a stream and buffer restoration project (about 19 acres), both of which are on a 240 acre parcel owned by Roy and Joyce Huff. The wetland project will include plugging the drainage ditches, installing level spreaders to redistribute flow across the restoration areas, livestock exclusion fencing, weed treatment, and replanting the pasture with native trees, shrubs and herbs.

For Official Use Only	
Reviewed By:	
Date	EEP Project Manager
Conditional Approved By:	
ochamona Approvou By:	
Date	For Division Administrator
	FHWA
Check this box if there are outstanding issues	
Final Approval By:	
Dete	For Division Administrator
Date	For Division Administrator FHWA

Part 2: All Projects	
Regulation/Question	Response
Coastal Zone Management Act (CZMA)	
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 (C	ERCLA)
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? Forest and pasture are the only known uses.	☐ 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? see attached report	☐ 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
 Does the project affect such properties and does the SHPO/THPO concur? Property is a cattle pasture with no structures; was forest prior to 1940s. SHPO clearance letter is attached. 	☐ 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 (Un	iform Act)
1. Is this a "full-delivery" project?	⊠ Yes □ No
2. Does the project require the acquisition of real estate? Property will remain in private ownership, protected by conservation easement.	☐ Yes ☐ No ☐ N/A
3. Was the property acquisition completed prior to the intent to use federal funds?	
 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? see attached letter from Mr. Huff 	⊠ 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	Yes	
Cherokee Indians?	⊠ No	
2. Is the site of religious importance to American Indians?	Yes	
	│	
3. Is the project listed on, or eligible for listing on, the National Register of Historic		
3. is the project listed on, or eligible for listing on, the National Register of Historic Places?	☐ Yes ☐ No	
Flaces !	N/A N/A	
4. Have the effects of the project on this site been considered?	Yes	
4. Have the effects of the project of this site been considered?	□ res □ No	
	⊠ N/A	
Antiquities Act (AA)		
1. Is the project located on Federal lands?	☐Yes	
1. Is the project located on Federal lands?	☐ Tes ⊠ No	
2. Will there be loss or destruction of historic or prehistoric ruins, monuments or objects	Yes	
of antiquity?	⊠ 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	
4. Has a permit been obtained:	□ No	
	⊠ N/A	
Archaeological Resources Protection Act (ARPA)		
1. Is the project located on federal or Indian lands (reservation)?	☐Yes	
1. To the project resided on readian of matanification (receivation).	⊠ No	
2. Will there be a loss or destruction of archaeological resources?	☐ Yes	
SHPO clearance letter is attached.	⊠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?	☐ No	
2. Is Designated Critical Habitat or suitable habitat present for listed species? Tar River	Yes	
several miles downstream of the project supports Dwarf Wedgemussel, but the	⊠ No	
project site has no suitable habitat.	□ N/A	
3. Are T&E species present or is the project being conducted in Designated Critical	☐ Yes	
Habitat?	⊠ No	
	□ N/A	
4. Is the project "likely to adversely affect" the specie and/or "likely to adversely modify"	Yes	
Designated Critical Habitat? US-FWS clearance letter is attached.	⊠ 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 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? Iredell loam (IdA) is a statewide important farmland.	⊠ Yes □ No □ N/A	
3. Has the completed Form AD-1006 been submitted to NRCS? The completed Farmland Impact Form is attached.	⊠ 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? The ditches to be plugged are not regulated water bodies.	☐ Yes ⊠ No	
2. Have the USFWS and the NCWRC been consulted? Travis Wilson from NCWRC visited the site with MMI staff, USACE, DWR and DMS on 26 Feb 2016.	☐ 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	n 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? The proposed site work (ditch plugging, flow diversion, planting) is not likely to affect migratory birds.	☐ 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. PRE-CONDITION PHOTOS



Photo looking North from ford crossing at ditch section of project. 0-50' TOB area proposed for riparian ditch restoration. July 2016.



Photo looking north at ditch following easement acquisition and fence installation. 0-50' TOB area proposed for riparian ditch restoration. November 2016.



Photo looking South at Intermittent stream with single line of cedar along stream following September easement acquisition and fence construction. This 0-30' eastern portion of the intermittent stream is proposed for buffer restoration. November 2016.