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October 28, 2019

Sean Clark Sage Ecological 3707 Swift Drive	
Raleigh, NC 27606	
Project Name:	Chestnut Creek Subdivision - Parcel 1439
Location:	Jones Ferry Road, Chatham County
Subject Features:	<u>Two (2) ephemeral streams, four (4) intermittent</u> streams, three (3) perennial streams, and twelve (12) wetlands
Date of Determination:	July 10, 2019

**Explanation**:

The site visit was completed on July 10, 2019 by Drew Blake with the Chatham County Watershed Protection Department, Sean Clark of Sage Ecological Services (Sage), and Jean Gibby of the US Army Corps of Engineers, on Parcel # 1439 that is located within the Jordan Lake watershed. Sage personnel completed a previous site visit which resulted in the identification of two (2) ephemeral streams, four (4) intermittent streams, three (3) perennial streams, and twelve (12) wetlands on the property. Sage submitted a request for Chatham County to complete a formal review to determine if the features would be subject to riparian buffers according to Section 304 of the Chatham County Watershed Protection Ordinance. All points of origin, stream type transitions, and wetland boundaries were reviewed and agreed to in the field by all parties in attendance.

#### Required Riparian Buffers:

The two (2) ephemeral streams will require a 30-ft buffer from the top of bank landward on both sides of the features. The four (4) intermittent streams will require a 50-ft buffer from the top of bank landward on both sides of the features. The three (3) perennial streams will require a 100-ft buffer from the top of bank landward on both sides of the features. All jurisdictional wetlands will require a 50-ft buffer proceeding landward from the flagged wetland boundary in accordance with Section 304 (A) of the Chatham County Watershed Protection Ordinance.

#### Proposed Buffer Impacts:

Submittal of a No Practical Alternatives Authorization Application, in accordance with Section 304 (I) of the Chatham County Watershed Protection Ordinance, must occur if this project results in impacts to riparian buffers. Submittal of a No Practical Alternatives Authorization will be required for all septic lines that cross riparian buffers to access off site septic systems. No Practical Alternatives Authorization Applications must be submitted prior to or at the same time as the projects Soil Erosion and Sedimentation Control Plans. All approvals for the No Practical Alternatives Authorization must be



WATERSHED PROTECTION DEPARTMENT P.O. Box 548 Pittsboro, NC 27312 PHONE: (919) 545-8394

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received prior to submitting for Construction Plan approval from the Chatham County Planning Department.

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 Chatham County, on parcels outside of the Jordan Lake watershed, may submit a request for appeal in writing to the Watershed Review Board. A request for a determination by the Watershed Review Board shall be made in accordance with Section 304 of the Chatham County Watershed Protection Ordinance. Landowners or affected parties that dispute a determination made by Chatham County, on parcels inside the Jordan Lake watershed, shall submit a request for appeal in writing to NC DWR, 401 & Buffer Permitting Unit, 1650 Mail Service Center, Raleigh, NC 27669-1650 attention of the Director of the NC Division of Water Quality.

Should this project result in any direct impacts to surface water features (i.e., crossing and/or filling streams or wetlands) additional reviews may be necessary. Additionally, a Section 404/401 Permit may be required. Any inquiries regarding Section 404/401 permitting should be directed to the Division of Water Resources (Central Office) at (919)-807-6364 and the US Army Corp of Engineers (Raleigh Regulatory Field Office) at (919)-554-4884.

Respectfully,

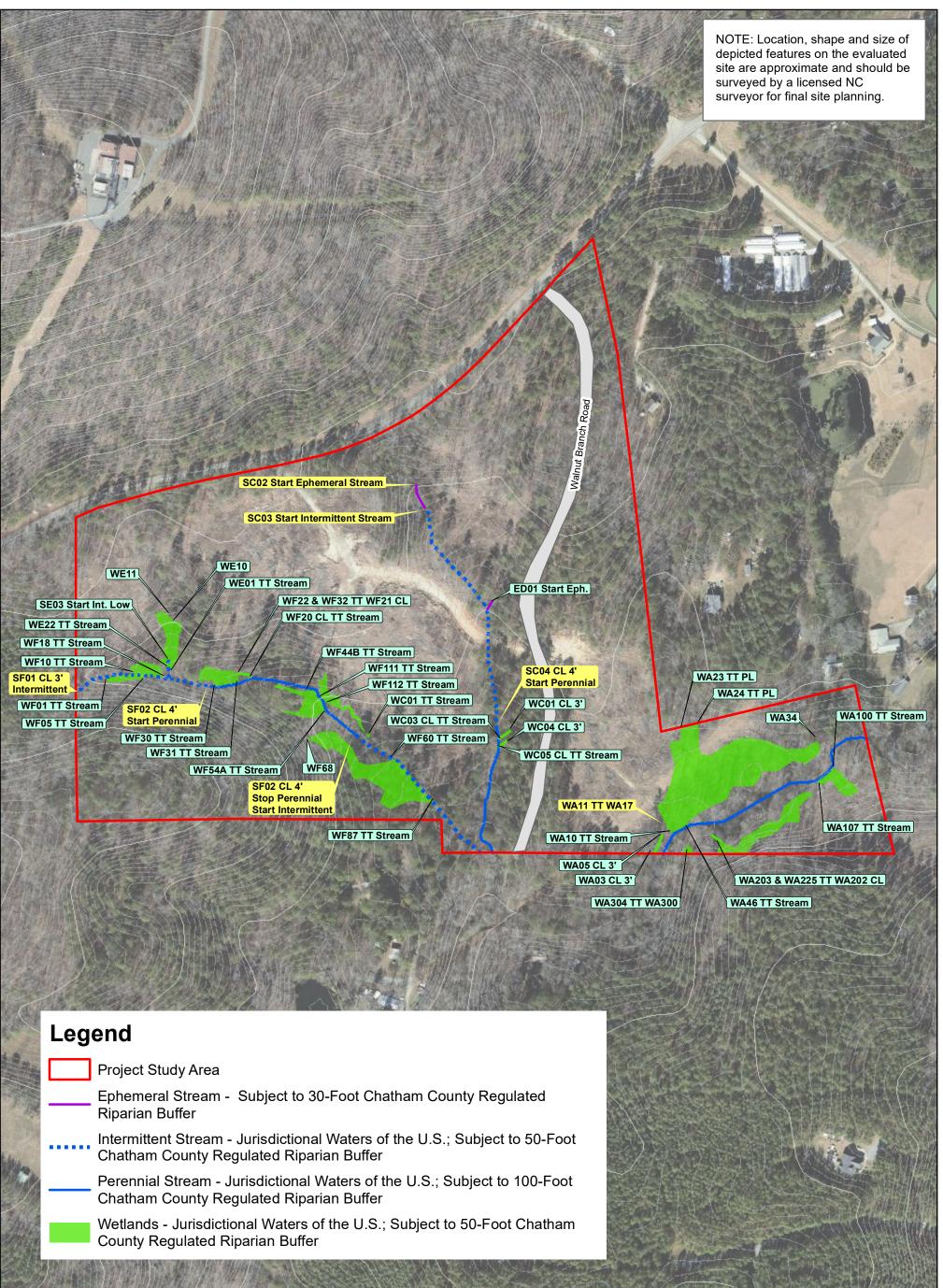
Drew Blake

Drew Blake Senior Watershed Specialist, CESSWI

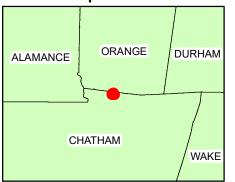
Enclosures:

Post USACE/Chatham County Wetland Sketch Map provided by Sage Ecological Services
Sage Stream Determination Forms
Sage Wetland Data Forms
NRCS Soil Survey Map
USGS Topographic Map
Surface Water ID Application
Agent Authorization Form
Authorization to Enter Property Form

cc: Rachael Thorn, Chatham County Watershed Protection Director Kimberly Tyson, Planner II/Subdivision Administrator Angela Birchett, Chatham County Zoning Administrator Jason Sullivan, Chatham County Planning Department Director



### Map Location



**Post USACE/ Chatham County** Wetland Sketch Map

> Jones Ferry Project Sage Project # 2019.25

> > July 18, 2019



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NC OneMap, NC Center for Geographic Information and Analysi

SAGE

Figure 3

8, NG 911

Drawn By: **David Gainey** 

Sage Ecological Services, Inc. Office: 919-335-6757 Cell: 919-559-1537

NC DWQ Stream Identification F	Form Versi	on 4.11				Stream	Form B1
Date: Mar 22, 2019	Project/Site	Jones Ferr	y Road Site	;	Latit	ude: 35.86	2295
<b>Evaluator:</b> Sean Clark and David Gainey	County: Cha	atham			Long	gitude:-79	.161304
Total Points:Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30$	Stream Deto N/A	ermination	:		Othe e.g.	er: Quad Nam	ne:
A. Geomorphology (Subtotal =4.5_)	[	Absent	Weak	Mode	rate	Strong	SCORE
1 <sup>a</sup> . Continuous bed and bank		0	1	2		3	0
2. Sinuosity of channel along thalweg		0	1	2		3	0
<ol> <li>In-Channel structure: ex. riffle-pool, step-p pool sequence</li> </ol>	oool, ripple-	0	1	2		3	0
4. Particle size of stream substrate		0	1	2		3	0
5. Active/relic floodplain		0	1	2		3	2
6. Depositional bars or benches		0	1	2		3	0
7. Recent alluvial deposits		0	1	2		3	0
8. Headcuts		0	1	2		3	0
9. Grade controls		0	0.5	1		1.5	1.5
10. Natural valley		0	0.5	1		1.5	1
11. Second or greater order channel		No =	= 0		Yes =	= 3	0
<sup>a</sup> artificial ditches are not rated; see discussions in manua	al. I						
B. Hydrology (Subtotal $=6.5$ )		Absent	Weak	Mode		Strong	SCORE
12. Presence of Baseflow		0	1	2		3	2
13. Iron oxidizing bacteria 14. Leaflitter		0	1	2		3	0
15. Sediment on plants or debris		1.5 0	0.5	0.		1.5	0
16. Organic debris lines or piles		0	0.5	1		1.5	0.5
17. Soil-based evidence of high water table?		No =			Yes =		3
The considered of denice of high fracer tasler		110	0	I			Ŭ
C. Biology (Subtotal = $4$ )		Absent	Weak	Mode	rate	Strong	SCORE
18. Fibrous roots in streambed		3	2	1		0	0
19. Rooted upland plants in streambed		3	2	1		0	1
<ul><li>20. Macrobenthos (note diversity and abunda</li><li>21. Aquatic Mollusks</li></ul>	(nce)	0	1	2		3	0
22. Fish		0	0.5	1		1.5	0
23. Crayfish		0	0.5	1		1.5	1
24. Amphibians		0	0.5	1		1.5	0.5
25. Algae		0	0.5	1		1.5	0
26. Wetland plants in streambed		FAC	W=0.75; C	)BL=1.	5 Othe	•	1.5
*perennial stream may also be identified using other met	nods. See p.35 o	f manual.					
Notoo		Bank Heig	ubt (foot)	C	1		
Notes: This area is a large wetland within the confluence of	f two	Bankfull W		-			
drainages and the floodplain of the perennial Meado		Water Dep	. ,				
channel or bed and bank existed within the reviewed	d area.	Channel S		·/ ·	/A		
		Velocity:			/A		
		Clarity:			/A		
		· · · · · · · · · · · · · · · · · · ·					

NC DWQ Stream Identification F	orm Versi	on 4.11				Stream	Form C1		
<b>Date</b> : Mar 22, 2019	Project/Site	:Jones Ferr	y Road Site	9	Latit	ude: 35.86	4243		
Evaluator: David Gainey	County: Ch	atham			Lon	gitude:-79	.164033		
Total Points: Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30$ 14.5	Stream Det		:		Othe e.g.	er: Quad Nam	ne:		
A. Geomorphology (Subtotal = $\frac{8.5}{2}$ )		Absent	Weak	Mode	erate	Strong	SCORE		
1 <sup>ª</sup> . Continuous bed and bank		0	1	2		3	1		
2. Sinuosity of channel along thalweg		0	1	2		3	1		
3. In-Channel structure: ex. riffle-pool, step-p pool sequence	ool, ripple-	0	1	2		3	0		
4. Particle size of stream substrate		0	1	2		3	1		
5. Active/relic floodplain		0	1	2		3	1		
6. Depositional bars or benches		0	1	2		3	1		
7. Recent alluvial deposits		0	1	2		3	1		
8. Headcuts		0	1	2		3	1		
9. Grade controls		0	0.5	1		1.5	1		
10. Natural valley		0	0.5	1		1.5	0.5		
11. Second or greater order channel		No =	= 0		Yes =	= 3	0		
<sup>a</sup> artificial ditches are not rated; see discussions in manua	al.								
B. Hydrology (Subtotal =2)		Absent	Weak	Mode	erate	Strong	SCORE		
12. Presence of Baseflow		0	1	2		3	0		
13. Iron oxidizing bacteria		0	1	2		3	0		
14. Leaflitter		1.5	1	0.		0	1		
15. Sediment on plants or debris		0	0.5	1		1.5	0.5		
16. Organic debris lines or piles		0	0.5	1		1.5	0.5		
17. Soil-based evidence of high water table?		No =	= 0		Yes =	3	0		
C. Biology (Subtotal = $\frac{4}{3}$ )		Absent	Weak	Mode	erate	Strong	SCORE		
18. Fibrous roots in streambed		3	2	1		0	1		
19. Rooted upland plants in streambed		3	2	1		0	3		
20. Macrobenthos (note diversity and abunda	ance)	0	1	2		3	0		
21. Aquatic Mollusks		0	1	2		3	0		
22. Fish		0	0.5	1		1.5	0		
23. Crayfish		0	0.5	1		1.5	0		
24. Amphibians		0	0.5	1		1.5	0		
25. Algae		0	0.5	1		1.5	0		
26. Wetland plants in streambed			W=0.75; C	)BL=1.	5 Othe	er=0	0		
*perennial stream may also be identified using other meth	hods. See p.35 c	of manual.							
Notes:		Bank Heig	ght (feet)	C	).5-1.5				
		Bankfull W	,	) 1	-3				
		Water Dep			)				
		Channel S			lay				
		Velocity:			I/A				
		Clarity:			I/A				

Date: Mar 22, 2019	Project/Site	e: Jones Ferr	y Road Site	e	Latit	ude: 35.86	1848
Evaluator: David Gainey	County: Ch	atham			Long	gitude:- <sup>79</sup>	.163736
Total Points:Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30$	east intermittent if <b>19</b> Stream Determination:			Othe	er: Quad Nam	nd Name:	
A. Geomorphology (Subtotal = $\frac{11}{1}$	)	Absent	Weak	Mode	rate	Strong	SCORE
1 <sup>ª</sup> . Continuous bed and bank	_/	0	1	2		3	2
2. Sinuosity of channel along thalweg		0	1	2		3	1
<ol> <li>In-Channel structure: ex. riffle-pool, stepool sequence</li> </ol>	ep-pool, ripple-	0	1	2		3	1
4. Particle size of stream substrate		0	1	2		3	1
5. Active/relic floodplain		0	1	2		3	1
6. Depositional bars or benches		0	1	2		3	1
7. Recent alluvial deposits		0	1	2		3	1
8. Headcuts		0	1	2		3	2
9. Grade controls		0	0.5	1		1.5	0.5
10. Natural valley		0	0.5	1		1.5	0.5
11. Second or greater order channel		No =	= 0		Yes =	= 3	0
$^{\rm a}$ artificial ditches are not rated; see discussions in m	anual.						
B. Hydrology (Subtotal $=2.5$ )		Absent	Weak	Mode	rate	Strong	SCORE
12. Presence of Baseflow		0	1	2		3	0
13. Iron oxidizing bacteria		0	1	2		3	0
14. Leaflitter		1.5	1	0.5	5	0	1
15. Sediment on plants or debris		0	0.5	1		1.5	0.5
16. Organic debris lines or piles		0	0.5	1		1.5	1
17. Soil-based evidence of high water tab	1-0		_ 0	\ \	Yes =		-
17. Gui-based evidence of high water tab	ne :	No =	= 0		103 -	3	0
C. Biology (Subtotal = $5.5$ )		Absent	Weak	Mode		3 Strong	-
C. Biology(Subtotal = 5.5)18. Fibrous roots in streambed	10?	Absent 3	Weak 2	Mode 1			0 SCORE 2
C. Biology(Subtotal = 5.5)18. Fibrous roots in streambed19. Rooted upland plants in streambed		Absent 3 3	Weak           2           2	<b>Mode</b> 1		Strong 0 0	<b>SCORE</b> 2 3
<ul> <li>C. Biology (Subtotal = 5.5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abu</li> </ul>		Absent           3           3           0	Weak           2           2           1	Mode 1 1 2	rate	<b>Strong</b> 0 0 3	SCORE 2
<ul> <li>C. Biology (Subtotal = 5.5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abu</li> <li>21. Aquatic Mollusks</li> </ul>		Absent           3           3           0           0	Weak           2           2           1           1	Mode 1 1 2 2	rate	<b>Strong</b> 0 0 3 3	<b>SCORE</b> 2 3 0
<ul> <li>C. Biology (Subtotal = 5.5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abu</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> </ul>		Absent           3           0           0           0           0	Weak           2           2           1           0.5	Mode 1 1 2 2 1	rate	Strong           0           0           3           1.5	<b>SCORE</b> 2 3 0 0 0
<ul> <li>C. Biology (Subtotal = 5.5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abu</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> </ul>		Absent           3           0           0           0           0           0           0           0           0	Weak           2           1           0.5	Mode 1 1 2 2 2 1 1	rate	Strong           0           3           1.5           1.5	<b>SCORE</b> 2 3 0 0 0 0 0
<ul> <li>C. Biology (Subtotal = 5.5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abu</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> </ul>		Absent           3           0           0           0           0           0           0           0           0           0           0           0           0	Weak           2           1           0.5           0.5	Mode 1 1 2 2 2 1 1 1 1	rate	Strong           0           0           3           1.5           1.5           1.5	SCORE 2 3 0 0 0 0 0 0 0 5
C. Biology (Subtotal = <u>5.5</u> ) 18. Fibrous roots in streambed 19. Rooted upland plants in streambed 20. Macrobenthos (note diversity and abu 21. Aquatic Mollusks 22. Fish 23. Crayfish 24. Amphibians 25. Algae		Absent           3           0           0           0           0           0           0           0           0           0           0           0           0           0	Weak           2           2           1           0.5           0.5           0.5           0.5	Mode 1 1 2 2 2 1 1 1 1 1 1	rate	Strong           0           0           3           1.5           1.5           1.5           1.5           1.5           1.5	SCORE 2 3 0 0 0 0 0 0 0 5 0
C. Biology (Subtotal = <u>5.5</u> ) 18. Fibrous roots in streambed 19. Rooted upland plants in streambed 20. Macrobenthos (note diversity and abu 21. Aquatic Mollusks 22. Fish 23. Crayfish 24. Amphibians 25. Algae	Indance)	Absent           3           0           FAC	Weak           2           1           0.5           0.5	Mode 1 1 2 2 2 1 1 1 1 1 1	rate	Strong           0           0           3           1.5           1.5           1.5           1.5           1.5           1.5	SCORE 2 3 0 0 0 0 0 0 0.5
<ul> <li>C. Biology (Subtotal = 5.5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abu</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other</li> </ul>	Indance)	Absent           3           0 <td>Weak           2           1           0.5           0.5           0.5           0.5           0.5</td> <td>Mode 1 1 2 2 1 1 1 DBL=1.5</td> <td>rate</td> <td>Strong           0           0           3           1.5           1.5           1.5           1.5           1.5           1.5</td> <td>SCORE 2 3 0 0 0 0 0 0 0 5 0</td>	Weak           2           1           0.5           0.5           0.5           0.5           0.5	Mode 1 1 2 2 1 1 1 DBL=1.5	rate	Strong           0           0           3           1.5           1.5           1.5           1.5           1.5           1.5	SCORE 2 3 0 0 0 0 0 0 0 5 0
<ul> <li>C. Biology (Subtotal = 5.5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abu</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other</li> </ul>	Indance)	Absent 3 0 0 0 0 0 0 0 FAC of manual. Bank Heig	Weak           2           1           0.5           0.5           0.5           0.5           0.5           0.5           0.5           0.5           0.5	Mode 1 1 2 2 1 1 1 DBL=1.5	rate	Strong           0           0           3           1.5           1.5           1.5           1.5           1.5           1.5	SCORE 2 3 0 0 0 0 0 0 0 5 0
<ul> <li>C. Biology (Subtotal = 5.5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abu</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> </ul>	Indance)	Absent 3 0 0 0 0 0 FAC of manual. Bank Heig Bankfull W	Weak           2           1           0.5	Mode 1 1 2 2 1 1 1 DBL=1.5 1 1 1 1 1 1 1 1 1 1 1 1 1	rate 5 Othe -2 -3	Strong           0           0           3           1.5           1.5           1.5           1.5           1.5           1.5	SCORE 2 3 0 0 0 0 0 0 0 5 0
<ul> <li>C. Biology (Subtotal = 5.5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abu</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other</li> </ul>	Indance)	Absent 3 0 0 0 0 0 FAC of manual. Bank Heig Bankfull W Water Dep	Weak           2           1           0.5 <tr< td=""><td>Mode           1           1           2           2           1           1           1           1           0BL=1.5           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           0           1           1</td><td>rate 5 Othe -2 -3</td><td>Strong           0           0           3           1.5           1.5           1.5           1.5           1.5           1.5</td><td>SCORE 2 3 0 0 0 0 0 0 0 5 0</td></tr<>	Mode           1           1           2           2           1           1           1           1           0BL=1.5           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           0           1           1	rate 5 Othe -2 -3	Strong           0           0           3           1.5           1.5           1.5           1.5           1.5           1.5	SCORE 2 3 0 0 0 0 0 0 0 5 0
<ul> <li>C. Biology (Subtotal = 5.5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abu</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other</li> </ul>	Indance)	Absent 3 0 0 0 0 0 FAC of manual. Bank Heig Bankfull W	Weak           2           1           0.5 <tr< td=""><td>Mode 1 1 2 2 1 1 1 DBL=1.5 1 S) 0 C</td><td>rate 5 Othe -2 -3</td><td>Strong           0           0           3           1.5           1.5           1.5           1.5           1.5           1.5</td><td>SCORE 2 3 0 0 0 0 0 0 0 5 0</td></tr<>	Mode 1 1 2 2 1 1 1 DBL=1.5 1 S) 0 C	rate 5 Othe -2 -3	Strong           0           0           3           1.5           1.5           1.5           1.5           1.5           1.5	SCORE 2 3 0 0 0 0 0 0 0 5 0

Date: Jul 10, 2019       Project/Site: Jones Ferry Road Site       Latitude: 35.8         Evaluator:       Sean Clark       County: Chatham       Longitude: -7         Total Points:       Stream is at least intermittent if ≥19 or perennial if ≥30       Stream Determination: Perennial       Other: e.g. Quad Nar         A. Geomorphology (Subtotal = 16)       Absent       Weak       Moderate       Strong	9.163118
Total Points: Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30$ Stream Determination: PerennialOther: e.g. Quad NauA. Geomorphology (Subtotal = 16)AbsentWeakModerateStrong	
Stream is at least intermittent if $\geq 19 \text{ or perennial if } \geq 30$ Stream Determination: PerennialOther: e.g. Quad NatA. Geomorphology (Subtotal = 16)AbsentWeakModerateStrong	ne:
	SCORE
1 <sup>a</sup> . Continuous bed and bank0123	3
2. Sinuosity of channel along thalweg0123	2
3. In-Channel structure: ex. riffle-pool, step-pool, ripple- pool sequence 0 1 2 3	3
4. Particle size of stream substrate0123	1
5. Active/relic floodplain0123	1
6. Depositional bars or benches0123	2
7. Recent alluvial deposits0123	1
8. Headcuts 0 1 2 3	1
9. Grade controls 0 0.5 1 1.5	1
10. Natural valley         0         0.5         1         1.5	1
11. Second or greater order channelNo = 0Yes = 3	0
<sup>a</sup> artificial ditches are not rated; see discussions in manual.	CODE
B. Hydrology (Subtotal =8.5) Absent Weak Moderate Strong	SCORE
12. Presence of Baseflow012313. Iron oxidizing bacteria0123	2
13. Iron oxidizing bacteria         0         1         2         3           14. Leaflitter         1.5         1         0.5         0	1 1.5
14. Learning         1.5         1         0.5         0           15. Sediment on plants or debris         0         0.5         1         1.5	0.5
13. Gediment on plants of debris         0         0.5         1         1.5           16. Organic debris lines or piles         0         0.5         1         1.5	0.5
10. Organic debris intes of piles00.5117. Soil-based evidence of high water table?No = 0Yes = 3	3
	5
C. Biology (Subtotal = $10$ ) Absent Weak Moderate Strong	SCORE
18. Fibrous roots in streambed3210	2
19. Rooted upland plants in streambed3210	3
20. Macrobenthos (note diversity and abundance)0123	2
21. Aquatic Mollusks         0         1         2         3	0
22. Fish 0 0.5 1 1.5	0
23. Crayfish 0 0.5 1 1.5	1
24. Amphibians         0         0.5         1         1.5	1.5
25. Algae 0 0.5 1 1.5	0.5
26. Wetland plants in streambed       FACW=0.75; OBL=1.5 Other=0         *perennial stream may also be identified using other methods. See p.35 of manual.	0
Notes: Bank Height (feet) 2-4	
This form was completed immediately following the USACE/ Bankfull Width (feet) 2-5	
Chatham County site meeting on July 10, 2019. At this time pools Water Depth (inches) 0.5-5	
frogs, and crayfish. Channel Substrate Sand Velocity: Slow	

		ion 4.11				Stream	
Date: Mar 22, 2019	Project/Site	e:Jones Ferr	y Road Site	e	Latit	ude: 35.86	3821
Evaluator: David Gainey	County: Ch	atham			Long	gitude:-79	.163065
Total Points:4.5Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30$		termination meral	:		Othe	er: Quad Narr	ie:
A. Geomorphology (Subtotal $=3.5$ )		Absent	Weak	Mode	rate	Strong	SCORE
1 <sup>a</sup> . Continuous bed and bank		0	1	2		3	0
2. Sinuosity of channel along thalweg		0	1	2		3	0
<ol> <li>In-Channel structure: ex. riffle-pool, step-pool sequence</li> </ol>	pool, ripple-	0	1	2		3	0
4. Particle size of stream substrate		0	1	2		3	0
5. Active/relic floodplain		0	1	2		3	1
6. Depositional bars or benches		0	1	2		3	0
7. Recent alluvial deposits		0	1	2		3	1
8. Headcuts		0	1	2		3	0
9. Grade controls		0	0.5	1		1.5	1
10. Natural valley		0	0.5	1		1.5	0.5
11. Second or greater order channel		No =	= 0		Yes = 3		0
<sup>a</sup> artificial ditches are not rated; see discussions in manu	al.					<u>.</u>	
B. Hydrology (Subtotal =1)		Absent	Weak	Mode	rate	Strong	SCORE
12. Presence of Baseflow		0	1	2		3	0
13. Iron oxidizing bacteria		0	1	2		3	-
14. Leaflitter						3	0
		1.5	1	0.		0	0
15. Sediment on plants or debris		0	1 0.5	0.: 1	5	0 1.5	0
16. Organic debris lines or piles		0 0	0.5	1	5	0 1.5 1.5	0 0.5 0.5
	,	0	0.5	1	5	0 1.5 1.5	0 0.5
16. Organic debris lines or piles		0 0	0.5	1	5 Yes =	0 1.5 1.5	0 0.5 0.5 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 0)</li> <li>18. Fibrous roots in streambed</li> </ul>		0 0 No = <b>Absent</b> 3	0.5 = 0 Weak 2	1	5 Yes =	0 1.5 1.5 3	0 0.5 0.5
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 0)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> </ul>		0 0 No = <b>Absent</b> 3 3	0.5 = 0 Weak 2 2	1 1 Mode 1 1	5 Yes = erate	0 1.5 1.5 3 <b>Strong</b> 0 0	0 0.5 0.5 0 <b>SCORE</b> 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 0)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abundation)</li> </ul>		0 0 No = Absent 3 3 0	0.5 = 0 <b>Weak</b> 2 2 1	1 1 Mode 1 1 2	5 Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 3	0 0.5 0.5 0 <b>SCORI</b> 0
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 0)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abunda 21. Aquatic Mollusks</li> </ol>		0 0 No = Absent 3 3 0 0	0.5 = 0 <b>Weak</b> 2 2 1 1	1 1 Mode 1 1	5 Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 3	0 0.5 0.5 0 0 <b>SCORE</b> 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 0)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> </ul>		0 0 No = <b>Absent</b> 3 0 0 0	0.5 = 0 <b>Weak</b> 2 2 1 1 0.5	1 1 Mode 1 1 2	5 Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 3 1.5	0 0.5 0.5 0 0 <b>SCORE</b> 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 0)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> </ul>		0 0 No = <b>Absent</b> 3 3 0 0 0 0 0	0.5 = 0 <b>Weak</b> 2 2 1 1 0.5 0.5	1 1 Mode 1 1 2	5 Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5	0 0.5 0.5 0 0 <b>SCORE</b> 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 0)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> </ul>		0 0 No = <b>Absent</b> 3 3 0 0 0 0 0 0	0.5 = 0 <b>Weak</b> 2 2 1 1 0.5 0.5 0.5	1 1 1 1 1 1 2 2 1 1 1 1 1	5 Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 0 3 1.5 1.5 1.5 1.5	0 0.5 0.5 0 0 <b>SCORE</b> 0 0 0 0 0 0 0 0 0
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 0)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abunda</li> <li>Aquatic Mollusks</li> <li>Fish</li> <li>Crayfish</li> <li>Amphibians</li> <li>Algae</li> </ol>		0 0 No = <b>Absent</b> 3 3 0 0 0 0 0 0 0 0 0 0	0.5 = 0 <b>Weak</b> 2 2 1 1 0.5 0.5 0.5 0.5	1 1 1 1 1 1 2 2 2 1 1 1 1 1 1	5 Yes = erate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0 0.5 0.5 0 0 <b>SCORE</b> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 0)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> </ul>	ance)	0 0 No = <b>Absent</b> 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 = 0 <b>Weak</b> 2 2 1 1 0.5 0.5 0.5	1 1 1 1 1 1 2 2 2 1 1 1 1 1 1	5 Yes = erate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0 0.5 0.5 0 0 <b>SCORE</b> 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 0)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other met</li> </ul>	ance)	0 0 No = <b>Absent</b> 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 = 0 <b>Weak</b> 2 2 1 1 0.5 0.5 0.5 0.5 W=0.75; 0	1 1 1 1 1 1 2 2 1 1 1 1 0BL=1.5	5 Yes = erate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0 0.5 0.5 0 0 <b>SCORE</b> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 0)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abunda</li> <li>Aquatic Mollusks</li> <li>Fish</li> <li>Crayfish</li> <li>Amphibians</li> <li>Algae</li> <li>Wetland plants in streambed</li> </ol>	ance)	0 0 No = 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 = 0 <b>Weak</b> 2 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C	1 1 1 1 1 2 2 1 1 1 1 0BL=1.5	5 Yes = erate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0 0.5 0.5 0 0 <b>SCORE</b> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 0)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other met</li> </ul>	ance)	0 0 No = Absent 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 = 0 Weak 2 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C wht (feet)	1 1 1 1 1 2 2 2 1 1 1 1 1 0 BL=1.5	5 Yes = erate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0 0.5 0.5 0 0 <b>SCORE</b> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 0)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other met</li> </ul>	ance)	0 0 No = Absent 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 = 0 Weak 2 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C w=0.75; C	1           1           1           1           1           1           2           2           1	5 Yes = erate 5 Othe	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0 0.5 0.5 0 0 <b>SCORE</b> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 0)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other met</li> </ul>	ance)	0 0 No = Absent 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 = 0 Weak 2 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C w=0.75; C	1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           1           0           NBL=1.5           0           N           S)         0           C	5 Yes = erate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0 0.5 0.5 0 0 <b>SCORE</b> 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

		ion 4.11				Stream	Form E1
<b>Date</b> : Mar 21, 2019	Project/Site	e: Jones Ferr	y Road Site	;	Latit	<b>ude:</b> 36.86	3836
Evaluator: Sean Clark	County: Ch	atham			Long	gitude:-79	.166381
Total Points:Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30$	Stream Det N/A	termination	:		Othe e.g.	er: Quad Nam	e:
A. Geomorphology (Subtotal $=5.5$ )		Absent	Weak	Mode	rate	Strong	SCORE
1 <sup>a</sup> . Continuous bed and bank		0	1	2		3	0
2. Sinuosity of channel along thalweg		0	1	2		3	1
3. In-Channel structure: ex. riffle-pool, step-	pool, ripple-	0	1	2		3	1
pool sequence		0	4	0		0	0
4. Particle size of stream substrate		0	1	2		3	0
5. Active/relic floodplain		0	1	2		3	0
6. Depositional bars or benches		0	1	2		3	-
7. Recent alluvial deposits		0	1	2		3	1
8. Headcuts		0	1	2		3	1
9. Grade controls		0	0.5	1		1.5	1
10. Natural valley		0	0.5	1		1.5	0.5
11. Second or greater order channel		No =	= 0		Yes =	= 3	0
<sup>a</sup> artificial ditches are not rated; see discussions in manu	al.						
B. Hydrology (Subtotal $=2.5$ )		Absent	Weak	Mode	rate	Strong	SCORE
12. Presence of Baseflow		0	1	2		3	0
13. Iron oxidizing bacteria		0	1	2		3	0
14. Leaflitter		1.5	1	0.	5	0	1.5
15. Sediment on plants or debris		0	0.5	1		1.5	
16. Organic debris lines or piles		0	0.5	1			0.5
17. Soil-based evidence of high water table?	)					1.5	0.5 0.5
		No =	= 0		Yes =		
C Biology (Subtotal = 1)			T		Yes =	3	0.5 0
C. Biology (Subtotal = 1)		Absent	Weak	Mode	Yes =	3 Strong	0.5 0 SCORE
18. Fibrous roots in streambed		Absent 3	Weak 2	Mode 1	Yes =	3 Strong 0	0.5 0 SCORE 0
<ol> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> </ol>		Absent 3 3	<b>Weak</b> 2 2	<b>Mode</b> 1	Yes =	3 Strong 0 0	0.5 0 SCORE 0 1
<ol> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> </ol>		Absent 3 3 0	Weak           2           2           1	<b>Mode</b> 1 1 2	Yes =	3 Strong 0 0 3	0.5 0 SCORE 0 1 0
<ol> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abund</li> <li>Aquatic Mollusks</li> </ol>		Absent           3           0           0	Weak           2           2           1	<b>Mode</b> 1	Yes =	3 Strong 0 0 3 3 3	0.5 0 SCORE 0 1 0 0
<ul> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> </ul>		Absent           3           0           0           0           0	Weak           2           2           1           0.5	Mode 1 1 2 2	Yes =	3 Strong 0 0 3 3 1.5	0.5 0 SCORE 0 1 0 0 0 0
<ol> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> </ol>		Absent           3           0           0           0           0           0           0	Weak           2           2           1           0.5	Mode 1 1 2 2 1	Yes =	3 Strong 0 0 3 3 1.5 1.5	0.5 0 SCORE 0 1 0 0 0 0 0
<ol> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abund</li> <li>Aquatic Mollusks</li> <li>Fish</li> <li>Crayfish</li> <li>Amphibians</li> </ol>		Absent           3           0           0           0           0	Weak           2           1           0.5           0.5	Mode 1 2 2 1 1	Yes =	3 Strong 0 0 3 1.5 1.5 1.5 1.5	0.5 0 SCORE 0 1 0 0 0 0 0 0 0
<ul> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> </ul>		Absent           3           0           0           0           0           0           0           0           0           0           0           0           0           0	Weak           2           1           0.5           0.5           0.5           0.5	Mode 1 2 2 1 1 1 1 1	Yes =	3 Strong 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0.5 0 SCORE 0 1 0 0 0 0 0 0 0 0 0
<ol> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abund</li> <li>Aquatic Mollusks</li> <li>Fish</li> <li>Crayfish</li> <li>Amphibians</li> </ol>	ance)	Absent           3           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           FAC	Weak           2           1           0.5           0.5	Mode 1 2 2 1 1 1 1 1	Yes =	3 Strong 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0.5 0 SCORE 0 1 0 0 0 0 0 0 0
<ul> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other met</li> </ul>	ance)	Absent           3           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           FAC	Weak           2           1           0.5           0.5           0.5           0.5           0.5	Mode 1 1 2 2 1 1 1 0BL=1.5	Yes =	3 Strong 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0.5 0 SCORE 0 1 0 0 0 0 0 0 0 0 0
<ul> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other meters</li> </ul>	ance)	Absent 3 0 0 0 0 0 0 FAC of manual. Bank Heig	Weak           2           1           0.5           0.5           0.5           0.5           0.5           0.5           0.5           0.5           0.5	Mode 1 1 2 2 1 1 1 DBL=1.5	Yes = erate	3 Strong 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0.5 0 SCORE 0 1 0 0 0 0 0 0 0 0 0
<ul> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other met</li> </ul>	ance)	Absent 3 0 0 0 0 0 FAC of manual. Bank Heig Bankfull W	Weak           2           1           0.5 <tr< td=""><td>Mode 1 1 2 2 1 1 1 0 BL=1.5 0 0 0 0</td><td>Yes = <b>Frate</b> 5 Other -0.5 -5</td><td>3 Strong 0 0 3 3 1.5 1.5 1.5 1.5 1.5</td><td>0.5 0 SCORE 0 1 0 0 0 0 0 0 0 0 0</td></tr<>	Mode 1 1 2 2 1 1 1 0 BL=1.5 0 0 0 0	Yes = <b>Frate</b> 5 Other -0.5 -5	3 Strong 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0.5 0 SCORE 0 1 0 0 0 0 0 0 0 0 0
<ul> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other met</li> </ul>	ance)	Absent 3 0 0 0 0 0 FAC of manual. Bank Heig Bankfull M Water Dep	Weak           2           1           0.5 <tr< td=""><td>Mode 1 1 2 2 1 1 1 0 BL=1.5 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>Yes = <b>Frate</b> 5 Other -0.5 -5</td><td>3 Strong 0 0 3 3 1.5 1.5 1.5 1.5 1.5</td><td>0.5 0 SCORE 0 1 0 0 0 0 0 0 0 0 0</td></tr<>	Mode 1 1 2 2 1 1 1 0 BL=1.5 0 0 0 0 0 0 0 0 0 0 0 0 0	Yes = <b>Frate</b> 5 Other -0.5 -5	3 Strong 0 0 3 3 1.5 1.5 1.5 1.5 1.5	0.5 0 SCORE 0 1 0 0 0 0 0 0 0 0 0
<ul> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other met</li> </ul>	ance)	Absent 3 0 0 0 0 0 FAC of manual. Bank Heig Bankfull W	Weak           2           1           0.5 <tr< td=""><td>Mode 1 1 2 2 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>Yes = <b>Prate</b> 5 Other -0.5 -5</td><td>3 Strong 0 0 3 1.5 1.5 1.5 1.5 1.5 1.5 er=0</td><td>0.5 0 SCORE 0 1 0 0 0 0 0 0 0 0 0</td></tr<>	Mode 1 1 2 2 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	Yes = <b>Prate</b> 5 Other -0.5 -5	3 Strong 0 0 3 1.5 1.5 1.5 1.5 1.5 1.5 er=0	0.5 0 SCORE 0 1 0 0 0 0 0 0 0 0 0

NC DWQ Stream Identification F	Form Versi	on 4.11				Stream	Form E2
Date: Mar 21, 2019	Project/Site	e: Jones Ferr	y Road Site	;	Latit	ude: 36.86	3573
Evaluator: Sean Clark	County: Ch	atham			Long	gitude:-79	.166264
Total Points:Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30$	Stream Det N/A	ermination	:		Othe e.g.	er: Quad Narr	ne:
A. Geomorphology (Subtotal $=4.5$ )		Absent	Weak	Mode	erate	Strong	SCORE
1 <sup>ª</sup> . Continuous bed and bank		0	1	2		3	0
2. Sinuosity of channel along thalweg		0	1	2		3	0
3. In-Channel structure: ex. riffle-pool, step-p pool sequence	ool, ripple-	0	1	2		3	1
4. Particle size of stream substrate		0	1	2		3	0
5. Active/relic floodplain		0	1	2		3	1
6. Depositional bars or benches		0	1	2		3	0
7. Recent alluvial deposits		0	1	2		3	0
8. Headcuts		0	1	2		3	1
9. Grade controls		0	0.5	1		1.5	0.5
10. Natural valley		0	0.5	1		1.5	1
11. Second or greater order channel		No :	= 0		Yes =	= 3	0
<sup>a</sup> artificial ditches are not rated; see discussions in manua	al.						
B. Hydrology (Subtotal $=3$ )		Absent	Weak	Mode	erate	Strong	SCORE
12. Presence of Baseflow		0	1	2		3	0
13. Iron oxidizing bacteria		0	1	2		3	0
14. Leaflitter		1.5	1	0.	5	0	1.5
15. Sediment on plants or debris		0	0.5	1		1.5	1
16. Organic debris lines or piles		0	0.5	1		1.5	0.5
17. Soil-based evidence of high water table?		No :	= 0	,	Yes =	3	0
C Piology (Subtotal 1)		A				0	00005
C. Biology (Subtotal = 1) 18. Fibrous roots in streambed		Absent 3	Weak 2	Mode	erate	Strong 0	SCORE
19. Rooted upland plants in streambed		3	2	1		0	0
20. Macrobenthos (note diversity and abunda		0	1	2		3	0
21. Aquatic Mollusks		0	1	2		3	0
22. Fish		0	0.5	1		1.5	0
23. Crayfish		0	0.5	1		1.5	0
24. Amphibians		0	0.5	1		1.5	0
25. Algae		0	0.5	1		1.5	0
26. Wetland plants in streambed		FAC	W=0.75; C	)BL=1.5	5 Othe		0
*perennial stream may also be identified using other meth	hods. See p.35 c		, -			-	
Notes:		Bank Heig	ght (feet)	C	).5-1		
area evaluated during and at the end of a rain event	t	Bankfull V	vidth (feet)		-3		
		Water De	oth (inches		2-6		
		Channel S	Substrate	C	lay		
		Velocity:		N	lodera	te	
		Clarity:		T	urbid		

		ion 4.11				Stream	
<b>Date</b> : Mar 21, 2019	Project/Site	e:Jones Ferr	y Road Site	e	Latit	<b>ude:</b> 36.86	285
Evaluator: Sean Clark	County: Ch	atham			Long	gitude:-79	.166013
Total Points:21.5Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30$		termination nittent	:		<b>Other:</b> e.g. Quad Name:		
A. Geomorphology (Subtotal = $10$ )		Absent	Weak	Mode	rate	Strong	SCORE
1 <sup>a</sup> . Continuous bed and bank		0	1	2		3	2
2. Sinuosity of channel along thalweg		0	1	2		3	1
<ol> <li>In-Channel structure: ex. riffle-pool, step- pool sequence</li> </ol>	pool, ripple-	0	1	2		3	2
4. Particle size of stream substrate		0	1	2		3	1
5. Active/relic floodplain		0	1	2		3	1
6. Depositional bars or benches		0	1	2		3	0
7. Recent alluvial deposits		0	1	2		3	0
8. Headcuts		0	1	2		3	1
9. Grade controls		0	0.5	1		1.5	1
10. Natural valley		0	0.5	1		1.5	1
11. Second or greater order channel		No =	= 0		Yes =	= 3	0
<sup>a</sup> artificial ditches are not rated; see discussions in manu	ual.			-		-	
B. Hydrology (Subtotal $=6.5$ )		Absent	Weak	Mode	rate	Strong	SCORE
12. Presence of Baseflow		0	1	2		3	0
13. Iron oxidizing bacteria		0	1	2		3	0
14. Leaflitter						Ŭ	0
15. Sediment on plants or debris		1.5	1	0.5	5	0	0 1.5
		1.5 0	0.5	1	5	0 1.5	Ę
16. Organic debris lines or piles		0 0	0.5 0.5	1		0 1.5 1.5	1.5 1 1
	?	0	0.5 0.5	1	5 Yes =	0 1.5 1.5	1.5 1
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> </ul>	?	0 0	0.5 0.5	1	Yes =	0 1.5 1.5	1.5 1 1
<ul><li>16. Organic debris lines or piles</li><li>17. Soil-based evidence of high water table?</li></ul>	?	0 0 No =	0.5 0.5 = 0	1	Yes =	0 1.5 1.5 3	1.5 1 1 3
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 5)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> </ol>		0 0 No = <b>Absent</b> 3 3	0.5 0.5 = 0 <b>Weak</b> 2 2 2	1 1 	Yes =	0 1.5 1.5 3 <b>Strong</b> 0 0	1.5 1 1 3 SCORE
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 5)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abund</li> </ol>		0 0 No = Absent 3 3 0	0.5 0.5 = 0 <b>Weak</b> 2 2 1	1 1 Mode 1 1 2	Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 3	1.5 1 1 3 <b>SCORE</b> 2
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 5)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abund 21. Aquatic Mollusks</li> </ol>		0 0 No = <b>Absent</b> 3 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 1 1	1 1 	Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 3 3 3	1.5 1 1 3 <b>SCORE</b> 2 3 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> </ul>		0 0 No = <b>Absent</b> 3 3 0 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 1 1 1 0.5	1 1 1 1 1 1 2 2 2 1	Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5	1.5 1 1 3 <b>SCORE</b> 2 3 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> </ul>		0 0 No = <b>Absent</b> 3 3 0 0 0 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 1 1 0.5 0.5	1 1 1 1 1 1 2 2 1 1 1	Yes = rate	0 1.5 1.5 3 Strong 0 0 0 3 3 1.5 1.5	1.5 1 1 3 <b>SCORE</b> 2 3 0 0 0 0 0 0
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 5)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abund</li> <li>Aquatic Mollusks</li> <li>Fish</li> <li>Crayfish</li> <li>Amphibians</li> </ol>		0 0 No = Absent 3 3 0 0 0 0 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 2 1 1 1 0.5 0.5 0.5	1 1 1 1 1 1 2 2 2 1 1 1 1	Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 0 3 1.5 1.5 1.5 1.5	1.5 1 1 3 SCORE 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> </ul>		0 0 No = <b>Absent</b> 3 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 1 1 1 0.5 0.5 0.5 0.5	1 1 1 1 1 1 2 2 2 1 1 1 1 1 1	Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	1.5 1 1 3 <b>SCORE</b> 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 5)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abund</li> <li>Aquatic Mollusks</li> <li>Fish</li> <li>Crayfish</li> <li>Amphibians</li> </ol>	ance)	0 0 No = Absent 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 2 1 1 1 0.5 0.5 0.5	1 1 1 1 1 1 2 2 2 1 1 1 1 1 1	Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	1.5 1 1 3 SCORE 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other me</li> </ul>	ance)	0 0 No = 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 Weak 2 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C	1 1 1 1 1 1 2 2 2 1 1 1 1 0BL=1.5	Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	1.5 1 1 3 <b>SCORE</b> 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other me</li> </ul>	lance) thods. See p.35 d	0 0 No = 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 Weak 2 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C	1 1 1 1 1 1 2 2 1 1 1 1 0BL=1.5	Yes = rate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	1.5 1 1 3 <b>SCORE</b> 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other me</li> </ul>	lance) thods. See p.35 d	0 0 No = Absent 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 Weak 2 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C pht (feet) /idth (feet)	1 1 1 1 1 1 2 2 2 1 1 1 1 1 0BL=1.5	Yes = rate 5 Othe -2 -3	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	1.5 1 1 3 <b>SCORE</b> 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other me</li> </ul>	lance) thods. See p.35 d	0 0 No = Absent 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 Weak 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C wt (feet) /idth (feet) /idth (feet)	1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         0BL=1.5         1	Yes = rate 5 Othe -2 -3 -6	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5	1.5 1 1 3 <b>SCORE</b> 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other me</li> </ul>	lance) thods. See p.35 d	0 0 No = Absent 3 3 0 0 0 0 0 0 0 0 0 0 5 FAC of manual. Bank Heig Bankfull W Water Dep Channel S	0.5 0.5 = 0 Weak 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C wt (feet) /idth (feet) /idth (feet)	1 1 1 1 1 1 2 2 2 1 1 1 1 0 BL=1.5	Yes = rate 5 Othe -2 -3 -6 lay	0 1.5 1.5 3 Strong 0 0 0 3 1.5 1.5 1.5 1.5 1.5 er=0	1.5 1 1 3 <b>SCORE</b> 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5_)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abund</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other me</li> </ul>	lance) thods. See p.35 d	0 0 No = Absent 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 Weak 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C wt (feet) /idth (feet) /idth (feet)	1 1 1 1 1 1 2 2 2 1 1 1 1 0 BL=1.5 1 0 BL=1.5 0 8 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Yes = rate 5 Othe -2 -3 -6	0 1.5 1.5 3 Strong 0 0 0 3 1.5 1.5 1.5 1.5 1.5 er=0	1.5 1 1 3 <b>SCORE</b> 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0

NC DWQ Stream Identification Fo	rm Versi	on 4.11				Stream	Form F1
		Jones Ferr	y Road Site	è	Latit	<b>ude:</b> 35.86	2734
Evaluator: Sean Clark C	county: Cha	atham			Long	gitude:-79	.166927
Total Points: Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30$ 25	itream Det	ermination hittent	:		Othe e.g.	er: Quad Narr	ne:
A. Geomorphology (Subtotal = $\frac{15.5}{100}$ )		Absent	Weak	Mode	erate	Strong	SCORE
1 <sup>a</sup> . Continuous bed and bank		0	1	2		3	2
2. Sinuosity of channel along thalweg		0	1	2		3	1
3. In-Channel structure: ex. riffle-pool, step-poo pool sequence	ol, ripple-	0	1	2		3	2
4. Particle size of stream substrate		0	1	2		3	2
5. Active/relic floodplain		0	1	2		3	2
6. Depositional bars or benches		0	1	2		3	1
7. Recent alluvial deposits		0	1	2		3	1
8. Headcuts		0	1	2		3	0
9. Grade controls		0	0.5	1		1.5	0
10. Natural valley		0	0.5	1		1.5	1.5
11. Second or greater order channel		No =	= 0		Yes =	= 3	3
<sup>a</sup> artificial ditches are not rated; see discussions in manual.							
B. Hydrology (Subtotal $=5.5$ )		Absent	Weak	Mode	rato	Strong	SCORE
12. Presence of Baseflow		0	1	2		3	0
13. Iron oxidizing bacteria		0	1	2		3	0
14. Leaflitter		1.5	1	0.		0	1.5
15. Sediment on plants or debris		0	0.5	1		1.5	0.5
16. Organic debris lines or piles		0	0.5	1		1.5	0.5
17. Soil-based evidence of high water table?		No =			Yes =		3
		110	- 0	1	100 -		0
C. Biology (Subtotal = $4$ )		Absent	Weak	Mode	erate	Strong	SCORE
18. Fibrous roots in streambed		3	2	1		0	2
19. Rooted upland plants in streambed		3	2	1		0	2
20. Macrobenthos (note diversity and abundance	e)	0	1	2		3	0
21. Aquatic Mollusks		0	1	2		3	0
22. Fish		0	0.5	1		1.5	0
23. Crayfish		0	0.5	1		1.5	0
24. Amphibians		0	0.5	1		1.5	0
25. Algae		0	0.5	1		1.5	0
<ul><li>25. Algae</li><li>26. Wetland plants in streambed</li></ul>		FAC	0.5 W=0.75; C			•	0 0
25. Algae	ls. See p.35 o	FAC				•	
<ul> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other method</li> </ul>	ls. See p.35 o	FAC' f manual.	W=0.75; C	DBL=1.	5 Othe	•	
<ul><li>25. Algae</li><li>26. Wetland plants in streambed</li></ul>		FAC f manual. Bank Heig	W=0.75; C	DBL=1.		•	
25. Algae 26. Wetland plants in streambed *perennial stream may also be identified using other method Notes: This section of stream was evaluated in the Summer a when no water was present in this section of stream. T	t a time here were	FAC f manual. Bank Heig Bankfull W	W=0.75; C pht (feet) /idth (feet)	DBL=1.5	5 Othe 0.5-3 2-4	•	
25. Algae 26. Wetland plants in streambed *perennial stream may also be identified using other method Notes: This section of stream was evaluated in the Summer a when no water was present in this section of stream. T some areas where rooted upland plants existed in the	t a time here were stream bed	FAC f manual. Bank Heig Bankfull W Water Dep	W=0.75; C ht (feet) /idth (feet) oth (inches	DBL=1.5	5 Othe 0.5-3 2-4	•	
25. Algae 26. Wetland plants in streambed *perennial stream may also be identified using other method Notes: This section of stream was evaluated in the Summer a when no water was present in this section of stream. T	t a time here were stream bed s form was	FAC f manual. Bank Heig Bankfull W	W=0.75; C ht (feet) /idth (feet) oth (inches	0BL=1.5	5 Othe 0.5-3 2-4	•	

NC DWQ Stream Identification F	orm Versi	on 4.11				Stream	Form F2
Date: Jul 10, 2019	Project/Site	:Jones Ferr	y Road Site	9	Latit	ude: 35.86	2747
Evaluator: Sean Clark	County: Cha	atham			Long	gitude:- <sup>79</sup>	.165658
Total Points:Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30$	Stream Det Peren		:		Othe e.g.	er: Quad Nam	ne:
A. Geomorphology (Subtotal = $19.5$ )		Absent	Weak	Mode	erate	Strong	SCORE
1 <sup>a</sup> . Continuous bed and bank		0	1	2		3	2
2. Sinuosity of channel along thalweg		0	1	2		3	2
<ol> <li>In-Channel structure: ex. riffle-pool, step-p pool sequence</li> </ol>	ool, ripple-	0	1	2		3	2
4. Particle size of stream substrate		0	1	2		3	2
5. Active/relic floodplain		0	1	2		3	3
6. Depositional bars or benches		0	1	2		3	2
7. Recent alluvial deposits		0	1	2		3	1
8. Headcuts		0	1	2		3	1
9. Grade controls		0	0.5	1		1.5	0
10. Natural valley		0	0.5	1		1.5	1.5
11. Second or greater order channel		No :	= 0		Yes =	= 3	3
<sup>a</sup> artificial ditches are not rated; see discussions in manua	I.						
B. Hydrology (Subtotal =7.5)		Absent	Weak	Mode	erate	Strong	SCORE
12. Presence of Baseflow		0	1	2		3	1
13. Iron oxidizing bacteria		0	1	2		3	1
14. Leaflitter		1.5	1	0.	5	0	1.5
15. Sediment on plants or debris		0	0.5	1		1.5	0.5
16. Organic debris lines or piles		0	0.5	1		1.5	0.5
17. Soil-based evidence of high water table?		No :	= 0		Yes =	3	3
C. Biology (Subtotal $= 8$ )		Absent	Weak	Mode	rate	Strong	SCORE
18. Fibrous roots in streambed		3	2	1		0	2
19. Rooted upland plants in streambed		3	2	1		0	3
20. Macrobenthos (note diversity and abunda	nce)	0	1	2		3	1
21. Aquatic Mollusks	,	0	1	2		3	0
22. Fish		0	0.5	1		1.5	0
23. Crayfish		0	0.5	1		1.5	0.5
24. Amphibians		0	0.5	1		1.5	1
25. Algae		0	0.5	1		1.5	0.5
26. Wetland plants in streambed			W=0.75; C	DBL=1.	5 Othe	er=0	0
*perennial stream may also be identified using other meth	ods. See p.35 o	of manual.					
Notes:		Bank Heig	ht (feet)	1	-3		
This section of stream was evaluated in the Summer	<sup>-</sup> at a time	Bankfull V			2-4		
when water was present in pools and sometimes in s	( )	Water De			)-8		
trickels. This form was completed immediately after t	the USACE/	Channel S			lay		
Chatham Co. site mtg.		Velocity:			low		
		Clarity:				Turbid	
		- ,					

		ion 4.11				Stream		
Date: Jul 10, 2019	Project/Site	e: Jones Ferr	y Road Site	e	Latit	<b>ude:</b> 35.86	1848	
Evaluator: Sean Clark	County: Ch	atham			Long	gitude:- <sup>79</sup>	.163736	
Total Points:27.5Stream is at least intermittent if $\geq 19$ or perennial if $\geq 30$	Stream Det	<b>ermination</b> nittent	:		Other: e.g. Quad Name:			
A. Geomorphology (Subtotal = $17.5$ )		Absent	Weak	Mode	erate	Strong	SCORE	
1 <sup>a</sup> . Continuous bed and bank		0	1	2		3	3	
2. Sinuosity of channel along thalweg		0	1	2		3	2	
<ol> <li>In-Channel structure: ex. riffle-pool, step- pool sequence</li> </ol>	pool, ripple-	0	1	2		3	2	
4. Particle size of stream substrate		0	1	2		3	2	
5. Active/relic floodplain		0	1	2		3	2	
6. Depositional bars or benches		0	1	2		3	1	
7. Recent alluvial deposits		0	1	2		3	1	
8. Headcuts		0	1	2		3	0	
9. Grade controls		0	0.5	1		1.5	0	
10. Natural valley		0	0.5	1		1.5	1.5	
11. Second or greater order channel		No =	= 0		Yes =	3		
<sup>a</sup> artificial ditches are not rated; see discussions in manu	ial.							
B. Hydrology (Subtotal =5)		Absent	Weak	Mode	erate	Strong	SCORE	
12. Presence of Baseflow		0	1	2		3	0	
13. Iron oxidizing bacteria		0	1	2		3	0	
14. Leaflitter				1			0	
		1.5	1	0.	5	0	1	
15. Sediment on plants or debris		0	0.5	0.		0 1.5	1 0.5	
16. Organic debris lines or piles		0 0	0.5 0.5	1		0 1.5 1.5	1 0.5 0.5	
	)	0	0.5 0.5	1		0 1.5 1.5	1 0.5	
16. Organic debris lines or piles	)	0 0	0.5 0.5	1	Yes =	0 1.5 1.5	1 0.5 0.5	
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> </ul>	)	0 0 No = <b>Absent</b> 3	0.5 0.5 = 0 Weak 2	1	Yes =	0 1.5 1.5 3	1 0.5 0.5 3	
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> </ul>		0 0 No = <b>Absent</b> 3 3	0.5 0.5 = 0 <b>Weak</b> 2 2 2	1 1 Mode 1	Yes = erate	0 1.5 1.5 3 <b>Strong</b> 0 0	1 0.5 0.5 3 <b>SCORE</b>	
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abundation)</li> </ul>		0 0 No = <b>Absent</b> 3 3 0	0.5 0.5 = 0 <b>Weak</b> 2 2 1	1 1 Mode 1 1 2	Yes =	0 1.5 1.5 3 <b>Strong</b> 0 0 3	1 0.5 0.5 3 <b>SCORE</b> 1	
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 5_)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abunda 21. Aquatic Mollusks</li> </ol>		0 0 No = <b>Absent</b> 3 3 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 1 1	1 1 Mode 1 1 2 2	Yes =	0 1.5 1.5 3 <b>Strong</b> 0 0 3 3 3	1 0.5 0.5 3 <b>SCORE</b> 1 3 0 0	
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> </ul>		0 0 No = <b>Absent</b> 3 3 0 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 1 1 1 0.5	1 1 1 1 1 2 2 2 1	Yes =	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 3 1.5	1 0.5 0.5 3 <b>SCORE</b> 1 3 0 0 0	
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 5)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abunda</li> <li>Aquatic Mollusks</li> <li>Fish</li> <li>Crayfish</li> </ol>		0 0 No = <b>Absent</b> 3 3 0 0 0 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 1 1 0.5 0.5	1 1 1 1 1 1 2 2 1 1 1	Yes =	0 1.5 1.5 3 Strong 0 0 0 3 3 1.5 1.5	1 0.5 0.5 3 <b>SCORE</b> 1 3 0 0 0 0 0 0	
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> </ul>		0 0 No = <b>Absent</b> 3 3 0 0 0 0 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 2 1 1 1 0.5 0.5 0.5	1 1 1 1 1 2 2 2 1 1 1 1	Yes =	0 1.5 1.5 3 <b>Strong</b> 0 0 0 0 3 3 1.5 1.5 1.5 1.5	1 0.5 0.5 3 <b>SCORE</b> 1 3 0 0 0 0 0 0 0 0.5 0.5	
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 5)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abunda</li> <li>Aquatic Mollusks</li> <li>Fish</li> <li>Crayfish</li> </ol>		0 0 No = <b>Absent</b> 3 0 0 0 0 0 0 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 1 1 0.5 0.5 0.5 0.5	1 1 1 1 1 2 2 2 1 1 1 1 1 1	Yes =	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5 1.5	1 0.5 3 3 <b>SCORE</b> 1 3 0 0 0 0 0 0 0 0 5 0.5 0.5 0	
<ol> <li>Organic debris lines or piles</li> <li>Soil-based evidence of high water table?</li> <li>Biology (Subtotal = 5)</li> <li>Fibrous roots in streambed</li> <li>Rooted upland plants in streambed</li> <li>Macrobenthos (note diversity and abunda</li> <li>Aquatic Mollusks</li> <li>Fish</li> <li>Crayfish</li> <li>Amphibians</li> </ol>	ance)	0 0 No = <b>Absent</b> 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 <b>Weak</b> 2 2 2 1 1 1 0.5 0.5 0.5	1 1 1 1 1 2 2 2 1 1 1 1 1 1	Yes =	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5 1.5	1 0.5 0.5 3 <b>SCORE</b> 1 3 0 0 0 0 0 0 0 0.5 0.5	
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other meters</li> </ul>	ance)	0 0 No = 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 Weak 2 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C	1 1 1 1 1 1 2 2 1 1 1 1 1 0BL=1.5	Yes = erate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5 1.5	1 0.5 3 3 <b>SCORE</b> 1 3 0 0 0 0 0 0 0 0 5 0.5 0.5 0	
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other met</li> <li>Notes:</li> </ul>	ance) thods. See p.35 c	0 0 No = 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 Weak 2 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C	1 1 1 1 1 2 2 1 1 1 1 0BL=1.5	Yes = erate	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5 1.5	1 0.5 0.5 3 <b>SCORE</b> 1 3 0 0 0 0 0 0 0 0 0 5 0.5 0.5	
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other meters</li> </ul>	ance) thods. See p.35 c	0 0 No = 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 Weak 2 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C wht (feet) /idth (feet)	1 1 1 1 1 2 2 1 1 1 1 1 1 0 BL=1.5	Yes = <b>Prate</b> 5 Othe -3 2-4	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5 1.5	1 0.5 0.5 3 <b>SCORE</b> 1 3 0 0 0 0 0 0 0 0 0 5 0.5 0.5 0	
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other met</li> <li>Notes:</li> <li>This section of stream was evaluated in the Summer when water was absent and the stream bed was drives completed immediately after the USACE/Chatter</li> </ul>	ance) thods. See p.35 c er at a time ry. This form	0 0 No = Absent 3 3 0 0 0 0 0 0 0 0 0 0 5 FAC 0 0 0 5 FAC 9 ank Heig Bank Heig Bank full W	0.5 0.5 = 0 Weak 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C whice the free	1 1 1 1 1 1 2 2 2 1 1 1 1 1 1 1 0 BL=1.5	Yes = <b>Prate</b> 2 5 Othe -3 2-4	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5 1.5	1 0.5 3 3 <b>SCORE</b> 1 3 0 0 0 0 0 0 0 0 5 0.5 0.5 0	
<ul> <li>16. Organic debris lines or piles</li> <li>17. Soil-based evidence of high water table?</li> <li>C. Biology (Subtotal = 5)</li> <li>18. Fibrous roots in streambed</li> <li>19. Rooted upland plants in streambed</li> <li>20. Macrobenthos (note diversity and abunda</li> <li>21. Aquatic Mollusks</li> <li>22. Fish</li> <li>23. Crayfish</li> <li>24. Amphibians</li> <li>25. Algae</li> <li>26. Wetland plants in streambed</li> <li>*perennial stream may also be identified using other met</li> <li>Notes:</li> <li>This section of stream was evaluated in the Summer</li> </ul>	ance) thods. See p.35 c er at a time ry. This form	0 0 No = 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5 0.5 = 0 Weak 2 1 1 0.5 0.5 0.5 0.5 W=0.75; C whice the free	1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 0 BL=1.5	Yes = <b>Prate</b> 5 Othe -3 2-4	0 1.5 1.5 3 <b>Strong</b> 0 0 0 3 3 1.5 1.5 1.5 1.5 1.5 1.5	1 0.5 0.5 3 <b>SCORE</b> 1 3 0 0 0 0 0 0 0 0 0 5 0.5 0.5 0	

## WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: Jones Ferry Project/ Sage Proj	ject #: 2019.25	City/County: Chatham		Sampling Date: 3/28/19
Applicant/Owner: Robert Page & Douglas	s Page		State: NC	Sampling Point: WL DP 1
Investigator(s): David Gainey		Section, Township, Range:		
Landform (hillside, terrace, etc.): drainage		cal relief (concave, convex,		Slope (%): 1
Subregion (LRR or MLRA): LRR P, MLRA 13			79.160523°W	Datum: Nad 83
Soil Map Unit Name: Cid-Lignum			NWI classificat	
Are climatic / hydrologic conditions on the site	e tvoical for this time of yea	ar? Yes X		explain in Remarks.)
Are Vegetation, Soil, or Hydrol			Circumstances" present?	
Are Vegetation , Soil , or Hydrol			plain any answers in Re	
SUMMARY OF FINDINGS – Attach			, <u>,</u>	,
Hydrophytic Vegetation Present?	Yes X No	Is the Sampled Area		
	Yes X No	within a Wetland?	Yes X	No
-	Yes X No			
HYDROLOGY				
Wetland Hydrology Indicators:	Later to all that apply)		-	(minimum of two required)
Primary Indicators (minimum of one is requir			Surface Soil Crack	
Surface Water (A1) High Water Table (A2)	True Aquatic Plants ( Hydrogen Sulfide Od		Drainage Patterns	ed Concave Surface (B8)
x Saturation (A3)	X Oxidized Rhizospher		Moss Trim Lines (	
Water Marks (B1)	Presence of Reduced	,	Dry-Season Wate	
Sediment Deposits (B2)		on in Tilled Soils (C6)	Crayfish Burrows	
Drift Deposits (B3)	Thin Muck Surface (0	,	Saturation Visible	on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Rer	marks)	Stunted or Stresse	
Iron Deposits (B5)	-		Geomorphic Posit	
Inundation Visible on Aerial Imagery (B7	)		Shallow Aquitard (	
Water-Stained Leaves (B9) Aquatic Fauna (B13)			Microtopographic X FAC-Neutral Test	· · ·
Field Observations:				(D5)
Surface Water Present? Yes	No X Depth (inche	es).		
Water Table Present? Yes	No Depth (inche			
Saturation Present? Yes X	No Depth (inche		Hydrology Present?	Yes X No
(includes capillary fringe)				
Describe Recorded Data (stream gauge, mo	nitoring well, aerial photos	s, previous inspections), if a	vailable:	
Remarks:				

# VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: WL DP 1

Tree Stratum (Plot size: 0.1 acre )	Absolute % Cover	Dominant	Indicator Status	Dominance Test worksheet:
1. Platanus occidentalis	40	Species? Yes	FACW	
2. Liriodendron tulipifera	40	Yes	FACU	Number of Dominant SpeciesThat Are OBL, FACW, or FAC:3(A)
3.				Total Number of Dominant
4.				Species Across All Strata: 5 (B)
5.				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 60.0% (A/B)
7.				Prevalence Index worksheet:
	80	=Total Cover		Total % Cover of: Multiply by:
50% of total cover: 4	0 20%	of total cover:	16	OBL species 30 x 1 = 30
<u>Sapling/Shrub Stratum</u> (Plot size: 0.1 acre )	)			FACW species 80 x 2 = 160
1. Elaeagnus angustifolia	80	Yes	FACU	FAC species 0 x 3 = 0
2.				FACU species 120 x 4 = 480
3.				UPL species 0 x 5 = 0
4				Column Totals: 230 (A) 670 (B)
5				Prevalence Index = B/A = 2.91
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				X 2 - Dominance Test is >50%
9				X 3 - Prevalence Index is $\leq 3.0^{1}$
	80	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover: 4	0 20%	of total cover:	16	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 0.1 acre )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Woodwardia areolata	30	Yes	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Carex sp.	10	No	FACW	present, unless disturbed or problematic.
3. Saururus cernuus	30	Yes	OBL	Definitions of Four Vegetation Strata:
4				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5				more in diameter at breast height (DBH), regardless of
6				height.
7				Sapling/Shrub – Woody plants, excluding vines, less
8		·		than 3 in. DBH and greater than or equal to 3.28 ft
9		·		(1 m) tall.
10		·		Herb – All herbaceous (non-woody) plants, regardless
11		·		of size, and woody plants less than 3.28 ft tall.
	70	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 3	20%	of total cover:	14	height.
Woody Vine Stratum (Plot size: 0.1 acre )				
1		·		
2		·		
3				
4				
5				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes X No
Remarks: (Include photo numbers here or on a sepa	arate sheet.)			
	,			

SOIL

Profile Desc	ription: (Describe t	o the dep	oth needed to docu	ument ti	he indica	tor or co	onfirm the abse	nce of indicators.)
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-12	10YR 4/2	95	10YR 5/6	5	С	PL	Loamy/Claye	y Prominent redox concentrations
<sup>1</sup> Type: C=Co	ncentration, D=Depl	etion, RM	=Reduced Matrix, N	1S=Mas	ked Sand	l Grains.	<sup>2</sup> Loc	ation: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:							Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Polyvalue Be	elow Sur	face (S8)	(MLRA	147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>
Histic Ep	ipedon (A2)		Thin Dark Su	urface (S	69) <b>(MLR</b>	A 147, 14	48)	Coast Prairie Redox (A16)
Black His	stic (A3)		Loamy Muck	y Miner	al (F1) <b>(N</b>	ILRA 136	6) -	(MLRA 147, 148)
Hydroger	n Sulfide (A4)		Loamy Gleye	ed Matri	x (F2)			Piedmont Floodplain Soils (F19)
Stratified	Layers (A5)		X Depleted Ma	trix (F3)			-	(MLRA 136, 147)
2 cm Mu	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red Parent Material (F21)
Depleted	Below Dark Surface	(A11)	Depleted Da	rk Surfa	ce (F7)		-	(outside MLRA 127, 147, 148)
	rk Surface (A12)	. ,	X Redox Depre		• •			Very Shallow Dark Surface (F22)
	ucky Mineral (S1)		Iron-Mangan		. ,	2) (LRR N	N,	Other (Explain in Remarks)
	leyed Matrix (S4)				,	<i>,</i> ,	-	
	edox (S5)		Umbric Surfa	,	3) (MLRA	122, 136	6)	<sup>3</sup> Indicators of hydrophytic vegetation and
	Matrix (S6)		Piedmont Flo	•	<i>,</i> .			wetland hydrology must be present,
Dark Sur	( )		Red Parent I	•	•	<i>,</i> .	•	unless disturbed or problematic.
	ayer (if observed):				( = · ) (···		, ., <b>.</b> ,	
Type:								
Depth (in	ches):						Hydric Soil F	Present? Yes X No
Remarks:	/						,	

This data sheet is revised from Eastern Mountains and Piedmont Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 8.0, 2016.

## WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: Jones Ferry Property/ Sage Project/Site:	roject #: 2019.25	City/County: Chatham		Sampling Date: 3/28/19
Applicant/Owner: Robert Page & Dougla			State: NC	Sampling Point: Up DP 2
Investigator(s): David Gainey		Section, Township, Range	:	
Landform (hillside, terrace, etc.): Terrace	Lo	cal relief (concave, convex,	none): none	Slope (%): 0
Subregion (LRR or MLRA): LRR P, MLRA 1	36 Lat: 35.861774°N	Long:	79.160559°W	Datum: NAD 83
Soil Map Unit Name: Cid-Lignum			NWI classifica	tion:
Are climatic / hydrologic conditions on the site	e typical for this time of ye	ar? Yes X		explain in Remarks.)
Are Vegetation, Soil, or Hydro			Circumstances" present	
Are Vegetation, Soil, or Hydro			plain any answers in Re	
SUMMARY OF FINDINGS – Attach				
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes         X         No           Yes         No         X           Yes         No         X	Is the Sampled Area within a Wetland?	Yes	No <u>X</u>
HYDROLOGY Wetland Hydrology Indicators:			Secondary Indicators	(minimum of two required)
Primary Indicators (minimum of one is requi	ired; check all that apply)		Surface Soil Crac	
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetat	ed Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide Oc	dor (C1)	Drainage Patterns	s (B10)
Saturation (A3)		res on Living Roots (C3)	Moss Trim Lines	
Water Marks (B1)	Presence of Reduce	. ,	Dry-Season Wate	
Sediment Deposits (B2)		on in Tilled Soils (C6)	Crayfish Burrows	
Drift Deposits (B3) Algal Mat or Crust (B4)	Thin Muck Surface ( Other (Explain in Re		Stunted or Stress	e on Aerial Imagery (C9)
Iron Deposits (B5)		marks)	Geomorphic Posi	
Inundation Visible on Aerial Imagery (B)	7)		Shallow Aquitard	
Water-Stained Leaves (B9)	.,		Microtopographic	
Aquatic Fauna (B13)			FAC-Neutral Test	
Field Observations:				
Surface Water Present? Yes	No X Depth (inch	es):		
Water Table Present? Yes	No X Depth (inch			
Saturation Present? Yes	No X Depth (inch	es): Wetland	Hydrology Present?	Yes <u>No X</u>
(includes capillary fringe)				
Describe Recorded Data (stream gauge, mo	onitoring well, aerial photos	s, previous inspections), if a	vailable:	
Remarks:				

# VEGETATION (Four Strata) - Use scientific names of plants.

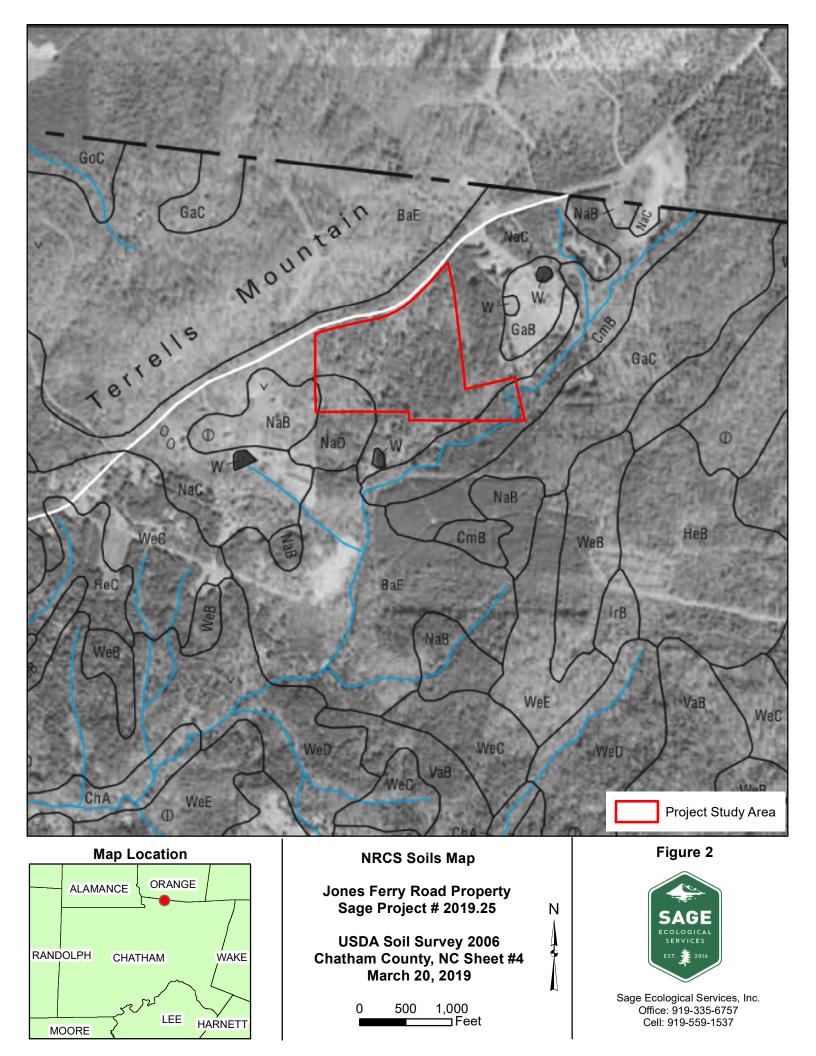
Sampling Point: Up DP 2

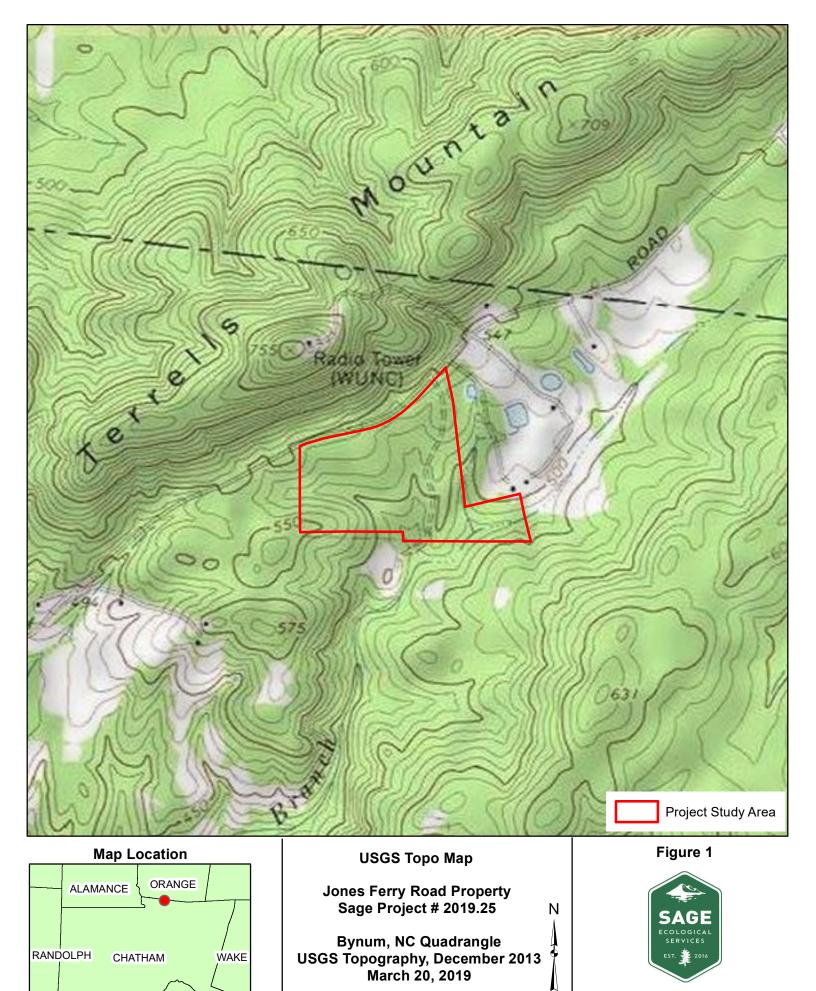
	Absolute	Dominant	Indicator	
<u>Tree Stratum</u> (Plot size: <u>0.1 acre</u> )	% Cover	Species?	Status	Dominance Test worksheet:
1. Liquidambar styraciflua	30	Yes	FAC	Number of Dominant Species
2. Liriodendron tulipifera	30	Yes	FACU	That Are OBL, FACW, or FAC: (A)
3. Platanus occidentalis	30	Yes	FACW	Total Number of Dominant
4.				Species Across All Strata: 6 (B)
5				Percent of Dominant Species
6				That Are OBL, FACW, or FAC: 66.7% (A/B)
7.				Prevalence Index worksheet:
	90	=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	45 20%	of total cover:	18	OBL species 0 x 1 = 0
Sapling/Shrub Stratum (Plot size: 0.1 acre	)			FACW species 30 x 2 = 60
1. Ligustrum sinense	60	Yes	FACU	FAC species 90 x 3 = 270
2.				FACU species 90 $x 4 = 360$
3.				UPL species $0 \times 5 = 0$
4.				
5.		. <u></u>		Prevalence Index = B/A = <u>3.29</u>
6	·			Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				X 2 - Dominance Test is >50%
9.	<u></u>			3 - Prevalence Index is ≤3.0 <sup>1</sup>
	60	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	30 20%	of total cover:	12	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 0.1 acre )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Microstegium vimineum	30	Yes	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Polystichum acrostichoides	30	Yes	FAC	present, unless disturbed or problematic.
3.				Definitions of Four Vegetation Strata:
4.	·			<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or
5.				more in diameter at breast height (DBH), regardless of
6.				height.
		<u> </u>		
7	·			<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft
8				(1 m) tall.
9	·			
10		·······		<b>Herb</b> – All herbaceous (non-woody) plants, regardless
11	·			of size, and woody plants less than 3.28 ft tall.
	60	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover:	30 20%	o of total cover:	12	height.
Woody Vine Stratum (Plot size: 0.1 acre )				
1				
2.				
3.				
4.				
5.				
· · · · · · · · · · · · · · · · · · ·		=Total Cover		Hydrophytic
50% of total cover:		of total cover:		Vegetation Present? Yes X No
	2070		·	
Remarks: (Include photo numbers here or on a sep	parate sheet.)			

SOIL

Depth	Matrix		Redo	x Featur	es				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Re	marks
0-2	10YR 4/4	100					Loamy/Cla	yey	
2-12	10YR 4/6	100					Loamy/Cla		
Type: C=C	oncentration, D=Dep	letion, RM	Reduced Matrix, N	/IS=Mas	ked Sand	Grains.	<sup>2</sup> L	ocation: PL=Pore Lining,	M=Matrix.
lydric Soil	Indicators:							Indicators for Problen	natic Hydric Soils
Histosol	(A1)		Polyvalue Be	elow Sur	face (S8)	(MLRA	147, 148)	2 cm Muck (A10) <b>(I</b>	VLRA 147)
Histic Ep	pipedon (A2)		Thin Dark S	urface (S	59) <b>(MLR</b>	A 147, 14	48)	Coast Prairie Redo	x (A16)
Black Hi	stic (A3)		Loamy Muck	y Miner	al (F1) <b>(N</b>	ILRA 136	5)	(MLRA 147, 148)	)
Hydroge	n Sulfide (A4)		Loamy Gley	ed Matri	x (F2)			Piedmont Floodpla	in Soils (F19)
Stratified	d Layers (A5)		Depleted Ma	trix (F3)				(MLRA 136, 147)	
2 cm Mu	ick (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red Parent Materia	al (F21)
	d Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)			(outside MLRA <sup>2</sup>	127, 147, 148)
Thick Da	ark Surface (A12)	. ,	Redox Depre	essions	(F8)			Very Shallow Dark	Surface (F22)
Sandy M	lucky Mineral (S1)		Iron-Mangar	ese Ma	sses (F12	2) (LRR N	١,	Other (Explain in R	emarks)
Sandy G	Gleyed Matrix (S4)		MLRA 130	5)	,	, .			,
	Redox (S5)		Umbric Surfa	, ace (F13	3) (MLRA	122, 136	5)	<sup>3</sup> Indicators of hydrophy	tic vegetation and
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLR</b>	, A 148)	wetland hydrology	•
Dark Su	rface (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127	, 147, 148)	unless disturbed or	problematic.
	Layer (if observed):								
Type:									
Depth (ii	nches):						Hydric Soi	I Present? Yes	No x

This data sheet is revised from Eastern Mountains and Piedmont Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 8.0, 2016.





Sage Ecological Services, Inc. Office: 919-335-6757 Cell: 919-559-1537

500 1,000 Feet

n

LEE

MOORE

HARNETT

CHATHAM COUNTY

Watershed Protection Department Website: www.chathamnc.org

..

Date Received: \_\_\_\_

\_ PL# \_\_\_\_\_

# **Riparian Buffer Review Application** Surface Water Identification Request for <u>Major Subdivisions</u>

Tract Information
Parcel #: AKPAR#1439 Watershed District (and name of creek if known): WS-IV PA, Meadow Branch
Property Owner: Robert Page & Douglas Page
Location/Physical Address of Tract: 0 Jones Ferry Road
Driving Directions from Pittsboro:
15/501 North then left on Hamlets Chapel, Turn right on to Jones Ferry Road and the site is on the right just before Orange County.
Subdivision Name (if applicable):
Owner's/Agent Contact Information (Agent: Consultant, Real Estate Agent, Surveyor, Other) Circle one
Name: Sean Clark
Contact Phone Numbers: (h) (w) 919-559-1537 (c) (c)
E-mail: sclark@sageecological.com
Mailing Address: 3707 Swift Drive, Raleigh, NC 27606
Do you wish to be contacted prior to Chatham County staff visiting the property? Ves No
How much notice is required prior to arrival onsite?
How would you like to receive the completed review letter? (Please check one of the following)
□ I would like to pick up the completed Riparian Buffer Review at the County Office
I would like the completed Riparian Buffer Review mailed to me
I would like the completed Riparian Buffer Review e-mailed to me
Please include the following items with this request
Completed consultant findings report including the following:
GIS generated or hand drawn sketch of surface water features found onsite (Buffer Plan Sheet)
No smaller than 1"=60' and paper size 11"x17" or larger
NCDWQ Stream Identification Forms, Version 4.11, Wetland Determination Data Form –



*Riparian Buffer Review Application* Surface Water Identification Request

Eastern Mountains and Piedmont Region, digital photographs, notes, sketches, etc.

- NRCS map with property boundary depicted
- USGS map with property boundary depicted
- Statement of Credentials (Training Certificate for NCDWQ/NC State University Surface Waters Classification course, 2 years of jurisdictional wetland delineation according to the Eastern Mountains and Piedmont Regional Supplement to the 1987 US Corps of Engineers Wetland Delineation Manual)

Signed Right to Enter Property Form

Signed Owner's Agent Designation Form

Fee (make checks payable to Chatham County) **<u>\$100 per feature confirmed onsite</u>** 

**Feature** is defined as any surface water that is subject to Chatham County Riparian Buffers (streams, wetlands, ponds)

Total Number of Features: 17

Total Paid: \$\_1700.00

I have read and understand the regulations of the Watershed Protection Ordinance, Section 304, and I agree to adhere to these associated policies and guidelines herein.

Date: 1 29 19 Owner/Agent Signature:

line	LAND & WATER RESOURCES DIVISION Environmental Quality Department
CHAT HAM COUNTY	PHONE: (919) 545-8204
-	Website: www.chathamnc.org
AUTHORIZED AG	ENT FOR LEGAL REPRESENTATION FORM
PROPERTY LEGAL DESCRIPTION	NATION AND ADDRESS OF ADDRES
LOT NO. NA PARCEL ID	(PIN) 1439 PARCEL SIZE 50 ACRES
Please print: ROBERT BR	RUCE PAGE
Property Owner:	PAGE
The undersigned, owner(s) of the	above described property, do hereby authorize
(Contractor/Agent)	(Name of consulting firm if applicable)
processing, issuance and acceptan	all actions, I/we could have taken if present, necessary for the ace of reviews, inspections, or permits and any and all standard and be approvals. The activities authorized include the following (initial all all activities authorized include the following (initial all all all all all all all all all
processing, issuance and acceptant special conditions attached to thes that apply): Building Permit Zoning Compliance Permits Floodplain Determination Soil Erosion and Sedimentation Permits to install, repair, eval Evaluation/inspection/permitt	all actions, I/we could have taken if present, necessary for the ace of reviews, inspections, or permits and any and all standard and a approvals. The activities authorized include the following (initial all
processing, issuance and acceptan special conditions attached to thes that apply): Building Permit Zoning Compliance Permits Floodplain Determination Soil Erosion and Sedimentation Permits to install, repair, eval Evaluation/inspection/permitt Riparian Buffer Review pursus Other: Property Owner's Address (if d	all actions, L/we could have taken if present, necessary for the oce of reviews, inspections, or permits and any and all standard and se approvals. The activities authorized include the following ( <b>initial all</b> on Control Permit uate, or expand onsite wastewater system(s) ing of a private drinking water well(s) ant to §304 of the Chatham County Watershed Protection Ordinance
processing, issuance and acceptan special conditions attached to thes that apply): Building Permit Zoning Compliance Permits Floodplain Determination Soil Erosion and Sedimentation Permits to install, repair, eval Evaluation/inspection/permitt Riparian Buffer Review pursus Other: Property Owner's Address (if d	all actions, L/we could have taken if present, necessary for the nece of reviews, inspections, or permits and any and all standard and be approvals. The activities authorized include the following ( <b>initial all</b> on Control Permit uate, or expand onsite wastewater system(s) ing of a private drinking water well(s) ant to §304 of the Chatham County Watershed Protection Ordinance ifferent than property above): IVE HIGH POINT NC 27265 78,7227 dpage@hopnc.org
processing, issuance and acceptan special conditions attached to thes that apply): Building Permit Zoning Compliance Permits Floodplain Determination Soil Erosion and Sedimentation Permits to install, repair, eval Evaluation/inspection/permitt Riparian Buffer Review pursus Other: Procerty Owner's Address (if d 1213 HEATHERBROOK DRI DOUG: 336.8 Owner Telephone:BRUCE: _919 We tereby certify the above inform our inowledge.	all actions, I/we could have taken if present, necessary for the one of reviews, inspections, or permits and any and all standard and be approvals. The activities authorized include the following (initial all on Control Permit uate, or expand onsite wastewater system(s) ing of a private drinking water well(s) ant to §304 of the Chatham County Watershed Protection Ordinance ifferent than property above): IVE HIGH POINT NC 27265 78.7227 771.6214 mation submitted in this application is true and accurate to the best of
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DocuSign Envelope ID: 22681B07-A9DA-47E5-B163-BEC878C2DAA5

ATHAM COUNTY	PHONE: (919) 545-839
	Website: www.chathamnc.org
5/2.2/1-)	Enter Property Form
Date:	
I, (print name) DOUGLAS PAGE AND ROBERT BRUG	CE_PAGE, as owner of the property
described above, or as a representative of the own	ner(s) do hereby convey permission to Chatham County
staff to enter the property at their convenience to	conduct a surface water identification (SWID)
necessary to determine whether or not water featu	ures on my property are subject to the riparian buffer
regulations described in Section 304 of the Chathar	m County Watershed Protection Ordinance. The SWID
will be public record and on file at the Planning and	d Environmental Quality Departments, and may be
requested in the future for review by interested par	rties.

I understand that stream delineations for the property listed above will be made by County staff only once and that if future subdivisions are proposed within this property boundary, it will require a surface water identification by a private consultant at the property owner's expense.

OUGLAS PAGE	Douglas Page	5/23/2019
Prin: Owner's Name) ROBERT BRUCE PAGE	(Siturity Ranger Ranger Adwiner) Rota & Bag ECC5977854B549C	(Date) 5/23/2019
Prin: Authorized Agent Name)	(Signature of Authorized Agent)	(Date)