



Phone: (919) 548-6715 • E-mail: drew.blake@chathamcountync.gov

April 9, 2024

Mr. AJ Kamal
Soil & Environmental Consultants, PA
8412 Falls of Neuse Road, Suite 105
Raleigh, NC 27615

Project Name: Parcel # 2035, 1806, 95989

Location: Hamlets Chapel Road/Pleasant Springs Road

Project Number WP-24-17

Subject Features: Three (3) ephemeral segments, three (3) intermittent segments, one (1) perennial segment, six (6) potential wetlands, and one (1) beaver impoundment

Dear Mr. Kamal,

Explanation:

The site visit was completed on March 31, 2024, by AJ Kamal of Soil & Environmental Consultants, PA (S&EC), and Drew Blake and Phillip Cox of the Chatham County Watershed Protection Department, on properties identified as Chatham County Parcel # 2035, 1806, and 95989 that are located within the Jordan Lake watershed. S&EC personnel completed a previous site visit in October 2023, and identified four (4) ephemeral segments, three (3) intermittent segments, one (1) perennial segment, and seven (7) potential wetlands within the review area that are potentially subject to riparian buffers through the Chatham County Watershed Protection Ordinance. S&EC 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.

Summary of Findings

During the site visit, Chatham County staff determined that one identified ephemeral stream (SF8) did not meet the definition of an ephemeral stream as defined in Section 109 of the Chatham County Watershed Protection Ordinance. The start and end points of two ephemeral segments (E2-SF11 and G-SF10) were relocated in during the site visit. Wetland (W5) was determined to be a beaver impoundment during the site visit.

Required Buffers Required

The required riparian buffers provided below are in accordance with Section 304(D) of the Chatham County Watershed Protection Ordinance.

Section 304 (D)(1) - Perennial Streams

The riparian buffer shall be one hundred (100') feet landward, measured horizontally on a line perpendicular from top of bank; this distance shall be measured on all sides of perennial streams, or shall be the full horizontal extent of the Area of Special Flood Hazard as most recently mapped by the North Carolina Floodplain Mapping Program, NC Division of Emergency Management, whichever is the greater horizontal distance.



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Section 304(D)(2) – Intermittent Streams

The riparian buffer shall be fifty (50') feet landward, measured horizontally on a line perpendicular from top of bank; this distance shall be measured on all sides of intermittent streams.

Section 304(D)(3) – Ephemeral Streams

The riparian buffer shall be thirty (30') feet landward, measured horizontally on a line perpendicular from top of bank; this distance shall be measured on all sides along all ephemeral streams.

Section 304(D)(4) – Jurisdictional and Non-Jurisdictional Wetlands

The riparian buffer shall be fifty (50') feet landward, measured horizontally on a line perpendicular from the delineated boundary, surrounding all features classified as wetlands and linear wetlands. **The potential wetlands identified by S&EC have not been confirmed by the US Army Corps of Engineers. Once the USACE confirmation is received the 50-ft riparian buffers will be required from the flagged confirmed wetland boundaries.**

Beaver Impoundments – DWQ Clarification Memo 2007-005

Beaver impoundments are streams dammed up by beaver activity. Therefore, if the stream that is now a beaver impoundment shows on either the USGS Topo or the most recent version of the soil survey map, the beaver impoundment should be treated as an open water since it is a pond in the intent of the rules and must have a 50-ft protected riparian buffer around its perimeter measured from the elevation of the beaver. Streams coming into or out of a beaver pond also have a 50-ft protected riparian buffer.

Impacts to Riparian Buffers:

Impacts to the riparian buffers may require a Riparian Buffer Authorization depending on the size and scope of the impacts. Please refer to Section 304 (J)(3) of the Chatham County Watershed Protection Ordinance to determine if your impacts will require a Riparian Buffer Authorization. If you determine that a Riparian Buffer Authorization is required, please contact Drew Blake to receive the required application and submittal instructions.

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

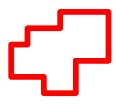








Drew Blake
Assistant Director, CESSWI
Chatham County Watershed Protection Department

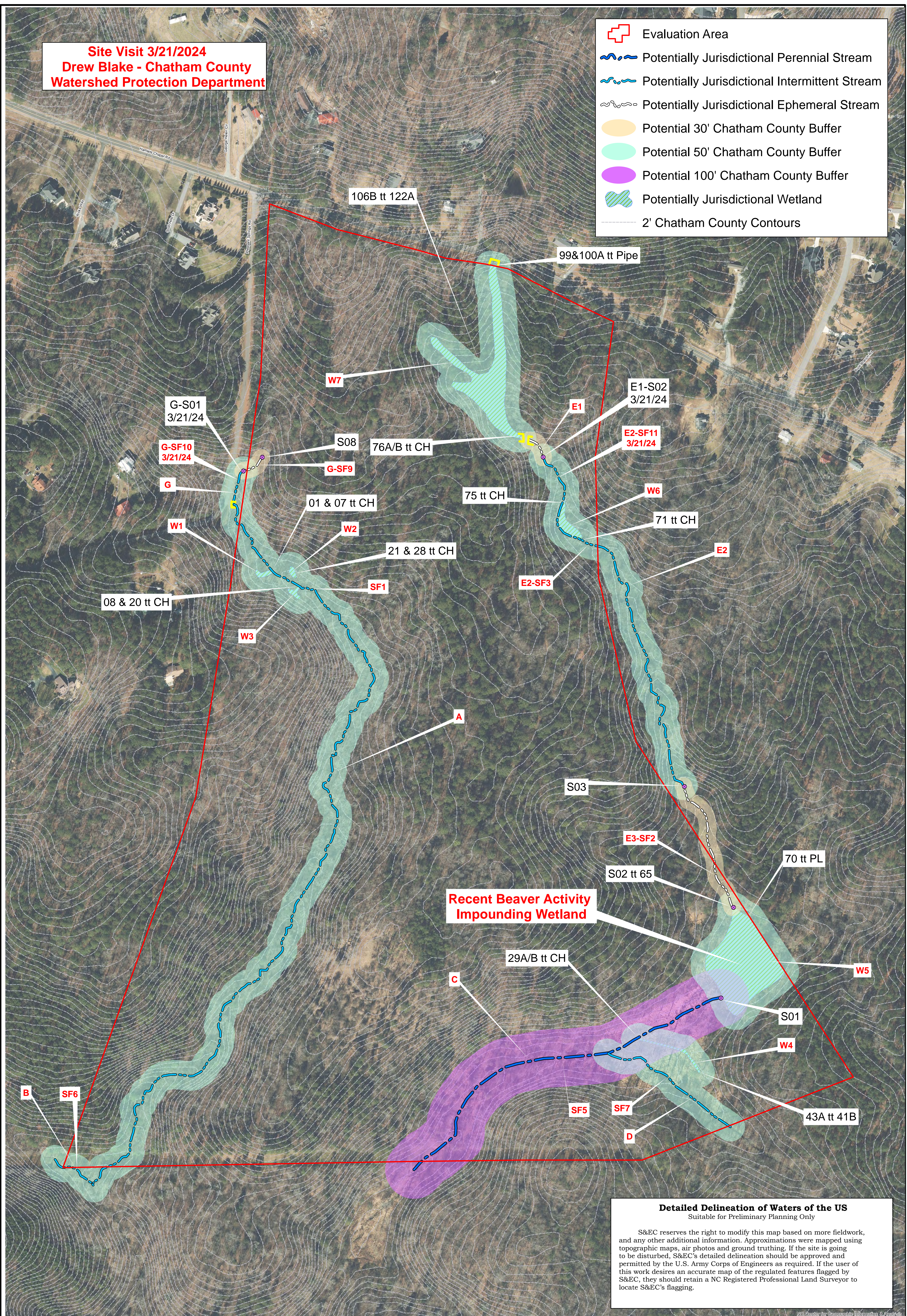
Enclosures:

Wetland Sketch Map Post Chatham County Visit – Completed by S&EC
Surface Water & Riparian Buffer Spreadsheet – Completed by S&EC
October 2023 Stream ID & Wetland Data Forms – Completed by S&EC
March 2023 (Site Visit) Stream ID Forms – Completed by S&EC
Major Subdivision Riparian Buffer Application
Authorized Agent Form
Authorization to Enter Property Form

cc: Taylor Burton, Sr. Watershed Specialist, Chatham County Watershed Protection Department
Phillip Cox, Sr. Watershed Specialist, Chatham County Watershed Protection Department
Justin Hasenfus, Erosion Control Program Manager, Chatham County Watershed Protection Dept
Rachael Thorn, Director, Chatham County Watershed Protection Department
Kimberly Tyson, Planner II/Subdivision Administrator, Chatham County Planning Department
Angela Plummer, Planner II/Zoning Administrator, Chatham County Planning Department
Jason Sullivan, Director, Chatham County Planning Department
Rachel Capito, Regulatory Project Manager, US Army Corps of Engineers, Raleigh Field Office
Zachary Thomas, Environmental Program Consultant, NCDEQ - Division of Water Resources

Site Visit 3/21/2024
Drew Blake - Chatham County
Watershed Protection Department

-  Evaluation Area
-  Potentially Jurisdictional Perennial Stream
-  Potentially Jurisdictional Intermittent Stream
-  Potentially Jurisdictional Ephemeral Stream
-  Potential 30' Chatham County Buffer
-  Potential 50' Chatham County Buffer
-  Potential 100' Chatham County Buffer
-  Potentially Jurisdictional Wetland
-  2' Chatham County Contours



**Recent Beaver Activity
 Impounding Wetland**

Detailed Delineation of Waters of the US
 Suitable for Preliminary Planning Only

S&EC reserves the right to modify this map based on more fieldwork, and any other additional information. Approximations were mapped using topographic maps, air photos and ground truthing. If the site is going to be disturbed, S&EC's detailed delineation should be approved and permitted by the U.S. Army Corps of Engineers as required. If the user of this work desires an accurate map of the regulated features flagged by S&EC, they should retain a NC Registered Professional Land Surveyor to locate S&EC's flagging.

NC DWQ Stream Identification Form Version 4.11 **Feature A - SF1**

Date: 10/12/23	Project/Site: Hamlets Chapel Rd.	Latitude: 35.793926
Evaluator: STEC - AJK & KM	County: Chatham	Longitude: -79.139431
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 25	Stream Determination (circle one) Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial <input type="checkbox"/>	Other e.g. Quad Name:

A. Geomorphology (Subtotal = **12**)

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

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = **7**)

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

C. Biology (Subtotal = **6**)

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

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

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11 **Feature E3 - SF2**

Date: 10/12/23	Project/Site: Hamlets Chapel Rd.	Latitude: 35.791079
Evaluator: JEC - AJK & Km	County: Chatham	Longitude: -79.134627
Total Points: 16.5 <i>Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*</i>	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 9)

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

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 4.5)

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

C. Biology (Subtotal = 3)

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

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

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Feature E2-SF3

Date: 10/12/23	Project/Site: Hamlets Chapel Rd.	Latitude: 35.794369
Evaluator: STEC - AJK + RM	County: Chatham	Longitude: -79.136201
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 20.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 10.5)

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

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5)

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

C. Biology (Subtotal = 5)

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

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

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Feature E1-SF4

Date: 10/12/23	Project/Site: Hamlets Chapel Ra	Latitude: 35.794941
Evaluator: SFEC - AJK + KM	County: Chatham	Longitude: -79.136575
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 14	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 6)

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

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5)

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

C. Biology (Subtotal = 3)

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

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

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11 **Feature C - SF5**

Date: 10/12/23	Project/Site: Hamlets Chapel Rd.	Latitude: 35.789566
Evaluator: STEC - AJK + KM	County: Chatham	Longitude: -79.136372
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 35	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other e.g. Quad Name:

A. Geomorphology (Subtotal = **16**)

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

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = **10**)

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

C. Biology (Subtotal = **9**)

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

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

Notes:

Sketch:

- Caddisfly casings
- small fish
- frogs

NC DWQ Stream Identification Form Version 4.11

Feature B - SF6

Date: 10/12/23	Project/Site: Hamlets Chapel Rd.	Latitude: 35.788487
Evaluator: J+EC - AJ/c + KM	County: Chatham	Longitude: -79.142204
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 23.5	Stream Determination (circle one) Ephemeral <input type="radio"/> Intermittent <input checked="" type="radio"/> Perennial <input type="radio"/>	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 11.5)

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

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7)

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

C. Biology (Subtotal = 5)

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

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

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Feature D-SF7

Date: 10/12/23	Project/Site: Hamlets Chapel Rd	Latitude: 35.789348
Evaluator: J+EC - AJK + KM	County: Chatham	Longitude: -79.135339
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 24	Stream Determination (circle one) Ephemeral (Intermittent) Perennial	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 13)

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

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 6)

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

C. Biology (Subtotal = 5)

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

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

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

Feature F - SF8

Date: 10/12/23	Project/Site: Hamlets Chapel Rd.	Latitude: 35.795697
Evaluator: S+Ec - ATK + KM	County: Chatham	Longitude: -79.136203
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other e.g. Quad Name:

12

A. Geomorphology (Subtotal = 5)

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

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5)

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

C. Biology (Subtotal = 2)

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

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

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11 *Feature G - SF9*

Date: 10/12/23	Project/Site: Hamlets Chapel Rd.	Latitude: 35.795120
Evaluator: SJE - ATK + KM	County: Chatham	Longitude: -79.140181
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 13.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 4.5)

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

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5)

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

C. Biology (Subtotal = 4)

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

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

Notes:

Sketch:

Project/Site: Hamlets Chapel Road City/County: Pittsboro / Chatham Sampling Date: 10/12/2023
 Applicant/Owner: Moore Family Partnership State: NC Sampling Point: DP1
 Investigator(s): S&EC - AJ Kamal + Kevin Murphrey Section, Township, Range: Pittsboro
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2-4
 Subregion (LRR or MLRA): LRR P, MLRA 136 Lat: 35.796903 Long: -79.138472 Datum: NAD 83
 Soil Map Unit Name: WeC NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>0</u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) <u>x</u> Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: DP1

<u>Tree Stratum</u> (Plot size: <u>30ft X 30ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer rubrum</u>	10	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>10</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>70.0%</u> (A/B)
2. <u>Pinus taeda</u>	20	Yes	FAC	
3. <u>Liquidambar styraciflua</u>	10	Yes	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
	40 =Total Cover			Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>15</u> x 4 = <u>60</u> UPL species <u>10</u> x 5 = <u>50</u> Column Totals: <u>105</u> (A) <u>350</u> (B) Prevalence Index = B/A = <u>3.33</u>
50% of total cover: <u>20</u>		20% of total cover: <u>8</u>		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15ft X 15ft</u>)				
1. <u>Acer rubrum</u>	10	Yes	FAC	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Pinus taeda</u>	10	Yes	FAC	
3. <u>Liquidambar styraciflua</u>	10	Yes	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
	30 =Total Cover			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>		
<u>Herb Stratum</u> (Plot size: <u>5ft X 5ft</u>)				
1. <u>Lonicera japonica</u>	10	Yes	FACU	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.
2. <u>Polystichum acrostichoides</u>	5	Yes	FACU	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	15 =Total Cover			Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
50% of total cover: <u>8</u>		20% of total cover: <u>3</u>		
<u>Woody Vine Stratum</u> (Plot size: <u>30ft X 30ft</u>)				
1. <u>Smilax rotundifolia</u>	10	Yes	FAC	
2. <u>Vitis vinifera</u>	10	Yes	UPL	
3. _____				
4. _____				
5. _____				
	20 =Total Cover			
50% of total cover: <u>10</u>		20% of total cover: <u>4</u>		

Remarks: (Include photo numbers here or on a separate sheet.)

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP1

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
	_____ = Total Cover			Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: _____	20% of total cover: _____			
Sapling Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: ____ 1 - Rapid Test for Hydrophytic Vegetation ____ 2 - Dominance Test is >50% ____ 3 - Prevalence Index is ≤3.0 ¹ ____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
	_____ = Total Cover			
50% of total cover: _____	20% of total cover: _____			
Shrub Stratum (Plot size: _____)				Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody Vine – All woody vines, regardless of height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
	_____ = Total Cover			
50% of total cover: _____	20% of total cover: _____			
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	_____ = Total Cover			
50% of total cover: _____	20% of total cover: _____			
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	_____ = Total Cover			
50% of total cover: _____	20% of total cover: _____			
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-20	7.5YR 4/4	100					Loamy/Clayey

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (**LRR N**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (**MLRA 147, 148**)
- Thin Dark Surface (S9) (**MLRA 147, 148**)
- Loamy Mucky Mineral (F1) (**MLRA 136**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
- Umbric Surface (F13) (**MLRA 122, 136**)
- Piedmont Floodplain Soils (F19) (**MLRA 148**)
- Red Parent Material (F21) (**MLRA 127, 147, 148**)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (**MLRA 147**)
- Coast Prairie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Project/Site: Hamlets Chapel Road City/County: Pittsboro / Chatham Sampling Date: 10/12/2023
 Applicant/Owner: Moore Family Partnership State: NC Sampling Point: DP2
 Investigator(s): S&EC - AJ Kamal + Kevin Murphrey Section, Township, Range: Pittsboro
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR or MLRA): LRR P, MLRA 136 Lat: 35.796009 Long: -79.137163 Datum: NAD 83
 Soil Map Unit Name: WeB NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators</u> (minimum of one is required; check all that apply)	<u>Secondary Indicators</u> (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: DP2

<u>Tree Stratum</u> (Plot size: <u>30ft X 30ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Acer rubrum</i></u>	<u>20</u>	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>9</u> (A) Total Number of Dominant Species Across All Strata: <u>11</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>81.8%</u> (A/B)																
2. <u><i>Pinus taeda</i></u>	<u>20</u>	Yes	FAC																	
3. <u><i>Liquidambar styraciflua</i></u>	<u>10</u>	Yes	FAC																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover																				
50% of total cover: <u>25</u>		20% of total cover: <u>10</u>																		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15ft X 15ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Acer rubrum</i></u>	<u>10</u>	Yes	FAC	Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:right;">Total % Cover of:</td> <td style="width:50%; text-align:left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>5</u></td> <td>x 1 = <u>5</u></td> </tr> <tr> <td>FACW species <u>25</u></td> <td>x 2 = <u>50</u></td> </tr> <tr> <td>FAC species <u>90</u></td> <td>x 3 = <u>270</u></td> </tr> <tr> <td>FACU species <u>10</u></td> <td>x 4 = <u>40</u></td> </tr> <tr> <td>UPL species <u>10</u></td> <td>x 5 = <u>50</u></td> </tr> <tr> <td>Column Totals: <u>140</u> (A)</td> <td><u>415</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.96</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>5</u>	x 1 = <u>5</u>	FACW species <u>25</u>	x 2 = <u>50</u>	FAC species <u>90</u>	x 3 = <u>270</u>	FACU species <u>10</u>	x 4 = <u>40</u>	UPL species <u>10</u>	x 5 = <u>50</u>	Column Totals: <u>140</u> (A)	<u>415</u> (B)	Prevalence Index = B/A = <u>2.96</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>5</u>	x 1 = <u>5</u>																			
FACW species <u>25</u>	x 2 = <u>50</u>																			
FAC species <u>90</u>	x 3 = <u>270</u>																			
FACU species <u>10</u>	x 4 = <u>40</u>																			
UPL species <u>10</u>	x 5 = <u>50</u>																			
Column Totals: <u>140</u> (A)	<u>415</u> (B)																			
Prevalence Index = B/A = <u>2.96</u>																				
2. <u><i>Pinus taeda</i></u>	<u>10</u>	Yes	FAC																	
3. <u><i>Liquidambar styraciflua</i></u>	<u>10</u>	Yes	FAC																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
_____ =Total Cover																				
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>																		
<u>Herb Stratum</u> (Plot size: <u>5ft X 5ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Juncus effusus</i></u>	<u>15</u>	Yes	FACW	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Woodwardia areolata</i></u>	<u>10</u>	Yes	FACW																	
3. <u><i>Lycopus americanus</i></u>	<u>5</u>	No	OBL																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
_____ =Total Cover																				
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>																		
<u>Woody Vine Stratum</u> (Plot size: <u>30ft X 30ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Smilax rotundifolia</i></u>	<u>10</u>	Yes	FAC	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
2. <u><i>Vitis vinifera</i></u>	<u>10</u>	Yes	UPL																	
3. <u><i>Rubus argutus</i></u>	<u>10</u>	Yes	FACU																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ =Total Cover																				
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>																		

Remarks: (Include photo numbers here or on a separate sheet.)

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP2

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
	_____ = Total Cover			Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
	50% of total cover: _____	20% of total cover: _____	_____	
Sapling Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: ____ 1 - Rapid Test for Hydrophytic Vegetation ____ 2 - Dominance Test is >50% ____ 3 - Prevalence Index is ≤3.0 ¹ ____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____	_____	
Shrub Stratum (Plot size: _____)				Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody Vine – All woody vines, regardless of height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____	_____	
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____	_____	
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	_____ = Total Cover			
	50% of total cover: _____	20% of total cover: _____	_____	

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 4/2	90	10YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (**LRR N**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (**MLRA 147, 148**)
- Thin Dark Surface (S9) (**MLRA 147, 148**)
- Loamy Mucky Mineral (F1) (**MLRA 136**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
- Umbric Surface (F13) (**MLRA 122, 136**)
- Piedmont Floodplain Soils (F19) (**MLRA 148**)
- Red Parent Material (F21) (**MLRA 127, 147, 148**)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (**MLRA 147**)
- Coast Prairie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

NC DWQ Stream Identification Form Version 4.11

G - SF10

Date: 3/21/24	Project/Site: Hamlets Chapel Rd.	Latitude: 35.794991
Evaluator: J+EC - ASKamal	County: Chatham	Longitude: -79.140326
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 22	Stream Determination (circle one) Ephemeral (Intermittent) Perennial	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 9.5)

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

*artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7.5)

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

C. Biology (Subtotal = 5)

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

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

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

E2-SF11

Date: 3/21/24	Project/Site: Hamlets Chapel Rd.	Latitude: 35.795045
Evaluator: S+EC - AJ Kameel	County: Chatham	Longitude: -79.136616
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 23.5	Stream Determination (circle one) Ephemeral <u>Intermittent</u> Perennial	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 10)

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

^aartificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7)

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

C. Biology (Subtotal = 6.5)

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

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

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

E3-SF2 (3.21.2024)

Date: 3/21/24	Project/Site: Hamlets Chapel Road	Latitude: 35.791250
Evaluator: STEC-AJ Kamel	County: Chatham	Longitude: -79.134754
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 18.75	Stream Determination (circle one) <u>Ephemeral</u> Intermittent Perennial	Other e.g. Quad Name:

A. Geomorphology (Subtotal = 7.5)

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

^a artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7.5)

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

C. Biology (Subtotal = 3.75)

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

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

Notes: Updated stream form post site visit with Drew Blake, Chatham Co.

Sketch:



WP-24-17

On-site Riparian Buffer
Review

Status: Active

Submitted On: 1/11/2024

Primary Location

0 VACANT
, North Carolina 00000

Owner

MOORE FAMILY
PARTNERSHIP
C/O MARILYN M KOENIG 293
FEARRINGTON POST
PITTSBORO , NC 27312-5507

Applicant

AJ Kamal
 +1 828-320-1959
 ajkamal@sandec.com
 8412 Falls of Neuse Road
Ste. 104
Raleigh, NC 27615

Project Information

Review Type*

Major Subdivision

If your project is a Major Subdivision please contact a private consulting firm to complete the surface water determination. For stream determinations the consultant must have successfully completed the NCDWQ/NC State University Surface Waters Classification. For wetland delineations the consultant must demonstrate at least 2 years of experience delineating jurisdictional wetlands in accordance with the Eastern Mountains and Piedmont Regional Supplement to the 1987 US Corps of Engineers Wetland Delineation Manual. Please visit the Watershed Protection Department website for a list of consultants that regularly complete work within Chatham County.

Has this review been completed by an environmental consultant prior to submittal to the county?*

Yes

Number of Features Found*

15

Feature is defined as any surface water that is subject to Chatham County Riparian Buffers (streams, wetlands, ponds). Include each stream type transition, with corresponding forms, and individual wetland in your total. Total is total features found before USACE or County site visit.

Date Field Work Was Completed*

10/12/2023

Has USACE on-site review been scheduled or completed

—

Parcel Information

Parcel Number (s)*

2035, 1806, 95989

Watershed District

Cape Fear

Is the property within the Jordan Lake Watershed*

Yes

Property Owner Name*

Moore Family Partnership

Location of Tract (address if applicable)*

0 Hamlet's Chapel Road, Pittsboro,
NC (35.792336, -79.137744)

Driving Directions from Pittsboro*

Head North on us 15-501. Turn left onto Hamlets Chapel Road. The site is a couple miles down the road on the left.

Subdivision Name (if applicable)

N/A

Please describe access issues (provide gate codes, or information for scheduling site visit)*

N/A

Applicants Information

Are you the Landowner or an Agent*

Agent

Full Name*

AJ Kamal (S&EC)

Primary Phone Number*

828.320.1959

Primary Email*

ajkamal@sandec.com

Mailing Address*

8412 Falls of Neuse Rd. STE 104

City/State*

Raleigh, NC

Zip Code*

27615

How would you like to receive the completed review letter?

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.

Statement of Understanding

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.

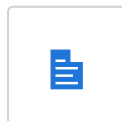
Name*

AJ Kamal

New Field*

01/10/2024

Attachments

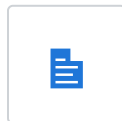


Signed Right to Enter Property Form

right to enter.pdf

Uploaded by AJ Kamal on Jan 10, 2024 at 2:16 PM

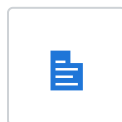
REQUIRED



Signed Owner's Agent Designation Form

Auth Agent.pdf

Uploaded by AJ Kamal on Jan 10, 2024 at 2:17 PM

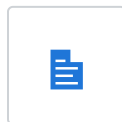


Consultant Findings Report

ORM_Upload_Sheet_Consolidated_Amended_2023Rule_20230921.pdf

Uploaded by AJ Kamal on Jan 10, 2024 at 2:37 PM

REQUIRED




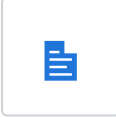
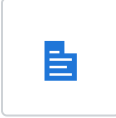
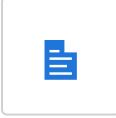
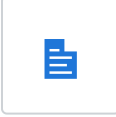
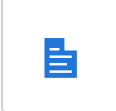


Consultants Findings Map

Wetland Sketch Map (Chatham Co).pdf

Uploaded by AJ Kamal on Jan 10, 2024 at 2:23 PM

REQUIRED

-  **NCDWQ Stream Identification Forms & Wetland Data Forms** REQUIRED
Stream Forms.pdf
Uploaded by AJ Kamal on Jan 10, 2024 at 2:23 PM
-  **NRCS Map** REQUIRED
SS Labeled.pdf
Uploaded by AJ Kamal on Jan 10, 2024 at 2:18 PM
-  **USGS Topographic Map** REQUIRED
USGS.pdf
Uploaded by AJ Kamal on Jan 10, 2024 at 2:18 PM
-  **Project Inventory Table** REQUIRED
Project Impact Inventory Table Chatham Online Submittal.pdf
Uploaded by AJ Kamal on Jan 11, 2024 at 10:14 AM
-  **Buffer Feature Spreadsheet**
Copy of Buffer Feature Spreadsheet.pdf
Uploaded by AJ Kamal on Jan 16, 2024 at 10:04 AM
-  **County Buffer Review Receipt.pdf**
County Buffer Review Receipt.pdf
Uploaded by AJ Kamal on Feb 2, 2024 at 10:45 AM
-  **Stream Forms Site Visit.pdf**
Stream Forms Site Visit.pdf
Uploaded by AJ Kamal on Mar 28, 2024 at 12:58 PM
-  **Wetland Sketch Map Post Chatham Co. Drew Blake 3.21.2024.pdf**
Wetland Sketch Map Post Chatham Co. Drew Blake 3.21.2024.pdf
Uploaded by AJ Kamal on Mar 28, 2024 at 12:59 PM

History



Timeline

Label	Activated	Completed	Assignee	Due Date	Status
✓ Watershed Intake Approval	1/11/2024, 10:14:56 AM	1/11/2024, 3:45:13 PM	Hollie Squires	-	Completed
💰 Major Subdivision Riparian Buffer Review Fee	1/11/2024, 3:45:14 PM	2/1/2024, 7:57:01 AM	AJ Kamal	-	Completed
✓ Field Review	2/1/2024, 7:57:01 AM	-	Drew Blake	2/14/2024	Active
📄 Major Subdivision Riparian Buffer Confirmation Report	-	-	-	-	Inactive



CHATHAM COUNTY

AUTHORIZED AGENT FOR FORM

PROPERTY LEGAL DESCRIPTION:

LOT NO. _____ PARCEL ID (PIN) 2035, 1806, 95989 PARCEL SIZE 118

STREET ADDRESS: 0 Hamlet's Chapel Road

Please print:

Property Owner: Moore Family Partnership

Property Owner: _____

The undersigned owner(s) of the above described property, do hereby authorize

Steven Ball

, of Soil and Environmental Consultants

(Contractor / Agent)

(Name of consulting firm if applicable)

to act on my/our behalf and take all actions, I/we could have taken if present, necessary for the processing, issuance and acceptance of reviews, inspections, or permits and any and all standard and special conditions attached to these approvals. The activities authorized include the following (**Check all that apply**):

Check here for all of the below options.

Building Permit

Zoning Compliance Permits

Floodplain Determination

Soil Erosion & Sedimentation Control Permit

Permits to install, repair, evaluate, or expand onsite wastewater system(s)

Evaluation/inspection/permitting of a private drinking water well(s).

Riparian Buffer Review pursuant to §304 of the Chatham Co. Watershed Protection Ordinance.

Other: _____

Property Owner's Address (if different than property above):

293 Fearington Post, Pittsboro, NC 27312

Telephone: 919-542-3344

E-mail: tkoenig@mindspring.com

We hereby certify the above information submitted in this application is true and accurate to the best of our knowledge.

Marilyn M. Koenig

Owner Authorized Signature

Agent Authorized Signature

Date: 11/29/2023

Date: _____



Watershed Protection Department

P.O. Box 548
Pittsboro, NC 27312

Website: www.chathamnc.org

Authorization to Enter Property Form

Date: 11/29/23

PARCEL No. (AKPAR) 2035, 1806, 95989

I, (print name) Moore Family Partnership by Marilyn M. Koenig, as owner of the property described above, or as a representative of the owner(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 features on my property are subject to the riparian buffer regulations described in Section 304 of the Chatham County Watershed Protection Ordinance. The SWID will be public record and on file at the Planning and Watershed Protection Departments, and may be requested in the future for review by interested parties.

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.

Moore Family Partnership by Marilyn M. Koenig
(Print Owner's Name)

DocuSigned by:
Marilyn M. Koenig
(Signature) 55330FF09801454
(Date) 11/29/2023

(Print Authorized Agent Name)

(Signature of Authorized Agent)
(Date)