



WATERSHED PROTECTION DEPARTMENT

P.O. Box 548
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June 8, 2022

Alyssa Ricci
Withers Ravenel
115 Mackenan Drive
Cary, NC 27511

Project Name: Flatiron Forest – Mt Gilead Parcel # 2014 & 2037

Location: Hamlets Chapel Road, Chatham County

Subject Features: One (1) ephemeral stream, one (1) intermittent stream segment, one (1) perennial stream segments, and six (6) potential wetlands

Date of Determination: June 2, 2022

Explanation:

The site visit was completed on June 2, 2022, by Drew Blake with Chatham County Watershed Protection and staff of Withers Ravenel on Parcel # 2014 and 2037 that are located within the Jordan Lake watershed. Withers Ravenel personnel completed a previous site visit which resulted in the identification of two (2) ephemeral stream, one (1) intermittent stream segment, one (1) perennial stream segments, and six (6) potential wetlands on the property. Withers Ravenel 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. One ephemeral stream segment (Feature B – Stream Form 2A) was removed as the segment did not meet the required 10 points for ephemeral streams.

Required Riparian Buffers:

All ephemeral stream segments will require a 30-ft buffer from the top of bank landward on both sides. All intermittent stream segments will require a 50-ft buffer from the top of bank landward on both sides. The perennial stream segment will require a 100-ft buffer from the top of bank landward on both sides. A 50-ft buffer will be required on all wetlands from the flagged boundary landward.

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



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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.

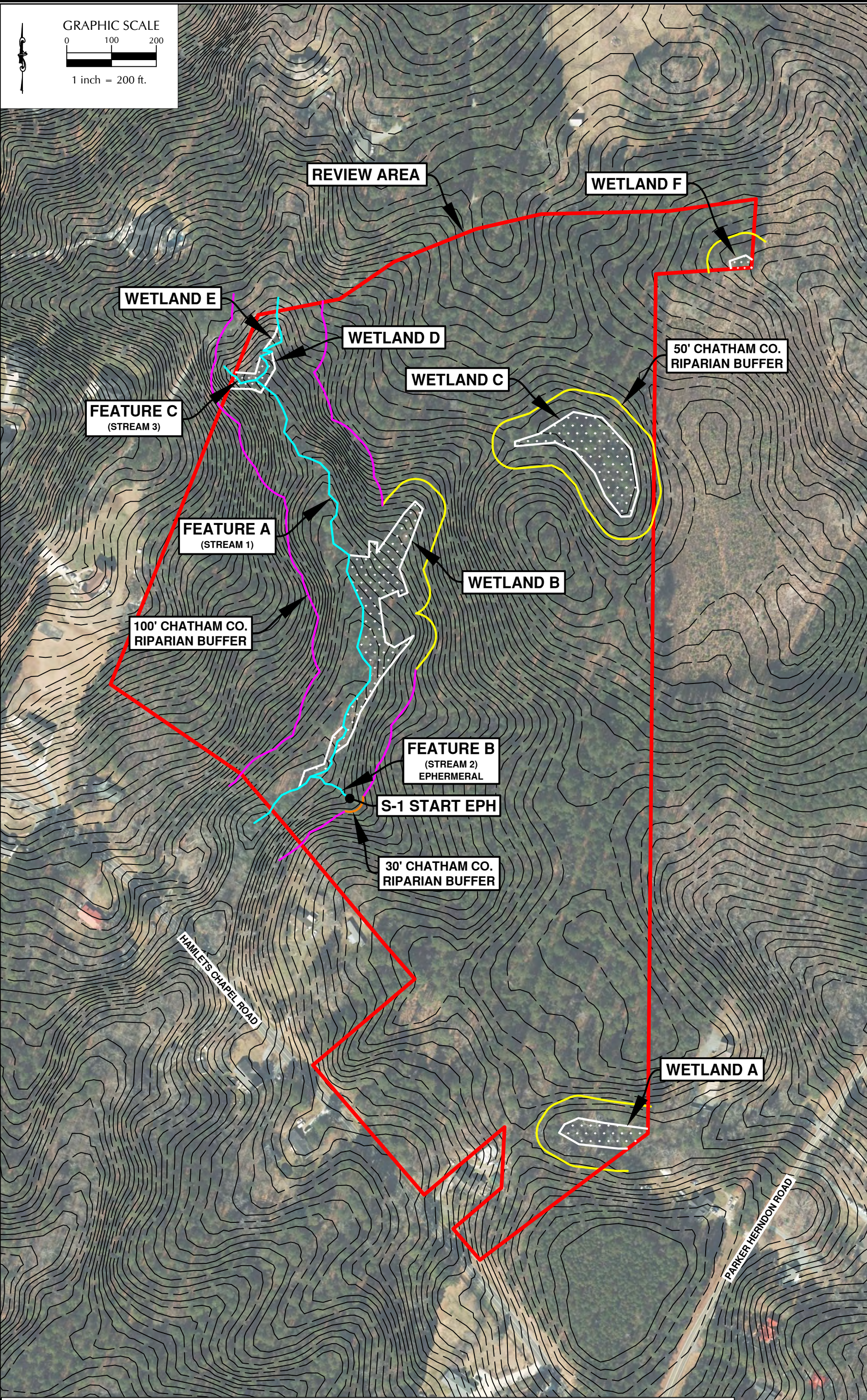
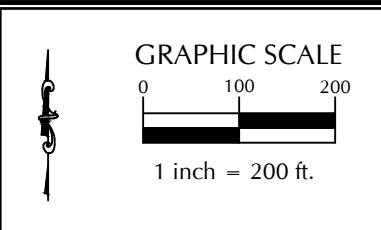
Respectfully,

Drew Blake
Senior Watershed Specialist, CESSWI

Enclosures:

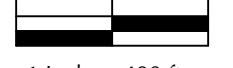
- Buffer Determination Exhibit with Buffers – Completed by Withers Ravenel
- NRCS Soil Survey – Completed by Withers Ravenel
- USGS Topographic Map – Completed by Withers Ravenel
- Withers Ravenel Stream ID Forms
- Withers Ravenel Wetland Data Form
- Major Subdivision Riparian Buffer Application
- Authorized Agent Form
- Authorization to Enter Property Form
- Site Photographs – provided by Withers Ravenel

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

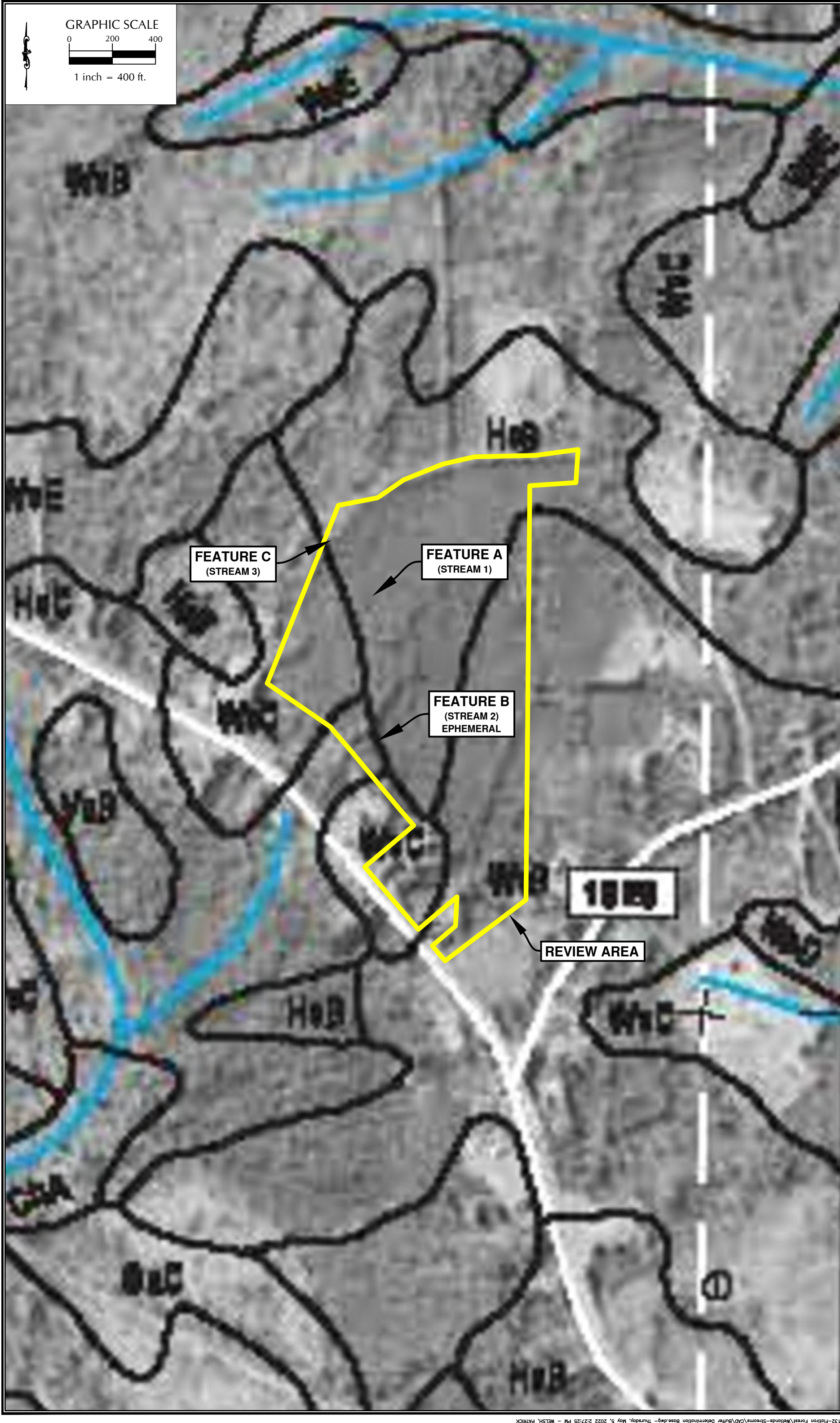


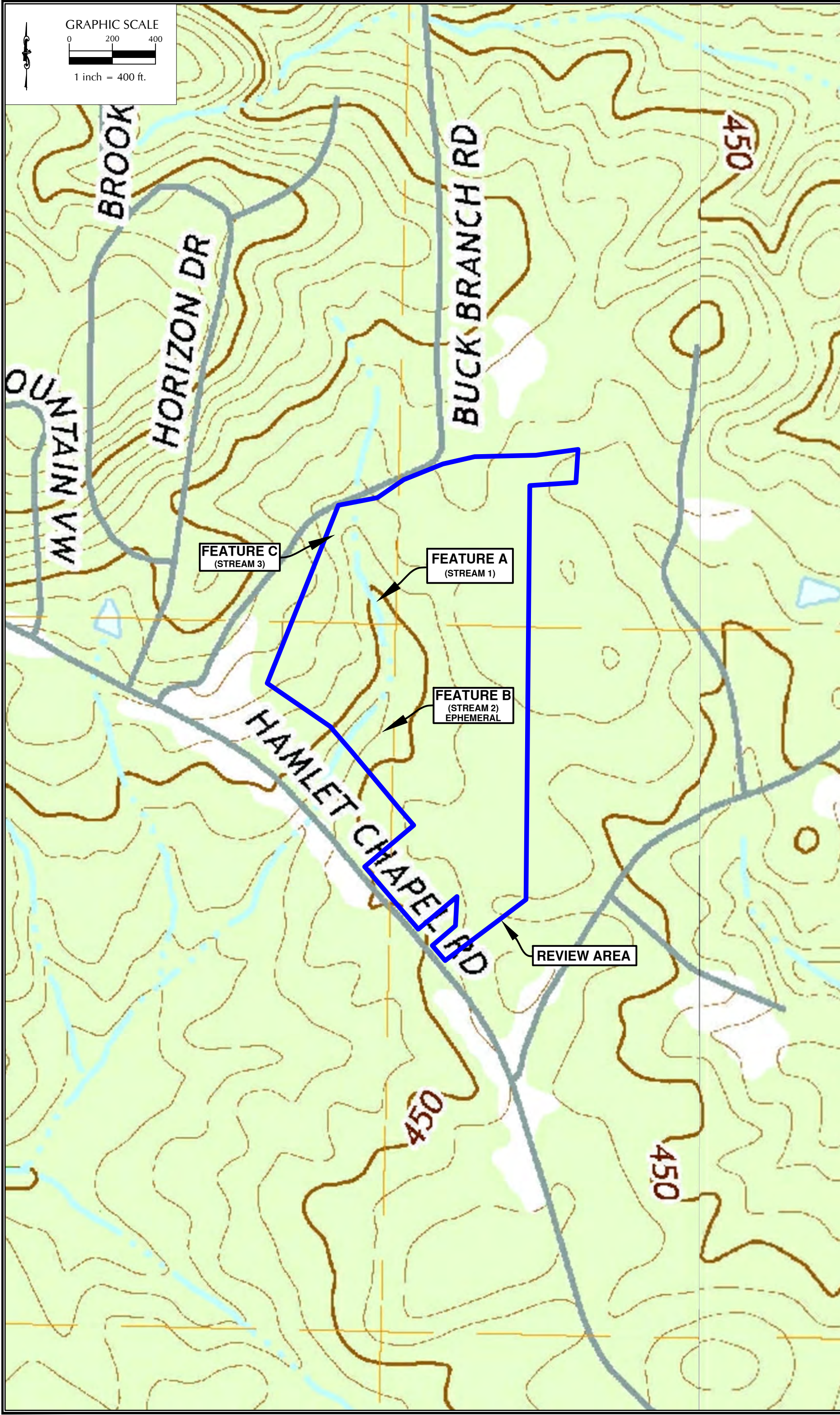
NOTES:
 1) DELINEATION PERFORMED BY WR ON 03/30/2022.
 2) WETLAND/STREAM/BUFFER LOCATIONS ARE APPROXIMATE, BASED ON GPS LOCATION, CHATHAM COUNTY GIS DATA, AND TOPOGRAPHIC INTERPRETATION.

GRAPHIC SCALE



1 inch = 400 ft.





K:\22\22-0130\2021-22-Flatiron Forest\Wetlands-Streams\CAD\Buffer Determination Base.dwg - Thursday, May 5, 2022 2:22:31 PM - WELSH, PATRICK

NC DWQ Stream Identification Form Version 4.11

Date: 3/30/2022	Project/Site: Flatiron Forest	Latitude:
Evaluator: A.Ricci - WithersRavenel	County: Chatham	Longitude:
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 43.75	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other e.g. Quad Name:

A. Geomorphology (Subtotal = <u>23.5</u>)	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 = <u>10.5</u>)	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 = <u>9.75</u>)	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

Date: 3/30/2022	Project/Site: Flatiron Forest	Latitude:
Evaluator: A.Ricci - WithersRavenel	County: Chatham	Longitude:
Total Points: <i>Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*</i> 8	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other <i>e.g. Quad Name:</i>

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 = 0)

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:

Taken above Flag S-1 Start EPH

NC DWQ Stream Identification Form Version 4.11

Date: 3/30/2022	Project/Site: Flatiron Forest	Latitude:
Evaluator: A.Ricci - WithersRavenel	County: Chatham	Longitude:
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^*$ 13	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 = 2)

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

Date: 3/30/2022	Project/Site: Flatiron Forest	Latitude:
Evaluator: A.Ricci - WithersRavenel	County: Chatham	Longitude:
Total Points: <i>Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*</i> 26	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other <i>e.g. Quad Name:</i>

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 = 8)

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

C. Biology (Subtotal = 6.5)

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:

Project/Site: Flatiron Forest City/County: Pittsboro/Chatham County Sampling Date: 3/30/2022
 Applicant/Owner: RBV 1525, LLC - Rex Vick Jr, Manager State: NC Sampling Point: DP-1
 Investigator(s): A.Ricci & P.Welsh - WithersRavenel Section, Township, Range: _____
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): <1
 Subregion (LRR or MLRA): LRR P, MLRA 136 Lat: 35.795870731 Long: -79.129765404 Datum: NAD83
 Soil Map Unit Name: HeB - Helena sandy loam, 6 to 10 percent slopes NWI classification: Bottomland Hardwood
 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 _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: This sampling point was located within Wetland B, at Flag AA-5, near the lat/long specified above. This dataform also applies to Wetlands D, and E, as conditions were similar.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators</u> (minimum of one is required; check all that apply) _____ _____ Surface Water (A1) _____ True Aquatic Plants (B14) <u>X</u> High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) <u>X</u> 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) <u>X</u> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators</u> (minimum of two required) _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) <u>X</u> Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>8</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>1</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Wetland hydrology was present at this sampling point.

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

Sampling Point: DP-1

Tree Stratum (Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Betula nigra</u>	<u>10</u>	<u>No</u>	<u>FACW</u>
2. <u>Platanus occidentalis</u>	<u>10</u>	<u>No</u>	<u>FACW</u>
3. <u>Pinus taeda</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Acer rubrum</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>90</u> =Total Cover			
50% of total cover: <u>45</u>		20% of total cover: <u>18</u>	

Sapling Stratum (Plot size: <u>15' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pinus taeda</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Acer rubrum</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>30</u> =Total Cover			
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>	

Shrub Stratum (Plot size: <u>15' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer rubrum</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Morella cerifera</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>10</u> =Total Cover			
50% of total cover: <u>5</u>		20% of total cover: <u>2</u>	

Herb Stratum (Plot size: <u>5' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Arundinaria gigantea</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>
2. <u>Woodwardia areolata</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Juncus effusus</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
<u>40</u> =Total Cover			
50% of total cover: <u>20</u>		20% of total cover: <u>8</u>	

Woody Vine Stratum (Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>None</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ =Total Cover			
50% of total cover: _____		20% of total cover: _____	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>60</u>	x 2 = <u>120</u>
FAC species <u>110</u>	x 3 = <u>330</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>170</u> (A)	<u>450</u> (B)
Prevalence Index = B/A = <u>2.65</u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation was present at this sampling point.

SOIL

Sampling Point: DP-1

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		
0-3	10YR 4/2	95	7.5YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
3-14	10YR 5/1	90	7.5YR 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 X No _____

Remarks:

Hydric soils were present at this sampling point.

Project/Site: Flatiron Forest City/County: Pittsboro/Chatham County Sampling Date: 3/30/2022
 Applicant/Owner: RBV 1525, LLC - Rex Vick Jr, Manager State: NC Sampling Point: DP-2
 Investigator(s): A.Ricci & P.Welsh - WithersRavenel Section, Township, Range: _____
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): >1
 Subregion (LRR or MLRA): LRR P, MLRA 136 Lat: 35.795870731 Long: -79.129765404 Datum: NAD83
 Soil Map Unit Name: HeB - Helena sandy loam, 6 to 10 percent slopes NWI classification: Upland
 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 _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydic Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	

Remarks:
 This sampling point was located within uplands adjacent to Wetland B, at Flag AA-5, near the lat/long specified above. This dataform also applies to uplands adjacent to Wetlands D, and E, as conditions were similar.

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <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 type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input 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 type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>24</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>24</u> (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Wetland hydrology was not present at this sampling point.

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

Sampling Point: DP-2

Tree Stratum (Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pinus taeda</u>	<u>70</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Acer rubrum</u>	<u>10</u>	<u>No</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>80</u> =Total Cover			
50% of total cover: <u>40</u>		20% of total cover: <u>16</u>	

Sapling Stratum (Plot size: <u>15' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pinus taeda</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Acer rubrum</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Ilex opaca</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>50</u> =Total Cover			
50% of total cover: <u>25</u>		20% of total cover: <u>10</u>	

Shrub Stratum (Plot size: <u>15' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Ligustrum sinense</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Ilex opaca</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>25</u> =Total Cover			
50% of total cover: <u>13</u>		20% of total cover: <u>5</u>	

Herb Stratum (Plot size: <u>5' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Polystichum acrostichoides</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
<u>15</u> =Total Cover			
50% of total cover: <u>8</u>		20% of total cover: <u>3</u>	

Woody Vine Stratum (Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>None</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ =Total Cover			
50% of total cover: _____		20% of total cover: _____	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 42.9% (A/B)

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>120</u>	x 3 = <u>360</u>
FACU species <u>50</u>	x 4 = <u>200</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>170</u> (A)	<u>560</u> (B)
Prevalence Index = B/A = <u>3.29</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes	<u> </u>	No	<u>X</u>
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Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation was not present at this sampling point.

SOIL

Sampling Point: DP-2

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		
0-14	10YR 5/3	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

Remarks:

Hydric soils were not present at this sampling point.

Project/Site: Flatiron Forest City/County: Pittsboro/Chatham County Sampling Date: 3/30/2022

Applicant/Owner: RBV 1525, LLC - Rex Vick Jr, Manager State: NC Sampling Point: DP-3

Investigator(s): A.Ricci & P.Welsh - WithersRavenel Section, Township, Range: _____

Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): <1

Subregion (LRR or MLRA): LRR P, MLRA 136 Lat: 35.797270004 Long: -79.128303468 Datum: NAD83

Soil Map Unit Name: HeB - Helena sandy loam, 6 to 10 percent slopes NWI classification: Headwater forest

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 _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks:
 This sampling point was located within Wetland C at Flag C-10, near the lat/long specified above. This dataform also applies to Wetlands A and F, as conditions were similar.

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 checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> 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) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	_____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> 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) <input checked="" type="checkbox"/> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>1</u> Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>2</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>1</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Wetland hydrology was present at this sampling point.

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

Sampling Point: DP-3

Tree Stratum (Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Betula nigra</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>
2. <u>Platanus occidentalis</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Pinus taeda</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Salix nigra</u>	<u>15</u>	<u>No</u>	<u>OBL</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>95</u> =Total Cover		
	50% of total cover: <u>48</u>	20% of total cover: <u>19</u>	

Sapling Stratum (Plot size: <u>15' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	<u>15</u>	<u>Yes</u>	<u>OBL</u>
2. <u>Pinus taeda</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Acer rubrum</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>45</u> =Total Cover		
	50% of total cover: <u>23</u>	20% of total cover: <u>9</u>	

Shrub Stratum (Plot size: <u>15' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Vaccinium corymbosum</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
2. <u>Acer rubrum</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>25</u> =Total Cover		
	50% of total cover: <u>13</u>	20% of total cover: <u>5</u>	

Herb Stratum (Plot size: <u>5' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Woodwardia areolata</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>
2. <u>Juncus effusus</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Carex spp.</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>55</u> =Total Cover		
	50% of total cover: <u>28</u>	20% of total cover: <u>11</u>	

Woody Vine Stratum (Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>None</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____ =Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>30</u>	x 1 = <u>30</u>
FACW species <u>120</u>	x 2 = <u>240</u>
FAC species <u>70</u>	x 3 = <u>210</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>220</u> (A)	<u>480</u> (B)
Prevalence Index = B/A = <u>2.18</u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation was present at this sampling point.

SOIL

Sampling Point: DP-3

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		
0-4	10YR 3/2	90	7.5YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations
4-14	10YR 4/1	90	7.5YR 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:

Hydric soils were present at this sampling point.

Project/Site: Flatiron Forest City/County: Pittsboro/Chatham County Sampling Date: 3/30/2022
 Applicant/Owner: RBV 1525, LLC - Rex Vick Jr, Manager State: NC Sampling Point: DP-4
 Investigator(s): A.Ricci & P.Welsh - WithersRavenel Section, Township, Range: _____
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): >1
 Subregion (LRR or MLRA): LRR P, MLRA 136 Lat: 35.797270004 Long: -79.128303468 Datum: NAD83
 Soil Map Unit Name: HeB - Helena sandy loam, 6 to 10 percent slopes NWI classification: Upland
 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 _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: This sampling point was located within uplands adjacent to Wetland C at Flag C-10, near the lat/long specified above. This dataform also applies to uplands adjacent to Wetlands A and F, as conditions were similar.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) _____ <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 type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input 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 type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>24</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>24</u> (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Wetland hydrology was not present at this sampling point.

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

Sampling Point: DP-4

Tree Stratum (Plot size: 30' Radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pinus taeda</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Acer rubrum</u>	<u>10</u>	<u>No</u>	<u>FAC</u>
3. <u>Quercus falcata</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>
4. <u>Quercus stellata</u>	<u>10</u>	<u>No</u>	<u>UPL</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>70</u> =Total Cover		
	50% of total cover: <u>35</u>	20% of total cover: <u>14</u>	

Sapling Stratum (Plot size: 15' Radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pinus taeda</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Acer rubrum</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Ilex opaca</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>50</u> =Total Cover		
	50% of total cover: <u>25</u>	20% of total cover: <u>10</u>	

Shrub Stratum (Plot size: 15' Radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pinus taeda</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Acer rubrum</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Ilex opaca</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>15</u> =Total Cover		
	50% of total cover: <u>8</u>	20% of total cover: <u>3</u>	

Herb Stratum (Plot size: 5' Radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Ligustrum sinense</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Polystichum acrostichoides</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>40</u> =Total Cover		
	50% of total cover: <u>20</u>	20% of total cover: <u>8</u>	

Woody Vine Stratum (Plot size: 30' Radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>None</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	_____ =Total Cover		
	50% of total cover: _____	20% of total cover: _____	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

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>90</u>	x 3 = <u>270</u>
FACU species <u>75</u>	x 4 = <u>300</u>
UPL species <u>10</u>	x 5 = <u>50</u>
Column Totals: <u>175</u> (A)	<u>620</u> (B)
Prevalence Index = B/A = <u>3.54</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes	No
<u> </u>	<u>X</u>

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation was not present at this sampling point.

SOIL

Sampling Point: DP-4

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		
0-14	10YR 5/4	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

Remarks:

Hydric soils were not present at this sampling point.

WP-22-294

On-site Riparian Buffer Review

Status: Active**Date Created:** May 11, 2022**Applicant**

Alyssa Ricci
 aricci@withersravenel.com
 115 Mackenan Drive
 Cary, North Carolina 27511
 9192158619

Location

0 VACANT
 North Carolina 00000

Owner:

CHATHAM LAND & TIMBER MGMT LLC BROWNING MARGARET
 981 OLD GRAHAM RD PITTSBORO , NC 27312

Project Information**Review Type**

Major Subdivision

Before continuing please complete a phone or email conversation with Paula Phillips of the Planning Department. (919) 542-8276 paula.phillips@chathamcountync.gov

If your project will result in a review of greater than 10 acres 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.

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.

Number of Features Found

9

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

03/30/2022

Has USACE on-site review been scheduled or completed

--

A Minor Subdivision is the creation of 5 or less new lots. If the original tract is over 10 acres and the subdivision results in the total of that tract becoming

less than 10 acres then two lots have been created by default.

Parcel Information

Parcel Number (s) 9764-00-14-6789, 9764-00-13-3695	Watershed District WS-IV PA
Is the property within the Jordan Lake Watershed Yes	
Property Owner Name Chatham Land & Timber Management LLC & Margaret Browning	
Location of Tract (address if applicable) Located immediately north of 624 Hamlets Chapel Road	
Driving Directions from Pittsboro Drive north on 15-501, turn left on Hamlets Chapel Rd, Site on right side of road just past Parker Herndon Rd.	
Subdivision Name (if applicable) Flatiron Forest Subdivision	
Please describe access issues (provide gate codes, or information for scheduling site visit) No gate, park on the side of the road	

Applicants Information

Are you the Landowner or an Agent Agent	Full Name Alyssa Ricci
Primary Phone Number 919-215-8619	Primary Email aricci@withersravenel.com
Mailing Address 115 Mackenan Dr	City/State Cary
Zip Code 27511	

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
Alyssa Ricci

New Field
05/10/2022

Attachments

 Access Authorization_Chatham Land and Timber Management LLC.pdf
Uploaded by Alyssa Ricci on May 10, 2022 at 12:42 pm



- Agent Authorization_RBV 1525 LLC.pdf
Uploaded by Alyssa Ricci on May 10, 2022 at 12:43 pm
-  Coverletter.pdf
Uploaded by Alyssa Ricci on May 11, 2022 at 8:12 am
-  Flatiron Forest_Buffer Determination Exhibit.pdf
Uploaded by Alyssa Ricci on May 10, 2022 at 12:44 pm
-  Stream ID Forms.pdf
Uploaded by Alyssa Ricci on May 11, 2022 at 8:16 am
-  Soil Survey.pdf
Uploaded by Alyssa Ricci on May 10, 2022 at 12:47 pm
-  USGS.pdf
Uploaded by Alyssa Ricci on May 10, 2022 at 12:45 pm
-  Stream Photo Documentation.pdf
Uploaded by Alyssa Ricci on May 11, 2022 at 8:55 am

History

Date	Activity
May 10, 2022 at 12:26 pm	Alyssa Ricci started a draft of Record WP-22-294
May 11, 2022 at 8:54 am	Alyssa Ricci added attachment Stream Photo Documentation.pdf to Record WP-22-294
May 11, 2022 at 8:55 am	Alyssa Ricci submitted Record WP-22-294
May 11, 2022 at 8:55 am	approval step Intake Approval was assigned to Drew Blake on Record WP-22-294
May 11, 2022 at 11:04 am	Drew Blake changed Number of Features Found from "3" to "9" on Record WP-22-294
May 11, 2022 at 11:04 am	Drew Blake approved approval step Intake Approval on Record WP-22-294
Jun 1, 2022 at 7:40 pm	completed payment step Major Subdivision Riparian Buffer Review Fee on Record WP-22-294
Jun 1, 2022 at 7:40 pm	changed the deadline to Jun 15, 2022 on approval step Field Review on Record WP-22-294
Jun 1, 2022 at 7:40 pm	approval step Field Review was assigned to Drew Blake on Record WP-22-294
Jun 1, 2022 at 7:40 pm	changed the deadline to Jun 15, 2022 on approval step Field Review on Record WP-22-294

Timeline

Label	Status	Activated	Completed	Assignee	Due Date
 Intake Approval	Complete	May 11, 2022 at 8:55 am	May 11, 2022 at 11:04 am	Drew Blake	-
 Major Subdivision Riparian Buffer Review Fee	Paid	May 11, 2022 at 11:04 am	Jun 1, 2022 at 7:40 pm	-	-
 Field Review	Active	Jun 1, 2022 at 7:40 pm	-	Drew Blake	06/14/2022
 Major Subdivision Riparian Buffer Confirmation Report	Inactive	-	-	-	-



WithersRavenel

Our People. Your Success.

AUTHORIZATION FOR PROPERTY ACCESS

The undersigned owner(s), Chatham Land & Timber Management LLC, do(es) hereby authorize WithersRavenel, Inc. to access ±42-acres of the ±91.39-acre parcel, Chatham Co. PIN: 9764-00-14-6789, located directly north of 624 Hamlets Chapel Road, in Pittsboro, NC for the purpose of environmental regulatory agency review (US Army Corps of Engineers, NC Division of Water Quality, NC Division of Coastal Management, US Fish and Wildlife Service, local Municipalities, etc.) and approvals (i.e. wetland delineation, stream/buffer determination, environmental permitting, etc.) at the request of the contract purchaser.

This authorization does not bind the current property owner(s) to financial responsibility for services rendered on the subject property by WithersRavenel, Inc.

This agreement shall continue in effect until completion/termination of the purchase contract for the subject property.

Date: 4/21/2022

Contract Purchaser's Agent Info:

Signature of Owner(s):

WithersRavenel, Inc.

Name - Print _____ Title _____

115 MacKenan Drive

DocuSigned by:
Richard B. Danek
Signature

Cary, NC 27511

Tel. (919)-469-3340

Mailing Address

City State Zip

Phone: _____

Email: _____



WithersRavenel

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**Flatiron Forest – Pittsboro, Chatham County
Photographic Documentation**



Photo 1: View of Feature A (Stream 1) that runs throughout the review area.



Photo 2: View of the channel above the ephemeral start flag of Feature B (Stream 2).



Photo 3: View of Feature B (Stream 2), facing upstream, just below the ephemeral start flag.



Photo 4: View of Feature B (Stream 2), facing downstream, just above the ephemeral start flag.



Photo 5: View of Feature C (Stream 3) in the northern portion of the review area.