CHATHAM COUNTY
NORTH CAROLINA

WATERSHED PROTECTION DEPARTMENT

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

Fax: (984) 214-1456 ● E-mail: taylor.burton@chathamcountync.gov

July 24, 2023

Rhiannon Graham
2401 Brentwood Road, Suite 107
Raleigh, NC 27604

Project Name:	Parcel # 5491
Location:	4980 Beaver Creek Rd, New Hill, NC 27562
Project Number	WP-23-320
Subject Features:	One (1) ephemeral segment, two (2) intermittent segments, and three (3) potential wetlands

Dear Rhiannon Graham,

Explanation:
The site visit was completed on July 17, 2023, by Rhiannon Graham of Terracon Consultants, Inc. and Drew Blake of Chatham County Watershed Protection Department, on a property identified as Chatham County Parcel # 5491 that is located within the Jordan Lake watershed. Terracon personnel completed a previous site visit on October 31, 2022, and identified one (1) ephemeral stream segments within the review area. Terracon 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
Stream E1 was reviewed and approved through a minor subdivision application and is not included in this review or the scope of this project. During the onsite review a portion of T1 was upgraded from ephemeral to intermittent, while the initial portion remains ephemeral. A wetland (W3) was added along the T1 drainage. T2 was upgraded from ephemeral to intermittent throughout the project. Wetland (W1) was added to the headwaters of T2 and W2 was added along the T2 drainage. The following surface water features require riparian buffers: one (1) ephemeral segment, two (2) intermittent segments, and three (3) potential wetlands.

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)(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.

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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 Terracon 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**

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,

Taylor A. Burton
Senior Watershed Specialist

Drew Blake
Assistant Director, CESSWI

Enclosures:
Anfield Estates – Major Subdivision Wetlands/Water Delineation Report – Completed by Terracon
Stream ID Forms – Completed by Terracon
Wetland Data Form – Completed by Terracon
Major Subdivision Riparian Buffer Application
Authorized Agent Form
Authorization to Enter Property Form

cc: Drew Blake, Assistant Director, 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

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Angela Plummer, Planner II/Zoning Administrator, Chatham County Planning Department
Jason Sullivan, Director, Chatham County Planning Department

2401 Brentwood Rd, Suite 107
Raleigh, NC 27604
P (919) 873-2211
Terracon.com

Re: Anfield Estates-Major Subdivison review area
Wetlands/Water Delineation
Chatham County, NC
Terracon Project No. 70227602

Terracon Consultants, Inc. (Terracon), has completed the requested wetlands and waters delineation for the approximately 24-acre 4980 Beaver Creek Road property located in Chatham County, NC (Exhibit 1). Terracon staff was tasked with reviewing the property to identify features that may be considered subject to jurisdiction and permitting requirements under Sections 404 and 401 of the Clean Water Act (CWA) and also features that may be subject to Chatham County buffer requirements.

Preliminary Delineation Results
Our review of the approximately 24-acre Anfield Estates property identified two (1) potential ephemeral drainage, two (2) potential tributaries, and three (3) potential wetlands.

These delineation results are considered preliminary and are subject to review and approval by the USACE, should you request, and they choose to review the delineation. Exhibit 3 depicts the approximate location and extent of the potential wetlands and was prepared using non-survey grade, sub-meter GPS data. Exhibit 3 is not a replacement for a traditional survey. It is suitable for preliminary planning purposes only and for use by a surveyor to aid in locating flags.

Table 2. Potential Ephemeral Drainages Identified for the Anfield Estates

Potential Tributary ID	Flow Regime[1]	NCDWR Stream Score	Approximate Amount in Study Area (LF)
E2	Ephemeral	12	19
		Total:	**19 LF**

[1] Based on NCDWR score

Table 3. Potential tributaries Identified for the Anfield Estates

Potential Tributary ID	Flow Regime[1]	NCDWR Stream Score	Approximate Amount in Study Area (LF)
T1	Intermittent	21	508
T2	Intermittent	21.5	292
		Total:	**800 LF**

[1] Based on NCDWR score

Table 2. Potential wetlands Identified for the Anfield Estates

Potential Wetland ID	NCWAM Classification	Approximate Size (ac)
W1	Headwater Forest	0.08
W2	Headwater Forest	<0.01
W3	Headwater Forest	0.02
	Total:	**0.11**

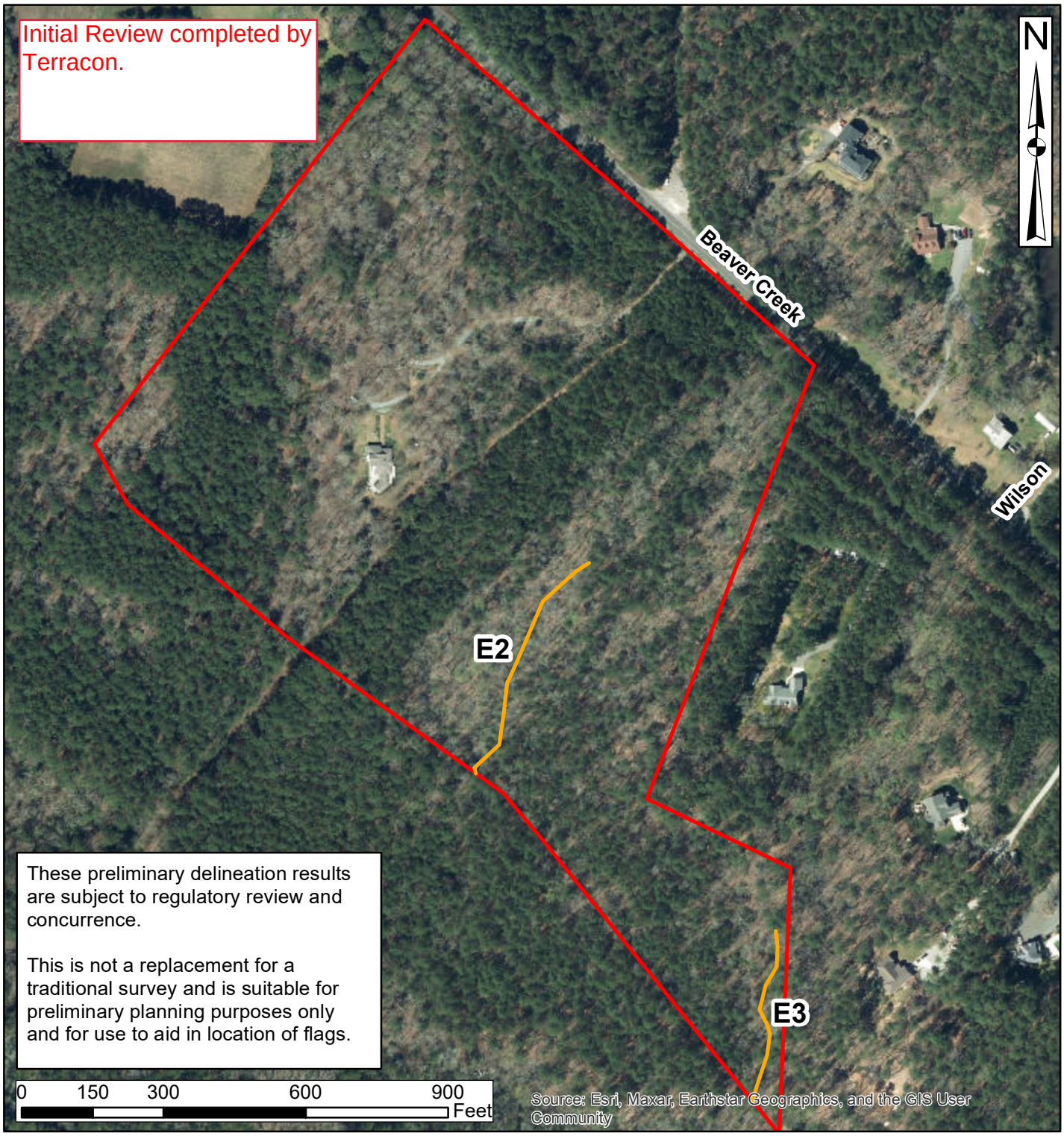
[1] Based on NCDWR score

Riparian Buffers/Setbacks

The study area is within the Cape Fear River Basin, within Chatham County. Properties that are outside the Jordan Lake watershed and were created after December 2, 2008 or any property that is currently proposed for subdivision and are currently going through the subdivision process are subject to Chatham County buffers as defined in Section 304 (D) of the Chatham County Watershed Protection Ordinance. Buffers in this area, that may apply to this property, are defined by Chatham County as follows:

- Ephemeral Streams – the riparian buffer is 30-ft from the top of bank
- Intermittent Streams – the riparian buffer is 50-ft from the top of bank
- Perennial Streams – the riparian buffer is 100-ft from the top of bank
- Wetlands – the riparian buffer is 50-ft from the delineated boundary

The ephemeral drainages are not depicted on the topographic map or the published soil survey.



Legend

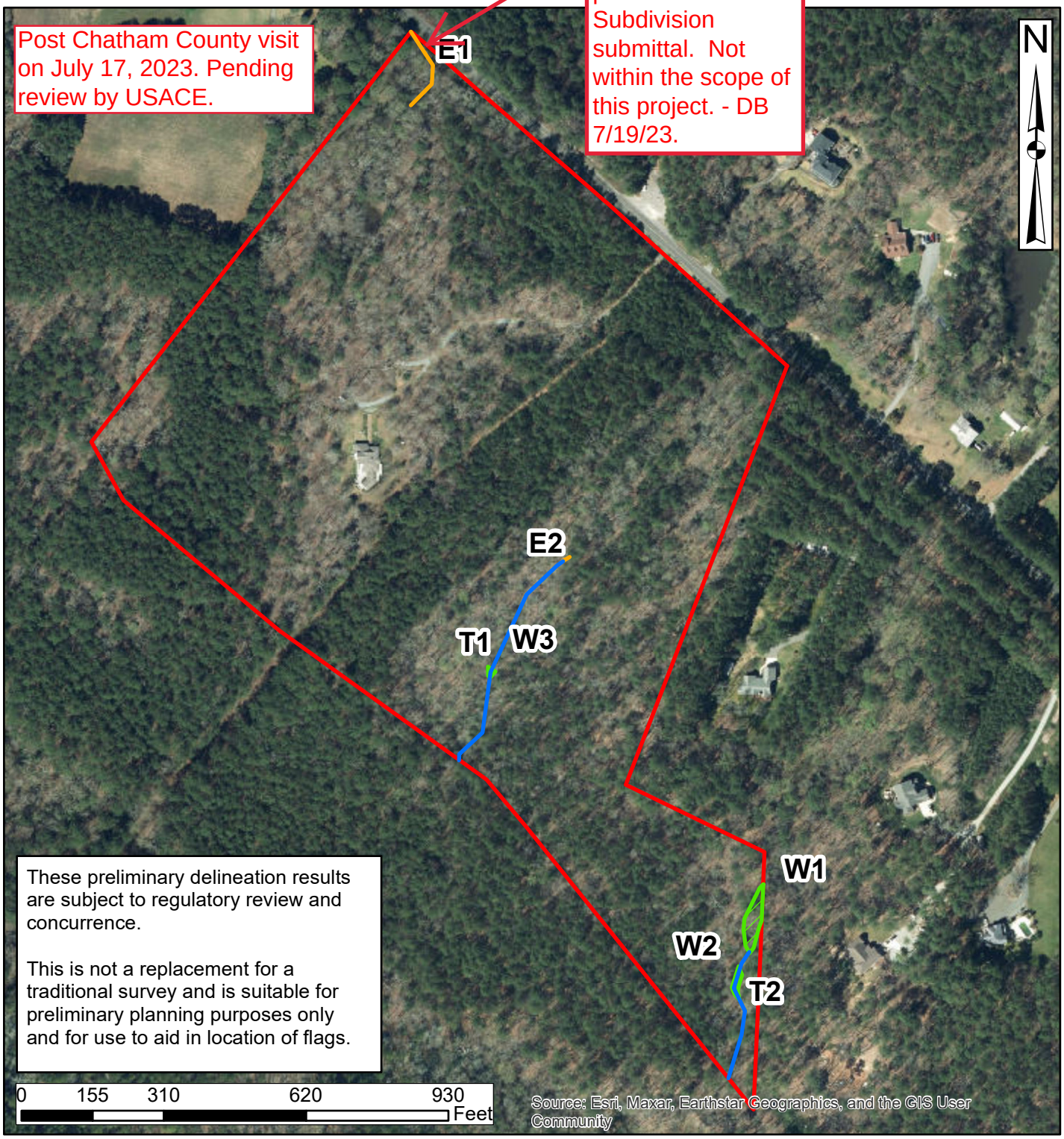
Project Study Area

Potential Ephemeral

Data Sources:
Site Boundary provided by Client &
NC One Map Data

PM: Drainage JH	Project No. 70227602	Terracon	Potential Wetlands and Waters Map
Drawn By: RG	Scale: 1 in = 300 ft		4980 Beaver Creek Road Chtaham County, North Carolina
Checked By: RG	File Path: Site Diagram		EXHIBIT NO. 3
Approved By: JH	Date: 11/7/2022		

2401 Brentwood Road, Suite 107 Raleigh, NC 27604
Phone: (919) 873-2211 Fax: (919) 873-9555



Legend

- Project Study Area
- Potential Wetland
- Potential Ephemeral Drainage
- Potential Tributary

Data Sources:
Site Boundary provided by Client &
NC One Map Data

PM: JH	Project No. 70227602	Terracon	Potential Wetlands and Waters Map
Drawn By: RG	Scale: 1 in = 300 ft	2401 Brentwood Road, Suite 107 Raleigh, NC 27604 Phone: (919) 873-2211 Fax: (919) 873-9555	4980 Beaver Creek Road Anfield Estates Chatham County, North Carolina
Checked By: RG	File Path: Site Diagram		EXHIBIT NO. 3
Approved By: JH	Date: 7/18/2023		

NC DWQ Stream Identification Form Version 4.11

T1

Date: 10/31/22	**Project/Site:** 4980 Beaver Creek Road	**Latitude:** 35.67835
Evaluator: Terracon-R. Graham	**County:** Chatham	**Longitude:** -78.99600
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 21	**Stream Determination (circle one)** Ephemeral **Intermittent** Perennial	**Other** New Hill, NC *e.g. Quad Name*:

A. Geomorphology (Subtotal = 11)	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 = 4)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

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

Notes:

Sketch:

NC DWQ Stream Identification Form Version 4.11

T2

Date: 10/31/22	**Project/Site:** 4980 Beaver Creek Road	**Latitude:** 35.67616
Evaluator: Terracon-R. Graham	**County:** Chatham	**Longitude:** -78.99433
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 21.5	**Stream Determination (circle one)** Ephemeral **Intermittent** Perennial	**Other** New Hill, NC *e.g. Quad Name*:

A. Geomorphology (Subtotal = 11)	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 = 6.5)				
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 = 4)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

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

Notes:

Sketch:

E2

NC DWQ Stream Identification Form Version 4.11

Date: 10/31/22	**Project/Site:** 4980 Beaver Creek Road	**Latitude:** 35.67619
Evaluator: Terracon-R. Graham	**County:** Chatham	**Longitude:** -78.99445
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 12	**Stream Determination (circle one)** **Ephemeral** **Intermittent** **Perennial**	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 8.5)	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 = 3)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

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

Notes:

Sketch:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 4980 Beaver Creek Road City/County: Chatham County Sampling Date: 17 Jul, 2023

Applicant/Owner: KC2 Development, LLC State: NC Sampling Point: W1 wet

Investigator(s): Graham, Rhiannon; Section, Township, Range: NA

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2-4

Subregion (LRR or MLRA): LRR-P Lat: 35.67616 Long: -78.99433 Datum: WGS 84

Soil Map Unit Name: Creedmoor - Green Level Complex NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ 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 _____	**Is the Sampled Area within a Wetland?** **Yes ✔** **No _____**
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Represents W1, W2, W3

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ 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)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): NA
Water Table Present?	Yes ✔	No _____	Depth (inches): 2"
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): Surface

Wetland Hydrology Present? Yes ✔ No _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: **W1 wet**

Tree Stratum (Plot size: 30ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Sapling/Shrub Stratum (Plot size: 30ft. radius)			
1. Liquidambar styraciflua	10	Yes	FAC
2. Acer rubrum	20	Yes	FAC
3. Vaccinium corymbosum	10	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 30ft. radius)			
1. Microstegium vimineum	15	Yes	FAC
2. Smilax rotundifolia	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Woody Vine Stratum (Plot size: 30ft. radius)			
1. none present			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	0	x 2 =	0
FAC species		x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

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.

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.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

SOIL Sampling Point: **W1 wet**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 5/2	90	7.5YR 4/6	10	C	M	LC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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) **(LRR N, MLRA 147, 148)**
- ___ 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 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 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators 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:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 4980 Beaver Creek Road City/County: Chatham County Sampling Date: 17 Jul, 2023

Applicant/Owner: KC2 Development, LLC State: NC Sampling Point: W1 up

Investigator(s): Graham, Rhiannon; Section, Township, Range: NA

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 2-4

Subregion (LRR or MLRA): LRR-P Lat: 35.67674 Long: -78.99430 Datum: WGS 84

Soil Map Unit Name: Creedmoor - Green Level Complex NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ 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 _____	**Is the Sampled Area within a Wetland?** **Yes** ✔ **No** _____
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Represents W1, W2, W3

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): NA
Water Table Present?	Yes _____	No ✔	Depth (inches): >20"
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): >20"

Wetland Hydrology Present? **Yes** _____ **No** ✔

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: **W1 up**

Tree Stratum (Plot size: 30ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	Yes	FAC
2. Pinus taeda	40	Yes	FAC
3. Ilex opaca	20	Yes	FACU
4.			
5.			
6.			
7.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling/Shrub Stratum (Plot size: 30ft. radius)			
1. Ilex opaca	20	Yes	FACU
2. Acer rubrum	15	Yes	FAC
3. Ligustrum sinense	15	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot size: 30ft. radius)			
1. Microstegium vimineum	15	Yes	FAC
2. Smilax rotundifolia	10	No	FAC
3. Polystichum acrostichoides	20	Yes	FACU
4. Mitchella repens	15	Yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Woody Vine Stratum (Plot size: 30ft. radius)			
1. none present			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 55.56% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	0	x 2 =	0
FAC species		x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

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.

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.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

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

SOIL Sampling Point: **W1 up**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/4	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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) **(LRR N, MLRA 147, 148)**
- ___ 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 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 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators 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:

On-site Riparian Buffer Review

WP-23-320

Submitted On: Jun 26, 2023

Applicant

Rhiannon Graham
760-717-2621
@ rhiannon.graham@terracon.com

Primary Location

4980 Beaver Creek Rd
New Hill, North Carolina 27562

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

2

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

10/31/2022

Has USACE on-site review been scheduled or completed

--

Parcel Information

Parcel Number (s)

5491

Watershed District

--

Is the property within the Jordan Lake Watershed

Yes

Property Owner Name

Brad Zadell

Location of Tract (address if applicable)

4980 Beaver Creek Road

Driving Directions from Pittsboro

NA

Subdivision Name (if applicable)

Anfield Estates

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

park at gate

Applicants Information

Are you the Landowner or an Agent

Agent

Full Name

Rhiannon Graham

Primary Phone Number

760-717-2621

Primary Email

rhiannon.graham@terracon.com

Mailing Address

2401 Brentwood Road, suite 107

City/State

raleigh, nc

Zip Code

27604

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.

true

Statement of Understanding

I have read and understand the regulations of the Watershed Protection

Name

Rhiannon Graham

Ordinance, Section 304, and I agree to adhere to these associated policies and guidelines.

New Field

06/22/2023

CHATHAM COUNTY
NORTH CAROLINA

Watershed Protection Department

P.O. Box 548
Pittsboro, NC 27312

Website: www.chathamnc.org

Authorization to Enter Property Form

Date: 11/4/22

PARCEL No. (AKPAR) # 5491

I, (print name) Brad Zadell, 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.

Brad Zadell
(Print Owner's Name)

Brad Zadell, KC2 Holding, LLC
(Signature of Owner)
(Date)

(Print Authorized Agent Name)

(Signature of Authorized Agent)
(Date)

CHATHAM COUNTY

AUTHORIZED AGENT FOR FORM

PROPERTY LEGAL DESCRIPTION:

LOT NO. _____ PARCEL ID (PIN) 5491 PARCEL SIZE 37 acres

STREET ADDRESS: 4980 Beaver Creek Road, New Hill, NC 27562

Please print:
Property Owner: Robbie Taylor, Laura Connor, and Patricia Copeland

Property Owner: _____

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

Rhiannon Graham (Contractor / Agent), of Terracon Consultants (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):

_____

Telephone: _____ E-mail: _____

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

_____
Owner Authorized Signature

Date: _____

_____
Agent Authorized Signature

Date: 11/4/22