CONCEPT PLAN APPLICATION

Parcel Identifier Number (PIN): 9890065926, 9880967441, 9890060413, 9890063350, 9890066312, & 9890160437 Date: 25 Sep 2018

Section A: Project Information

Project Name: Habitat/Carol Woods Community

Property Address: 7516 Sunrise Road Chapel Hill, NC Zip Code: 27514

Use Groups (A, B, and/or C): A & B Existing Zoning District: TBD

Project Description: 223 dwelling unit residential project on 33.8 acres with amenities and a small café. Project will include 95 affordable housing units, assisted living facilities, and a variety of market rate duplexes and apartments.

Section B: Applicant, Owner and/or Contract Purchaser Information

Applicant Information (to whom correspondence will be mailed)

Name: George J. Retschle – Ballentine Associates PA

Address: 221 Providence Rd

City: Chapel Hill State: NC Zip Code: 27514

Phone: (919) 489-4789 Email: georger@bapa.eng.pro

The undersigned applicant hereby certifies that, to the best of his knowledge and belief, all information supplied with this application is true and accurate.

Signature:  Date: 21 Sep 18

Owner/Contract Purchaser Information:

☒ **Owner** ☒ **Contract Purchaser**

Name: Habitat for Humanity Orange County

Address: 88 Vilcom Center Dr Suite L110

City: Chapel Hill State: NC Zip Code: 27514

Phone: (919) 932-7077 Email: Slevy@orangehabitat.org

The undersigned applicant hereby certifies that, to the best of his knowledge and belief, all information supplied with this application is true and accurate.

Signature:  Date: 9-24-2018

Concept Plan Overview

Site Description	
Project Name	Habitat/Carol Woods Community
Address	7516 Sunrise Road Chapel Hill, Nc 27514
Property Description	+/-33.8 acres, predominately vacant with 4 existing single-family homes
Existing Land Use	Single-family homes/vacant
Proposed Land Use	Assisted living facilities, single-family homes/duplexes, multi-family homes
Orange County Parcel Identifier Numbers	9890065926, 9890160437, 9890066312, 9890063350, 9890060413, 9880967441
Existing Zoning	R-2
Proposed Zoning	TBD
Application Process	SUP/Rezoning
Comprehensive Plan Elements	PFE, NOC
Overlay Districts	Resource Conservation District

Regulatory Land Use Intensity

Design/LUMO Standards		Requirement	**Proposal**	Status
Sec. 3.7	Use/Density		Adult day care facility, single family, duplex, multifamily/6.5 DU/acre	
Sec 3.8	Net Land Area		33.8 acres	
Sec 3.8	Gross Land Area		34.2 acres	
Sec. 3.8	Dimensional Standards	Street TBD Interior TBD Solar TBD		
Sec. 3.8	Floor area	TBD		
Sec. 4.5.6	Modification to Regulations	TBD		N/A
Sec. 5.5	Recreation Space	TBD		

Site Design

	Design/LUMO Standards		Requirement	Proposal	Status
Landscape	Sec. 5.6	East	20 feet	TBD	
	Sec. 5.6	North West/East	20/100 feet	TBD	
	Sec. 5.6	South	20 feet	90 feet	
	Sec. 5.6	West	20 feet	TBD	
	Sec. 5.7	Tree Canopy	40%	TBD	
	Sec. 5.11	Lighting Plan (footcandles)			
Environment	Sec. 3.6	Resource Conservation District			
	Sec. 5.18	Jordan Riparian Buffer			
	Sec. 5.3.2	Steep Slopes			
	Sec. 5.4	Stormwater Management			
		Land Disturbance			
	Sec. 5.4	Impervious Surface			
	Sec. 5.13	Solid Waste & Recycling			
Housing		Affordable Housing Proposal, if applicable			

	Design/LUMO Standards		Requirement	Proposal	Status
Access & Circulation	Sec. 5.8	Street Standards			
	Sec. 5.8	Vehicular Access			
	Sec. 5.8	Bicycle Improvements			
	Sec. 5.8	Pedestrian Improvements			
	Sec. 5.8	Distance from bus stop			
	Sec. 5.8	Transit Improvements			
	Sec. 5.9	Vehicular Parking Spaces			
	Sec. 5.9	Bicycle Parking Spaces			
	Sec. 5.9	Parking Lot Standards			
Other		Homeowners Association			
	Sec. 5.5	Recreation Space			
	Sec. 5.12	Utilities			
	Sec. 5.16	School Adequate Public Facilities			

Symbol	Meaning	Symbol	Meaning
✓	Meets Standard	**M**	Modification necessary
NA	Not Applicable	UNK	Not known at this time

Checklist

The following must accompany your application. Failure to do so will result in your application being considered incomplete. For assistance with this application, please contact the Chapel Hill Planning and Sustainability at (919)968-2728 or at planning@townofchapelhill.org.

- ✔ **Application fee** (refer to fee schedule) — Amount Paid $ 360.00
- ✔ **Pre-application meeting** – with appropriate staff
- ✔ **Digital Files** - provide digital files of all plans and documents
- ✔ **Project Fact Sheet**
- ✔ **Statement of Compliance with Design Guidelines** (2 copies)
- ✔ **Statement of Compliance with Comprehensive Plan** (2 copies)
- ✔ **Affordable Housing Proposal, if applicable** (Rezoning Policy or Inclusionary Ordinance)
- ✔ **Mailing list of owners of property within 1,000 feet perimeter of subject property** (see GIS notification tool)
- ✔ **Mailing fee for above mailing list** — Amount Paid $ 80.00
- ✔ **Developer's Program – brief written statement explaining how the existing conditions impact the site design. Including but not limited to:**
  - Natural features of site
  - Access, circulation, and mitigation of traffic impacts
  - Arrangement and orientation of buildings
  - Natural vegetation and landscaping
  - Impact on neighboring properties
  - Erosion, sedimentation, and stormwater
- ✔ **Resource Conservation District, Floodplain, & Jordan Buffers Determination** - necessary for all submittals
- ✔ **Reduced Site Plan Set (reduced to 8.5"x11")**

Plan Sets (10 copies to be submitted no larger than 24"x36")

Plans should be legible and clearly drawn. All plan sets sheets should include the following:

- Project Name
- Legend
- Labels
- North Arrow (North oriented toward top of page)
- Property Boundaries with bearing and distances
- Scale (Engineering), denoted graphically and numerically
- Setbacks and buffers
- Streams, RCD Boundary, Jordan Riparian Buffer Boundary, Floodplain, and Wetlands Boundary, where applicable

Concept Plan Application

For:

HABITAT/CAROL WOODS COMMUNITY

7516 Sunrise Road
Chapel Hill, NC

Applicant:

Habitat for Humanity of Orange County, NC
88 Vilcom Center Drive | Suite L110
Chapel Hill, NC 27514
(919) 932-7077

Civil Engineer:

Ballentine Associates, P.A.
221 Providence Road
Chapel Hill, NC 27514
(919) 929-0481

Planner/Landscape Architect:

SCOTT MURRAY LAND PLANNING, INC.
Landscape Architecture | Environmental Design | Project Management

Issue Dates	Description
25 Sep 18	Concept Plan Submittal

Project Narrative and Developer's Program

Habitat for Humanity of Orange County, NC and Carol Woods are teaming up to develop a thoughtfully designed residential community that will provide a significant amount of affordable housing for those earning between 30% and 80% of the Area Median Income, assisted living, and moderately priced market rate housing for seniors, each of which are needed in Chapel Hill. This development will be situated on ±33.8 acres east of Sunrise Road, between Ginger Road and I-40 at the northern edge of the Town of Chapel Hill's planning jurisdiction.

The site consists of six separate parcels, which will be recombined and subdivided as necessary to accommodate the project. The site is bisected by a ridge that runs generally southwest to northeast. There is a perennial stream in the northwest corner of the site and an intermittent stream in the southeast corner of the site. Slopes on the site are predominately gentle and less than 15%, although there a few small areas along the streams where slopes exceed 15%, including two very small areas where slopes exceed 25%. The predominant soils on the site are Appling Sandy Loam, with a small area of Wedowee Sandy Loam in the stream area in the northwest corner of the site.

The proposed Habitat/Carol Woods Community will include a total of 95 duplex and townhouse units that meet the criteria for Affordable Housing, as described below in the Affordable Housing Proposal. The community will also include 24 congregate care assisted living units, 50 duplexes of various sizes and 54 apartments of various sizes, bringing the total number of residential dwelling units in the proposed community to 223. The community will also include several amenities and recreational facilities such as a café, community center, open pavilion, garage, community garden, dog park, splash play, playground, walking trail, gazebos, and an open area for lawn games.

The project's program has been carefully adapted to the site's natural features such as wetlands, streams, steep slopes and stream buffers. An existing power transmission line and associated right-of-way has also helped to inform the site layout. The resulting site layout maximizes the use of the site's developable area, while preserving sensitive natural areas.

The project layout provides adequate access to Sunrise Road and includes excellent internal circulation, with several cross-connections proposed throughout the street network. Traffic impacts will be evaluated in detail as part of the upcoming SUP process, but will likely include some widening of Sunrise Road at the proposed project entrance. The street network layout and building placement take advantage of the site's natural topography and focus the majority of the development on the site's natural ridges. Ample landscape buffers will be provided along the project's perimeter.

This project's impacts to neighboring properties have been considered carefully. Since this project is mostly residential, the proposed uses are similar to the residential uses of the surrounding neighborhoods. However, to help buffer the project from the neighborhood to the south, private Ginger Road will be abandoned, the gravel road surface will be removed, and the abandoned easement will be planted to create a 90' wide buffer along this edge.

Stormwater management and sedimentation and erosion control will be handled through the installation of temporary measures during construction and permanent measures will be installed when construction has been completed. State-of-the art technologies and methodologies will be used to meet stormwater and S&E requirements.

Statement of Compliance with Town Design Guidelines

All aspects of this project will be designed to comply with the Town's Design Guidelines. This includes stormwater management, landscaping and tree protection, access and circulation, parking and loading, street lights, signs, and markings, utilities and easements, and solid waste management.

Statement of Compliance with the Comprehensive Plan

Below is a brief outline expressing several ways in which this project will embrace & conform to the ideas and themes driving the Comprehensive Plan:

A Place for Everyone

- The project proposes a significant amount of much-needed affordable housing to help those at or below 80% of the Area Mean Income (AMI) to achieve the dream of home ownership. Providing affordable housing is at the root of this theme of the Comprehensive Plan.

Community Prosperity and Engagement

- This project will create significant construction opportunities in the short term, will create several permanent jobs in the long term, and will provide 223 quality new residential dwelling units for people who will patronize local businesses.

Getting Around

- The proposed community will be very walkable, with sidewalks throughout the developed and walking trails throughout the natural areas to be preserved. Walk connections will be provided to Sunrise Lane and to adjacent neighborhoods, as appropriate. It is anticipated that bus service will be extended to this new development so that public transportation is readily available within a short walking distance to a bus stop.

Good Places, New Spaces

- This project complies with this theme by carefully integrating a new residential community into the existing fabric of the area neighborhoods.

Nurturing Our Community

- A significant amount of natural area will be preserved on this property and opportunities for residents to immerse themselves in and enjoy the preserved natural areas will be provided.
- State-of-the-art stormwater control measures will be designed for this project to ensure that all stormwater regulations are met.

Town and Gown Collaboration

- Close to one third of Habitat's homeowners work for UNC or UNC Health Care. This trend is expected to continue and possibly increase, especially since the location is convenient to campus and bus service will hopefully be extended to serve this community of homes.

Affordable Housing Proposal

Habitat for Humanity of Orange County is a local nonprofit organization affiliated with Habitat for Humanity International. Habitat provides affordable homeownership opportunities for families who live and/or work in Orange County, earn between 30% and 65% of the area median income (AMI), and live in substandard housing. Habitat was incorporated in 1984, and completed its first home in 1987. Since that first home, Habitat has built more than 275 affordable homes throughout the County. Through its new home construction program, Habitat uses donations and volunteer labor to construct energy-efficient, green-certified, high-quality homes, and then sells those homes to qualifying families. The buyers receive an affordable mortgage, and mortgage payments are recycled to build future homes. Homebuyers are required to contribute 275 hours of sweat equity toward the construction of their own and other Habitat homes.

Habitat sells its homes using deeds of restrictive covenants requiring 99-year affordablity to buyers who earn 80% or less of the AMI. In addition, Habitat maintans a right of first refusal on all of its homes, and a shared equity agreement with all of its buyers that allows buyers to share a percentage of the appreciation of their property based on the ratio of their first mortgage and the original sales price of the home, which is determined by a market appraisal at the time of sale. In these ways, Habitat ensures that the community's investment of funds and labor will be preserved if the original buyer sells the home.

In carrying out its homebuilding and community strengthening activities, Habitat educates and empowers its homebuyers through a series of relevant workshops and one-on-one trainings. Habitat also educates the broader community about the crisis in affordable housing by introducing and involving hundreds of new volunteers from all walks of life in its work each year. Habitat promotes the positive value of diversity by uniting people of varied economic, religious, social, and racial backgrounds to work together toward a common goal –building affordable housing for those who need it in our community.

In developing the concept plan for the proposed residential community, Habitat Board and Staff adopted the following guiding principles:

- Aesthetically pleasing, creating new styles and designs for Habitat's homes
- Mixed income, with integration of affordable and market rate homes
- Attention to environmental impact and long term sustainability
- Significant impact on affordable housing crisis
- Good stewards of scarce land
- Foster good relationship with adjacent neighbors

Habitat is excited to be partnering with Carol Woods in developing this community. Carol Woods is proposing to develop approximately 100 units of housing for seniors 55 years of age and older. The units will be built, owned, and managed by Carol Woods. Carol Woods' goal in partnering on this

project is to provide much needed, moderately priced housing to seniors who cannot afford the Carol Woods Continuing Care Community model, or indeed, the majority of the senior housing that is currently being built in Chapel Hill. They hope to serve the "missing middle" for whom housing options are severely limited. Not only will the Carol Woods homes fill a serious gap in the Chapel Hill housing market, they will also provide for greater overall economic diversity as well as opportunities for multi-generational interaction and programming. The site is designed to encourage interaction among the seniors and the Habitat homeowners and their families, and to foster a sense of community among all of the residents regardless of age or economic status.

PUBLIC WORKS DEPARTMENT
STORMWATER MANAGEMENT DIVISION
405 Martin Luther King, Jr. Blvd.
Chapel Hill, NC 27514-5705
Telephone (919) 969-7246
Fax (919) 969-7276
www.townofchapelhill.org

05/29/2015

Steven Ball
8412 Falls of Neuse Rd., Ste. 104
Raleigh, NC 27615

Dear Steven,

As requested, the Town Public Works Department has performed a stream determination on the property identified on the attached forms. This determination indicates whether different types of streams (perennial, intermittent, and/or ephemeral) or perennial waterbodies are present on the property in question or nearby properties. These streams and their classifications are shown on the accompanying map. Stream segments regulated by the Jordan Lake Stream Buffer ordinance are highlighted. **Locations of all features on the map are approximate and must be field surveyed for precise location.**

This stream determination information is used to determine the location and extent of the Resource Conservation District and Jordan Lake Stream Buffer. Specific land use regulations and restrictions apply within the boundaries of these protected areas. If you are considering any kind of work on your property, including clearing vegetation, paving, grading, or building, please consult with the Town Planning Department to determine the possible extent of the Resource Conservation District and Jordan Lake Stream Buffer on your property and corresponding regulations.

This classification will remain in effect for five years from the date of the site visit before a request for reclassification will be considered, unless the stream channel characteristics are significantly altered as a result of watershed changes.

In accordance with the Town's procedures, you may appeal this administrative decision to the Town Manager. If you wish to do so, you must file your written appeal accompanied by any materials you believe support your appeal, within **30** days of receipt of this letter.

If you have questions regarding stream determinations, please contact me at (919) 969-2042. If you have questions regarding the Town's Resource Conservation Districts or the Jordan Riparian Buffer regulations, please contact the Planning Department at (919) 968-2728, or view information online at http://www.townofchapelhill.org/index.aspx?page=1615.

Regards,

Dave Almond
Water Quality Specialist

PUBLIC WORKS DEPARTMENT
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Chapel Hill, NC 27514-5705
Telephone (919) 969-7246
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STREAM DETERMINATION SITE VISIT RESULTS

Property Information	
Parcel ID Number (PIN)	Address / Location Description
9890-06-5926, 9890-06-6312	Bradley Ridge
9890-06-3350, 9890-06-0413	
9890-16-0437, 9880-96-7441	

These are the results of a site visit to the properties listed above for a stream determination conducted on 05/27/2015 by Town Staff:

☐ No perennial, intermittent, or ephemeral streams or perennial waterbodies were identified on or near the property(ies) in question.

☒ Perennial, intermittent, or ephemeral streams, or perennial waterbodies, were identified on or near the property(ies) in question and shown on the attached map(s).

A map showing water features, their Town flow classifications, presence of Jordan Riparian Buffers, and their approximate locations is attached. Origins or breakpoints that have been flagged in the field are marked on the map. Stream classification forms and additional site visit notes and maps are also attached.

Other conditions exist which may affect the location of the Resource Conservation District or Jordan Stream Buffer:

☐ FEMA floodzone is mapped in the area. Precise location of the Base Flood Elevation and associated Resource Conservation District must determined by a field survey commissioned by the owner or a representative.

☐ Segments of perennial or intermittent stream are piped in the area, as shown on the map. These segments do not have an associated Jordan Stream Buffer.

☐ Possible Jurisdictional Wetlands have been identified in the area. A formal review by a professional certified in Jurisdictional Wetland Delineation is recommended.

Town Staff signature

05/29/2015
date

Stream Determination Area Map

- Unclassified Stream
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Culverts
- 2-foot Contours
- 10-foot Contours
- Buildings
- Parcels
- Site visited
- Non-regulated Waterbody
- Non-perennial Waterbody
- Wide Perennial Stream
- Perennial Waterbody
- Approximate Jordan Buffer
- Ephemeral Breakpoint
- Intermittent Breakpoint
- Perennial Breakpoint

Address: Bradley Ridge

Parcel ID: 9890-06-5926 et.al

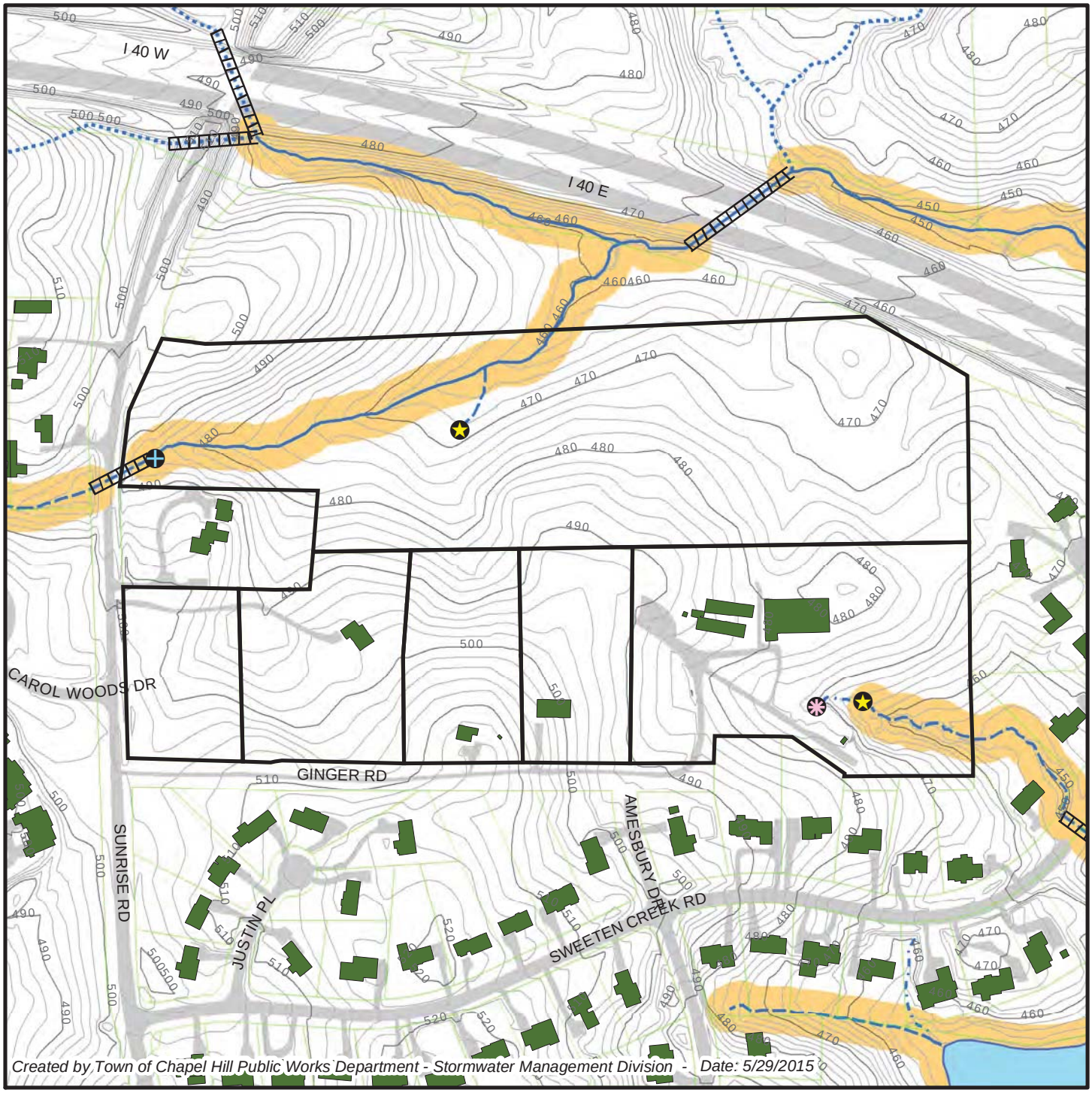
TMBL: 7.17..22 et al.

N

0 150 300 600 Feet

1 inch = 300 feet

Stream locations are approximate and must be verified by survey.



Created by Town of Chapel Hill Public Works Department - Stormwater Management Division - Date: 5/29/2015

USGS 24K Topographic / County Soil Survey Maps

Site Parcel Boundary

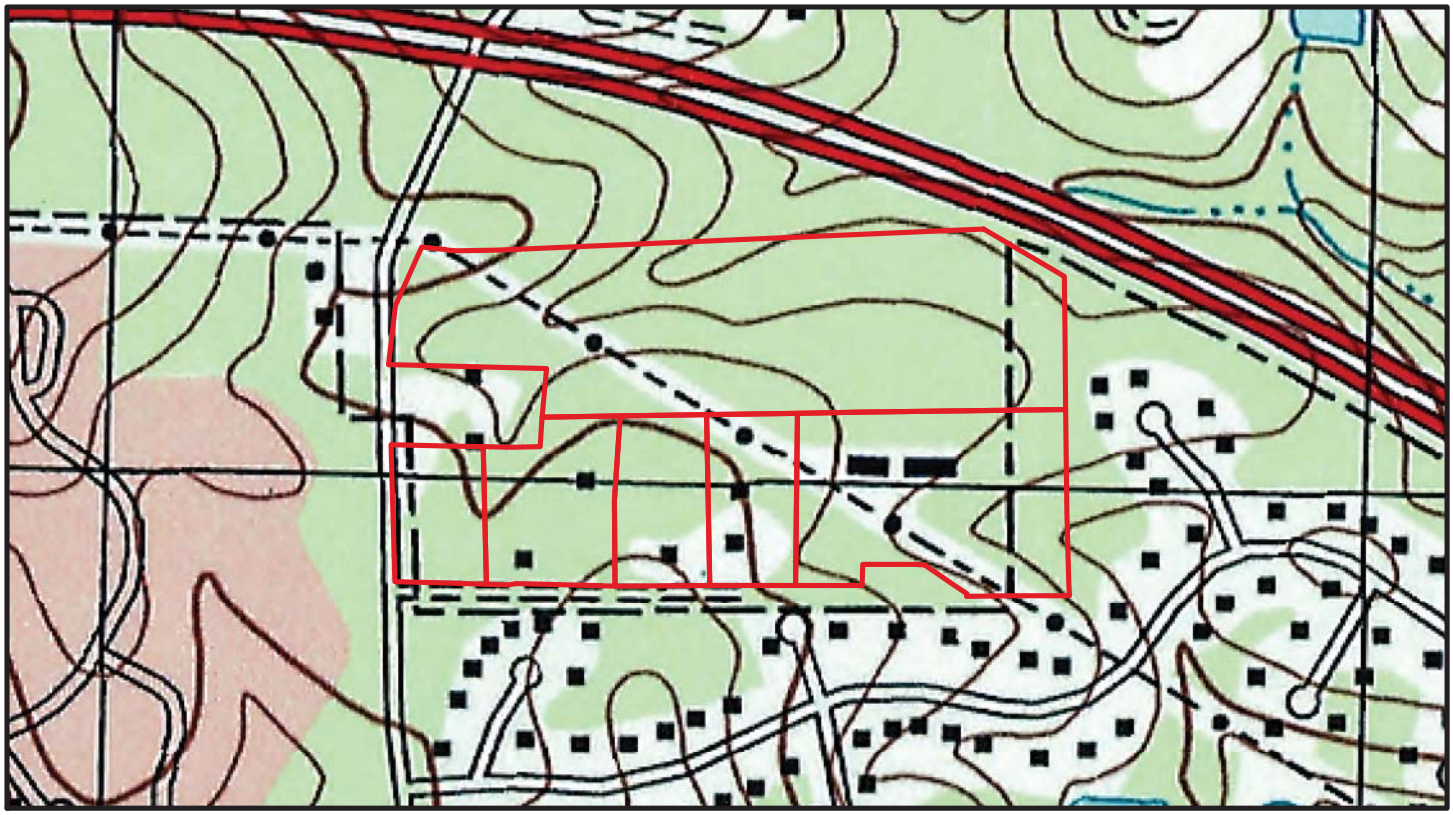
0 150 300 450 600 Feet

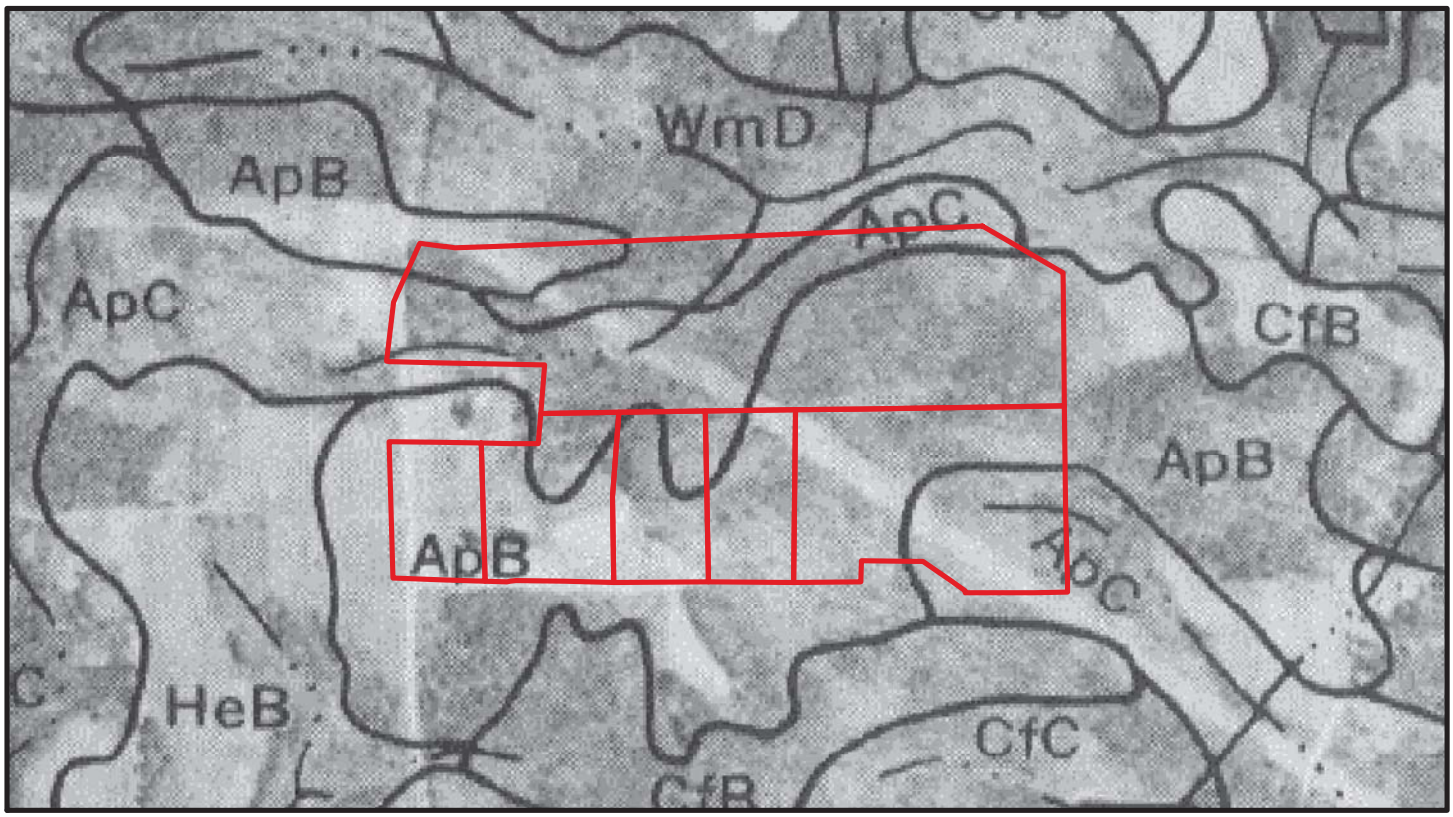
1 inch = 500 feet

Address: Bradley Ridge

Parcel ID: 9890-06-5926 et. al.

Created by Town of Chapel Hill Public Works Department - Stormwater Management Division- 5/29/2015





20150515 0844

9890-06-5926
9890-06-6312
9890-06-3350

9890-06-0413
9880-96-7441
9890-16-0437

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

7.17..19
7.17..19C
7.17.20
7.17..21
7.17..21A
7.17..22

TMBL

NC DWQ Stream Identification Form Version 4.11

Date: 5/14/2015	Project/Site: Bradley Ridge	Latitude:
Evaluator: Almond	County: Orange	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 36.5	Stream Determination (circle one) Ephemeral Intermittent (Perennial)	Other *e.g. Quad Name:* A

A. Geomorphology (Subtotal = 15.5)	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 = 11.5)				
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 = 10.5)				
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:

20150515084 3

9890-06-5926 9890-06-0413
9890-06-6212 9880-96-7441
9890-06-3350 9890-16-0437

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

NC DWQ Stream Identification Form Version 4.11

TMBL 7.17..19 7.17..19C 7.17..20 7.17..21 7.17..21A 7.17..22

Date: 5/14/15	Project/Site: Bradley Ridge	Latitude:
Evaluator: Almond	County: Orange	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 21	Stream Determination (circle one) Ephemeral (Intermittent) Perennial	Other *e.g. Quad Name:* (B)

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	(0)	2	3
4. Particle size of stream substrate	0	(0)	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 = 6.5)				
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: High groundwater contribution from seep at top of reach

Sketch:

9890-06-5926 9890-06-0438
9890-06-6312 9890-06-7441
9890-06-5360 9890-16-0437

20150528 0849

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

NC DWQ Stream Identification Form Version 4.11

TMK

7.17..19
7.17..19C
7.17..20
7.17..21
7.17..21A
7.17..22

Date: 5/27/2015	Project/Site: Bradley Ridge	Latitude:
Evaluator: Almond	County: Orange	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 24	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other *e.g. Quad Name:* A2

A. Geomorphology (Subtotal = 9.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 7)				
18. Fibrous roots in streambed	0	2	1	0
19. Rooted upland plants in streambed	0	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:

20150529085D

9890-06-5926 9890-06-0413
9890-06-6812 9980-96-7441
9890-06-5350 9890-16-0437

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

NC DWQ Stream Identification Form Version 4.11

TMBL

7.17..19
7.17..19C
7.17..20
7.17..21
7.17..21A
7.17..22

Date: 5/27/15	Project/Site: Brady Ridge	Latitude:
Evaluator: Almond	County: Orange	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 14.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other *e.g. Quad Name:* B2

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

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 2.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

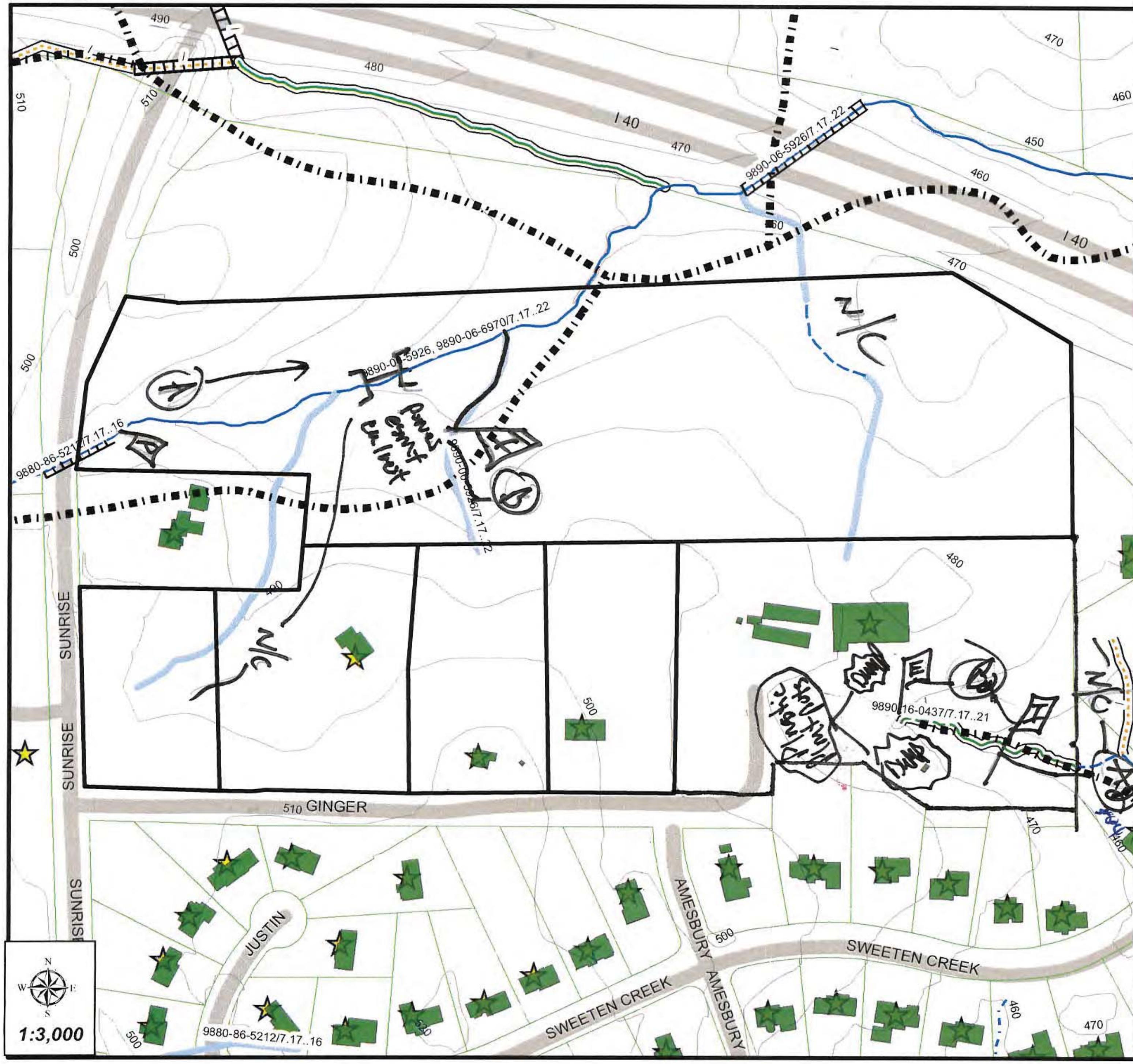
C. Biology (Subtotal = 2)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland 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:

Stream Determination Status Map



- Verified Soils Streams
- Unverified Soils Streams
- Verified USGS Streams
- Unverified USGS Streams
- Culverts
- 2-foot Contours - 2004
- 10-foot Contours - 2004
- OC Parcel Info
- USGS Waterbodies
- Buildings
- Streets

Streams Needing a Site Visit

- No Channel
- Ephemeral Stream
- Intermittent Stream
- Not-Perennial Stream
- Perennial Stream
- Unknown

Streams Not Needing a Site Visit

- Outside Jurisdiction
- No Channel
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream

Waterbodies - No Site Visit

- Other Waterbodies
- Wetlands
- Lakes
- Wide Streams

Waterbodies - Need Site Visit

- Waterbodies - Need Site Visit
- 150ft buffer Needs Stream Determ
- Jordan_Buffers

Map prepared by
Chapel Hill Pub. Works
Stormwater Division
Date: 5/14/2015