Chatham County Planning Department
80-A East Street
P.O. Box 54, Pittsboro, NC 27312-0054
Phone: 919-542-8204
First Plat Review Fee: $250.00 + $50.00 per Lot

MAJOR SUBDIVISION – FIRST PLAT REVIEW APPLICATION

Proposed Subdivision Name: Westfall

Property Owner/Applicant:

Name: Westfall Associates, LLC - Colen E. Davidson Jr.
Address: 140 Towerview Court
Cary, NC 27513
Phone: (W) 919-463-9940 ext. 104
(H)
(C) 919-417-4429
Fax: 919-463-9983
Email: Colen@impactholdings.com

Representative (Surveyor, Engineer, Etc.):

Name: Joe Faulkner, RLA
Company Name: CE Group, Inc.
Address: 301 Glenwood Avenue Suite 220
Raleigh, NC 27603
Phone: (W) 919-367-8790 ext. 102
(C) 919-606-7703
Fax: 919-322-0032
Email: Joe@cegroupinc.com

Who should staff contact (circle one)? Property Owner/Applicant Consultant

PROPOSAL

Parcel # (AKPAR): see attached **P.I.N. #** 9785-41-6531, 9785-56-3026, 9485-45-6573, 9485-35-7279 **Zoning District:** R-1 (w/CUP for PRD)

Flood Map # 3710978400J **Zone:** X and AE **Watershed District:** Jordan Lake

Existing Access Road (S. R. # and name): Lystra Rd (SR 1721) & Jack Bennett Road (SR 1717)

Total Acreage 308.387 ac. **Total # of Lots** 150 New/29 recombined **Min. Lot Size (Acres)** 0.15 ac

Max. Lot Size 2.85 ac. **Avg. Lot Size** 0.56 ac. **# Exempt Lots (over 10 ac.)**

Phased Development/Development Schedule? YES ☒ **NO** ☐ **How Many Phases?** 7

If Subdivision will be Phased or Developed under a Development Schedule, Please attached a DETAILED Phasing Schedule or Development Schedule (for subdivisions consisting of 50 Lots or More).

Mixed-Use YES ☐ **NO** ☒ **Multi-Family (Townhomes, Apts., etc.) YES** ☐ **NO** ☒

Proposed Number of Lots: Residential 150 new / 29 recombined **Commercial** **Other**

If Other, Specify (i.e. recreation)

Wastewater Disposal: Individual Septic ☐ **Community Septic** ☐ **Public System** ☒

Water System: Individual Well ☐ **Community Well(s)** ☐ **Public System** ☒

Public Water System Name: Chatham County Water System

Public Wastewater System Name (ex. Aqua NC): Aqua NC - Booth Mountain WWTF

Will New Road(s) be constructed? YES ☒ NO ☐ Internal ☒ External/Access ☐

Type of Road: Private ☒ **Length (mi.):** +/- 1.30 miles Public ☐ **Length (mi.):** _____

Road Surface: Paved ☒ Gravel ☐ **Width of Road Surface (feet)** 27 feet B-B

Will this be a Conservation Subdivision (See Section 7.7 of Subdivision Ordinance) YES ☐ NO ☒

Type and Acreage of Other Facilities (ex. Recreation, Mixed-Use, Commercial, etc.):

Wastewater Treatment Facility +/- 5.11 acres

Amenity Area +/- 3.81 acres

Date of Community Meeting: November 12, 2012 5:30pm-7:00pm **Location:** Office of Bradshaw & Robinson

Provide At Least* two (2) separate dates for County Staff and Board (Volunteer Advisory and Elected) site visits – *Please provide at least one date when site will be available between 8am and 5pm, and one date when site will be available after 5pm

DATE	**TIME(S)**
December 4, 2012	8-Noon
December 6, 2012	8-Noon

Please See Attached for Submittal Requirements

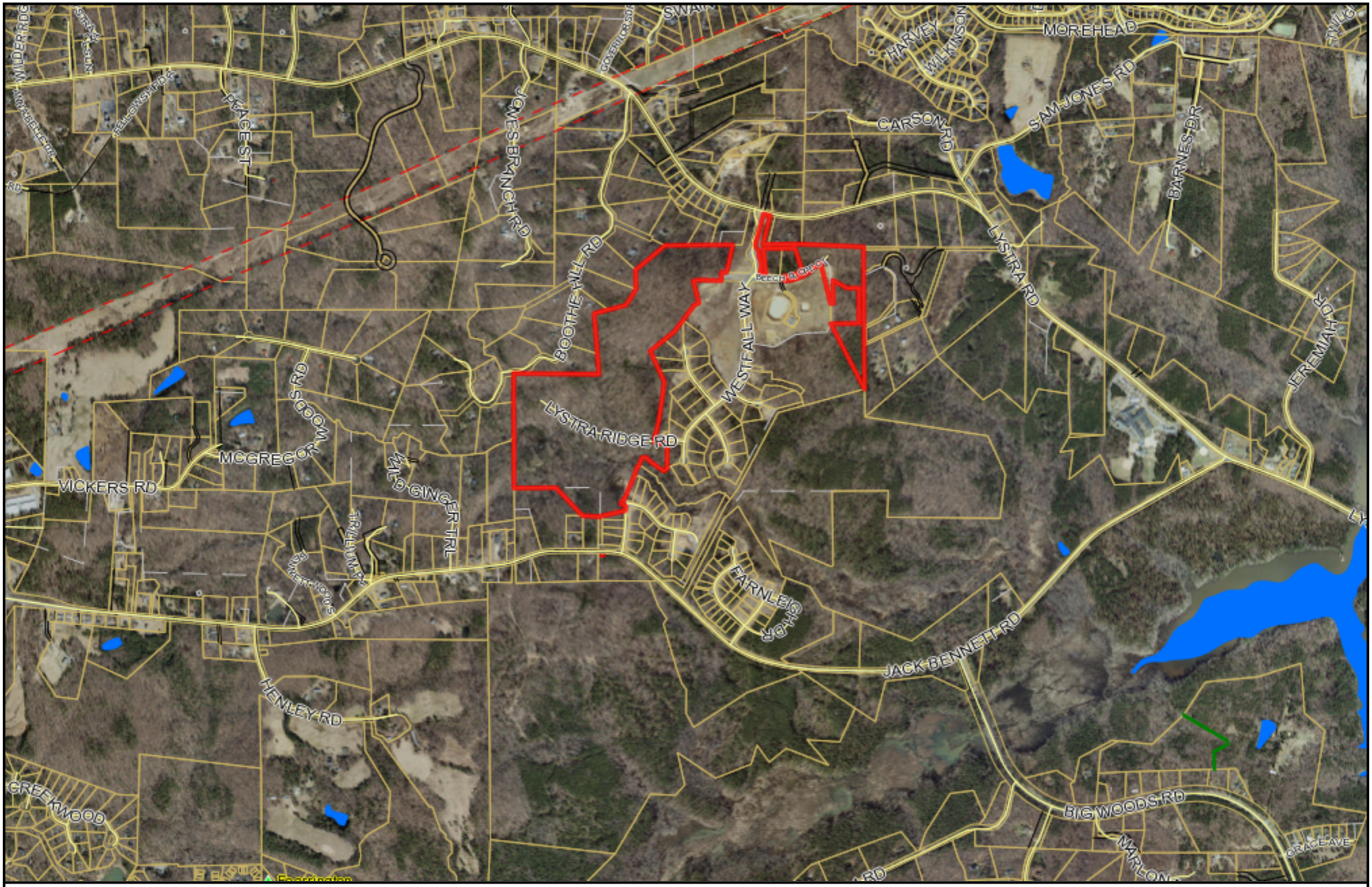
Signature of Property Owner/Applicant 11/21/12 **Date**

For Staff Use Only

Date Received _____ **By** _____

Date Fee Paid _____ **Received By** _____

Date Review Completed _____ **Date Applicant Contacted** _____



CHATHAM COUNTY, NC

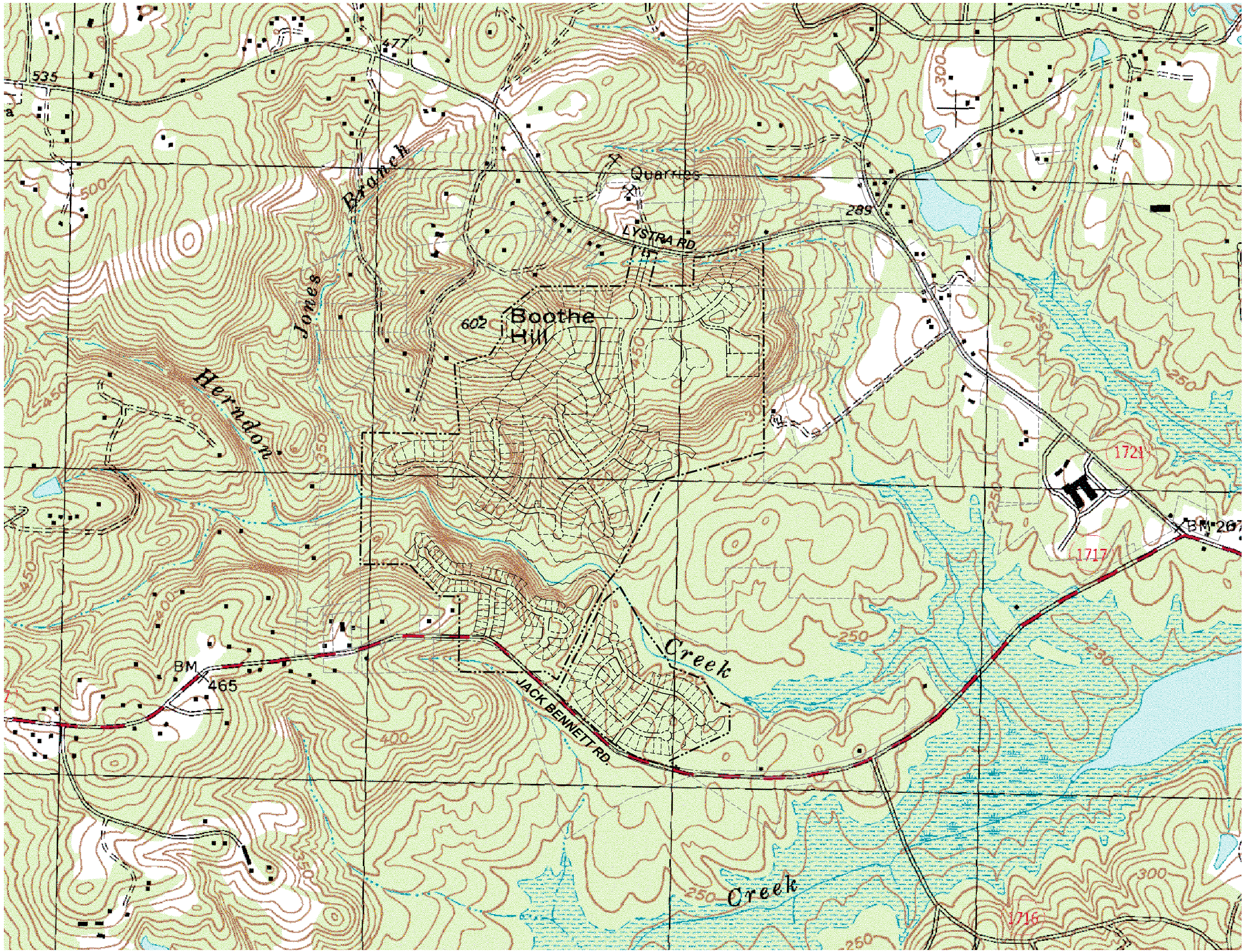
Property Map

Disclaimer:
The data provided on this map are prepared for the inventory of real property found within Chatham County, NC and are compiled from recorded plats, deeds, and other public records and data. This data is for informational purposes only and should not be substituted for a true title search, property appraisal, survey, or for zoning verification.

Parcel Number:	20092
Map Number:	9785-56-3026
Owner Name:	WESTFALL ASSOCIATES LLC
Owner Address:	128 YORKCHESTER WAY
Owner City:	RALEIGH
Owner Address:	No Data
Owner State:	NC
Owner Zip:	27615
Description:	FUTURE DEVELOPMENT

Deed Book:	1597
Deed Page:	0939
Plat Book::	2006
Plat Page:	0376
Deed Acres:	137.864
Physical Address:	JACK BENNETT RD
Improvement Value:	0
Land Value:	5207400
Fire District:	No Data
Township Code:	13

One Inch = 1600 Feet



CE GROUP

301 GLENWOOD AVE. SUITE 220
RALEIGH,NC 27603
PHONE: 919-367-8790
www.cegroupinc.com

WESTFALL SUBDIVISION

CHATHAM COUNTY, NORTH CAROLINA

USGS OVERLAY EXHIBIT

OCTOBER 2012

NORTH

1,000' 500' 0 1,000'

SCALE: 1" = 1,000'

Subject: Westfall site visit
From: Jim and Bev Wiggins <jimerly@embarqmail.com>
Date: 11/19/2012 8:34 PM
To: Nick Robinson <robinson@bradshawrobinson.com>
CC: Jane Pyle <pyb@earthlink.net>, Lynn Richardson <lynn.richardson@chathamnc.org>, Angela Birchett <Angela.Birchett@chathamnc.org>, David Gainey <dgainey@sandec.com>

Dear Nick--

Thank you for arranging the site visit to the chimney on the Westfall property for Jim and me. Mr. Gainey was a skilled and considerate guide. He got us to the site efficiently and with graceful allowance for our slower and more clumsy pace.

I am attaching a brief summary of our findings. We will keep this in CCHA's records along with the photographs I took of the chimney.

I wonder if it would be possible for you to get permission from the developer to release to me any information that might be available about the title trail on the part of the property where the chimney is located. I would like to try to identify early owners and perhaps find additional information about them.

I would also appreciate if you would pass along to the developer our suggestion that, if they follow through with their plan to remove the chimney, they consider using the stones in some way in the development, and, if possible, that they make known the origin of the stones to link the new structure to the history of the area. I will be happy to provide any information about the inhabitants of the site that I am able to uncover.

Thanks again for your help!

Bev Wiggins
CCHA volunteer

--
Jim and Beverly Wiggins
jimerly@embarqmail.com

—Attachments:

Site visit to chimney on Westfall property.doc 28.0 KB

Site visit to chimney on **Westfall** property.

19 Nov 2012

Jim and Bev Wiggins represented CCHA to photograph the historical feature and make observations of the site. They were guided to the site by David Gainey, Project Manager for Soil and Environmental Consultants, who discovered the chimney. The site visit took 90 minutes.

We hiked in over steep terrain from a cul-de-sac on Lystra Ridge Rd. to the chimney site (coordinates 35-49-24, 79-03-36). The chimney was situated on a relatively flat area overlooking a steep rise to the south and east. Elevation at the site is approximately 375' according to the county GIS. Original access to the house site was probably along a contour line running northwest from the site. No clear evidence of roads or other features was found during limited examination of the immediate area.

The chimney is largely intact, with some stones collapsed and mud packing exposed. A large tree within the outline of the house foundation suggests that the structure is probably more than 100 years old. The chimney is on the south side of a house foundation that is approximately 20x20 feet, outlined by stacked stones. It appears that another room of about the same size may have been constructed on stone pillars on the east side of that structure.

I will contact Nick Robinson, attorney for the developer to request information on the title trail for this part of the property in hopes that we might identify early owners and learn more about the family that lived in the structure.

We request that the developer be asked to consider using the stones from the chimney in the development and that the connection of the materials with the site be noted. We will provide anything we are able to learn about the inhabitants of the location. We believe that new residents will appreciate the preservation of the materials and the link to the history of the area.

Mr. Gainey's contact information:
David Gainey
Project Manager
Soil and Environmental Consultants, PA
Office 919-846-5900
Fax 919-846-9467
Cell 919-771-9136
Visit us at SandEC.com
dgainey@sandec.com

Bev Wiggins, 19Nov12

Subject: Re: Westfall
From: Jim and Bev Wiggins <jimerly@embarqmail.com>
Date: 10/8/2012 8:59 PM
To: Nick Robinson <robinson@bradshawrobinson.com>
CC: Jane Pyle <pyb@earthlink.net>, Jason Sullivan <Jason.Sullivan@chathamnc.org>, Lynn Richardson <lynn.richardson@chathamnc.org>

Hi Nick--

Thank you for the invitation to make an appointment to see the historical features on the Westfall property. Your wording suggests that I might help with the search for the cemeteries that are noted in our records. I'm afraid that I am neither trained nor equipped to take on the task of searching for cemeteries or other historical features on large properties. CCHA's role in the review process is advisory. We try to offer information that might help applicants locate historical features that are not on the state records that they usually seek out. That's why I noted the reports of cemeteries in my message to Mr. Gainey. As I understand it, it is the responsibility of the applicant to show that a reasonable reconnaissance survey of the area was done for such features by someone with appropriate expertise.

Mr. Gainey asked what documentation and maps CCHA wished to see as part of the Environmental Impact Assessment. I assume that he is familiar with the requirements of the subdivision regulations, which currently require the inclusion of historical features on the first plat. Ideally, that information would be supplemented with historical research (though I do realize that anything beyond what is specifically required by the regulations is probably too much to hope for).

The Planning staff have stressed that it is important that historical features are identified at the First Plat stage, since later discovery may complicate the review and approval process for the construction plan--requiring review by the Board of Commissioners.

Although I am not able to help with the reconnaissance survey of the property, I would like the opportunity to see the historical features that are identified by such a survey--including, of course, the chimney Mr. Gainey mentioned and any cemeteries that are located. If you will let me know when the survey is complete and what features have been identified, I will contact you to arrange a site visit. Other members of the review team may also be interested.

Thanks,
Bev Wiggins
CCHA

----- Original Message -----
Dear Mrs. Wiggins,

Our firm represents Westfall Associates, LLC. Thanks for your correspondence regarding the chimney and the possibility of a cemetery on the property.

Please feel free to make an appointment to come see the chimney site and to search for the possible cemeteries. Give me two days' notice for that. Of course, with regard to any found cemetery, Applicant will comply with the law regarding same.

Thanks.

Nick Robinson

Mr. Gainey--
Thank you for the Westfall plat and for the photos of the old chimney. It is very helpful for us to have the parcel number that you provided.

You asked what kind of map or documentation the historical association would like to have as part of the environmental impact statement for Westfall. We would like a map that shows all of the historical features--including structures, the remains of structures, walls, foundations, wells, old roads, and any other evidence of human habitation or impact on the land. Ideally these features would be photographed and information from former residents and neighbors would be gathered to help fill in information about the history of the area. Our goal is to preserve that information before all trace of the area's history is removed from the property.

The chimney you discovered would certainly be one of the sites that we would like to see documented. Any information you could provide about the previous owners of and use of the land would be helpful.

According to our records the existence of a cemetery on parcel 20092 (or thereabouts) was reported in 1989. There are few details other than that the cemetery was associated with the King family. No followup has been done to date. Since there are now plans to develop the property, and because the old chimney provides evidence of early habitation of the area, a thorough assessment of the area should be done to determine whether the burial site can be located before any disturbance of the area occurs. Burial sites were usually not far from easy access, so if traces of the old road that gave access to the house can be located, that would suggest promising areas to search. A rough location for the cemetery is shown on the county GIS, but it is based on a very general description. The location of the homestead and roads will give better clues about possible cemetery sites. Neighbors might also be aware of the cemetery location.

Before the area is disturbed, representatives of the historical association would like to visit the house site, and, of course, the cemetery if it is located, to more fully document those sites and any other areas where evidence of human habitation are still evident.

I don't know if it is relevant to your current inquiry, but according to our records a cemetery was also reported on parcel 85633, for which the county GIS shows Westfall as the owner.

Please let us know how we can help with your assessment.

Jane Pyle and Beverly Wiggins
Chatham County Historical Associatio

--
Nicolas P. Robinson
Bradshaw & Robinson, LLP
128 Hillsboro St.
P.O. Box 607
Pittsboro, NC 27312
(919) 542-2400
(f) (919) 542-1219

--
Jim and Beverly Wiggins
jimerly@embarqmail.com

Lynn Richardson

From: Jim and Bev Wiggins [jimerly@embarqmail.com]
Sent: Wednesday, November 07, 2012 9:42 PM
To: Lynn Richardson; Angela Birchett
Cc: Jane Pyle
Subject: Westfall historical features

Lynn and Angie--

I'm sorry that I was out of town and not able to attend the TRC meeting about Westfall. It is the case that the exact location of the King cemetery was not pinpointed in our records, and also that we don't know whether the cemetery has been destroyed. However, it would be incorrect to say that the cemetery is NOT on the Westfall property. We have some evidence to suggest that it is or was in that general area and no evidence to suggest that it is or was not. So the best we can say is that we don't know whether it is or is not on the Westfall property. I hope you will make that clear to the developer so that the proper precautions can be taken.

The reason for conducting an archaeological assessment of properties to be developed is to find out what historical features exist on the property. Sometimes CCHA has prior information that suggests the location of cemeteries or other features, but most often we do not. A reconnaissance survey should locate and identify the features present on the property so that they can be documented and, in the case of cemeteries, preserved by avoidance or other legal means. Developers should not assume that CCHA knows the locations of all gravesites in the county. We most certainly do not. Locations for at least half-a-dozen previously unreported sites have been confirmed in the last year. The most recent one was reported only last week.

Presumably, the archaeological assessment carried out in 2005 for the Westfall property should have located the chimney that was brought to our attention by Mr. Gainey, and in light of the reported cemetery location, carried out a reasonable search for a possible cemetery in the area. The report you sent me does not suggest that this happened. The report does not mention the chimney and shows no indication that the assessor knew about the King cemetery report. In fact, the report suggests that only a cursory assessment of the area was conducted because the archaeologist believed that no features of significance would be found in the area. This reasoning is flawed.

Although we would not expect any cemetery found in Chatham County to be National Register eligible, ALL cemeteries are protected by state statute and are of local significance. To avoid accidental destruction of old cemeteries, which are often not recognized as such by workers, properties should be looked at carefully to identify any burial sites before disturbance of the area is allowed.

Unfortunately, the Brockington group that carried out the Westfall assessment has a track record of shamefully inadequate work. You may remember that that group also did the Williams Pond assessment that was so criticized by the state office. Assessments like the Williams Pond one and the Westfall one you sent me do more harm than good. They suggest that an area has been looked at to identify historical features when, in fact, that is not the case.

If a more recent reconnaissance survey has been carried out for the Westfall property, I would like to see the report and for the developer (or the professional who carried out the survey) to make a statement indicating that no burial sites or historical features other than the chimney were located. I assume that you have told the developer that any evidence of gravesites or historical features found after plat approval should be reported to your office and CCHA immediately and all work in such areas should be halted to avoid disturbance.

A larger issue raised by this situation is how to prevent developers from passing off reports like the ones Brockington has provided as archaeological assessments in the future. The Williams Pond assessment failed to find (probably failed to look for) the Bynum family cemetery on that property that was subsequently located with help from CCHA volunteers. The Westfall assessment failed to locate the chimney--and perhaps other features as well. The emphasis on National Register eligibility in these reports suggests that much of the assessment is done by calling up the state office to find out what features have already been reported and ignores the importance of sites of local significance. Features like old family or slave cemeteries and the Westfall chimney are not likely to be National Register eligible (though if they are not found and examined, that cannot be determined). Nevertheless, those features are of local interest and their locations and any information available about them should be documented before they are destroyed. Clearly, the kind of assessments conducted by Brockington cannot be counted on to identify the features we are interested in. What can be done about this?

I had indicated to Nick Robinson that I would like to see the chimney on the Westfall property but would wait until an assessment had been done to identify all of the historical features. If no further assessment will be conducted I would like to go see the chimney in the near future. Would either of you like to go?

Thanks,

Bev Wiggins

Bev, attached is the 2005 Archaeological Assessment for Westfall. After comparing maps with Jane at the TRC meeting, it appears that the cemetery referred to is not located on the Westfall property.

Lynn W. Richardson

Subdivision Administrator

Planning Department

P. O. Box 54, Pittsboro, N C 27312

919-542-8207

e-mail: lynn.richardson@chathamnc.org

Chatham County Schools

November 1, 2012

Bradshaw & Robinson, LLP
Attorneys and Counselors at Law
Hall-London House
128 Hillsboro Street
P.O. Box 607
Pittsboro, North Carolina 27312

Dear Mr. Robinson:

The school system and Board of Education are very glad to hear of the plans to move forward with the Westfall Subdivision. As you may be aware, plans are to build a 1200 student capacity high school on property located to the immediate south of Westfall. The short-term impact of the increase to the development would be insignificant. However, I assume the average cost of a home in the development would be in the range young families could afford. Such families would most likely have, or plan to have, young children.

The size of the Westfall Subdivision would have no impact on the new high school. It will be built large enough to accommodate growth for many years. However, Westfall children are in the North Chatham Elementary School attendance district. North Chatham is currently just under capacity and growing. Students were redistricted from North Chatham this fall to bring the school back into capacity compliance. An additional subdivision the size of Westfall would definitely expedite the need for an additional elementary school in the North Chatham area.

I trust we will have your support when the time comes to talk with commissioners about building a new K-5 school in this area. Much success on the Westfall project. It is good to see housing starts on the rise again.

Sincerely,

Robert L. Logan

Robert L. Logan
Superintendent
Chatham County Schools

P. O. Box 128 – 369 West Street – Pittsboro, NC 27312-0128 – Tel 919.542.3626 – Fax 919.542.1380
www.chatham.k12.nc.us

FROEHLING & ROBERTSON, INC.
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Raleigh, North Carolina 27603-2302
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NC License #F-0266

November 8, 2012

Dan J. LaMontagne, P.E.
Chatham County
Environmental Quality Director
12 East Street
Pittsboro, NC 27312

Re: **EIA Peer Review**
Westfall EIA
Fearrington, Chatham County, North Carolina
F&R Project No. P66-0137

Dear Mr. LaMontagne:

Froehling & Robertson, Inc. (F&R) is pleased to present Chatham County with our below comments related to additional project information needed to bring the Westfall EIA into general accordance with Chatham County Subdivision Regulations (CCSR) as amended May 21, 2012. At this time minor additional discussions, figures, and corrections are suggested for the EIA to be considered complete. Please below for the complete list of comments.

PROJECT INFORMATION

F&R understands the Westfall Site EIA was prepared by S&EC, PA and is dated October 2012. The Westfall site was originally called Booth Mountain and approved in 2005. The site is located between Jack Bennett Road (SR 1717) and Lystra Church Road (SR 1721) within the Williams Township. The original project called for 180 lots on approximately 294 acres. The first phase of construction was only partially completed before work stopped due to the economic crisis of 2007-2008. The site is now called Westfall and consists of additional property. Approximately, 14.071 acres of land are being added to the existing 294 acres such that the new overall project area will consist of 308.387 acres. The revised land plan increases the total number of lots from 180 to 242, or an additional 62 lots but decreases the overall development footprint by reducing the size of the lots.

SCOPE OF WORK

F&R has reviewed the EIA and our comments are below. Additionally, F&R reviewed Section 6.2 Additional First Plat Information of the Regulations and compared the required information/documentation with what is provided in the EIA. F&R has commented on both items needed to bring the EIA into accordance with the CCSR as well as items technically required but deemed not necessary due to the nature of the project.

COMMENTS

The following items were found to be in general accordance with the spirit and intent of the Regulations given the nature of the project and the standard of care concerning Environmental Impact Assessments; however they do not meet the technical requirement of the regulations. These comments are offered to the author for their consideration only. Expanding on the below items could add value to the EIA.

1. The Chatham County Subdivision Regulations (CCSR) requests a list and description of public facilities or public benefits provided by the project (Proposed Project Description and Need-Part 5). The EIA does not describe public facilities or benefits. However, the project is a proposed subdivision with amenities for residents in a wooded/residential area, as such, public benefits are not likely to be impacted.
2. The CCSR Proposed Project Description and Need - Part 10 requests areas to be cleared, graded, filled, paved, and landscaped to be shown. The EIA does not include a map. However, the EIA states, "Definitive construction plans depicting actual cleared areas have not been prepared at this stage of the approval process, however all roadway corridors shown on the Overall Modified Master Plan Exhibit will be graded and roadways paved. It is also anticipated the amenity areas for the pool, play field, and tot lots will also require some level of grading and pavement. Landscaping will also be provided in these areas, but definitive plans have not been completed at this time. The attached Overall Master Plan provides an approximate idea of areas which would be cleared for roadways, ponds, and homes. The extent of clearing on each home lot will vary. All areas which will be graded will be done so per current Chatham County requirements."
3. The CCSR Proposed Project Description and Need - Part 13 requests proposed areas of impervious and semi-pervious surfaces to be shown. The EIA does not include a map for the same reasons as listed above. However, percentages for both are included as tables.
4. The CCSR request a discussion of the no action alternative. The EIA does not discuss this option likely due to the no action alternative not meeting the purpose and need of the project.
5. The CCSR requests the use of Chatham County GIS data. The EIA used NC Department of Transportation GIS data at the same 2 foot contour level. The GIS data should be accurate enough for the EIA.
6. The Existing Environmental and Project Impacts (EEPI) Part B of the CCSR requests anticipated impacts to be quantified as short term construction impacts, long term operational impacts and indirect or secondary impacts. The EIA does not specify between construction and operational impacts or indirect or secondary impacts. However the project is a proposed and operational as well as indirect and secondary impacts would be consistent with previous subdivision in the same area.

7. EEPI Part C requests a discussion of how potential impacts to the resource will be avoided and minimized through alternative selection, design strategies, construction methods, and long-term maintenance procedures. The EIA does not have this discussion. However, the EIA states the project, "is a modification to an existing approved Planned Residential Development the alternative is to move forward with the current approved plan."
8. The CCSR requests a discussion of how the existing and proposed uses fit into the intended land use of the area with respect to ecological function and quality of life per EEPI- Part 3. The EIA does not specifically mention ecological function or quality of life. However, the project is a subdivision in a residential area. The EIA states "The proposed change in land use of forested portions of the Westfall site to residential development is consistent with the surrounding land use. Portions of the site have been designated as open space, and many of these areas will remain in a forested or mostly forested condition after development. Additionally, many lots will be cleared and graded only to the extent necessary to site a residential dwelling, with the remainder of the lot area left in a forested (state)". It is left for the reader to infer that the undisturbed wooded areas will help maintain quality of life and ecological function.
9. The land use map does not annotate the existing land use per EEPI Part 3 (mostly wooded), only zoning information. It is left to the reader to infer the existing land use from what is depicted in the aerial photograph.
10. The EIA does not indicate whether zoning or local land use plans will need to be changed after project completion per EEPI Part 3. However, the project is a residential subdivision in an area already zoned residential.
11. The EIA does not state when (day/night week day/week end) construction will take place.
12. Base line noise data is not included; however, it is likely not available.
13. Hours of operation for the amenities are not included.
14. The EIA does not compare lighting impacts to pre-Both Mountain Subdivision approval. However; the EIA states, "All lighting will conform to the requirements of the Chatham County Zoning Ordinance."
15. Groundwater (aquifers) in the project area are not described, per EEPI Part 10. However the project is not proposing to impact groundwater.
16. Known groundwater contamination incidents in the area are not discussed per EEPI Part 10. However the project is not proposing to use or come in contact with groundwater.
17. EEPI Section 11 asks for a map of aquatic habitats. However a map of surface waters is provided and impacts to aquatic habitat are not being proposed.

The following Items are recommended to be included for the EIA to be in accordance with the CCSR. F&R recommends these deficiencies be resolved prior to finalizing the EIA.

	Pg	Paragraph	Line	Comments
1	TOC-Figures			The titles in the TOC do not consistently match the titles on the figures.
2	TOC-Figures			Figure 1 B does not appear to be a USGS Topo Map.
3	TOC-Figures			The Public Lands and Natural Areas Map is missing. The TOC indicates it is Figure 7; however, Fig 7 is the Historic Structures Map.
4	TOC-Figures			Figures 7, 8, 10 and 11 should be revised so the figure number and order is consistent with the TOC.
5	1	4	4	Text reads, "Section C area is located east of Section B along Jack Bennett Road and is separated from Section C by property owned by the Chatham County Board of Education." Should read "separated from Section *B".*
6	3	first	last	Please clarify the specific Chatham County requirement that the grading plan will be in accordance with and add the reference to Section 5.0 References.
7	3	5	8	Please clarify which County Regulations and add the reference along with one for the NCDENR Best Management Practices documents to Section 5.0 References.
8	4	first	first	Please add a reference to the GIS data and publicly available records to Section 5.0 References.
9	General-Sec 3			EEPI Part D of the CCSR requests a description of whether any compensatory mitigation is planned or required. Please include mitigation from the already permitted impacts, if any, or state none.
10	General-Sec 3.2			Please clarify if soil contamination is expect or not, if expected discuss containment plans or procedures per EEPI Part 2.
11	General-Sec 3.2			Please discuss clarify that the soil composition modification will result in suitable soils for residential development per EEPI Part 2.
12	6	4	last	Please reword "left in a forested" for clarity.
13	General Sec 3.4			Please quantify the previously permitted impacts to jurisdiction waters in terms of acres and/or linear feet.
14	9	3		Please clarify that the applicant will also comply with all applicable laws concerning archeological and/or historical resources should any be found during construction in the same manner as described for cemeteries.
15	9	6	last	Text states "12 parking spaces", should be "17 parking spaces".
16	10	1	3	Please add a definition of WS-IV; NSW, CA.
17	10	4	4	Please indicate the source of Chatham County's water supply for this project.
18	General 3.11			EEPI Section 11 asks for a map of aquatic habitats. Please add a map or revise an existing one to indicate where the mapped surface waters provide suitable habitat.
19	10	5	4	change "reds" to "beds".
20	References to add to Sec 5.0			Chatham County Soil Erosion and Sediment Control Ordinance (PG 2 paragraph 6) Chatham County Zoning Ordnance for Lighting USGS TOPO Map GIS sources Public records
21	Permits to add to Section			Open Burning

LIMITATIONS

Comments do not include additional assessment of any of the environmental categories listed in the EIA or verifying the information that was presented as accurate. Additional assessment services typically include but are not limited to; detailed surveys for traffic, air quality, noise, archaeological and cultural resources, threatened and endangered species; determinations of National Register eligibility; wetland delineations; and/or flood plain analysis including the 8 step process.

Please do not hesitate to contact us if you have any questions regarding our comments.

Respectfully Submitted,
FROEHLING & ROBERTSON, INC.

Christopher J. Burkhardt
Senior Environmental Professional

RESPONSE TO EIA PEER REVIEW WESTFALL EIA

COMMENTS PROVIDED BY FROEHLING & ROBERTSON, INC. DATED 11/8/12

Comment #	Response to Comment
1	Titles within in the table of contents have been modified to match titles on figures.
2	Figure 1B is a portion of the Fearrington USGS map 2010 version.
3	Historic Structure, Public Lands, and Significant Heritage Natural Areas have been added on Figure 7 and labeled as such.
4	Figures 7, 8, 10, and 11 have been revised to be consistent with the Table of Contents.
5	"Section C" has been revised to state "Section B".
6	Notation has been added in the referenced paragraph and in Section 5 referencing the Chatham County Soil Erosion and Sedimentation Control Ordinance.
7	Paragraph has been revised to state "per the Chatham County Stormwater Ordinance amended August 20, 2012. This reference has also been added to section 5, along with a reference to the NCDENR Stormwater Best Management Practices Manual July 2007, amended 10/16/12.
8	Additional references provided for the following: - Chatham County Soil Erosion and Sedimentation Ordinance - Chatham County Stormwater Ordinance amended August 20, 2012 - NCDENR Best Management Practices Manual - 2-foot LIDAR-based Contours from NCDOT GIS - FEMA Flood Hazard Map, NCFLOODMAPS.com - Soils Map information - Zoning from Chatham County GIS - 2010 Aerial map form NCONEMAP.com - Historic Structures based on SHPO HOPWEB GIS Data. - Hydrologic Unit Map from EEP BasinPro 3.1 from NC CGIA - Hydro layers from Chatham County GIS
9	Notation was added stating that compensatory mitigation was not required from the previous permitted impacts to jurisdictional waters.
10	Notation has been added to Section 3.2 stating that soil contamination is not anticipated.
11	Notation has been added to Section 3.2 stating that existing soils are suitable for residential development, however if it is later determined that certain soils are not suitable a determination by an appropriate consultant will determine what

	modifications to soil composition are required and said modifications will be implemented
.	
12	This statement has been further clarified as requested.
13	Previously permitted impacts have been quantified under Section 3.4.
14	Additional language has been added regarding complying with applicable laws.
15	Text has been revised to 17 parking spaces.
16	The requested definitions have been included in Section 3.10.1 Surface Waters.
17	Source has been added to Section 3.10.
18	Figure 11 has been provided depicting aquatic habitat.
19	Text revision has been made.
20	References have been added as requested.
21	Chatham County Open burning permit has been included.

Community Meeting Report Form

REPORT OF DEVELOPMENT INPUT MEETING REQUIRED BY THE CHATHAM COUNTY SUBDIVISION ORDINANCE

To: Lynn Richardson, Chatham County Subdivision Administrator

Subdivision Name: Westfall

Approximate Location (or Address): Jack Bennett Rd. (next to high school site)

Proposed Number Lots: 242 Residential (Y/N): Y

The undersigned hereby certifies that the required sign(s) was posted on the property proposed for subdivision, on each road frontage of said subdivision on (date) See attached.
A photo of the sign posted is recommended to be attached to this form.

The meeting was held at the following time and place: November 12, 2012
5:30 - 7:00 pm at Bradshaw & Robinson, LLP

The persons in attendance at the meeting: **See attached Attendance sheet**

The following issues were discussed at the meeting (**Attach additional sheet(s) if needed**):
Impact on Peck property. DoT safety alignment project. Time-frame of development. Home sizes and price range.

As a result of the meeting, the following changes were made to the subdivision proposal (**Attach additional sheet(s) if needed**): N/A

Date: November 12, 2012
Applicant: Westfall Associates, LLC
By: [signature], Atty

Please submit this Report to the Chatham County Planning Department located at 80-A East Street or mail it to Lynn Richardson, Subdivision Administrator, PO Box 54, Pittsboro, NC 27312-0054. If you have any questions, please contact Lynn Richardson at (919) 542-8207 or lynn.richardson@chathamnc.org.

WESTFALL COMMUNITY MEETING
ATTENDANCE SHEET
November 12, 2012

	PRINTED NAME	SIGNATURE
1.	Tim Peck	Tim Peck
2.		
3.		
4.		
5.		
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DEVELOPMENT INPUT MEETING NOTICE

To Discuss Proposed Westfall Subdivision Revisions

Meeting Location: Bradshaw and Robinson, LLP

128 Hillsboro St., Pittsboro, NC

November 12th, 2012 5:30-7:00 pm

Contact: Westfall Associates, LLC

(919) 463-9940 (ext.117)

Proposal Info: www.chathamnc.org/planning

Aqua North Carolina, Inc.
202 MacKenan Court
Cary, NC 27511

Thomas J. Roberts
President and Chief Operating Officer

T: 919.653.5770
F: 919.460.1788
tjroberts@aquaamerica.com
www.aquanorthcarolina.com

June 26, 2012

Mr. Colin Davidson
Westfall Associates, LLC
140 Towerview Court
Cary, NC 27513

Re: Westfall Development
Chatham County

Dear Colin:

This letter is to confirm that Aqua North Carolina, Inc. ("Aqua"), in Docket No. W-274, Sub 522, was issued a Certificate of Public Convenience and Necessity by the North Carolina Utilities Commission ("NCUC") to be the wastewater provider of Westfall Development.

Upon completing Closing in accordance with the Agreement dated June 15, 2012 for the installation, conveyance, and operation of the wastewater utility system for Westfall, Aqua will provide wastewater utility service to the lots located in the Westfall development in accordance with its tariff, the rules and regulations of the NCUC and the North Carolina Department of Environment and Natural Resources - Division of Water Quality.

If you have any questions, please contact Rudy Shaw at 919-653-6967 or Peggy-Sue Dodge at 919-653-6963.

Sincerely,

AQUA NORTH CAROLINA, INC.

Mr. Thomas J. Roberts
President and COO

Michael F. Easley, Governor

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

March 24, 2006

Mr. Michael J. Meyers
Engineering & Compliance Manager
Heater Utilities, Inc.
202 MacKenan Court
Cary, NC 27511

Subject: Permit No. WQ0028798
Booth Mountain Development
Wastewater Treatment and
Reclaimed Water Utilization System
Chatham County

Dear Mr. Myers:

In accordance with your permit application received May 5, 2005, and subsequent additional information received June 2, 2005, we are forwarding herewith Permit Number WQ0028798, dated March 24, 2006, to Heater Utilities, Inc. for the construction and operation of the subject wastewater treatment and reclaimed water utilization system.

This permit shall be effective from the date of issuance until February 28, 2011, and shall be subject to the conditions and limitations as specified therein. Please pay particular attention to the monitoring requirements in this permit. Failure to establish an adequate system for collecting and maintaining the required operational information will result in future compliance problems.

If any parts, requirements, or limitations contained in this permit are unacceptable, you have the right to request an adjudicatory hearing upon written request within thirty (30) days following receipt of this permit. This request must be in the form of a written petition, conforming to Chapter 150B of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714. Unless such demands are made this permit shall be final and binding.

One set of approved plans and specifications is being forwarded to you. If you need additional information concerning this matter, please contact Nathaniel Thornburg at (919) 715-6160.

Sincerely,

Alan Klimek

Alan W. Klimek, P.E.

NT/lj

cc: Chatham County Health Department
Raleigh Regional Office, Aquifer Protection Section
Mark Ashness, PE – CE Group
Lee Fleming, PE
Steven Levitas – Kilpatrick Stockton, LLP
Technical Assistance and Certification Unit
Aquifer Protection Central Files
LAU Files

Aquifer Protection Section
Internet: http://h2o.enr.state.nc.us

1636 Mail Service Center
2728 Capital Boulevard

Raleigh, NC 27699-1636
Raleigh, NC 27604

Phone (919) 733-3221
Fax (919) 715-0588
Fax (919) 715-6048

Customer Service
1-877-623-6748

NORTH CAROLINA

ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

RALEIGH

WASTEWATER TREATMENT AND RECLAIMED WATER UTILIZATION PERMIT

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules, and Regulations

PERMISSION IS HEREBY GRANTED TO

Heater Utilities, Inc.

Chatham County

FOR THE

construction and operation of a 90,000 gallon per day (GPD) dual train extended aeration wastewater treatment consisting of a manually cleaned bar screen; three (3) 10,000 gallon flow equalization basins served by two (2) 75 gallon per minute (GPM) pumps and one (1) 120 cubic feet per minute (CFM) blower; a flow splitter box; four (4) 10,000 gallon anoxic basins; fourteen (14) 10,000 gallon aeration basins served by four (4) 375 CFM blowers; four (4) 7,060 gallon clarifiers served by four (4) variable speed sludge pumps; three (3) 10,000 gallon aerated sludge holding basins served by one (1) variable speed pump and the main plant blowers; two (2) 36 square foot (ft^2) tertiary filters served by a 72 CFM blower; one (1) 5,400 gallon clearwell with two (2) 540 GPM backwash pumps; a 5,800 gallon mudwell with two (2) 100 GPM pumps; one (1) 2,800 gallon chlorine contact basin with two (2) variable speed chemical pumps; a 2,800 gallon dechlorination chamber; dual chemical pumps with storage tank for a phosphorous reduction system; an effluent flow measuring device; an ultraviolet (UV) bank with 10 bulbs; a 4,500 gallon dosing chamber with dual 175 GPM pumps; an effluent monitoring device; a turbidimeter; a permanent auxiliary generator; and the

construction and operation of a 66,000 GPD reclaimed water utilization system consisting of a 506,000 gallon clay lined five day upset pond with dual 100 GPM submersible pumps and audible/visual alarms; a 7.7 million gallon (MG) clay lined storage pond with dual 400 GPM vertical turbine pumps serving eleven (11) irrigation zones consisting of approximately 38.9 acres; and all associated piping, valves and appurtenances to serve the Booth Mountain Development with no discharge of wastes to the surface waters, pursuant to the application received May 5, 2005 and subsequent additional information received by the Division, and in conformity with the project plan, specifications, and other supporting data subsequently filed and approved by the Department of Environment and Natural Resources and considered a part of this permit.

See Condition III(3) for the flow capacity limitation specified by this permit.

This permit shall be effective from the date of issuance until February 28, 2011, and shall be subject to the following specified conditions and limitations:

I. PERFORMANCE STANDARDS

1. The *Booth Mountain Wastewater Irrigation Agreement* between Heater Utilities, Inc. and the MacGregor Development Company shall be executed and submitted to the Aquifer Protection Section's Central and Raleigh Regional Offices within sixty (60) days of permit issuance. This agreement shall include the following:

   a. The agreement shall indicate the responsible party for properly storing and irrigating the entire wastewater flow in accordance with all conditions outlined in a permit issued to Heater Utilities, Inc. If the responsible party is Heater Utilities, Inc., the agreement shall stipulate measures to be taken to ensure Heater Utilities, Inc. has the operational authority to properly manage the wastewater including when, where, and the duration of effluent irrigation events.

   b. The responsible party for irrigation shall provide a certified wastewater irrigation operator at all times in accordance with 15A NCAC 8G, including site visitation requirements.

   c. The agreement shall also indicate that aesthetic desires or management of the common green areas for the purposes of use shall not be justifiable reasons for violating conditions of the wastewater permit including the maintenance of adequate effluent storage capacity.

   d. The agreement shall also indicate the responsible party for conducting all sampling as required by the permit, as well as, the responsible party for record keeping with regards to storage or irrigation of effluent wastewater.

   e. The agreement shall indicate provisions for addressing enforcement and civil penalties in instances where the MacGregor Development Company is responsible for violations of the permit issued to Heater Utilities, Inc.

   f. The agreement may not be modified or negated without approval by the Division. In the case of the sale of the Company or any of the common green area utilized for wastewater disposal, disclosure of the agreement must be made and acceptance by the purchaser must occur prior to the MacGregor Development Company being relieved of any identified responsibilities.

2. Prior to construction and operation of Irrigation Zone Y-3, the Permittee shall submit documentation to the Aquifer Protection Section's Central and Raleigh Regional Offices demonstrating that the Permittee owns the approximately 35 acre parcel (Parcel Number 18931) currently owned by Wayne & Terry Witt and Carl & Saundra Banks.

3. Irrigation Zone Y-3 shall be filled and graded such that at least one (1) foot of vertical distance is present between the soil surface and the seasonal high water table. Upon completion of site grading and shaping on Irrigation Zone Y-3, the soil scientist shall contact the Raleigh Regional Office to inquire whether or not it will be necessary for staff to perform a revised site visit. No wastewater shall be introduced into the treatment system until written approval from the Division of Water Quality is received.

4. Upon completion of construction and prior to operation of this permitted facility, a certification must be received from a professional engineer certifying that the permitted facility has been installed in accordance with this permit, the approved plans and specifications, and other supporting materials. If this project is to be completed in phases and partially certified, you shall retain the responsibility to track further construction approved under the same permit, and shall provide a final certificate of completion once the entire project has been completed. Mail the Certification to the Land Application Unit, 1636 Mail Service Center, Raleigh, NC 27699-1636.

5. The Raleigh Regional Office, telephone number (919) 791-4200, shall be notified at least forty-eight (48) hours in advance of operation of the installed facilities so that an in-place inspection can be made. Such notification to the regional supervisor shall be made during the normal office hours from 8:00 a.m. until 5:00 p.m. on Monday through Friday, excluding State Holidays.

6. The issuance of this permit shall not relieve the Permittee of the responsibility for damages to surface water or ground water resulting from the operation of this facility.

7. The residuals generated from these treatment facilities must be disposed in accordance with General Statute 143-215.1 and in a manner approved by the Division.

8. The reclaimed water utilization facilities shall be effectively maintained and operated at all times so that there is no discharge to the surface waters, nor any contamination of ground waters, which will render them unsatisfactory for normal use. In the event that the facilities fail to perform satisfactorily, including the creation of nuisance conditions or failure of the irrigation area to adequately assimilate the wastewater, the Permittee shall take immediate corrective actions including those actions that may be required by the Division of Water Quality, such as the construction of additional or replacement wastewater treatment and disposal facilities.

9. Diversion or bypassing of the untreated wastewater from the treatment facilities is prohibited.

10. The following buffers shall be maintained:
    a. 100 feet between wetted areas and water supply wells,
    b. 100 feet between wetted areas and waters classified as SA,
    c. 25 feet between wetted areas and surface waters not classified as SA,
    d. 100 feet between wastewater treatment units and wells,
    e. 50 feet between reclaimed water storage/irrigation ponds and property lines, and
    f. 50 feet between wastewater treatment units and property lines.

11. Public access to the irrigation sites shall be controlled during active site use. Such controls may include the posting of signs showing the activities being conducted at each site. A sign shall be posted in plain sight in the clubhouse showing these activities.

12. The disposal system shall be connected to a rain or moisture sensor that shall indicate when wastewater application is not appropriate in accordance with Condition II(4) of this permit.

13. The following shall be requirements for the reclaimed water distribution, storage, and utilization facilities:
    a. All reclaimed water valves, storage facilities, and outlets shall be tagged or labeled to warn the public or employees that the water is not intended for drinking. Where appropriate, such warning shall inform the public or employees to avoid contact with the water.
    b. All reclaimed water piping, valves, outlets, and other appurtenances shall be color-coded, taped, or otherwise marked to identify the source of the water as being reclaimed water.
        i. All reclaimed water piping and appurtenances shall be either colored purple (i.e., Pantone 522) and embossed or integrally stamped or marked "CAUTION: RECLAIMED WATER – DO NOT DRINK" or be installed with a purple (i.e., Pantone 522) identification tape or polyethylene vinyl wrap. The warning shall be stamped on opposite sides of the pipe and repeated every three feet or less.
        ii. Identification tape shall be at least three inches wide and have white or black lettering on purple (i.e., Pantone 522) field stating "CAUTION: RECLAIMED WATER – DO NOT DRINK." Identification tape shall be installed on top of reclaimed water pipelines, fastened at least every 10 feet to each pipe length and run continuously the entire length of the pipe.
    c. All reclaimed water valves and outlets shall be of a type, or secured in a manner, that permits operation by authorized personnel only.
    d. Above-ground hose bibs (i.e., spigots or other hand-operated connections) shall not be present. Hose bibs shall be located in locked below-grade vaults that shall be clearly labeled as being of non-potable quality. As an alternative to the use of locked below-grade vaults with standard hose bibs services, hose bibs, which can only be operated by a special tool or

connected to a special hose connection, may be placed in non-lockable underground service boxes clearly labeled as non-potable water.

II. OPERATION AND MAINTENANCE REQUIREMENTS

1. The facilities shall be properly maintained and operated at all times.

2. Upon classification of the wastewater treatment and irrigation facilities by the Water Pollution Control System Operators Certification Commission (WPCSOCC), the Permittee shall designate and employ a certified operator to be in responsible charge (ORC) and one or more certified operator(s) to be back-up ORC(s) of the facilities in accordance with 15A NCAC 8G .0201. The ORC shall visit the facilities in accordance with 15A NCAC 8G .0204 or as specified in this permit and shall comply with all other conditions specified in these rules.

3. A suitable, year-round vegetative cover shall be maintained on the irrigation areas.

4. Irrigation shall not be performed during inclement weather or when the ground is in a condition that will cause runoff.

5. Adequate measures shall be taken to prevent wastewater runoff from the irrigation field.

6. The facilities shall be effectively maintained and operated as a non-discharge system to prevent the discharge of any wastewater resulting from the operation of this facility.

7. The application and instantaneous loading (i.e. dosing rate) rates shall not exceed the following:

Spray Zone	Area (acres)	Dominant Soil Series	Instantaneous Loading Rate* (inches/dose)	Annual Loading Rate (inches/year)
X-1	4.0	Pacolet	0.10	28.5
X-2	10.5	Pacolet	0.10	28.5
X-3	4.9	Appling	0.10	28.5
X-4A	5.4	Vance	0.10	28.5
X-4B	2.2	Wedowee	0.10	28.5
X-5	2.6	Louisburg	0.10	28.5
X-6	1.5	Louisburg	0.10	28.5
Y-1A	0.2	Helena	0.10	7.0
Y-1B	1.2	Helena	0.10	7.0
Y-2	3.7	Helena	0.10	7.0
Y-3	2.7	Creedmoor/White Store	0.10	7.0
Total	38.9			

* The Permittee shall not apply more than one (1) dose to each field per hour, thus limiting the instantaneous loading rate to 0.1 inches/hour.

8. An automatically activated standby power source shall be on site and operational at all times. If a generator is employed as an alternate power supply, it shall be tested weekly by interrupting the primary power source.

9. No type of wastewater other than that from the Booth Mountain Development shall be irrigated onto the irrigation area.

10. Freeboard in the storage and upset ponds shall not be less than two (2) feet at any time.

11. A waste-level gauge, to monitor waste levels in the storage pond, shall be installed within 60 days of construction. This gauge shall have readily visible permanent markings indicating the maximum liquid level at the top of the temporary liquid storage volume, minimum liquid level at the bottom of the temporary liquid storage volume, and top of the dam elevations. Caution must be taken not to damage the integrity of the liner when installing the gauge.

12. A protective vegetative cover shall be established and maintained on all earthen basin embankments (outside toe of embankment to maximum pumping elevation), berms, pipe runs, erosion control areas, and surface water diversions. Trees, shrubs, and other woody vegetation shall not be allowed to grow on the earthen basin dikes or embankments. Earthen basin embankment areas shall be kept mowed or otherwise controlled and accessible.

13. All wastewater shall be routed to the five-day holding pond should the limit for fecal coliform (daily maximum concentration of 25 per 100 ml) or turbidity (instantaneous maximum of 10 NTU) be exceeded, until such time that the problems associated with the treatment capability of the wastewater treatment plant have been corrected. The wastewater in the five-day holding pond shall be pumped back to the treatment plant for re-treatment or treated in the five-day pond prior to discharge to the storage pond.

III. MONITORING AND REPORTING REQUIREMENTS

1. Any monitoring (including groundwater, surface water, soil or plant tissue analyses) deemed necessary by the Division to insure surface and ground water protection will be established and an acceptable sampling reporting schedule shall be followed.

2. Influent flow shall be continuously monitored and daily flow values shall be reported on Form NDMR. Influent flow may be represented by effluent flow from the wastewater treatment system prior to storage.

   The Permittee shall install an appropriate flow measurement device consistent with approved engineering and scientific practices to ensure the accuracy and reliability of influent flow measurement. Flow measurement devices selected shall be capable of measuring flows with a maximum deviation of less than 10 percent from true flow, accurately calibrated at a minimum of once per year, and maintained to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. The Permittee shall keep records of flow measurement device calibration on file for a period of at least three years. At a minimum, data to be included in this documentation shall be:

   a. Date of flow measurement device calibration
   b. Name of person performing calibration
   c. Percent from true flow

3. As an indicator of proper operation and maintenance, the facility shall produce an effluent in compliance with the following limitations:

Parameter	Monthly Average[a]	Daily (Instantaneous) Maximum[c]
Flow	66,000 GPD	
BOD_5 (5-day, 20°C)	10 mg/l	15 mg/l
NH_3 as N	4 mg/l	6 mg/l
TSS	5 mg/l	10 mg/l
Fecal Coliform	14 per 100 ml[b]	25 per 100 ml
Turbidity		10 NTU

The effluent pH shall not be less than 6.0 standard units nor greater than 9.0 standard units.

[a] Monthly averages for all but fecal coliform shall be the arithmetic mean of all samples collected during the reporting period.

[b] Monthly average for fecal coliform shall be the geometric mean of all samples collected during the reporting period.

[c] Daily maximum shall be the maximum value of all samples collected during the reporting period.

The Permittee shall monitor the effluent from the subject facilities at a point prior to irrigation for the following parameters:

Parameter	Sampling Point	Sampling Frequency	Type of Sample
Flow	Influent or Effluent	Continuous	Recording
Turbidity	Effluent	Continuous	Recording
BOD_5 (5-day, 20°C)	Effluent	*2/Month	Composite
NH_3 as N	Effluent	*2/Month	Composite
TSS	Effluent	*2/Month	Composite
Fecal Coliform	Effluent	*2/Month	Grab
Settleable Matter	Effluent	Daily	Grab
Residual Chlorine	Effluent	Daily	Grab
NO_3	Effluent	**Quarterly	Grab
TDS	Effluent	**Quarterly	Grab
TOC	Effluent	**Quarterly	Grab
Chloride	Effluent	**Quarterly	Grab
pH	Effluent	**Quarterly	Grab

* 2/Month sampling frequency only during the months of April through October. During the remainder of the year, these parameters shall be monitored monthly.

** Quarterly sampling shall be conducted during March, June, September and December.

If Groundwater sampling indicates or predicts problems with the compliance with Groundwater Standards, this permit will be modified to include additional and/or more restrictive limitations.

4. The Permittee shall monitor the surface water at the specified locations for the following parameters:

Parameter	Sampling Points *	Sampling Frequency	Type of Sample
Fecal Coliform	Surface Water Station 1	**Quarterly	Grab
pH	Surface Water Station 1	**Quarterly	Grab
Total Nitrogen	Surface Water Station 1	**Quarterly	Grab
Total Phosphorus	Surface Water Station 1	**Quarterly	Grab
Water Level	Surface Water Station 1	**Quarterly	Measurement

* Refer to Figure 1 for sampling location.

** Quarterly sampling shall be conducted during March, June, September and December.

5. The Permittee shall maintain adequate records tracking the amount of wastewater disposed. These records shall include, but are not necessarily limited to the following information:

   a. Date and time of irrigation,
   b. Volume of wastewater irrigated,
   c. Zone irrigated,
   d. Length of time zone is irrigated,
   e. Continuous weekly, monthly, and year-to-date hydraulic (inches/acre) loadings for each zone,
   f. Weather conditions, and
   g. Maintenance of cover crops.

6. Freeboard in the storage pond shall be recorded weekly.

7. Three (3) copies of all monitoring data [as specified in Conditions III(2), III(3) and III(4)] on Form NDMR-1 and three (3) copies of all operation and disposal records [as specified in Conditions III(5) and III(6)] on Form NDAR-1 shall be submitted monthly on or before the last day of the following month. All information shall be submitted to the following address:

   NC Division of Water Quality
   Information Processing Unit
   1617 Mail Service Center
   Raleigh, North Carolina 27699-1617

8. A record shall be maintained of all residuals removed from this facility. This record shall include the name of the hauler, permit authorizing the disposal or a letter from a municipality agreeing to accept the residuals, date the residuals were hauled, and volume of residuals removed.

9. A maintenance log shall be maintained at this facility including but not limited to the following items:

   a. Daily sampling results of dissolved oxygen in the aeration basin and at the clarifier weir.
   b. Visual observations of the plant and plant site.
   c. Record of preventative maintenance (changing of filters, adjusting belt tensions, alarm testing, diffuser inspections and cleanings, etc.).
   d. Date of calibration of flow measurement device.
   e. Date and results of power interruption testing on alternate power supply.

10. An annual representative soils analysis (Standard Soil Fertility Analysis) shall be conducted on each irrigation field and the results maintained on file by the Permittee for a minimum of five years. The Standard Soil Fertility Analysis shall include, but is not necessarily limited to, the following parameters:

Acidity	Manganese	Potassium
Calcium	Percent Humic Matter	Sodium
Copper	pH	Zinc
Magnesium	Base Saturation (by calculation)	Phosphorus
Cation Exchange Capacity		Exchangeable Sodium Percentage

11. **Noncompliance Notification:**

The Permittee shall report by telephone to the Raleigh Regional Office, telephone number (919) 571-4700, as soon as possible, but in no case more than 24 hours or on the next working day following the occurrence or first knowledge of the occurrence of any of the following:

a. Any occurrence at the wastewater treatment facility which results in the treatment of significant amounts of wastes which are abnormal in quantity or characteristic, such as the dumping of the contents of a sludge digester; the known passage of a slug of hazardous substance through the facility; or any other unusual circumstances.

b. Any process unit failure, due to known or unknown reasons, that render the facility incapable of adequate wastewater treatment such as mechanical or electrical failures of pumps, aerators, compressors, etc.

c. Any failure of a pumping station, sewer line, or treatment facility resulting in a by-pass directly to receiving waters without treatment of all or any portion of the influent to such station or facility.

d. Any time that self-monitoring information indicates that the facility has gone out of compliance with its permit limitations.

Occurrences outside normal business hours may also be reported to the Division's Emergency Response personnel at telephone number (800) 662-7956, (800) 858-0368, or (919) 733-3300. Persons reporting such occurrences by telephone shall also file a written report in letter form within five (5) days following first knowledge of the occurrence. This report must outline the actions taken or proposed to be taken to ensure that the problem does not recur.

IV. GROUNDWATER REQUIREMENTS

1. Prior to beginning waste disposal operations, one (1) upgradient monitor well (MW-1) and three (3) downgradient monitor wells (MW-2, MW-3 and MW-4) shall be installed to monitor groundwater quality. The well(s) shall be constructed such that the water level in the well is never above or below the screened (open) portion of the well at any time during the year. The general location and name for each well is marked on Figure 1. Each monitoring well shall be located at the review boundary, constructed in accordance with this permit, and approved by the Raleigh Regional Office.

2. All wells that are constructed for purposes of groundwater monitoring shall be constructed in accordance with 15A NCAC 2C .0108 (Standards of Construction for Wells Other than Water Supply) and any other state and local laws and regulations pertaining to well construction.

3. The Raleigh Regional Office, telephone number (919) 791-4200, shall be notified at least forty-eight (48) hours prior to the construction of any monitoring well so that an inspection can be made of the monitoring well location. Such notification to the regional Aquifer Protection supervisor shall be made during the normal office hours from 8:00 a.m. until 5:00 p.m. on Monday through Friday, excluding state holidays.

4. Within sixty (60) days of completion of all monitoring wells, the permittee shall submit two original copies of a scaled topographic map (scale no greater than 1":100') signed and sealed by a professional engineer or a state licensed land surveyor that indicates all of the following information:

   a. The location and identity of each monitoring well,
   b. The location of the waste disposal system,
   c. The location of all property boundaries,
   d. The latitude and longitude of the established horizontal control monument,
   e. The relative elevation of the top of the well casing (which shall be known as the "measuring point"), and
   f. The depth of water below the measuring point at the time the measuring point is established.

   The survey shall be conducted using approved practices outlined in North Carolina General Statutes Chapter 89C and the North Carolina Administrative Code Title 21, Chapter 56. The surveyor shall establish a horizontal control monument on the property of the waste disposal system and determine the latitude and longitude of this horizontal control monument to a horizontal positional accuracy of +/- 10 feet. All other features listed in a. through e. above shall be surveyed relative to this horizontal control monument. The positional accuracy of features listed in a. through e. above shall have a ratio of precision not to exceed an error of closure of 1 foot per 10,000 feet of perimeter of the survey. Any features located by the radial method will be located from a minimum of two points. Horizontal control monument shall be installed in such a manner and made of such materials that the monument will not be destroyed due to activities that may take place on the property. The map shall also be surveyed using the North American Datum of 1983 coordinate system and shall indicate the datum on the map. All bearings or azimuths shall be based on either the true or NAD 83 grid meridian. If a Global Positioning System (GPS) is used to determine the latitude and longitude of the horizontal control monument, a GPS receiver that has the capability to perform differential GPS shall be used and all data collected by the GPS receiver will be differentially corrected.

   The maps and any supporting documentation shall be sent to the N.C. Division of Water Quality, Aquifer Protection Section, Land Application Unit, 1636 Mail Service Center, Raleigh, N.C. 27699-1636.

5. Upon completion of all well construction activities, a certification must be received from a professional engineer certifying that the monitoring wells are located and constructed in accordance with the Well Construction Standards (15A NCAC 2C) and this permit. This certification should be submitted with copies of the Well Completion Form (GW-1) for each well. Mail this certification and the associated GW-1 forms to the Aquifer Protection Section, Land Application Unit, 1636 Mail Service Center, Raleigh, N.C. 27699-1636.

6. For the initial sampling of the well as specified elsewhere in the permit, the permittee shall submit a copy of the GW-1 Form (Well Completion Form) with the Compliance Monitoring Form (GW-59) for that well. Compliance Monitoring Forms that do not include copies of the GW-1 form will be returned to the permittee without being processed. Failure to submit these forms as required by this permit may result in the initiation of enforcement activities pursuant to NC General Statutes 143-215.6.

7. Monitor wells MW-1, MW-2, MW-3 and MW-4 shall be sampled initially after construction (and prior to waste disposal operations) and thereafter every March, June, September and December for the following parameters:

Water Level	Chloride	Total Organic Carbon (TOC)
Nitrate (NO_3-N)	Fecal Coliforms	Total Ammonia Nitrogen (NH3-N)
pH	Total Dissolved Solids (TDS)	Total Phosphorus

8. The measurement of water levels must be made prior to sampling for the remaining parameters. The depth to water in each well shall be measured from the surveyed point on the top of the casing.

9. The measuring points (top of well casing) of all monitoring wells shall be surveyed to provide the relative elevation of the measuring point for each monitoring well.

10. If TOC concentrations greater than 10 mg/l are detected in any downgradient monitoring well, additional sampling and analysis must be conducted to identify the individual constituents comprising this TOC concentration. If the TOC concentration as measured in the background monitor well exceeds 10 mg/l, this concentration will be taken to represent the naturally occurring TOC concentration. Any exceedances of this naturally occurring TOC concentration in the downgradient wells shall be subject to the additional sampling and analysis as described above.

11. The results of the sampling and analysis must be received on Form GW-59 (Groundwater Quality Monitoring: Compliance Report Form) by the Division of Water Quality, Information Processing Unit, 1617 Mail Service Center, Raleigh, North Carolina 27699-1617 on or before the last working day of the month following the sampling month.

12. Waste shall not be applied or discharged onto or below the land surface when the vertical separation between the waste and the seasonal high water table is less than one (1) foot.

13. The five day upset pond shall have either a liner of natural material at least one (1) foot in thickness and having a hydraulic conductivity of no greater than 1×10^{-6} centimeters per second when compacted, or a synthetic liner of sufficient thickness to exhibit structural integrity and an effective hydraulic conductivity no greater than that of the natural material liner, according to 15A NCAC 2H .0219(f).

14. The Compliance Boundary and Review Boundary for the waste disposal area(s) is specified by regulations in 15A NCAC 2H, Waste Not Discharged to Surface Waters, specifically, .0219(k)(1)(C)(i)(III). The Compliance Boundary and Review Boundary for groundwater shall be established at the property boundary. An exceedance of Groundwater Quality Standards at or beyond the Compliance Boundary is subject to remediation action according to 15A NCAC 2L .0106(d)(2).

V. INSPECTIONS

1. Adequate inspection, maintenance, and cleaning shall be provided by the Permittee to insure proper operation of the subject facilities.

2. The Permittee or his designee shall inspect the wastewater treatment and disposal facilities to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of wastes to the environment, a threat to human health, or a nuisance. The Permittee shall keep an inspection log or summary including at least the date and time of inspection, observations made, and any maintenance, repairs, or corrective actions taken by the Permittee. This log of inspections shall be maintained by the Permittee for a period of three years from the date of the inspection and shall be made available upon request to the Division or other permitting authority.

3. Any duly authorized officer, employee, or representative of the Division may, upon presentation of credentials, enter and inspect any property, premises or place on or related to the disposal site or facility at any reasonable time for the purpose of determining compliance with this permit; may inspect or copy any records that must be maintained under the terms and conditions of this permit, and may obtain samples of groundwater, surface water, or leachate.

VI. GENERAL CONDITIONS

1. This permit shall become voidable unless the facilities are constructed in accordance with the conditions of this permit, the approved plans and specifications, and other supporting data.

2. This permit is effective only with respect to the nature and volume of wastes described in the application and other supporting data.

3. This permit is not transferable. In the event there is a desire for the facilities to change ownership, or there is a name change of the Permittee, a formal permit request must be submitted to the Division accompanied by an application fee, documentation from the parties involved, and other supporting materials as may be appropriate. The approval of this request will be considered on its merits and may or may not be approved.

4. Failure to abide by the conditions and limitations contained in this permit may subject the Permittee to an enforcement action by the Division in accordance with North Carolina General Statute 143-215.6A to 143-215.6C.

5. The issuance of this permit does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances which may be imposed by other government agencies (local, state, and federal) which have jurisdiction, including but not limited to applicable river buffer rules in 15A NCAC 2B.0200, erosion and sedimentation control requirements in 15A NCAC Chapter 4 and under the Division's General Permit NCG010000, and any requirements pertaining to wetlands under 15A NCAC 2B .0200 and 2H .0500.

6. The Permittee shall retain a set of approved plans and specifications for the subject facility for the life of the project.

7. The Permittee shall pay the annual administering and compliance fee within thirty days of being billed by the Division. Failure to pay the fee accordingly may cause the Division to initiate action to revoke this permit as specified by 15 NCAC 2H .0205 (c)(4).

8. The Permittee, at least six (6) months prior to the expiration of this permit, shall request its extension. Upon receipt of the request, the Commission will review the adequacy of the facilities described therein, and if warranted, will extend the permit for such period of time and under such conditions and limitations as it may deem appropriate.

Permit issued this the 24th day of March, 2006

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

Alan W. Klimek, P.E., Director
Division of Water Quality
By Authority of the Environmental Management Commission

Permit Number WQ0028798

Permit No. WQ0028798
March 24, 2006

ENGINEER'S CERTIFICATION

_____ Partial _____ Final

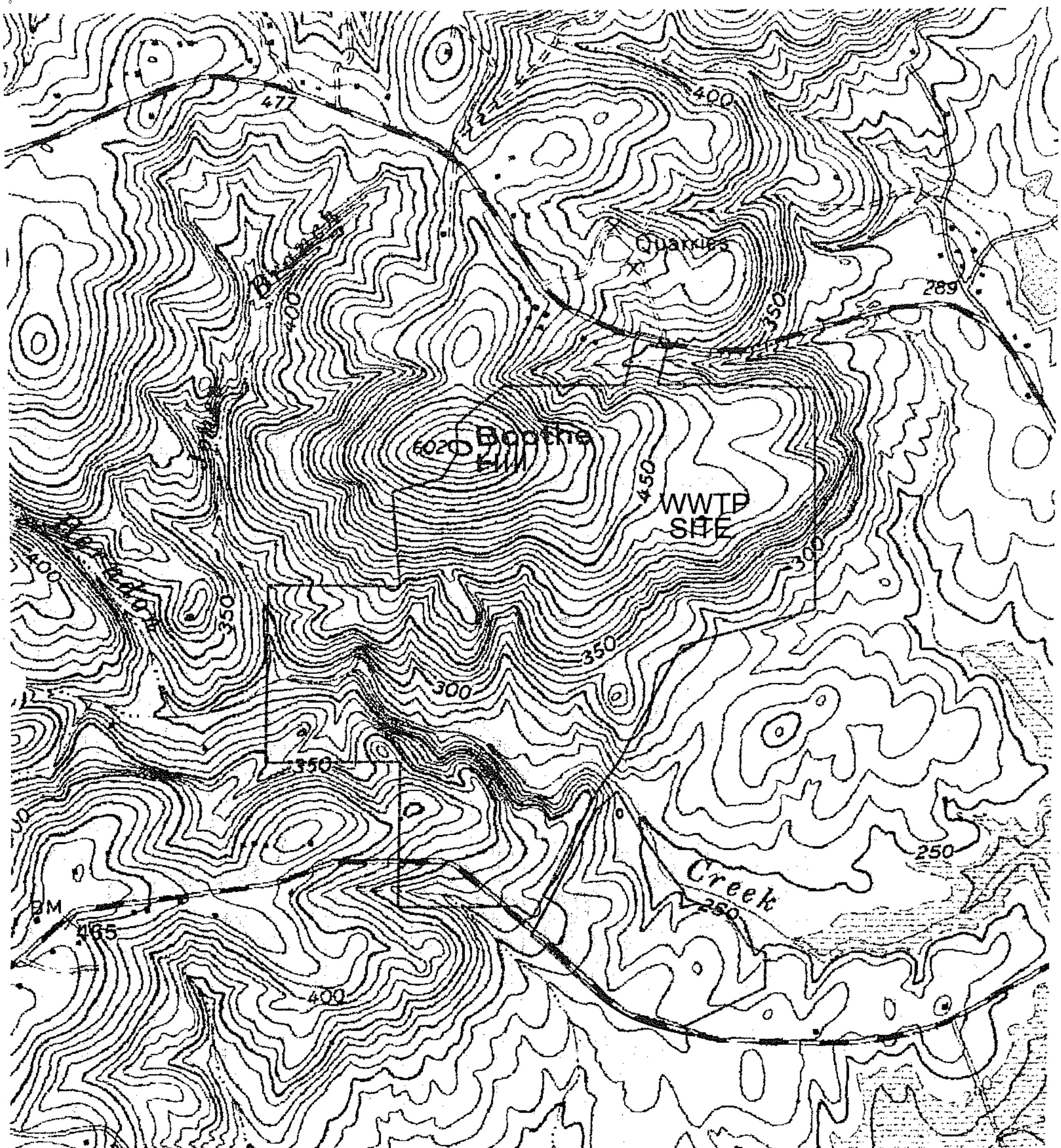
I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project,

_____, _____
Project Name *Location and County*

for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of this permit, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____

Date _____



Heater Utilities, Inc.
Booth Mountain Development

1000' 500' 0 1000' 2000'

SCALE: 1" = 1000'

NORTH

April 19, 2005

FARRINGTON, N. C.
N3545—W7900/7.5
1978 D225E
PHOTOREVISED 1981
DMA 5155 I SE-SERIES V842

ISBN 0-607-32938-6

V0028798

WATER POLLUTION CONTROL SYSTEM OPERATORS CERTIFICATION COMMISSION

CLASSIFICATION
RATING SHEET FOR WATER POLLUTION CONTROL SYSTEMS

FACILITY INFORMATION:

NAME OF FACILITY: **Heater Utilities, Inc.-Booth Mountain Development**

MAILING ADDRESS: **202 MacKenan Ct., Cary, NC 27511**

COUNTY: **Chatham**

CONTACT PERSON: **Mike Myers** TELEPHONE: **919/467-8712**

PERMIT NO.: **WQ0028798** Check One: NC WQ √ HEALTH DP

ORC: TELEPHONE:

RATING INFORMATION: (Before completing this section, please refer to pages 2-4)

PERMITTED FLOW: **66,000 GPD** BNR? YES NO

CHECK CLASSIFICATION: WASTEWATER: 1 2 √ 3 4

COLLECTION: 1 2 3 4

SPRAY IRRIGATION √ SUBSURFACE LAND APPLICATION

PHYSICAL/CHEMICAL GRADE I GRADE II

RATED BY: **Randy Jones** REGION: **RRO** DATE: **5/23/05**

REGIONAL OFFICE TELEPHONE NUMBER: **919/571-4700** EXT: **255**

Classification of Biological Water Pollution Control Treatment Systems:

Grade I Biological WPCS
- Septic tank/sand filter systems
-Biological lagoon systems
- Constructed wetlands and associated appurtenances

√ Grade II Biological WPCS
- Systems that utilize an activated sludge or fixed growth process with a permitted flow less than or equal to 0.5 million gallons per day (mgd)

Grade III Biological WPCS
- Systems that utilize an activated sludge or fixed growth process with a permitted flow of greater than 0.5 through 2.5 million gallons per day (mgd)
- Grade II systems that are required to achieve biological nutrient reduction *

Grade IV Biological WPCS
- Systems that utilize an activated sludge or fixed growth process with a permitted flow of greater then 2.5 million gallons per day (mgd)
- Grade III systems that are required to achieve biological nutrient reduction *

* *Biological Nutrient Reduction -*
The reduction of total nitrogen or total phosphorus by an activated sludge or fixed growth process as required by the facilities permit.

.....

Classification of Collection Water Pollution Control Systems:
(whichever provides lowest grade)

Same grade as biological water pollution control system. Grade of system:

Based on population served:

1,500 or Less = Grade I

1,501 to 15,000 = Grade II

15,001 to 50,000 = Grade III

50,001 or more = Grade IV

Classification of Spray Irrigation Water Pollution Control Systems:

_√_ Systems which utilize spray irrigation for the reuse or disposal of wastewater. These systems include: septic tanks, sand filter, oil/water separators, lagoons, storage basins, screening, sedimentation. Systems other than those listed above shall be subject to additional classification.

.....

Classification of Land Application of Residuals Systems:

___ Systems permitted and dedicated for the land application of residuals that are produced by a water pollution control system or contaminated soils.

.....

Classification of Physical/Chemical Water Pollution Control Treatment Systems:

____ Grade I Physical/Chemical: Any water pollution control system that utilizes a primarily physical process to treat wastewater. This classification includes groundwater remediation systems **

___ Grade II Physical/Chemical: Any water pollution control system that utilizes a primarily chemical process to treat wastewater. This classification includes reverse osmosis, electrodialysis, and ultrafiltration systems. **

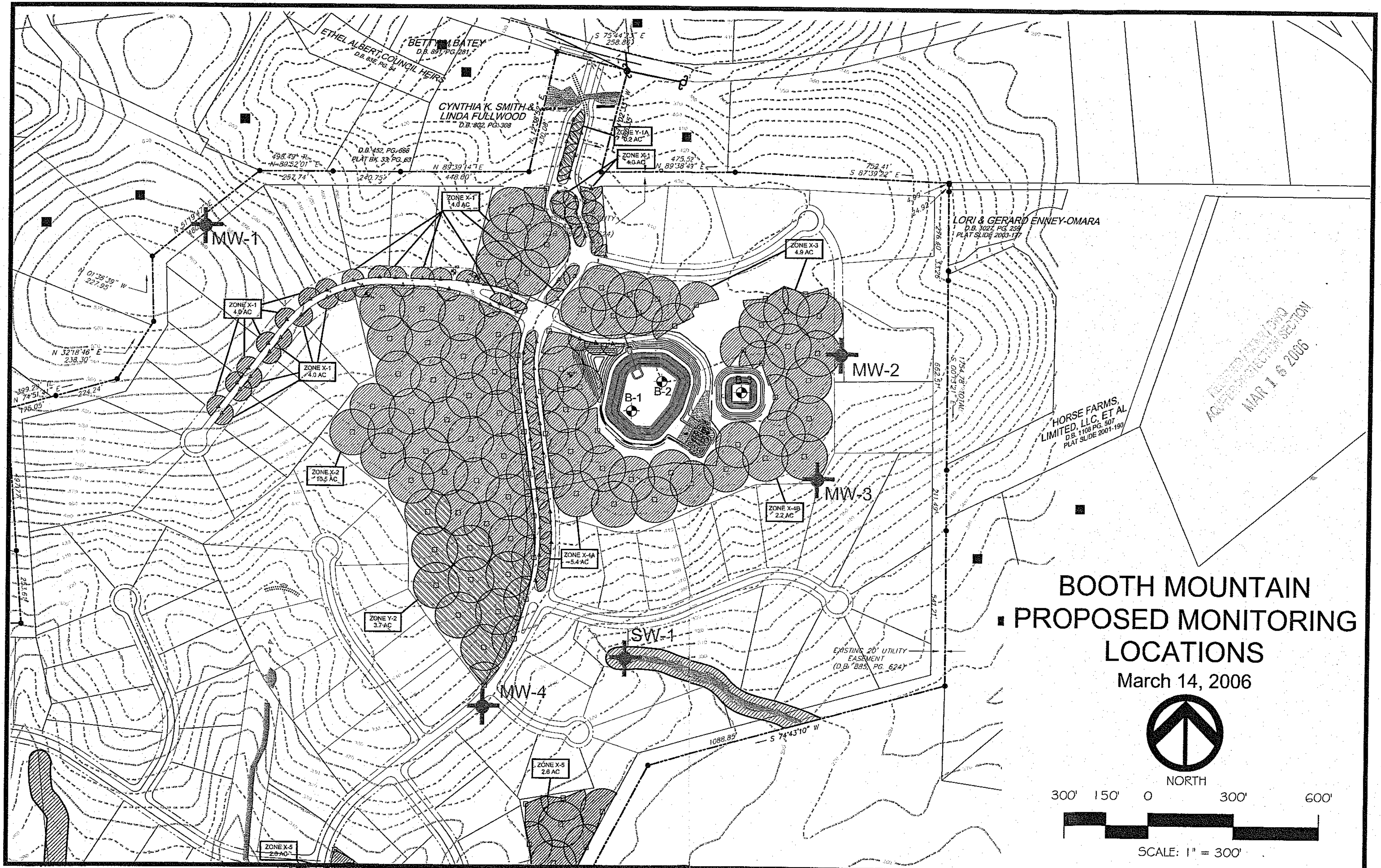
*** Any water pollution control system that utilizes a physical/chemical process to enhance an activated sludge or fixed growth process, shall not be subject to additional classification*

.....

Classification of Subsurface Water Pollution Control Systems:

___ Systems which utilize the soil for subsurface treatment and disposal of wastewater and/or are required to have a certified operator under 15A NCAC 18A.1961. ***

*** *Any subsurface system that has as part of its treatment process a water pollution control system that may be classified under Rules .0302 through .0307 of this section shall be subject to additional classification.*


BOOTH MOUNTAIN
PROPOSED MONITORING LOCATIONS
March 14, 2006
NORTH
300' 150' 0 300' 600'
SCALE: 1" = 300'
MW-1
MW-2
MW-3
MW-4
SW-1
B-1
B-2
ZONE X-1 4.0 AC
ZONE X-2 10.5 AC
ZONE X-3 4.9 AC
ZONE X-4A 5.4 AC
ZONE X-4B 2.2 AC
ZONE X-5 2.6 AC
ZONE Y-1A 0.2 AC
ZONE Y-2 3.7 AC
BETTY M BATEY
ETHEL ALBERT COUNCIL HEIRS
CYNTHIA K. SMITH & LINDA FULLWOOD
LORI & GERARD ENNEY-OMARA
HORSE FARMS, LIMITED, LLC, ET AL
EXISTING 20' UTILITY EASEMENT (D.B. 885, PG. 624)

SUBDIVISION: WESTFALL

DIRECTIONS: LOCATED OFF LYSTRA RD (SOUTH SIDE) NEXT TO BOUTHE HILL SUBDIVISION WESTFALL

DEVELOPER: ASSOCIATES, LLC **PHONE NUMBER:** _____

Major Development: X **Minor Development:** _____
Development with acreage of 10 acreage of 10 acres or more: _____

Proposed road names	OK to submit	DUPLICATED Do not Submit
LYSTRA GRANT CT	✓	
WEST BEECH SLOPE CT	✓	
FUTRELL RIDGE CT	✓	
FUTRELL GRANT CT	✓	

DATE SUBMITTED TO EOC: 11-26-12
SUBMITTED BY: Joe Faulkner
EOC OFFICER: Lesa Chavis
DATE ROADS APPROVED: 11-21-12
DATE FINAL PLAT RECEIVED: _____
DATE GIVEN TO 911: _____
DATE CONTACT MADE WITH NUMBERS: _____
SURROUNDING COUNTY CONTACTED: 11-21-12 - verified on-line
PERSON SPOKEN WITH: _____
COMMENTS: _____

[redacted] revised 4/19/02

[redacted]

Joe Faulkner

From: David Gainey [dgainey@sandec.com]
Sent: Friday, October 05, 2012 10:18 AM
To: Joe Faulkner (joe@cegroupinc.com)
Subject: FW: Westfall Buffer Submittal

See Dan's email below.
Thanks, David

David Gainey
Project Manager
Soil and Environmental Consultants, PA
Office 919-846-5900
Fax 919-846-9467
Cell 919-771-9136
Visit us at SandEC.com

From: Dan LaMontagne [mailto:dan.lamontagne@chathamnc.org]
Sent: Friday, October 05, 2012 10:15 AM
To: David Gainey
Cc: Natalie Landry
Subject: RE: Westfall Buffer Submittal

David,
Thanks for meeting at the site yesterday to review the attached Buffer Submittal. As we discussed, we agree with the determinations as presented in your submittal. This email is to serve as confirmation of Chatham County's concurrence with your findings.

Dan J. LaMontagne, P.E.
Environmental Quality Director
Chatham County
919-542-0945
In keeping with the NC Public Records Law, e-mails, including attachments, may be released to others upon request for inspection and copying.

From: David Gainey [mailto:dgainey@sandec.com]
Sent: Thursday, September 13, 2012 3:06 PM
To: Dan LaMontagne
Subject: Westfall Buffer Submittal

Dan,
Please see the attached report for Chatham County Buffer review. You can reach me on my mobile to set up a site visit and please let me know if you have any questions.
Thanks, David Gainey

David Gainey

Project Manager
Soil and Environmental Consultants, PA
Office 919-846-5900
Fax 919-846-9467
Mobile 919-771-9136
Visit us at SandEC.com

S&EC

Soil & Environmental Consultants, PA

11010 Raven Ridge Road • Raleigh, North Carolina 27614 • Phone: (919) 846-5900 • Fax: (919) 846-9467
www.SandEC.com

July 23, 2012
S&EC Project No.: 8126.W9

Westfall Associates, LLC
Attn: Ginger Warren
140 Towerview Drive
Cary, NC 27513

Re: Chatham County Stream Buffer Evaluation and Wetland Review
Boothe Mountain/Westfall
Chatham County, NC

Ms. Warren:

On July 17, S&EC personnel completed the Chatham County Buffer evaluation and wetland review on the Boothe Mountain site and additional parcels in Chatham County. You will find the attached report detailing our findings. Supporting maps that further document the wetland and stream related site characteristics are also attached. Please review this information and call our office if you have questions.

The next step in the wetland and stream verification process is to visit the site with the Army Corps of Engineers' agent for Chatham County. In addition, a site meeting must be conducted with an agent for Chatham County (for review of the revised Chatham County Watershed Ordinance). Furthermore, I am attaching a copy of our agent authorization form that you should complete and return; this will grant S&EC authority to correspond with the Corps on your behalf.

As you move forward in planning your development, S&EC personnel are available for site plan review and permit consultation services. Please contact S&EC if you have any questions related to wetland and stream regulations or if you need clarification of the attached report.

Sincerely,

Steven Ball
NC Registered Forester # 1723

Attachments:

1) Wetland Delineation Report
2) USGS site vicinity map
3) NRCS Soil Survey
4) Wetland & Stream Sketch Map
5) Agent Authorization Form
6) Requirements for Delineation Maps

S&EC
Soil & Environmental Consultants, PA
11010 Raven Ridge Road • Raleigh, North Carolina 27614 • Phone: (919) 846-5900 • Fax: (919) 846-9467
www.SandEC.com

CHATHAM COUNTY BUFFER EVALUATION FOR THE WESTFALL AT BOOTH MOUNTAIN PROPERTY

On July 17, 2012, S&EC personnel completed a Chatham County Buffer evaluation on the Westfall site (±290 acres). The site is located at between Lystra Road and Jack Bennett Road in Chatham County, NC. Figure 1 and Figure 2 show the location of the site on a USGS topographic quadrangle and NRCS County Soil Survey, respectively.

EXECUTIVE SUMMARY

We have determined that many on-site features will likely require county buffer protection. The attached sketch map depicts the approximate location of each buffer area. The exact location of each delineated area should be surveyed with appropriate buffer widths established and incorporated into planning for the project.

SCOPE OF WORK

The Chatham County Buffer Evaluation was conducted according to guidelines referenced in the Chatham Watershed Protection Ordinance Section 304(E)10. Specifically, the ordinance directs evaluators to the "Field Procedures for Classification of Streams and Waterbodies, Chatham County, NC" (December 12, 2007), which "prescribes methodologies for establishing the location and extent of streams and water bodies in the field." Areas on the site that met the criteria for buffer protection were delineated in the field with numbered, pink S&EC logo flagging. It is important to note that some features described in this report may meet the criteria for jurisdictional wetlands or other Waters of the US regulated by the US Army Corps of Engineers (USACE) and/or the NC Division of Water Quality (NC-DWQ) under authority of the Clean Water Act (33 USC 1344).

QUALIFICATIONS OF PRINCIPAL INVESTIGATORS

Investigator: Steven Ball, Scientist
Education: BS Forest Management, NC State University
Experience: Soil & Environmental Consultants, PA; July 2005 to present
Certifications: NC Registered Forester #1723, Intermittent & Perennial Stream Identification for Riparian Buffer Rules, Aquatic Insect Collection Protocols for Stream Mitigation and Restoration.
Expertise: Wetland delineations, stream delineations and stream classifications, forest management, natural resource management.

Investigator: **David Gainey, Scientist**
Education: Associates Degree, Science; Wake Tech Community College
Experience: Soil and Environmental Consultants, PA; February 2004 to Present
Certifications: Intermittent & Perennial Stream Identification for Riparian Buffer Rules, Aquatic Insect Collection Protocols for Stream Mitigation and Restoration.
Expertise: Wetland delineations, Stream delineations and stream classifications, Threatened and Endangered Species Surveys, Stream and Wetland Restoration, Natural resource management.

RESULTS & RECOMMENDATIONS

The results of the Chatham County Buffer Evaluation are discussed below.

Chatham County Buffers:

We have determined that the following on-site areas meet the criteria for buffer protection as defined by the Chatham County Watershed Protection Ordinance. Please refer to the attached "Buffer Sketch Map" for specific flag numbers and approximate locations.

A number of buffered features were observed during the site evaluation; the approximate locations of each are illustrated on the attached buffer sketch map.

Ephemeral Streams that would likely require a 30-foot buffer were identified on-site and are described below:

- Feature F (Unnamed Tributary -UT to Herndon Creek) begins at below the stormwater outfall and flows downstream to the property line
- Feature G (UT to Herndon Creek) begins at flag SB02 and flows into feature D
- Feature H (UT to Herndon Creek) begins at flag SB 09 and parallels the property line before flowing off property
- Feature C (UT to Herndon Creek) the upper portion of this feature is now believed to be ephemeral as shown on the attached map from the "original start' to flag SB01
- Feature I (UT to Herndon Creek) begins at the base of the stormwater outfall and flows into Herndon Creek (feature A)
- Feature K (UT to Herndon Creek) begins at flag SB 17 and flows into feature A

Intermittent Streams that would likely require a 50-foot buffer were identified on-site and are described below:

- Feature C (Unnamed Tributary -UT to Herndon Creek) is believed to currently begin its intermittent start at flag SB01. The original delineation had this feature flowing higher in the drainage to the point "Original Start" on the attached sketch map. S&EC believes the feature is now ephemeral between these two points.
- Feature G (UT to Herndon Creek) is located in the eastern portion of the property. This previously delineated stream will contain a 50 ft buffer as shown on the attached map.
- Feature L (UT to Herndon Creek) flows across a portion of the property south of Jack Bennett Road.

Perennial Streams that would likely require a 100-foot buffer were identified on-site and are described below:

- Feature A (Herndon Creek) flows all the way through the property.
- Feature B (UT to Herndon Creek) flows onto property from the southwest
- Feature D (UT to Herndon Creek) flows across the northern portion of the property
- Feature E (UT to Herndon Creek) flows into feature D

Wetland areas identified on-site that would likely require a 50-foot buffer are described below.

- Wetlands on-site have been delineated and approved by the USACE. These wetlands have been surveyed and placed on a map for planning purposes. Please see attached sketch map for locations of each.
- Wetlands flagged in the newly evaluated area to the north are denoted by flags D01-D21. See attached sketch map.
- There was one off-site wetland that was flagged. Flags SB12-SB15 denote the wetland in which its 50 ft buffer will likely overlap onto the Westfall property.

Surface waters on this site flow into Herndon Creek in the Cape Fear River Basin, which has been classified in NC-DWQ's "Classification and Water Quality Standards Applicable to Surface Waters and Wetlands of North Carolina" as WS-IV; NSW, CA**.**

Streams on this site will likely be subject to buffer regulations administered by state and local authorities. A brief description of county buffers can be found in the regulations section of this report. The project engineer or planner should provide input toward the application of these regulations to the site plan during design and review.

All S&EC flags comprising the Chatham County Buffer Evaluation should be surveyed for use in site planning and county approval and permitting. The entire length of each stream feature was not flagged, but will need to be survey located for the map**.** Stream features may be located either along the centerline (with channel widths noted at each survey point) or at the top-of-bank. S&EC delineation flag numbers should be shown on the survey.

Regulations

A short list of regulations that apply to buffer areas observed on the site are discussed below. Please be aware that other local, state, and federal regulations not included in this list may also apply. S&EC personnel are available to discuss these regulations as they apply to your project.

Chatham County Watershed Protection Ordinance

The Chatham County Watershed Protection Ordinance was revised February 20, 2012 to require stringent buffer requirements around surface water features in the County's jurisdiction. The ordinance requires all stream classifications to be conducted by a qualified professional who has received documented certification of training in classifying streams and surface waters in North Carolina. Additionally, all wetland delineations must be conducted by a qualified professional who has at least 2 years of demonstrated experience in conducting wetland delineations in North Carolina under the Clean Water Act Sections 401 and 404 provisions. All field determinations of

streams are subject to review and approval by the County.

The ordinance requires a one hundred (100') foot buffer along each side of perennial streams, or the full horizontal extent of the "Area of Special Flood Hazard 5" as most recently mapped by the North Carolina Floodplain Mapping Program, NC Division of Emergency Management, whichever is greater. Intermittent Streams require a fifty (50') foot riparian buffer along each side. Ephemeral Streams require a thirty (30') foot buffer along each side. Wetlands require a riparian buffer of fifty (50') feet from the delineated boundary, surrounding all features classified as wetlands and linear wetlands.

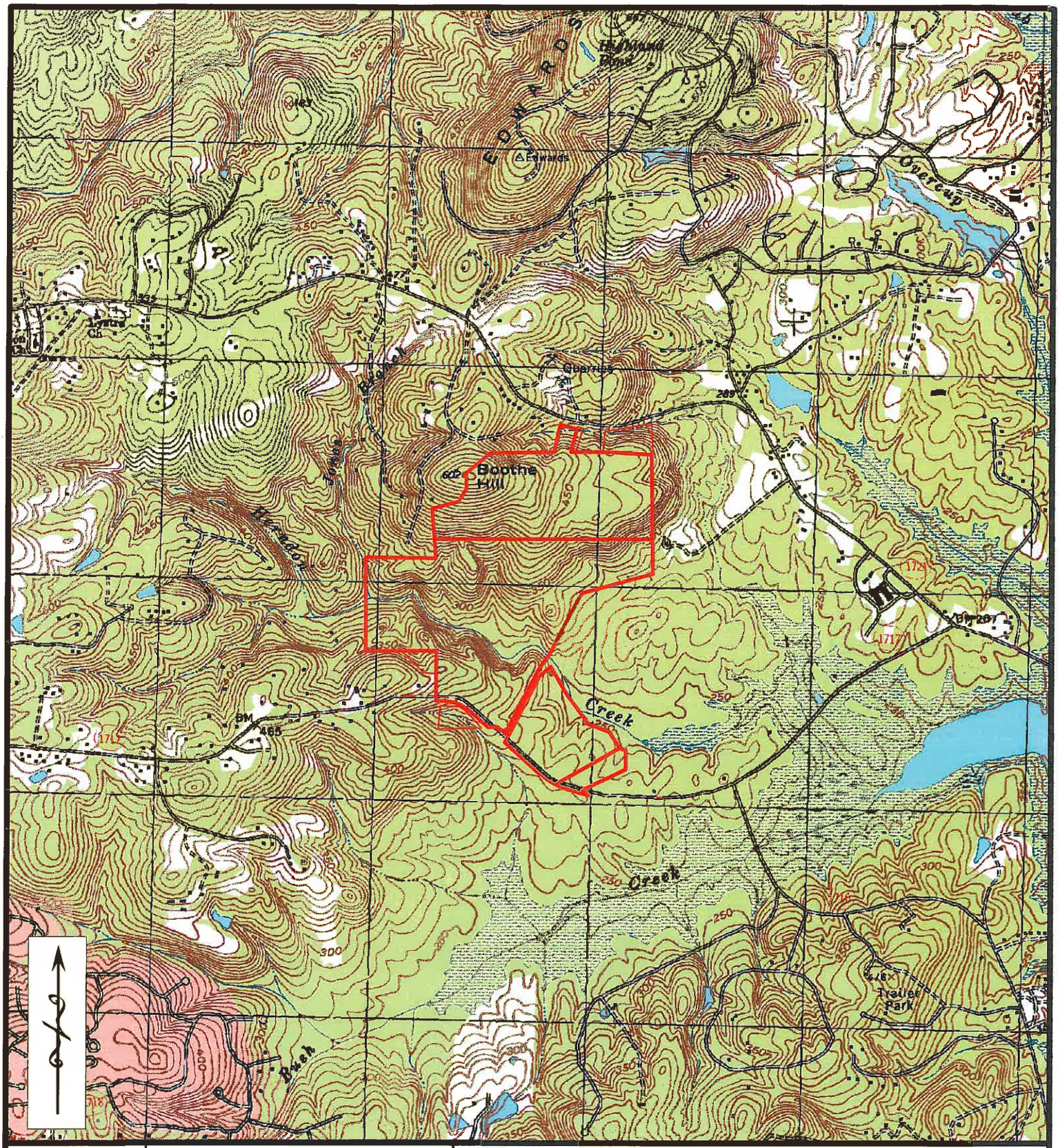
Before **any** land disturbance activities may begin, and in addition to any erosion control notification, the riparian buffer boundaries must be clearly flagged in the field and approved by county staff. Tree protection fencing or other approved protective measures must be installed along the approved flagging lines.

Limitations

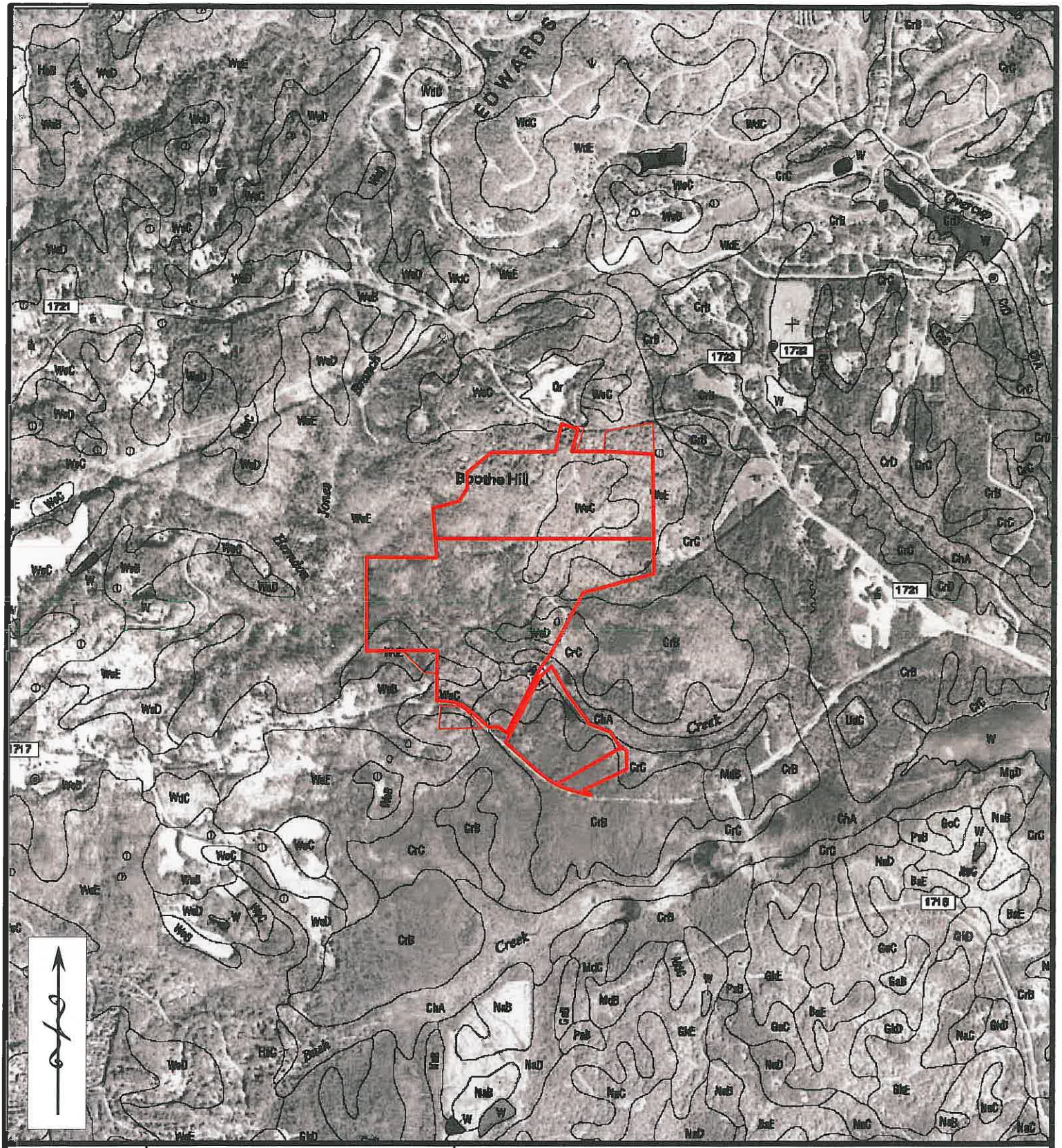
Our evaluations, conclusions, and recommendations are based on project and site information available to us at the time of this report and may require modification if there are any changes in the project or site conditions, or if additional data about the project or site becomes available in the future. This report is intended for use by Westfall on this project. These findings are not intended or recommended to be suitable for reuse on extensions of the project or on any other project. Reuse on extensions of this project or on any other project shall be done only after written verification or adaptation by SOIL & ENVIRONMENTAL CONSULTANTS, PA, for the specific purpose intended.

CONCLUSION

The Chatham County Buffer Evaluation for the Westfall at Booth Mountain Property was completed by S&EC on July 17th, 2012. This site contains buffered areas that require protection under the Chatham County Watershed Protection Ordinance. Some activities such as utility crossings are allowed in the riparian buffer as prescribed under Section 304(F)10. Please have the buffer survey forwarded to our office upon completion for our verification and review.



Project No. 8214.W9	Figure 1 - 1:24K USGS Topographic Quadrangle Westfall/Boothe Mtn Westfall Assoc. Chatham Co, NC	S&EC **Soil & Environmental Consultants, PA** 11010 Raven Ridge Rd.• Raleigh, NC 27614 (919) 846-5900 • (919) 846-9467 Web Page: www.SandEC.com
Project Mgr.: SB		
Scale: 1" = 2,000'		
7/23/12	Farrington Quad	



Project No. 8214.W9	Figure 2-NRCS Soil Survey Westfall/Boothe Mtn Westfall Assoc. Chatham Co, NC	S&EC **Soil & Environmental Consultants, PA** 11010 Raven Ridge Rd. • Raleigh, NC 27614 (919) 846-5900 • (919) 846-9467 Web Page: www.SandEC.com
Project Mgr.: SB		
Scale: 1" = 2,000'		
7/23/12	Farrington Quad	

Legend

- additionalparcels
- Perennial Stream (100 ft buffer)
- Intermittent (100 ft buffer)
- Ephemeral Stream (subjec to Chatham County 30' buffer)
- Marginal wetland (not flagged; USACE should verify)
- Valid wetlands flagged in past delineation (50 ft Buffer)
- Offsite wetland flagged in most recent evaluation (50 ft buffer)
- 50' Buffer *Measured from top-of-bank*
- 30'Ephemeral Buffer and 100' Perennial Buffer

D01 tt PL
D04 tt Ch
D11-D12 tt PL
E
D
D15 tt D09
D08 tt PL
D05 tt CH
D16-D21 CL
Start at base of outfall
SB12-SB15
F
Original Start
SB01
SB02
G
H
C
A
D
SB09-SB03
I
Start at base of outfall
B
L
K
SB17

0 150 300 600 900 Feet

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July 23, 2012

Chatham County Buffer Map		Scale: 1" = 350'
Project Manager: Steven Ball	Project Number: 8126.W9	Prepared by Steven Ball

Boothe Mtn. Property
Chatham County, NC

Middle Stream

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

Date: 7-17-12	**Project/Site:** Westfall	**Latitude:**
Evaluator: DG, SB	**County:** Chatham	**Longitude:**
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 15	**Stream Determination (circle one)** (Ephemeral) Intermittent Perennial	**Other** *e.g. Quad Name:* C

A. Geomorphology (Subtotal = _____)	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 = _____)				
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 = _____)				
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.

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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

Date:	7-17-12	**Project/Site:**	Westfall	**Latitude:**	
Evaluator:	DG SB	**County:**	Chatham	**Longitude:**	
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30**	11	**Stream Determination (circle one)** Ephemeral Intermittent Perennial		**Other** *e.g. Quad Name:*	F

A. Geomorphology (Subtotal =)	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 =)				
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 =)				
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.

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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

Date: 7-17-12	**Project/Site:** Westfall	**Latitude:**
Evaluator: DG, SB	**County:** Chatham	**Longitude:**
Total Points: 12.5 *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30**	**Stream Determination (circle one)** Ephemeral Intermittent Perennial	**Other** *e.g. Quad Name:* G

A. Geomorphology (Subtotal =)	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 =)				
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 =)				
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.

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lower trib

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

Date: 7-17-12	**Project/Site:** Westfall	**Latitude:**
Evaluator: DG SB	**County:** Chatham	**Longitude:**
Total Points: 14.5 *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30**	**Stream Determination (circle one)** Ephemeral Intermittent Perennial	**Other** *e.g. Quad Name:* H

A. Geomorphology (Subtotal =)	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 =)				
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 =)				
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.

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3 Below Lower outfall

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

Date: 7-17-12	**Project/Site:** Wetfall	**Latitude:**
Evaluator: DG, SB	**County:** Chatham	**Longitude:**
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 12.5	**Stream Determination (circle one)** Ephemeral Intermittent Perennial	**Other** *e.g. Quad Name:* I

A. Geomorphology (Subtotal =)	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 =)				
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 =)				
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.

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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

Date: 8/08 8-17-12	**Project/Site:** Westfall	**Latitude:**
Evaluator: DG, SB	**County:** Chatham	**Longitude:**
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 11.5	**Stream Determination (circle one)** ~~Ephemeral~~ Intermittent Perennial	**Other** *e.g. Quad Name:* K

A. Geomorphology (Subtotal =)	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 =)				
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 =)				
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:

Feature C

Feature F

Feature G

Feature H

Feature I

Feature K