

**Final Environmental Impact Assessment Peer Review for Chatham County
Briar Chapel Multi-Use Development EIA prepared by CH2M Hill Inc., June 2004**

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**2 August 2004 – Draft Peer Review Report Submission
16 August 2004 – Draft Peer Review Report Meeting
20 August 2004 – Final Peer Review Report Submission**

Abbreviations Used in This Report

BC = Briar Chapel Development

EIA = Environmental Impact Assessment for Briar Chapel (CH2M Hill, June 2004).

CCCCO = Chatham County Compact Communities Ordinance

SEPA = N.C. State Environmental Policy Act

NCDA = N.C. Department of Administration, Environmental Assessment Guidelines March 1999

NCDWQ = North Carolina Division of Water Quality

NRCS = U.S. Natural Resources Conservation Service

USACE = U.S. Army Corps of Engineers

INTRODUCTION, BACKGROUND, and SCOPE of PEER REVIEW

Robert J. Goldstein & Associates (RJG&A) reviewed the June 2004 Briar Chapel EIA prepared by CH2M Hill and supporting documentation prepared by other consultants. This material included: a four inch binder entitled “Rezoning and Compact Community Conditional Use Permit Application” submitted to Chatham County by the developer, Newland Communities (29 June 2004); the biological survey report (Braham and Braham, 2001); wetland and stream delineation reports (S&EC 2000, 2001, 2003, and 2004); and a number of electronic design files provided by CH2M Hill and the John R. McAdams Company, Inc. These documents and files were evaluated with respect to the proposed project’s consistency with the Chatham County Compact Communities Ordinance (CCCCO), the N.C. State Environmental Policy Act (SEPA), and federal environmental regulations. Other consultants prepared additional peer reviews of the project’s transportation and economic impacts.

Following a review of RJG&A’s 2 August 2004 Draft Peer Review Report by Newland Communities, their consultants, and Chatham County, a meeting was convened to discuss RJG&A’s findings and clarify our conclusions prior to submittal of RJG&A’s final report. During this meeting, Newland Communities’ consultants identified a number of inconsistencies between the CCCCCO and other Chatham County ordinances. The interpretation of several technical aspects of the CCCCCO was also discussed (e.g. stream definitions and evaluation criteria). These issues between Chatham County and Newland Communities need to be resolved but are beyond the scope of this report. All inconsistencies with Chatham County ordinances identified below refer to the CCCCCO.

The EIA follows the basic SEPA format and provides good descriptions of existing resources and probable impacts of the project with respect to most environmental concerns. The remainder of this peer review report discusses those areas where the document appears to be incomplete or inconsistent with county, state, and federal regulations. Because the project’s final design is not yet complete, some items identified below (particularly utility construction and maintenance) will be best addressed when detailed engineering and design information is available. They are mentioned here to

point out where such information should be provided in the EIA. For these issues, it may be appropriate for Chatham County to issue conditional approval of the project, where detailed design and operation plans would be reviewed in the context of environmental protection, at the appropriate time. This approach is often used at the state level when a “conditional” Finding of No Significant Impact (FONSI) is issued. This allows the project to proceed but insures appropriate evaluation of environmental issues. Appendix references below refer to the appendix lettering system of the Application binder, unless otherwise noted. (Some of these appendices have their own internal appendices).

PEER REVIEW OF BRIAR CHAPEL EIA and SUPPORTING DOCUMENTS and DATA

Project Alternatives

Beyond the initial discussion of “No Action Alternative” in section 4.1, the EA does not compare impacts of the proposed alternative under each topic with those of the no-action alternative. The EA assumes that the no-action alternative will result in the BC lands becoming a conventional (non-compact) subdivision, or sold and developed lot-by-lot. The possibility of it remaining undeveloped is not discussed. Although compact development is beneficial in many ways, it has certain increased impacts that should be identified in the EA. For example, the BC design includes 2,389 dwelling units on 1,589 acres, which will house roughly 7,000 to 9,000 people. Non-compact development in WS-IV-PA watersheds must not exceed one dwelling unit per acre average density (as per Chatham County Watershed Protection Ordinance); therefore, the maximum number of dwelling units would be 1,589. BC will thus accommodate 50 percent more homes and residents than would conventional development. Environmental costs and benefits of this higher density should be more fully discussed.

Land Use

The EIA is unclear whether the currently forested areas depicted as “unimproved open space” in Figure 16 of Appendix A will remain permanently in natural forest, protected by a conservation easement, restrictive covenant, or other deed restriction. Could there be future recreational improvements or other development in these areas if desired by the BC developer or Property Owners Association?

Several sections of the EIA conclude that potential impacts of BC are minor based on the size of the project area relative to Chatham County or the Haw River basin. This argument does not adequately consider impacts to unique local features such as Bennett Mountain, and the concept of cumulative impact that is essential to SEPA. Nearly every individual project appears “minor” when viewed on a sufficiently large scale, no matter how adverse its local impact. BC will be the size of a small town, and if successful it will likely stimulate other development in eastern Chatham County. A finding of insignificance based on scale alone is insufficient. If other factors were considered in the determination of insignificant impacts they should be included.

Stream Buffers

The EIA states that riparian buffers will be preserved on perennial, intermittent, and ephemeral streams, as required by the CCCCOC. Based on section nine of the CCCCOC and a telephone conversation with Mr. Keith Megginson (Chatham County Planning Director) on 29 July 2004, buffers are required on all streams that are: 1) perennial or, 2) intermittent or, 3) ephemeral and depicted on the most recent Chatham County soils survey maps, and have 10 acres or more drainage area.

The CCCC defines perennial streams as “A stream or river that flows throughout the year except during extreme droughts. It includes a well-defined channel that contains water year round during a year of normal rainfall with the aquatic bed located below the water table for most of the year.” It defines an intermittent stream as “A stream that flows for only part of the year. It includes a well-defined channel that contains water for only part of the year, typically during winter and spring when the aquatic bed is below the water table.”

It was stated during the Draft Peer Review Report meeting that wetland and stream delineation by S&EC identified intermittent and perennial streams using the US Army Corps of Engineers (USACE) evaluation criteria. S&EC did not identify ephemeral channels. S&EC explained during the meeting that USACE personnel verified these delineations in the field and provided a Jurisdictional Determination to be used in the “404/401” permitting process. USACE individually evaluates each drainage’s “importance” based on physical, stability, habitat, and biological factors. “Important” streams are at least intermittent. It is our opinion that any stream determined by USACE to be “important” also satisfies the CCCC intermittent stream definition.

Based on several EIA figures and electronic data, it appears that portions of 16 intermittent channels delineated by S&EC were not provided buffers (Figure 1). The area of these buffers totals 9.28 acres and, if provided, would affect the configuration and in some cases the existence of 29 proposed lots. If criteria other than USACE verified S&EC delineations of perennial and intermittent streams were used to determine where buffers were appropriate, they should be described in the EIA.

A stream buffer is depicted over a residential lot near the head of one ephemeral drainage east of the community center in the EIA and master plan figures, and the electronic files. An intermittent buffer is shown over a parking area and commercial development in the Town Center area in the electronic files and several figures. These inconsistencies should be resolved.

Jurisdictional Wetland and Stream Impacts

EIA section 5.4.2. states that eleven stream crossings will impact 1,949 linear feet of streams. This is an average of 177 feet per crossing, which seems excessive for small subdivision roads. EIA section 7.0 states “There are several stream crossings on the site, and an estimated 2,700 feet of streams will be impacted.” Stream and wetland impacts should be more clearly identified, and characteristics of each affected segment presented in a table: channel length, average width, permanence (perennial, intermittent, or ephemeral), stream substratum, wetland vegetation type, and other features relevant to impact assessment and section 404/401 permitting. If factors such as topography and engineering constraints affect stream crossing width, this information should be discussed.

SEPA guidelines regarding impacts to wetlands require that the following be addressed: “Will there be any direct or indirect impacts on wetlands from the project? If wetland is to be filled, how many acres are involved and what kind of authorization (permit) is required? Will the diversion, addition, or withdrawal of surface water impact existing wetlands? Construction activity as well as long-term operational activity should be considered.” The EIA does not address these questions in adequate detail. Section 5.4.2 states, “less than an acre of wetlands will be impacted.” As noted above, the specific impact acreage is not yet known, pending further survey and design work, but it should be more clearly stated whether this estimate is based on ALL impacts (including utility lines, not shown) or solely on the roads and building lots shown in the EIA and Application drawings. Permanent impacts versus temporary impacts should be identified by wetland type (forested floodplains, headwater seep, beaver pond/marsh, etc). Conversion of wetland type and loss of wetland function and value should also be addressed.

Fish & Wildlife Habitats and Protected Species.

The biological report by Braham and Braham (2001) gives thorough descriptions of terrestrial communities on the majority of the site (1165 acres), but does not adequately describe aquatic communities. Pokeberry Creek and Wilkinson Creek downstream of BC support diverse fish communities that are poorly characterized in the report, and no discussion is provided of the invertebrates and amphibians that typically dominate headwater streams. Shellfish (freshwater mussels and snails) of these streams are not discussed. Stream morphology and habitat conditions on the BC site are not adequately documented, except for the beaver ponds.

The unsurveyed 424 acres in the south-central and southeast portions of BC (Pokeberry Creek and Bush Creek watersheds) should be surveyed for terrestrial and aquatic habitats, older growth communities, and protected species. Nearby downstream aquatic habitats should also be evaluated, because of the potential for off-site aquatic impacts.

SEPA guidelines state that environmental documents should “identify any wildlife habitat that exists on or near the project area” and “list species of dominant plants and animals that are indicative of the kind of habitat that exists, as well as any threatened or endangered species.” For many years the North Carolina Department of Environment and Natural Resources (DENR) and the North Carolina Department of Transportation (DOT) have interpreted this to include federal E (endangered) and T (threatened) and state E, T, and SC (special concern) listed species known from the County, based on SEPA, the NC Endangered Wildlife Protection Act, and the NC Plant Protection & Conservation Act.

Fifteen protected species are reported from Chatham County (NC-Natural Heritage Program database), but only the four federally protected species were addressed in the EIA. The remaining eleven state-protected species include two birds that occur in field or scrub habitats (possibly along the powerline in BC), several river mussels, and one fish that may occur in small streams (possibly on BC site or close downstream), and one salamander that occurs in seeps and floodplain pools (possibly along small streams or floodplain edges in BC). The EIA should assess whether these species may occur on the BC site or close downstream, and whether adverse impacts are likely. Additional field surveys for these species may be appropriate.

The assessment of impacts to federally protected species is generally adequate except for the following two items: (1) EIA section 5.13.3 concludes that no impact to federally protected species is likely “since no habitat for federally protected species exists on the site...” However, Braham and Braham (December 2001, pages 26-27) states that marginally suitable pine forest habitat for red-cockaded woodpecker (RCW) exists on the site and that surveys for RCW cavity trees were incomplete at the time of their report. Has the RCW survey been completed, and if so, what were the results? Also, their survey presumably did not cover the south-central 344 acre area that includes additional pine and mixed pine/hardwood forest, as shown in Figure 5 of Appendix A.

(2) The EIA’s conclusion that the project will not affect Cape Fear shiners in the Haw River downstream of BC may be true (provided that good erosion control, stormwater management, wastewater disposal, and land management practices are followed throughout the construction and life of the project), but the reasoning is flawed. The EIA dismisses potential downstream water quality impacts based on the small size of the Pokeberry Creek and Wilkinson Creek watersheds relative to that of the Haw River. The potential for adverse impacts depends on the magnitude and duration of land disturbance, stormwater management, and proximity to Cape Fear shiner populations, NOT on the drainage areas of the streams passing through the site. If other factors (e.g. stormwater BMPs on

the site or impoundments between the site and the Haw River were considered, this should be discussed.

Significant Natural Heritage Areas.

CCCCO section 10 states that, “Priority for protection as open space shall be given to lands identified in the *Chatham County Inventory of Natural Areas and Wildlife Habitats*, *Chatham County Parks and Recreation Master Plan*, and the *Triangle GreenPrint Regional Open Space Assessment*... If the developer thinks that any of the lands identified in these documents that are found in the compact community cannot be protected, he/she shall provide a written technical justification to the Chatham County Planning Board from an appropriately certified professional as to why not, and propose that they not be included as open space.”

The *Chatham County Inventory of Natural Areas and Wildlife Habitats* describes the upper portion of Bennett Mountain (primary natural area) as “probably the best example of Dry-mesic Oak-Hickory Forest in Chatham County.” The report also discusses the mesic forest community and steep ravine on the western slope (secondary natural area), and the ecological importance of habitat contiguity between the dry-mesic summit, mesic slope, and floodplain communities. The proposed construction of a road and 16 residential lots on the western slope of Bennett Mountain will fragment these communities and adversely affect the integrity of the Bennett Mountain/Pokeberry Creek ecosystem. Statements in several sections of the EIA that the Bennett Mountain SNHA is being “preserved” apparently do not include direct impacts to the secondary natural area, or the important contiguity of the summit and floodplain. No “technical justification” for the proposed BC impacts on Bennett Mountain is provided in the EIA. Also, the impacts associated with the construction and operation of the treated wastewater spray areas on the Bennett Mountain SNHA are not discussed.

The *Triangle GreenPrint Regional Open Space Assessment* identifies Pokeberry Creek (map 3, site #29) as a “significant open space for natural areas and water quality,” including the segment at the foot of Bennett Mountain. The Braham and Braham report further emphasizes the importance of maintaining contiguous habitat between Pokeberry Creek and Bennett Mountain for supporting turkeys and other wildlife that require large forest tracts or contiguous upland and lowland habitats. The proposed road and residential lots on Bennett Mountain are not consistent with the recommendations of this report.

The *Triangle GreenPrint Regional Open Space Assessment* also identifies the Griffins Crossroads area (map 7, area CF1) that extends into the southeastern portion of BC, as an important “forest resource area.” Although BC will affect only the northwestern edge of the Griffins Crossroads Forest Resource Area, which is already disturbed by US-15-501, impacts to this area should be addressed. Of particular concern are stormwater impacts that could affect Bush Creek and its tributaries well beyond the BC project site.

Wastewater Collection, Treatment & Disposal

A conceptual description of the wastewater collection system is provided in the EIA and Appendix N, but no design plans are shown. An estimate of the amount of the collection system to be installed within wetlands and riparian buffers (i.e., where construction outside the buffer or wetland is not feasible due to topography or other factors) should be provided. Sewer construction and maintenance impacts to forested buffers also need to be estimated and described.

The EIA is unclear regarding impacts of the wastewater land application system in forested areas, which occupy the majority of the proposed 450 acres of land application area. The document should describe and estimate the forest clearing necessary for spray or drip system installation and operation. Will all wastewater application areas mapped as “natural forest” in Figure 3 of the Agronomist Report (Appendix K) and as “unimproved open space” in Figure 16 of Appendix A remain permanently in natural forest, or could there be future recreational improvements in these areas?

Ecological impacts of effluent application are not discussed. Increased water and nutrients from irrigation will certainly benefit some plants. However, natural communities adapted to acidic, dry, low-nutrient soils such as those on Bennett Mountain may be invaded and gradually replaced by “weedy” species that do not compete well on those sites under current conditions. Also, chlorine in the effluent may adversely affect some species, particularly plants that rely on symbiotic fungi and bacteria among their roots, such as orchids.

Stormwater Management

A conceptual description of the stormwater management plan is provided in the EIA and Appendix H, but no specific design plans are shown. Will construction and maintenance of temporary and/or permanent stormwater control structures require any disturbance inside the riparian buffers? If so, then these impacts to forested buffers need to be described and quantified. We recognize that it may be premature to fully design the wastewater and stormwater systems prior to local approval of the BC project, but at some point the site-specific details of these systems should be reviewed in the context of environmental protection.

The CCCC requires that stormwater control structures be designed to include stormwater entering the site from off-site development. The EIA or Application should identify any off-site areas contributing stormwater that could be controlled, and should document efforts to coordinate stormwater control planning with developers of adjacent projects and Chatham County.

Historic and Archaeological Sites.

SEPA guidelines require that the environmental document address how the project may affect areas of archaeological or historical value, and that photographs be provided of any buildings to be demolished or renovated. The EIA correctly notes, “Section 106 [of the National Historic Preservation Act of 1966] protects properties that possess significance but have not yet been listed or formally determined eligible for the listing in the National Register.”

EIA section 5.7.1 reports that S&EC personnel searched the files at the SHPO office for historical sites, and the EIA includes a map of known sites on and adjacent to the BC project site. A historic house on the site “will be relocated if the house is determined to be structurally sound enough to make relocation feasible” (Barron, 2004). No formal field survey for cultural resources was conducted, no photographs of the historic house are included, and no letter from SHPO is provided (per SEPA guidelines) regarding whether the project is likely to affect archaeological or historic resources, or whether a field survey is recommended. The EIA concludes “the Project will have no impacts on areas of significant archaeological or historical value.” SHPO should be queried to determine: 1) the validity of the “no impact” conclusion; 2) whether the EIA’s proposed strategy of contacting SHPO “if archaeological artifacts are uncovered during construction” (section 5.7.2) is an

acceptable alternative to a pre-construction survey; and 3) whether moving the historic house out of its historic setting is acceptable as preservation.

Toxic Substances.

SEPA guidelines require the following items to be addressed regarding toxic substances: “Will any toxic substances be introduced during construction or operation of the project? If so, name them and identify how they will be used. Discuss any measures that will be taken to ensure that toxic substances will be treated in accordance with all appropriate regulations so that there will be so significant environmental impact.”

EIA section 5.2.2 states that “No contamination of soils is expected from the development.” This is inconsistent with section 5.14.2 which states: “During construction, there is the potential for accidental spills of fuels such as gasoline or diesel . . . After development, automobiles and other mechanized equipment and chemicals used to maintain landscaping will be the major potential sources of toxic substances on the Site . . . Herbicides and pesticides may be used by homeowners to maintain their landscaping’ they may also be applied to landscaping in the open space areas. Any runoff associated with the Site will be treated in one of the 37 stormwater BMPs or bioretention areas.” The EIA should discuss the 25 percent of the proposed built-upon-area that will not drain into a stormwater control feature and if stormwater BMPs will remove toxins. The proposed wastewater treatment plant and some types of commercial development in BC may also use toxic substances, some of which could be spilled or released. These are not adequately discussed in the EIA.

Air Quality.

SEPA guidelines require the following items to be addressed regarding air quality. “How will the ambient air quality be affected by the project? Remember to discuss both the construction and the operation of the project. Consider cumulative impacts as this project is added to the existing development. Will there be any open burning? If parking is involved and there will be more than 750 spaces, a Complex Air Source permit will be required. Confirm if the project will increase odor levels or increase the possibility for odor complaints.”

BC includes 118 acres of proposed commercial development, including 252,000 square feet of retail space and 270,000 square feet of office space. Approximately 31,226 external vehicle trips daily are expected. We concur that compact multi-use development will probably generate less traffic and air pollutant emissions than a similar quantity of “conventional” development. The EIA does not discuss whether state air quality regulations will be met or whether any facilities at BC will require air quality permitting.

Mitigative Measures

The EA does not adequately discuss the legal protection mechanisms (conservation easement, restrictive covenant, or other deed restrictions) employed to ensure that areas designated as natural forest vegetation (stream buffers, perimeter buffers, forested wastewater irrigation areas, Bennett Mountain, and other natural areas) will be kept that way in perpetuity.

State and Federal Permits Required.

SEPA guidelines require that state and federal environmental permits to be obtained for the project be listed. The EIA does not contain this list.

Figure 1.0. - Briar Chapel EIA Peer Review

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LEGEND

-  Briar Chapel Development
-  CCCC Stream Buffers not shown along S&EC delineated channels
-  EIA Stream Buffers
-  S&EC delineated intermittent and perennial stream channels



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