From: Petrides, Christina <Christina.Petrides@tyrens-uk.com>
Sent: 30 July 2019 13:28
To: Caroline Ford <Caroline.Ford@Cherwell-DC.gov.uk>
Cc: Jenny Barker <Jenny.Barker@Cherwell-DC.gov.uk>; Wood, Mary-Jane <MaryJane.Wood@tyrens-uk.com>
Subject: Re: 19/01036/F - Proposed Local Centre at Elmsbrook - part of NW Bicester

Dear Caroline,

I trust you are well. Please find attached an updated assessment to include reference to unregulated demand. I have added text to the sections on Bicester 1, NW Bicester SPD, ESD 5, and the assessment conclusion at the end.

Do let me know if this is sufficient or if you would like any further changes made.

Kind regards

Christina

Christina Petrides
Senior Environmental Consultant

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From: Caroline Ford <Caroline.Ford@Cherwell-DC.gov.uk>
Sent: 25 July 2019 15:58
To: Petrides, Christina <Christina.Petrides@tyrens-uk.com>
Cc: Jenny Barker <Jenny.Barker@Cherwell-DC.gov.uk>; Wood, Mary-Jane <MaryJane.Wood@tyrens-uk.com>
Subject: RE: 19/01036/F - Proposed Local Centre at Elmsbrook - part of NW Bicester

Christina,

Thank you for your comments and apologies for the delay in reviewing them.

The only matter I think needs to be amended is, that from my reading of the Sustainability and Energy Statement, the application proposes to meet zero carbon based upon its regulated energy demand only (as it doesn't include the unregulated energy demand as well). As such, it is not fully compliant with Policy Bicester 1 or the NW Bicester SPD as whilst it may achieve zero carbon, it doesn't achieve 'true' zero carbon.

Would you be able to amend your comments to state this?

Many thanks,
Caroline

Caroline Ford BA. (Hons) MA MRTPI
Principal Planning Officer – Major Projects Planning Team
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From: Petrides, Christina <Christina.Petrides@tyrens-uk.com>
Sent: 01 July 2019 14:52
To: Caroline Ford <Caroline.Ford@cherwellandsouthnorthants.gov.uk>
Cc: Jenny Barker <Jenny.Barker@Cherwell-DC.gov.uk>; Wood, Mary-Jane <MaryJane.Wood@tyrens-uk.com>
Subject: Re: 19/01036/F - Proposed Local Centre at Elmsbrook - part of NW Bicester

Dear Caroline,

I hope you are well. I have completed the review of this application and attach my assessment for your thoughts.

There are some gaps - notably around water consumption, use of green infrastructure and open space, and some missing calculations - but overall it's on the right track. I have made some suggestions on what we should go back and ask for as I feel there is some risk around changes which may affect calculations and without the evidence of how they achieve what they say they will achieve, it will be difficult to gauge how that may impact compliance with policy.

Happy to discuss once you have had a chance to review. I will be back in the UK next week and then in Greece until mid-September, making the time difference a little easier to manage. My direct line will reach me in both countries - 020 8123 4865.

I look forward to hearing from you.

Kind regards

Christina

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From: Caroline Ford <Caroline.Ford@cherwellandsouthnorthants.gov.uk>
Sent: 18 June 2019 12:10
To: Petrides, Christina
Cc: Jenny Barker
Subject: 19/01036/F - Proposed Local Centre at Elmsbrook - part of NW Bicester

Hi Christina,

I have received a planning application as referenced above for a local centre on the Exemplar phase at NW Bicester – could you review the energy matters for me please? There are a number of statements submitted including a sustainability and energy statement, overheating analysis and a daylight/ sunlight analysis.

I would be grateful to hear from you within 21 days from the date of this email if possible please.

Many thanks,
Caroline

Caroline Ford BA. (Hons) MA MRTPI
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Title:	**Planning Application: 19/01036/F Bicester Eco Town Exemplar Site Phase 2 Charlotte Avenue Bicester**
Request Date:	18 June 2019
Due:	9 July 2019
Issued:	1 July 2019
Name of Cherwell Employee Requesting:	Caroline Ford caroline.ford@cherwellandsouthnorthants.gov.uk 01295 221823
Details of Request:	Assessment for compliance with ESD policies
Actions:	See comments below

Planning application:

The planning application is for the development of a new local centre, comprising the following:

- Retail, commercial and community floorspace (flexible use classes A1/A2/A3/B1/D1) with a total area of 1,476 square metres
- 38 residential units
- Associated access, servicing, landscaping and parking

The proposed scheme forms part of the Elmsbrook development (formerly known as the NW Bicester Eco Town Exemplar Site) and is part of Phase 2 of the development. It is located on either side of Charlotte Avenue.

Assessment:

The planning application documents were reviewed and considered against Cherwell's Local Plan, and in particular the ESD policies, as well as applicable supplementary guidance documents. Compliance with policy requirements was considered and findings are set out below. The documents reviewed, submitted as part of the planning application, were the following:

- Design & Access Statement
- Sustainability & Energy Statement
- Overheating Analysis (residential and non-domestic)
- Daylight & Sunlight Assessment
- Flood Risk Assessment and Drainage Statement
- Landscape GA drawing

The Sustainability & Energy Statement has been prepared on the basis of the following proposed commercial uses in the proposed development:

- Nursery: 490 sqm (GIA)
- Retail: 170 sqm (GIA)
- Community Centre: 447 sqm (GIA) community hall and 125 sqm (GIA) retail space
- Office: 71 sqm (GIA)

Table 1: Sustainability and energy requirements and applicant's response

Item	Requirement	Response
Policy Bicester 1: North West Bicester	• Proposals should comply with Policy ESD15. • High quality exemplary development and design standards including zero carbon development, Code Level 5 for dwellings at a minimum and the use of low embodied carbon in construction materials, as well as promoting the use of locally sourced materials. • All new buildings designed to incorporate best practice on tackling overheating, taking account of the latest UKCIP climate predictions. • Proposals should enable residents to easily reduce their carbon footprint to a low level and live low carbon lifestyles. • Demonstration of climate change mitigation and adaptation measures including exemplary demonstration of compliance with the requirements of policies ESD 1 – 5 • Have real time energy monitoring systems • Homes to be constructed to be capable of achieving a minimum of Level 5 of the Code for Sustainable Homes on completion of each phase of development, including being equipped to meet the water consumption requirement of Code	Measures to reduce energy demand, increase energy efficiency and tackle overheating are included. Negative carbon is shown to be achievable based on the measures proposed and the installation of renewable energy technologies and connection to the local energy centre – **see ESD policies 3-5 for full details**. However, these measures are proposed to be put in place to meet regulated energy demand and there is no reference to unregulated demand – what it is expected to be and whether it can be met through these measures. In addition, no details have been provided to demonstrate compliance with: • Low and embodied carbon construction materials • Use of locally sourced materials • Real-time energy monitoring systems • Water consumption targets • Percentage of green space. The Design and Access Statement does refer to a mix of native planting and hedgerows and references 40% as part of the overall masterplan but does not provide any figures specific to this application. On the basis of the missing information, **these proposals do not fully comply with policy requirements.**

	Level 5. • Green infrastructure – 40% of the total gross site area will comprise green space of which at least half will be publicly accessible and consist of a network of well-managed, high quality green/open spaces which are linked to the open countryside.	
North West Bicester Masterplan SPD	The BREEAM Communities assessment methodology will be used to assess the sustainability of the proposals. The approach to energy and carbon dioxide reduction includes: • A large-scale solar array on all roofs; • Energy efficient buildings; and • A network of energy centres providing gas and biomass combined heat and power (CHP) which will require a district heating network. All planning applications should demonstrate the provision of 40% green space and a range of types of green space. Particular attention should be given to land to allow the production of food from community, allotment and/or commercial gardens. Proposed landscape schemes and green infrastructure design should be used to	The proposals include provision of solar PV panels and air source heat pumps to meet regulated energy demand, as well as connection to the CHP-powered energy centre for heating and hot water. Energy efficiency through building fabric is promoted and energy demand reduced through the use of passive and active technologies. Sustainable urban drainage systems (SUDS) are proposed through the use of permeable pavements, and roof runoff will be collected and conveyed to cellular soakaways via pipes. Calculations are based on a 1 in 100 event plus 40% allowance for climate change. BREEAM Very Good is achievable for the Community Centre, with the potential to achieve it for the Retail units and Nursery, subject to additional credits currently under review being applicable. However, there is no evidence to demonstrate that 40% of green space, community food and allotments will meet policy requirements, or how landscaping and green infrastructure can provide cooling and reduce heat islands. Furthermore, there is no reference to unregulated energy demand, what it is expected to be and whether zero carbon can still be achieved through the proposed measures.

	provide external cooling and reduce heat islands. Proposed development shall incorporate a water efficiency design standard to limit average per capita consumption (PCC) to 105 litres per person per day (l/p/d) in all new homes. For residential properties, at least 25 l/p/d of potable water demand must be replaced with non-potable water to allow the target of 80 l/p/d to be achieved. Planning applications should be accompanied by a water cycle strategy (WCS) that provides a plan for the necessary water services infrastructure improvements. The WCS should be prepared and developed in partnership with interested parties, including the local planning authority, the Environment Agency (EA) and the relevant water and sewerage companies through a water cycle study.	**On this basis the proposals do not fully meet policy requirements.**
Policy ESD 1: Mitigating and Adapting to Climate Change	At a strategic level, this will include: • Designing developments to reduce carbon emissions and use resources more efficiently, including water (see Policy ESD 3 Sustainable Construction) • Promoting the use of decentralised and renewable or low carbon energy where appropriate (see Policies ESD 4	See comments under ESD policies 2-5 for full details.

	Decentralised Energy Systems and ESD 5 Renewable Energy). The incorporation of suitable adaptation measures in new development to ensure that development is more resilient to climate change impacts will include consideration of the following: • Taking into account the known physical and environmental constraints when identifying locations for development • Demonstration of design approaches that are resilient to climate change impacts including the use of passive solar design for heating and cooling • Minimising the risk of flooding and making use of sustainable drainage methods, and • Reducing the effects of development on the microclimate (through the provision of green infrastructure including open space and water, planting, and green roofs).	
Policy ESD 2: Energy Hierarchy and Allowable Solutions	In seeking to achieve carbon emissions reductions, we will promote an 'energy hierarchy' as follows: • Reducing energy use, in particular by the use of sustainable design and construction measures • Supplying energy efficiently and giving priority to decentralised energy supply	**From the Sustainability & Energy Strategy** The report sets out the following measures to achieve carbon emissions reductions: • Connection to the Elmsbrook Energy Centre • Passive and energy efficiency design measures to reduce energy demand and increase energy losses • Installation of solar PV panels and air source heat pumps

	• Making use of renewable energy • Making use of allowable solutions.	See ESD policies 3 and 5 for full details **These proposals comply with the policy requirements**
Policy ESD 3: Sustainable Construction	All new non-residential development will be expected to meet at least BREEAM 'Very Good' with immediate effect, subject to review over the plan period to ensure the target remains relevant. The demonstration of the achievement of this standard should be set out in the Energy Statement. All new residential development will be expected to incorporate sustainable design and construction technology to achieve zero carbon development through a combination of fabric energy efficiency, carbon compliance and allowable solutions in line with Government policy. Cherwell District is in an area of water stress and as such the Council will seek a higher level of water efficiency than required in the Building Regulations, with developments achieving a limit of 110 litres/person/day. All development proposals will be encouraged to reflect high quality design and high environmental standards, demonstrating sustainable construction methods including	**From the Sustainability & Energy Statement** The report states that three separate BREEAM assessments have been undertaken covering the retail, commercial and community uses. A pre-assessment (based on the 2018 New Construction criteria) shows that a BREEAM rating of Very Good (minimum 55%) can be achieved. At this stage the proposed Community Centre will comfortably achieve this rating by a good margin, while the Retail units and Nursery, as shell and core buildings, have a little less flexibility. Achievable ratings under the pre-assessment are as follows: • Community Centre: 55.37%, with potential for 63.95% with credits under review • Nursery: 51.93%, with potential for 61.01% with credits under review • Retail units: 48.98%, with potential for 60.03% with credits under review The report recommends that the latter two are re-assessed as designs progress to confirm that the additional credits (currently under review) can indeed be met in order to achieve the required 55% for Very Good. **Consider a condition to ensure compliance with this policy requirement can be met.** The following have been provided as proposed target values for the commercial units in terms of compliance with Part 2LA for the

	but not limited to: • Minimising both energy demand and energy loss • Maximising passive solar lighting and natural ventilation • Maximising resource efficiency • Incorporating the use of recycled and energy efficient materials • Incorporating the use of locally sourced building materials • Making use of sustainable drainage methods • Reducing the impact on the external environment and maximising opportunities for cooling and shading (by the provision of open space and water, planting, and green roofs, for example); and • Making use of the embodied energy within buildings wherever possible and re-using materials where proposals involve demolition or redevelopment.	building fabric: • Floors – 0.12 W/m^2k [0.25 W/m^2k] • Solid walls – 0.15 W/m^2k [0.30 W/m^2k] • Windows – 1.3 (non-display & curtain walling) to 1.6 (display) W/m^2k [2.00 W/m^2k] • Air permeability – 3 (nursery & community centre) and 5 (retail & office) m^3 @50Pa [10.00 m^3 @50Pa] • Glazing G-values (solar transmittance) – 0.4 (ground floor) and 0.5 (upper floors) [0.68 up to 6m above ground and 0.46 above 6m from the ground] • Roof[1] (residential) – 0.12 W/m^2k [0.25 W/m^2k] There are no values provided for entrance doors. It is assumed that there are no roofs for the commercial units. It is stated in the report that all works will comply with the Non-domestic Building Services Compliance Guide 2013 including minimum heating/cooling plant seasonal efficiencies, maximum ventilation specific fan powers, zoning and controls requirements, etc. High-efficiency light fittings and appropriate controls will be specified throughout to limit the lighting energy consumption. High-efficiency mechanical ventilation systems with heat recovery will also be specified to provide the required fresh air in an energy efficient manner while limiting heat losses. However, no actual specifications are made within any of the reports. It is noted that these passive and active design measures will lead to a total reduction in carbon of 15.13% (together with connection to the

[1] Taken from the Overheating Analysis report

		Elmsbrook energy centre) across the proposed development, but it si not clear how that figure has been calculated. Table 2 of the Sustainability & Energy Strategy states that: • Mechanical ventilation with heat recovery will result in an 80% heat recovery in the community centre, retail, office and community space; this increases to 93% for the residential units • District heating will be used to heat the residential, office and nursery uses (with no proposed cooling) • Lighting sensor controls and daylight dimming will be installed where appropriate • Domestic hot water will be supplied to all residential units via the district heating system **We could request further details of the proposed passive and mechanical specifications and evidence of how the calculated savings will be achieved.** There is no evidence to show if and how the water consumption targets are to be met. There is also no evidence to demonstrate how construction materials are to be sourced locally. (Given this is a greenfield site it is not possible to incorporate demolition material in construction, so this has not been considered.) **Details are requested to demonstrate how compliance with these targets will be achieved.** **From the Overheating Analysis (non-domestic)** The report states that:

		• Blinds will be used to reduce solar heat gains in the Nursery. These are necessary in order to achieve compliance with CIBSE's TM52 requirements. • Mechanical ventilation will be used in all occupied spaces which will exceed the minimum ventilation requirements set out in Part F of the Building Regulations. • Blinds and a greater mechanical ventilation flow rate are proposed for the Office but even with this compliance cannot be fully achieved. Suggestions have been put forward for additional measures, but none are specified. Active cooling may have to be included; if it is it is not clear how this will affect the energy demand and energy efficiency calculations. **Further details are requested to demonstrate how the Office units will comply with overheating requirements.** **From the Overheating Analysis (residential)** The report states that: • Blinds and mechanical ventilation (exceeding minimum required flow rates) are included in overheating calculations. • It is shown that the sample units achieve the required internal conditions with blinds (which some units cannot achieve without them). **From the FRA and Drainage Statement** Sustainable urban drainage systems (SUDS) are proposed through the use of permeable pavements and roof runoff will be collected and conveyed to cellular soakaways via pipes. Calculations are based on a 1 in 100 event plus 40% allowance for climate change.

		There is no evidence to demonstrate how compliance will be achieved regarding: • Water consumption targets • Inclusion of recycled and locally sourced building materials • Use of the surrounding environment to maximise cooling and shading **The proposals do not fully comply with policy requirements**
Policy ESD 4: Decentralised Energy Systems	The use of decentralised energy systems, providing either heating (District Heating (DH)) or heating and power (Combined Heat and Power (CHP)) will be encouraged in all new developments.	The Elmsbrook CHP energy centre will provide heat and electricity to the proposed development. **The proposals comply with the policy requirements**
Policy ESD 5: Renewable Energy	The Council supports renewable and low carbon energy provision wherever any adverse impacts can be addressed satisfactorily. The potential local environmental, economic and community benefits of renewable energy schemes will be a material consideration in determining planning applications. Planning applications involving renewable energy development will be encouraged provided that there is no unacceptable adverse impact, including cumulative impact.	**From the Sustainability & Energy Strategy** A feasibility study was undertaken to identify suitable renewable energy technologies that could be included within the proposed development. This identified that the following were viable, and they are therefore included as part of the energy strategy, in addition to a district heating connection, for the proposed development: • Air source heat pumps • Solar PV **Solar PV** Roof design has been optimised for maximum PV deployment, and 280m^2 and 370m^2 is proposed for the North and South buildings

		respectively. The carbon emissions from both buildings (regulated demand) is calculated as 14.3 $kgCO_2/m^2$ and the carbon offset through PV is calculated to be 15.54 $kgCO_2/m^2$ – a 107% reduction. This will result in a carbon negative development. However, these calculations are based on the regulated energy demand only and no account has been taken of the unregulated energy demand. **We request further details on how unregulated energy has been accounted for in these calculations.** **Air source heat pumps** These are proposed for those non-residential units with a high heating and cooling demand. It is not clear where they are to be installed or what the reduction in carbon will be as a result. **We request further details on the location and calculations for the inclusion of air source heat pumps.** **Future of the energy centre** The current energy centre is operated by CHP, a technology that is declining in carbonisation benefits as the UK's electrical grid benefits from other forms of decarbonising technologies. Therefore, two future scenarios have been developed to account for the eventual end-of-life of the energy centre in 15-20 years' time. Using both an air source heat pump and energy from waste-run future energy centre the emission factors are lower than those for the current CHP-run system. Under both scenarios the proposed development will continue to operate as a carbon negative site (see

		Table 5 and Figure 6 for full details). **The proposals do not fully meet with policy requirements (see note on air source heat pumps above)**
Policy ESD 15: The Character of the Built and Historic Environment	Incorporate energy efficient design and sustainable construction techniques, whilst ensuring that the aesthetic implications of green technology are appropriate to the context (also see Policies ESD 1-5 on climate change and renewable energy) Use locally sourced sustainable materials where possible.	See comments under ESD policies 2-5.

Assessment

This is a full planning application for the Elmsbrook Local Centre which includes a number of reports and documents to demonstrate how the proposals comply with policy requirements.

The proposals include a 15% reduction in carbon emissions which is calculated as resulting from building fabric, passive design measures and energy efficiency measures. However, other than U-values for external walls and glazing no details have been proposed for what those measures are. While the proposals appear to comply with policy requirements and do allow for some flexibility in design specifications as the scheme details progress, **there is scope to request further details if you would like to be more specific with planning conditions and ensure that there are no changes which could alter the final results.**

The proposals include significant provision of renewable energy generation through PV panels and air source heat pumps. The combination of PV, passive design, energy efficiency measures and the connection to the Elmsbrook energy centre will result in a negative carbon development. As such the proposals **meet the requirements of ESD policies 2, 4 and 5.**

They only partly meet requirements set out in ESD policies 1, 3, 15, Policy 1: North West Bicester and North West Bicester Masterplan SPD.

We would therefore request further details on the following:

- Consideration of unregulated energy demand and evidence that this can be met in order to achieve true zero carbon.
- How compliance with water consumption requirements will be met
- Whether the proposals incorporate 40% or more open space (NB there is a reference to this in the Design & Access Statement as a percentage of the total masterplanned development) – **is this sufficient?**
- Information on where air source heat pumps are to be used and what contribution they make to the carbon balance of the proposed development
- How green infrastructure and the surrounding environment has been incorporated into the design to provide cooling and shading, reducing the potential for overheating
- How the office units are to avoid exceeding overheating and meet the comfort criteria; whether cooling will be required as part of this and how this will alter the energy demand and energy efficiency calculations
- The proportion of construction materials that will be recycled and/or sourced locally

The BREEAM requirements for the Nursery and Retail units are currently not fully met but can be, subject to the additional credits that are under review. To ensure compliance **you could consider a planning condition that requires evidence of compliance as the detailed design progresses or that will apply to the end users.**