

Andrew Ashcroft
Independent Examiner
Culham Neighbourhood Development Plan.
c/o: South Oxfordshire and Vale of White Horse District
Councils
Abbey House
Abbey Close
Abingdon
OX14 3JE

Mayfield House
256 Banbury Road
Oxford
OX2 7DE

T: 01865 511444

F: 01865 310653

Your ref:

Our ref:

By email: planning.policy@southandvale.gov.uk

9th November 2022

Dear Mr Ashcroft

CULHAM NEIGHBOURHOOD DEVELOPMENT PLAN: EXAMINER'S CLARIFICATION NOTE(S).

Introduction

Carter Jonas is instructed by the United Kingdom Atomic Energy Authority ("UKAEA") to respond to the Culham Neighbourhood Development Plan ("NDP"), which has been produced by Culham Parish Council, and which is now before you for examination.

Thank you for alerting the UKAEA to the submitted plan, via the District Council, and for your requests for clarification.

As you may know, the UKAEA is the owner and operator of Culham Science Centre ("CSC") the western flank of which is in Culham parish area.

In its response to the pre-submission (Reg. 14) version of the NDP, UKAEA commented on the proposed Design Code and on policies, CUL3, CUL8 and CUL9. A copy of the letter sent to Culham Parish Council by UKAEA, in March 2022, is to this letter for context.

UKAEA noted previously that elements of proposed Policy CUL3 were a hostage to fortune, and perhaps not appropriate for planning policy: a position that you appear to agree with in your first clarification note.

I turn now to proposed Policy CUL9, which you raise in your second clarification note, with specific reference to UKAEA's land interests. Regarding that policy, we have the following observations and comments, which amplify issues that we raised in March 2022:

Policy CUL9: Zero carbon buildings (& Appendix C)

Whilst UKAEA supports the principle of proposed Policy CUL9 – which after all is about a zero carbon future that is the focus for significant research at Culham Science Centre – the proposed policy creates a tension with South Oxfordshire's adopted strategic Policy DES10. There is an inherent risk to efficient decision making when a neighbourhood policy sets different expectations to the Local Plan on a shared issue, such as climate change resilience, or carbon neutrality.

The UKAEA shares your concerns that the “requirements” of CUL9 have not been tested for feasibility and viability.

However, no viability testing has been undertaken for future carbon neutrality or climate resilient design requirements for development at Culham Science Centre. Development of ‘the western flank’ of the Science Centre has consent, and construction work has begun. There are some limited opportunities for further development on the Science Centre in Culham Parish, but our principal concern is consistency with development that happens to be over the parish boarder and in Clifton Hampden (and yet still ‘behind the wire’ as part of Culham Science Centre).

Moreover, the technical and often unique requirements of buildings on the Science Centre do not lend themselves to a restrictive set of criteria. However, please be assured that UKAEA is not blind to the needs for climate resilience and carbon neutrality in its building stock, as was set out in the previous letter in March 2022.

Conclusion

In conclusion, the UKAEA supports the principles set out in the Culham NDP. However, as set out above, the nature of proposed Policy CUL9 and how it is not general conformity with Local Plan Policy DES10 is of significant concern.

Yours Faithfully,



**Peter Canavan BA(Hons) MSc MRTPI
Partner**

E: Peter.canavan@carterjonas.co.uk
M: 07862 890806
T: 01865 819637

Mayfield House
256 Banbury Road
Oxford
OX2 7DE

T: 01865 511444

F: 01865 310653

Culham Neighbourhood Plan
6 The Green
Culham
OX14 4LZ

By email: culhamnp@gmail.com

14th March 2022

Dear Sir/Madam

CULHAM NEIGHBOURHOOD PLAN: PRE-SUBMISSION (REG. 14) CONSULTATION.

Introduction

Carter Jonas is instructed by the United Kingdom Atomic Energy Authority (“UKAEA”) to respond to the pre-submission (Reg. 14) draft Culham Neighbourhood Development Plan (“NDP”) produced by Culham Parish Council.

As you know, the UKAEA is the owner and operator of Culham Science Centre (“CSC”) the western flank of which is in Culham parish area.

It is understood that the current consultation on the Neighbourhood Plan is with regard to Regulation 14 of The Neighbourhood Planning (General) Regulations 2012. This is the pre-submission consultation where meeting the basic conditions is not necessarily a pre-requisite. However, given the advanced stage of the plan’s drafting and the detail therein, it is suggested that it is important that the Parish Council considers the Basic Conditions now, before the Neighbourhood Plan is submitted to South Oxfordshire Council for its examination.

As such, the UKAEA supports the Parish Council in its endeavours to plan for the future of the local community and supports the general provisions of the draft plan. The UKAEA would, however, like to comment on four elements of the draft NDP, as follows:

1. The proposed design code;
2. Early years provision;
3. Sustainable travel; and
4. Zero Carbon buildings.

Each element is considered hereunder, after some context is provided.

Context

CSC combines world-class publicly funded research into fusion power; commercial technology organisations and Culham Innovation Centre, to create a powerhouse of high technology innovation and enterprise in South Oxfordshire. CSC is an established part of the southern Oxfordshire cluster of education, science, and technology, now known as Science Vale, and has established a broad high technology business base. The

UKAEA is a partner in Science Vale and as such is committed to working together with the other partners, including the Oxfordshire authorities and Local Enterprise Partnership (LEP), to help to promote and develop the Science Vale area as an internationally recognised location for enterprise and innovation in science and technology.

The CSC forms a key part of Science Vale and the Knowledge Spine and is one of the largest employment centres in the county (covering approximately 80 hectares). Employment levels at CSC have been stable and in excess of 2,000 for many years and, in recent years, with a growing community of commercial science and technology enterprises and the broadening of the UKAEA's portfolio, have started to rise. CSC currently supports over 2,700 jobs and has policy support for growth in the South Oxfordshire Local Plan, under strategic policies STRAT8 and EMP1.

Policy STRAT8 in the South Oxfordshire Local Plan reads as follows:

"Policy STRAT8: Culham Science Centre

Site area: 77 hectares

- 1. Proposals for the redevelopment and intensification of the Culham Science Centre will be supported where this does not have an unacceptable visual impact, particularly on the character and appearance of the surrounding countryside and the Registered Parkland associated with Nuneham House.*
- 2. In combination with the adjacent strategic allocation (Policy STRAT9) this site will deliver at least a net increase in employment land of 7.3 hectares (with the existing 10 hectares of the No.1 site retained but redistributed across the two strategic allocations). The exact siting and phasing of the employment development must be agreed through the master planning and subsequent planning application process including addressing any heritage assets and their settings in accordance with Policy ENV6 and the NPPF.*
- 3. Proposals for development on the site should seek to achieve a net gain in biodiversity. Any residual biodiversity loss should be offset through a recognised offsetting scheme.*
- 4. Opportunities that support job growth and appropriate diversification or enterprise "clustering" will be supported to complement the wider development proposed in the area. Working proactively with the UK Atomic Energy Authority and development partners a masterplan for the site that facilitates this growth must be prepared and agreed with the Local Planning Authority.*
- 5. Proposals will be expected to deliver low carbon development and renewable energy in accordance with STRAT4.*
- 6. The Culham Science Centre is removed from the Green Belt and inset as shown on Land inset from the Green Belt Boundary (Appendix 4) to enable this development to be brought forward.*

There is clear strategic policy support for the growth of CSC and applications directing the delivery of this growth have been submitted in line with the STRAT8. The UKAEA is please to read the support for growth of the CSC in the NDP, and the acceptance that strategic policies will continue to direct growth on the site.

Appended to this letter is the Culham Science Centre Framework Masterplan (January 2022) (the 'Masterplan'). The Masterplan sets out UKAEA's high level ambition for the development of the CSC, which culminates in a spatial plan that illustrates how the site might grow to 2025; from 2025- to 2035; and from

2035-2050. This end date is intentionally aligned with the UK's Climate Change Act, which has a legal duty to reach net carbon zero by 2050.

The design code

UKAEA has regard to the South Oxfordshire Design Guide Supplementary Planning Document (2016) as a material consideration when preparing applications at CSC. The 'design code' appended [**Appendix B**] to the draft NDP, is welcomed as it identifies, and highlights many considerations which CSC make on a regular basis in its planning applications. The Masterplan seeks to ensure that CSC develops in a coherent way and can accommodate growth to a functionally and aesthetically acceptable capacity consistent with on and off-site considerations and constraints.

Policy CUL3: Early years provision

The UKAEA is pleased to see that its provision of facilities which are available to the public, as well as staff at CSC, is recognised by the Parish Council. Whilst the nursery and pre-school at CSC is a community benefit, it should be recognised that it is privately owned, and there is no obligation on the UKAEA to retain or run the facility.

Notwithstanding this, the UKAEA is planning the redevelopment and improvement of the nursery and pre-school, but this is being delivered through successive planning applications whereby its removal to allow for gateway improvements will be confirmed closely followed by a separate application for a new facility. The main gate replacement application will see the demolition of the current nursery. The nursery is then to be replaced and moved approximately 30m north of its current position as part of another application, as follows:

- Main Gate – P22/S0211/FUL
- Nursery – P22/S0207/O

It is noted that proposed Policy CUL3 is written in the affirmative where positive proposals for the nursery and pre-school will be supported, and that removal of the same will not be resisted.

The UKAEA is open to explaining its plans for the gateway area, and the nursery and pre-school should the Parish Council wish to have further discussions on the matter.

Policy CUL8: Sustainable Travel

The UKAEA supports policy CUL8 and considers that it complements the policies of the Local Plan by including community aspirations, and neighbourhood level detail. *TRANS2: Promoting Sustainable Transport and Accessibility* of the Local Plan seeks to support development proposals where rail services can be promoted and strengthened in response to increases in demand for travel. The district council is also committed to plan positively for rail improvements in the area. The UKAEA supports these aspirations and commitments by the district council and notes the potential at Culham to promote a sustained modal shift to rail use, thereby reducing highway impacts. Improvements to the station will encourage the use of the railway, especially for people working at CSC. The UKAEA understands that the parish Council too is supportive of rail improvements as articulated in the NDP and specifically in policy CUL8.

Moreover, the UKAEA is working very hard to support and promote sustainable forms of travel and these are detailed in the CSC Travel Plan which is regularly reviewed. The Masterplan also sets out UKAEA's ambition for how walking and cycling is enabled and encouraged and how modal shift takes place over time. The UKAEA supports improved foot and cycle connectivity as proposed in the NDP and has commenced work on an improved connection between the railway station and the CSC entrance.

The UKAEA has also funded – through development obligations – the return of a very well used bus service between CSC, Abingdon and Berinsfield. It is envisaged that the use of this service will grow in response to development growth in the area.

Regarding some specific points raised in the NDP, UKAEA would like to make the following comments:

- **Cycling – improving existing paths; adding strategic links to neighbouring communities.** Paths and links are being improved as development comes forward at CSC and also between the station and CSC.
- **The creation of cycle routes to Abingdon and Sutton Courtenay.** The route between Abingdon and Clifton Hampden is being considered as part of the Stage 2 Science Vale Active Travel Network Study which the UKAEA understands will be commenced soon by Oxfordshire County Council (OCC). Proposals at CSC seek to tie into these proposals, and we have been discussing these proposed improvements with OCC for years.
- **Traffic – concerns about safety on Tollgate Road and A415.** Traffic levels are expected to reduce on Tollgate Road as a result of the HIF proposals, and new access roundabouts along the A415 together with new HIF infrastructure will help to improve highway safety. Traffic impact will have to be considered in Transport Assessments prepared in support of any planning applications/future developments, and any significant impact will require mitigation.

Policy CUL9: Zero carbon buildings (& Appendix C)

UKAEA supports the principle of proposed policy CUL9. Specifically, relating to low carbon energy and associated infrastructure, CSC is at the forefront on this technology and the realisation of power generation – through nuclear fusion – that will aid in meeting the challenges of climate change.

Nuclear fusion

Fusion is the process that takes place in the heart of stars and provides the power that drives the universe. When light nuclei fuse to form a heavier nucleus, they release bursts of energy. This is the opposite of nuclear fission – the reaction that is used in nuclear power stations today – in which energy is released when a nucleus splits apart to form smaller nuclei.

To produce energy from fusion here on Earth, a combination of hydrogen gases – deuterium and tritium – are heated to very high temperatures (over 100 million degrees Celsius). The gas becomes a plasma, and the nuclei combine to form a helium nucleus and a neutron, with a tiny fraction of the mass converted into ‘fusion’ energy. A plasma with millions of these reactions every second can provide a huge amount of energy from very small amounts of fuel.

One way to control the intensely hot plasma is to use powerful magnets. The most advanced device for this is the ‘tokamak’, a Russian word for a ring-shaped magnetic chamber. JET at CSC is a variant on a tokamak.

With increasing concerns over climate change and finite supplies of fossil fuels, we need new, better ways to meet our growing demand for energy. The benefits of fusion power make it an extremely attractive option:

- ***No carbon emissions.*** The only by-products of fusion reactions are small amounts of helium, an inert gas which can be safely released without harming the environment.
- ***Abundant fuels.*** Deuterium can be extracted from water and tritium will be produced inside the power station from lithium, an element abundant in the earth’s crust and seawater. Even with widespread adoption of fusion power stations, these fuel supplies would last for many thousands of years.
- ***Energy efficiency.*** One kilogram of fusion fuel could provide the same amount of energy as 10 million kilograms of fossil fuel. A 1-Gigawatt fusion power station will need less than one tonne of fuel during a year’s operation.
- ***Less radioactive waste than fission.*** There is no radioactive waste by product from the fusion reaction. Only reactor components become radioactive; the level of activity depends on the structural

materials used. Research is being carried out on suitable materials to minimise decay times as much as possible.

- **Safety.** A large-scale nuclear accident is not possible in a fusion reactor. The amounts of fuel used in fusion devices are very small (about the weight of a postage stamp at any one time). Furthermore, as the fusion process is difficult to start and keep going, there is no risk of a runaway reaction which could lead to a meltdown.
- **Reliable power.** Fusion power plants will be designed to produce a continuous supply of large amounts of electricity. Once established in the market, costs are predicted to be broadly similar to other energy sources

Turning to sustainable construction, the UKAEA can confirm that its current review of, and intention for, the building stock on CSC is as follows:

Current position

Historic building stock is inefficient, inflexible, and low performance. Recent buildings BREEAM Very Good and with greater flexibility. Emphasis on car access / movement / parking throughout the campus remains, diluting its placemaking qualities.

Short to medium term

Production of the Masterplan with a placemaking strategy that ensures each 'project' delivers building and placemaking elements. BREEAM Excellent as a minimum for all new relevant buildings from 2020 and target net-zero operational carbon buildings from, around, 2030. Examine sustainable potential of re-purposing existing buildings. However, it should be noted that the recently proposed development for two multi-storey car parks (for example) are not an occupied heated building, nor a car park that is attached to an occupied heated building. Given the latest car parks are open and do not require mechanical ventilation an Energy Statement is not required in this instance, following the BREEAM guidance.

Longer term

All new, remodelled, and existing buildings have inherent flexibility to support a people-based campus that is organised into a series of flexible and coherent placemaking elements and contribute to a 'zero carbon campus' delivered through individual building performance and on / off site infrastructure changes.

However, it is not clear how much rigorous analysis has been applied to policy CUL9, and whether the new "requirements" are feasible and viable in every case. This is especially important as the policy is proposed to apply for all development proposals.

The policy relies on third party research which has not been applied locally. There is little assessment of the neighbourhood level effects of such a policy, only assertions that costs will reduce, and further legislation and policy at national and local levels might be forthcoming. Regarding the latter point, a policy of the nature of CUL9 is strategic in scope and would be better suited to a Local Plan (or even the Oxfordshire 2050 plan). This is recognised in the NDP where the policy is "offered" to the district council, and it is also suggested that the policy itself is an interim measure. This is a confusing position, and one that does not follow the hierarchical approach of plan making as set out in The National Planning Policy Framework (NPPF):

The NPPF (July 2021) states at paragraphs 17 and 18 that:

"17. The development plan must include strategic policies to address each local planning authority's priorities for the development and use of land in its area. These strategic policies can be produced in different ways, depending on the issues and opportunities facing each area. They can be contained in: a) joint or individual local plans, produced by authorities working together or independently (and

which may also contain non-strategic policies); and/or b) a spatial development strategy produced by an elected Mayor or combined authority, where plan-making powers have been conferred.

18. Policies to address non-strategic matters should be included in local plans that contain both strategic and non-strategic policies, and/or in local or neighbourhood plans that contain just non-strategic policies...”

Whilst it is not explicit here that Neighbourhood Development Plans *cannot* contain strategic policies it is logical that a plan for a smaller geographic area (than a whole planning authority) is not the appropriate place for such policies. Moreover, paragraph 18 indicates that NDP are likely to only contain non-strategic policies, and paragraph 20, goes on to explain that it is strategic policies where the responsibility lies to respond to climate change.

20. Strategic policies should set out an overall strategy for the pattern, scale, and design quality of places, and make sufficient provision for:

...

d) conservation and enhancement of the natural, built, and historic environment, including landscapes and green infrastructure, and planning measures to address climate change mitigation and adaptation.

The precedence of policy CUL9 – when considered alongside DES10 of the Local Plan, which operates as a strategic policy – is also problematic as is set out in the NPPF at paragraph 30:

30. Once a neighbourhood plan has been brought into force, the policies it contains take precedence over existing non-strategic policies in a local plan covering the neighbourhood area, where they are in conflict; unless they are superseded by strategic or non-strategic policies that are adopted subsequently.

There is significant challenge in having a policy such as CUL9 at a neighbourhood level, as it creates inconsistency in decision making at the Local Planning Authority, when different targets are set for similar applications depending upon their geographical location. This issue is amplified when a single site – like CSC – straddles a parish boundary where on one side a certain carbon performance level is required, and it is different on the other.

There is also the question of whether the Local Planning Authority has the knowledge and recourse to review the various surveys and reports which are set out in the policy, and whether it is appropriate to change the validation check list to accommodate the ‘encouragement’ of a single NDP.

This policy is not an amplification of strategic policies of the Local Plan, it fundamentally changes their position. This is a matter which should be explored through the emerging Oxfordshire 2050 plan, and the joint South and Vale plan, which will both be in a position to respond to changes in national policy and law as appropriate. The NDP is too soon, and at the wrong level of policy setting, to enact such a strategic change.

Conclusion

In conclusion, the UKAEA supports the general provision of the Culham Neighbourhood Development Plan (NDP) and commends the efforts of the local community in creating its plan. There are some interesting and important ideas presented in the NDP, many of which align with the plans and aspirations of UKAEA, and the strategic policies of the Local Plan.

However, as set out above, there are elements of the NDP which may need to be reviewed and redrafted to ensure that the process and regulations for neighbourhood planning are met, and the final draft plan meets the basic conditions.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Peter Canavan', with a horizontal line underneath.

**Peter Canavan BA(Hons) MSc MRTPI
Associate Partner**

E: Peter.canavan@carterjonas.co.uk
M: 07862 890806
T: 01865 819637