

## 3<sup>rd</sup> Update Report (June 2024)

### Introduction

This report has been prepared to assess the evidence provided for the discharge of Conditions 13, 20 and 36 of Outline Application 14/02121/OUT amended by 22/03492/NMA for Phase 2 of Himley Village. Additionally, this report assess updated information required to comply with S106 Schedule 11 (Zero Carbon) from 23/02786/OBL.

The report also contains a review of the S106 evidence submitted to Cherwell District Council (CDC) which applies to the masterplan site at Himley Village. The project is being assessed against planning policies from Cherwell District Council Local Plan 2011-2031, including Policy Bicester 1.

This report builds upon the previous Summary Report (October 2023) and Update Report (April 2024) by Bioregional. This 2<sup>nd</sup> Update Report assesses further additional information and evidence provided by Hydrock to address remaining concerns outlined in the April 2024 Update Report, which are titled:

- Carbon Balance Spreadsheet for Phase 2A
- Energy Strategy P05
- Future Climate Change Statement\_P04
- Sitewide Energy Strategy P02
- Construction Process Carbon Emissions\_P03
- Daylight Assessment P02
- Water Neutrality Statement P02
- Hydrock Responses to Bioregional Comments P02

### S106 Schedule 11 – site-wide energy strategy and revised detailed energy strategy

Relating to Phase 2 only, document reviewed: Energy Strategy P03

Relating to the site-wide energy strategy document reviewed: Site Energy Strategy P02 (May 2024)

The S106 agreement for 14/02121/OUT dated 30th January 2020 contains Schedule 11: Zero Carbon.

The site-wide energy strategy has been provided in accordance with Schedule 11 of the S106 agreement and addresses previous comments from Bioregional. The strategy shows that the residential, healthcare, veterinary, school, nurse and pub/community space uses will be able to provide enough solar PV on units to achieve a net zero carbon balance. In some cases, surplus solar PV generation will be required to address shortfalls on other uses such as retail and hotel. The strategy has identified other potential solutions for on-site renewable energy generation such as solar PV canopies in car parks and ground-mounted solar PV in the energy centre allocated space from the Outline application.

Key outstanding queries for the site-wide energy strategy:

- PV generation assumptions are too generous – 1000kWh/kWp not realistic – 900kWh/kWp is assumed in detailed energy strategy so why is this not the same value? Clarification required on this.

**This has been adjusted in the report & calculations.**

**Bioregional confirm that has been adjusted.**

The detailed energy strategy has addressed previously issued concerns from Bioregional, which were:

- Explanation of reduction in unregulated energy – any changes on occupancy profiles and improved equipment efficiencies – further detail required as below

The reduction from 23.3 kWh/m<sup>2</sup>/yr to 18.7 kWh/m<sup>2</sup>/yr was not explained in the Energy Strategy Addendum but has been explained in the May 2024 Energy Strategy. Reasoning for the reduction is attributed assuming 2 weeks of annual household absence for holidays, intermittency of fridge/freezer output and rationalisation of white goods. The first reduction attribute is acceptable in principle but the level of unregulated energy consumption reduction assumed from the three reduction measures is excessive and not sufficiently explained. Given that the EUI of the modelled dwellings is 45.7 kWh/m<sup>2</sup>/yr and the PV output of the phase is 46.9 kWh/m<sup>2</sup>/yr, it is essential that the reduction in unregulated energy is sufficiently justified since it is this reduction in energy consumption that has achieved the true on-site zero carbon definition – i.e. without the reduction to 18.7 kWh/m<sup>2</sup>/yr for unregulated energy, the true on-site zero carbon definition would not be achieved and the development would therefore be non-compliant with policy. Further detail is required on the remaining two measures to reduce predicted unregulated energy consumption and the individual contribution of each of the three measures towards achieving the 4.6 kWh/m<sup>2</sup>/yr reduction.

**In addition to the measures previously outline – we had rationalised the equipment as there was double counting in the number of screens related to the home office. Tumble dryers were also omitted as these will not be provided as part of the development.**

**Bioregional confirm this has been addressed. Additional commitment to ensuring unregulated energy assumptions will occur in practice has been issued.**

- Comparison of EUI against solar PV output – provided
- Provision of a carbon balance spreadsheet – provided
- Detailed information on level of solar PV on each dwelling type – provided as part of carbon balance spreadsheet with layouts shown in Appendix A of the May 2024 Energy Strategy
- Clarity on whether SAP10.1 or SAP10.2 carbon factors have been used – provided
- No Net Zero Carbon Implementation Strategy has been issued

No explanation has been provided as to why a Net Zero Carbon Implementation Strategy has not been issued. This is a remaining key document that Hydrock should issue for review.

**A section with the Energy Strategy document has been added to address this.**

**Bioregional confirms this has been addressed.**

## Condition 13 – Future Climate Change Impacts

Documents reviewed: Future Climate Change Statement (Hydrock, 11.01.2024).

Application 23/1608/DISC has been submitted to CDC for partial discharge of Conditions 13 (Future Climate Change Risks) and 36 (Water Neutrality) of application 14/02121/OUT amended by 22/03492/NMA for Phase 2.

Condition 13 states: “Each reserved matters application shall be accompanied by a statement setting out how the design of buildings and the layout has taken account of future climate impacts, as identified in TSB research ‘Future Climate Risks for NW Bicester’, or any more recent assessment that has been published, and how the proposed development will be resilient to overheating, changing rainfall patterns and higher intensity storm events”.

The Applicant has submitted a Future Climate Change Statement (Hydrock, 11.01.2024). This is based on 500 units at Himley Village, which is Phase 2 only.

The report states on page 1 that "the TSB research 'Future Climate Change Risks for NW Bicester' was published in 2013, Hydrock have decided to base the report on the more recent guidance "UK Climate Change Risk Assessment 2022" (UK CCRA 2022)". We accept that this TSB report is superseded by the CCRA process.

The Hydrock report contains a revised climate risk and vulnerability assessment and overheating analysis based on CIBSE TM59 and Building Regulations Part O.

Page 4 of the report contains Table 1: 'Key risks and opportunities' that lists the risks and provides an 'urgency score' for each (either labelled as 'further investigation' or 'more action needed'). Whilst additional narrative is provided on the urgency score on page 3, it is unclear how these risks that need more action or further investigation are responded to within the development context. We would also query why high temperatures are deemed as an opportunity in Table 2. Further clarification is required on these two points.

**The table highlights the risk and opportunities which are potentially relevant for the development. However, it is not feasible for the development to respond to all of these. Cascading failures to infrastructure networks, for example, is outside of the scope of the development. The climate adaptation assessment carried out by Hydrock considers and prioritises the risks where 'more action is needed', where they are within scope. Mitigation measures have been included within the proposed development design. For the risks and opportunities which require further investigation, at present it is not known whether more action is needed or not, and therefore these do not need to be addressed within the development context currently.**

**The Climate Change Committee highlights high temperatures as a potential opportunity with further investigation needed, as well as identifying it as a risk, as shown in the table. As further investigation is required, it is not confirmed whether this will provide an opportunity. However, as high temperatures are a confirmed risk, the proposed development includes passive design measures and nature based solutions to mitigate this risk.**

**Bioregional confirm this is sufficiently addressed.**

Baseline future climate risks are estimated to be:

- Very low – Ground movement/subsidence; fluvial flooding; and pluvial flooding
- Low – Extreme or prolonged high temperatures (heat stress)
- Medium - Drought and water availability; and wildfire

Climate risks where the proposed development is likely to increase the likelihood or consequence of the risk are estimated to be:

- Low – High winds and lightning
- Medium – Fluvial and tidal flooding
- High – Pluvial flooding; and drought
- Very High – Extreme prolonged high temperatures (heat stress); and wildfire. These have been rated as 'very high' because of the very high likelihood that these events could take place and the high consequence of these events.

Risk reduction strategies have been provided. It would be useful to use the same climate risk impacts (e.g. drought etc.) provided on pages 11 and 12 and provide a narrative on whether the mitigation strategies lower the level of risk within the initial risk assessment.

**Throughout later design stages the mitigation measures proposed will be modelled to assess impact. It is not feasible to assess this at such an early stage of design.**

**Noted. Best practice would look to quantify the risk reduction in the strategy to confirm tangible benefits from the measures suggested.**

Whilst additional narrative (notably on water efficiency and building design) has been provided on the following elements, it is not clear on the extent to which the measures, particularly focused on SuDS and GI will be included and incorporated and therefore the mitigation ability and affect on risks e.g. Fluvial and Pluvial flooding is deemed a medium/high risk – will the SuDS system and GI/planting lower this risk to an acceptable level. A lot of the potential

strategies still seem to be open for discussion e.g. 'Where appropriate, consideration will be given to provide features such as permanent water within SuDS ponds...' It is unclear what will really be provided, where, and the impact it will have. It is therefore challenging to understand for sure how the design of buildings and the layout has truly taken account of future climate impacts when so much is still not defined. Further clarification required on these points.

**As mentioned, additional narrative has been provided on water efficiency and building design. Hydrock have provided additional narrative on the green infrastructure, highlighting the strong commitment for the design to incorporate significant GI. Unfortunately, it is not feasible at this stage to confirm the exact SuDS that will be incorporated into the design – the “where” and “what” will be confirmed at a more detailed design stage. At this early design stage, we can only confirm that SuDS will be incorporated to the design to ensure flood risk is mitigated to a low level.**

**Finally, as mentioned previously, at a later design stage the mitigation measures proposed will be modelled to assess impact.**

**Noted. Best practice would look to quantify the risk reduction in the strategy to confirm tangible benefits from the measures suggested.**

The report indicates that rainwater harvesting be included – however the water neutrality strategy indicates that it will not be – which one is it?

**This has been clarified and updated in the report accordingly. The development design will provide a water butt at each house.**

**Noted.**

The wording of Condition 13 specifically states a requirement to demonstrate how resilience to overheating, changing rainfall patterns and higher intensity storm events are incorporated into proposals. Chapter 18 focuses on overheating. We are happy with the additional clarifications provided. We do note that CIBSE recommends that additional weather files such as DSY 2&3 for the 2020s, as well as future timelines (2080s), are recommended to explore performance where there is particular concern, for example presence of vulnerable occupants, and/or where required in the client's brief, or for testing the performance of mitigation options under more extreme events".

**The 2050 weather scenario demonstrates a 'future-proof' approach to the design at this point. Noted.**

Whilst further information has been provided, particularly on overheating, we would welcome further clarification on the ability of the site to tangibly reduce the risks associated with our changing climate. We do however appreciate that this may be difficult to quantify at an outline stage.

**The measures incorporated in to the design will increase the resiliency of the development to the risks associated with our changing climate, however it is not feasible to quantify at this stage. At a later design stage, the mitigation measures proposed will be modelled to assess impact. Noted.**

## **Condition 20: Carbon Emissions from construction process and embodied carbon**

Documents reviewed: Construction Process Carbon Emissions\_P02 (January 2024)

Application 23/1502/DISC has been submitted to CDC for partial discharge of Condition 20 (Carbon Emissions) of application 14/02121/OUT for Phase 2.

Condition 20 states: "No phase of development shall commence until a report has been submitted to and approved in writing by the Local Planning Authority outlining how carbon emissions from the construction process and embodied carbon within that phase will be minimised. To ensure development achieves a reduced carbon footprint in accordance with Policy Bicester 1 of the Cherwell Local Plan and guidance contained with Government Eco Town PPS".

Key comments:

- Document only refers to Phase 1 – where is the information on Phase 2?
  - **Phase 1 was stated in error, and the report has been updated to relate to Phase 2. Noted and accepted.**
- Himley types 7 and 8 previously achieved 500 kgCO<sub>2</sub>e/m<sup>2</sup> but now exceed it for upfront carbon? Why? What has changed?
  - **The first iteration of calculations were refined, and consequentially the reason for the update in upfront carbon for Himley Type 7 and 8, which resulted in these types exceeding the 500 kgCO<sub>2</sub>e/m<sup>2</sup> threshold. It would be good practice to state what measures or refinement had occurred to result in a higher value but this is noted and accepted.**

All comments listed on the Hydrock Responses to Bioregional Comments P01 document have been appropriately addressed in the Construction Process Carbon Emissions\_P02 (January 2024) document. However, confusion remains in term of the phase of development referred to in the documents. The assessment of conditions relates to Phase 2 but it has been clarified that the Construction Process Carbon Emissions\_P02 (January 2024) document and its information relates to Phase 1 of the development. It should be confirmed that this has been stated in error. **Confirmed above.**

## Condition 36: Water neutrality strategy

Documents reviewed: Water Neutrality Report (Hydrock, 11.01.2024).

Application 23/1608/DISC has been submitted to CDC for partial discharge of Conditions 13 (Future Climate Change Risks) and 36 (Water Neutrality) of application 14/02121/OUT amended by 22/03492/NMA for Phase 2.

Condition 36 of 22/03492/NMA states “Prior to the commencement of the any development in a phase that includes the construction of any new buildings, details of the strategy to work towards water neutrality, in accordance with the Eco Towns PPS shall be submitted to and approved in writing by the Local Planning Authority. Each reserved matters application that includes the construction of any new buildings shall demonstrate how it contributes to and is in accordance with the approved strategy”.

The Applicant submitted a Himley Village Water Neutrality Statement (Hydrock, June 2023), this has been updated with a revised water neutrality statement (January 2024). This seems to apply to the 500 homes of the Himley Village development and not the wider masterplan. We believe that this is appropriate for this stage and is linked to the outline permission. It should be noted that it would be best practice for an entire masterplan strategy to be created.

**We do not believe this is required as if necessary this should have been conducted as part of the outline application for the site.**

**Noted.**

The definition of water neutrality is provided in the statement to be from Annex B of the Eco Town PPS Guidance Document and is: “the concept where the total water used after a new development is no more than the total water used before the development. This requires meeting the demand through improving efficiency of the use of the existing water resources. Water neutrality needs to be assessed within a defined area, normally the water company's water resource zone”.

Hydrock Water Neutrality Report (11.01.2024) confirms:

- Existing or pre-development water consumption is based on people per household and the Part G requirement of <125 litres/person/day. This is the minimum requirement set in Building Regulations Part G.
- It goes on to note that the standard practice in the UK is to aim for 105l/p/d in line with the now revoked Code for Sustainable Homes level 4. Furthermore, to comply with the outline permission Water Cycle Study, Himley Village water consumption needs to meet Level 5 of the Code for Sustainable Homes therefore is required to use less than 80 l/p/d.
- Water efficiency measures have been proposed and the targeted post-development water efficiency level is 100 litres/person/day.
- Rainwater harvesting is not proposed. It is discounted due to cost estimates from a selection of house types that have been modelled. A cost is provided for rooftop systems – details should be provided on these.

- Greywater harvesting is not proposed due to estimated low yield for greywater (the level of greywater that could be created is estimated to be 6 litres/person/day, but the amount required for the system to be efficient is not provided). It is also stated that cost is a prohibiting factor for a greywater system. This conclusion is based on the predominantly residential uses for the site, however there are non-residential uses at the proposed development where greywater recycling could be used. We would recommend that the Applicant provides further information to demonstrate their approach, as it may be difficult to achieve water neutrality without consideration of greywater recycling.
- Detail is provided on water offsetting options to get to water neutrality and the remaining water consumption. It is stated that no schemes were deemed to be available (at time of writing of report). It is unclear on the rationale behind locating these and if engagement with the water company has occurred. We would suggest further detail is provided.
- It should be noted that reductions in water consumption are only achieved for Stage 1 of the water neutrality hierarchy (Figure 2, page 6).

The proposed measures result in a 20% saving in water consumption (between the baseline or pre-development estimated water consumption and the proposed water use for Phase 2). Since rainwater harvesting and water offsetting opportunities are not proposed, this suggests that there is a shortfall of 80% which the development would need to be addressed in order to achieve water neutrality.

Whilst evidence has been provided for Condition 36, it does not provide a viable route to water neutrality. Whilst we understand the viability constraints with rainwater and greywater recycling, we would welcome further detail on potential offsetting schemes that could contribute towards this target.

**Hydrock we carrying out additional works on the Water Neutrality statement with our internal water neutrality specialist to respond to these comments in particular. This will be updated and issued w/c 10th June. Not issued yet as of 14<sup>th</sup> June.**

## Conclusion

No further comments or queries.