

Climate Impact Site Assessment Study

Bath and North East Somerset Council

Quality Information

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1. Introduction

Aims and objectives

Bath and North East Somerset Council (B&NES) has commissioned AECOM to undertake a Climate Impact Site Assessment Study to quantify the climate impact of different strategic development options across the District.

This assessment aims to provide supporting evidence to assist the Council in the process of selecting development sites and an overall growth strategy for the Local Plan as well as providing useful information to inform how the selected sites are taken forward in a way that addresses the identified climate impacts and risks.

This study has defined a set of criteria to enable the comparative assessment of potential development sites and growth scenarios. The criteria consist of impacts in relation to both climate mitigation (associated with carbon emissions) and climate adaptation (associated with the future risks posed by climate change) to provide a comprehensive assessment of the relative climate impact associated with the development of different sites and combinations of sites as part of an overall growth strategy.

The results and conclusions of this work can be used to inform:

- The selection of sites and growth scenarios as part of a wider process to determine the allocations within the Local Plan; and
- Decisions on how the potential climate impacts associated with the allocated sites and growth strategy can be mitigated, either through policy or through measures adopted in the master-planning or development of the specific sites.

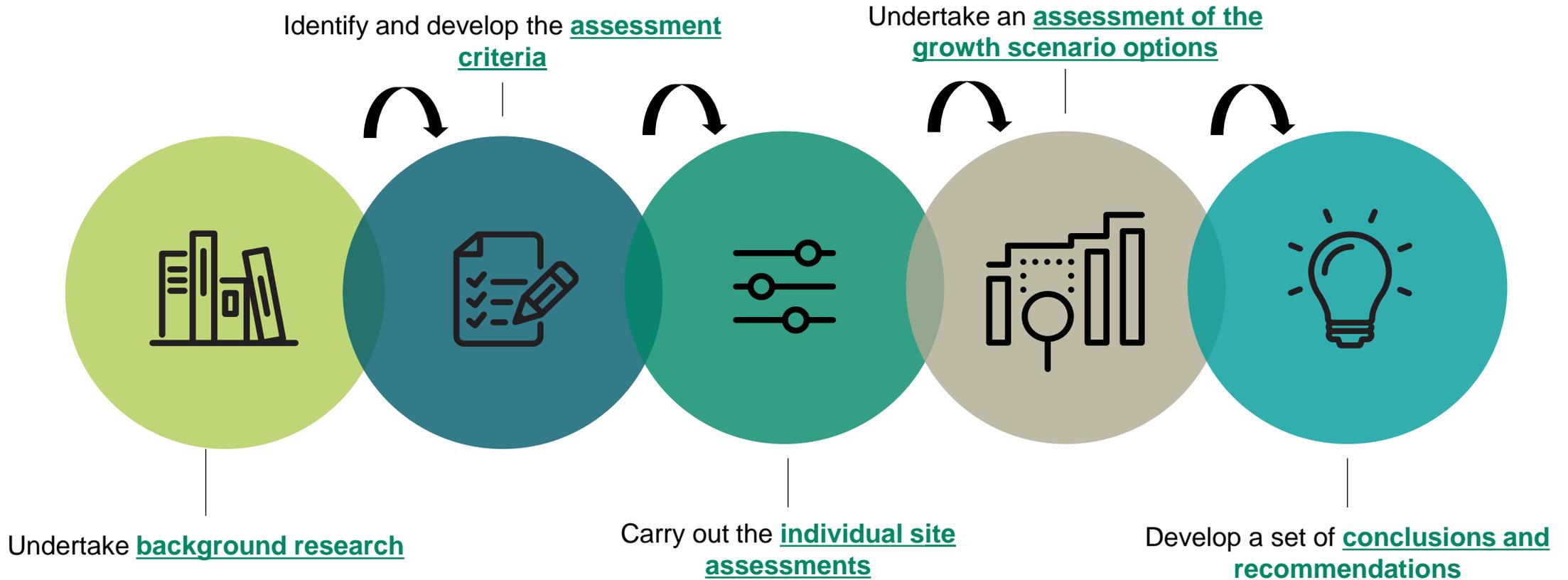
This assessment is linked to a separate Transport GHG Assessment, which provides a more specific and detailed review of user and embodied GHG emissions associated with the travel and transport infrastructure from different development scenarios.

**Bath & North East
Somerset Council**

Improving People's Lives

Approach

The following diagram sets out a summary of the approach we have taken to developing and carrying out this Climate Impact Assessment (CIA). After undertaking some initial research, we developed a set of criteria and a methodology for generating a comparative score against each, the details of which is set out in [Section 2](#) of this report. Information on the sites to be assessed was provided by the client and a comparative assessment of each site was then carried out against the assessment criteria, the results of which are presented in [Section 3](#). The growth scenario options were then assessed, and a comparative score generated from the scores of the component sites, details of which are set out in [Section 4](#). Lastly, we developed a set of conclusions and recommendations resulting from the results of the study, these are presented in [Section 5](#).



Scope and limitations

As this is a new type of assessment, we have devised a bespoke approach to undertaking this study for B&NES, involving the development of new meta tools and processes. Given the limited information about each site and the desire to assess a range of different criteria, covering both climate mitigation and adaptation, the methodology for the assessment has been limited to a qualitative process and a comparative approach to scoring the sites with the aim to be as objective as possible. The key impacts of the scope and limitations associated with this assessment are described below. The results of both the site assessments and the growth scenario option assessments should be interpreted with these in mind.

Scope

- **Assessment of new sites only:** The assessment excludes existing allocations and windfalls and focusses only on sites where there is still an element of choice, which could be whether the site is included/excluded or the scale of development on the site.
- **Red-line boundaries only and in the case of rural areas the settlement area:** The assessment looks at the whole red-line boundary because there is limited information available for each site this ensures sites are assessed on a like for like basis. For rural areas, where the exact site boundaries are not defined, the named settlement has been assessed.
- **The criteria selected includes only those that are deemed to vary between sites:** The criteria selected excludes issues that may present a climate impact, but which are deemed to be entirely or mostly independent of the site, for example water consumption which is principally linked to the design and specification of sanitary fittings and appliances.
- **Criteria scores are determined by relative assessments:** To determine the score for each criteria a subset of issues is considered, each of which is assessed on a comparative basis relative to the other sites.

Limitations

- **The site assessments are based on very limited information:** In most cases the only information we have, to assess the sites, is the red-line boundary and some basic expectations on the quantum and type of development. The nature and level of detail in the assessment has therefore needed to be designed to reflect this.
- **Assumptions made where information is not available:** The limited information on the sites means some assumptions have been made in the assessment process such as the expected split of houses and flats based on the site density and other neighbouring or similar sites. Additionally, sites with red-line boundaries that lie partially within an area of constraint (environmental, planning, flood zone) have been assessed as though the whole site is constrained.
- **Sites have been assessed on face value only:** Sites have been assessed only on the basis of the standard set of information available. No interpretation of how the sites may be developed, or indicative masterplans for those that have them, have been taken into account.
- **Qualitative assessment only:** The information provided for the sites is very limited, in most cases just the red-line boundary and indicative quantum. Given this, and the range of issues being assessed all criteria have been assessed on a qualitative basis.

Key policy context

National and International

The **Paris Agreement** set the international commitment to staying “well below 2°C and pursuing 1.5°C” global temperature rise compared with pre-industrial levels.

Climate Change Act 2008, as amended in 2019, sets a legally binding target for the UK to reduce GHG emissions by 100% by 2050 compared to the 1990 baseline. In Dec 2020, an interim carbon emissions target of 68% reduction by 2030 was introduced.

The National Planning Policy Framework states that:

- plans should shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience;
- plans should take a proactive approach to mitigating and adapting to climate change;
- new development should be planned for in ways that avoid increased vulnerability to the range of impacts arising from climate change and can help to reduce greenhouse gas emissions.

Local

Climate Emergency Strategy

Bath and North East Somerset (B&NES) declared a climate emergency in 2019 and has committed to an ambitious district-wide goal of carbon neutral by 2030. The Council's three key priorities to achieve this are:

- Energy efficiency improvement of most existing buildings (domestic and non-domestic) and zero carbon new build;
- A major shift to mass transport, walking and cycling to reduce transport emissions; and
- A rapid and large-scale increase in renewable energy generation.

Local Plan

The Council's adopted Local Plan has a range of climate change policies including a requirement in Policy SCR6 for new build residential development to aim to achieve zero operational emissions by demonstrating the following:

- Space heating < 30 kWh/m²/annum;
- Total energy use < 40 kWh/m²/annum;
- On-site renewable generation to match the total energy use;
- Connection to a low or zero carbon district heat network where possible.

There are also policies covering:

- Minimum renewable energy generation;
- Limits on the embodied carbon of large developments;
- Flood risk management; and
- Sustainable transport and active travel.

2. Assessment Criteria

Identifying the assessment criteria

To undertake both individual and comparative assessments of the climate impact of the proposed sites, we have identified the areas where there are likely to be significant differences between sites against a set list of criteria.

The criteria have been designed to cover impacts associated with both climate change mitigation (relating to CO₂ emissions), and adaptation (relating to climate risks), taking into account the scope of the Local Plan and the influence of the Council. Some other criteria have been excluded where there is unlikely to be significant variation associated with the location of the development, for example water consumption.

The purpose of the assessment criteria is to allow appropriate comparison between sites, helping the council to identify how sites perform on a relative basis. Some sites will score better than average in some criteria and worse in others, other sites may score averagely across the criteria.

Regarding mitigation, carbon emissions from new development arise primarily from buildings, associated with both the operational energy use and the embodied energy in both the building and the wider infrastructure, as well as the emissions from the transport associated with new development. In addition, we have also included the opportunity loss associated with the allocation of land for development that could be used for renewable energy generation or sequestration.

Regarding adaptation, there is a need to consider the climate risks associated with new development, either where the development exacerbates an existing risk or will be at risk itself. The criteria have been selected to address the direct climate risks associated with flooding and over-heating as well as the indirect impacts associated with impact on biodiversity and the opportunity loss from allocating site for development.



A = Adaptation M = Mitigation

Defining the assessment criteria

Climate Change Mitigation

- **Site Operational Carbon (M1)** – The relative scale of emissions associated with the operational carbon of the new development.
- **Building Embodied Carbon (M2)** – The relative scale of emissions associated with the construction of the buildings.
- **Infrastructure Embodied Carbon (M3)** – The relative scale of emissions associated with the construction for the wider development infrastructure e.g. roads and utilities.
- **Transportation Carbon (M4)** – The relative impact on emissions associated with transport linked to the development, primarily the use of private vehicles.
- **Mitigation Opportunity Loss (M5)** – The relative loss of mitigation opportunity on the site such as solar, wind and sequestration projects.

Climate Change Adaptation

- **Flood Risk (A1)** – The relative impact on flood risk, including river flooding, coastal and groundwater flooding.
- **Overheating (A2)** – The relative ability to mitigate the risk of overheating within buildings.
- **Surface Water Runoff (A3)** – The relative ability to manage surface water runoff from the site.
- **Biodiversity (A4)** – The relative impact on natural capital and biodiversity.
- **Adaptation Opportunity Loss (A5)** – The relative loss of adaptation opportunity on the site such as options for biodiversity gain, implementing flood protection measures and using the site for food production.

M1 – Operational Carbon

Carbon emissions associated with the operational energy use of buildings is a key component of the emissions across the District, so it is critical for new development not to add to this. The Local Plan has a policy that required all new residential and major non-residential developments to be net-zero for operational energy, accounting for both regulated (those covered by Building Regulations) and unregulated emissions (the other emissions within the building not linked to its design or specification, so appliances, cooking and in the case of non-domestic building other process loads).

In theory if all developments are able to meet this policy, then it has the effect of limiting the variation in performance between sites. However, there are a few variables that do vary between sites that might affect its ability to be achieved.

The policy is likely to be easier to meet for some dwelling and building types than others. This is partly due to typology and partly due to the potential design limitations associated with some sites, either due to less flexibility in the design or specification of the buildings or because of designations.

Also, there are some operational emissions that won't be captured by the policy as they are not covered by Building Regulations, these include the energy use in communal areas (like ventilation, lifts and lighting) and energy use in external site-wide infrastructure, such as street and car park lighting.

Key Considerations:

- Relative energy use associated with building typology
- Design limitations
- Site-wide operational energy emissions

Data Sources:

- Site Location
- Site density
- Development assumptions

M2 – Building Embodied Carbon

As with M1, the Council has a policy that has a target for the embodied carbon within buildings. This target is independent of the location of the development so has the effect of reducing the anticipated variation in performance between sites, however there is likely to be some variation resulting from the following issues.

Policy SCR8 is targeted at large developments, so over 50 dwellings or 5000sqm non-residential buildings. As such there are some sites where this policy would not apply and a potential risk that the embodied carbon could be higher relative to sites where the policy applies.

Emissions associated with transportation of people, materials and equipment to the site is likely to vary between sites on the basis of their location and how accessible they are, with more remote rural sites likely to result in more transport emissions.

The existing nature of the site is also likely to determine whether there are opportunities to reduce the embodied carbon of the buildings through the potential to refurbish or re-use any existing buildings, groundworks or hard landscaping, or the materials derived from any demolition works.

Lastly the other key difference between different sites is the extent to which there are limitations on the choices of materials, construction types or methods of construction related to the site or the type of development. More constrained urban sites are likely to have more design constraints, either due to practical difficulties or rules associated with designations such as conservation areas or the World Heritage Site, and some building types may also have more limited choices of materials.

Key Considerations:

- Policy application
- Site accessibility for deliveries
- Opportunities for reuse
- Design limitations

Data Sources:

- Site Location
- Development details

M3 – Infrastructure Embodied Carbon

As well as embodied carbon in buildings, there is embodied carbon associated with infrastructure. This would include highways, groundworks and utilities needed to support the development, and the associated embodied carbon will vary between sites. Although it is currently difficult to accurately calculate the embodied carbon from infrastructure it is possible to differentiate between sites and compare the relative expected levels of embodied carbon from infrastructure.

Greenfield sites in more isolated locations, or where the existing infrastructure would need to be significantly upgraded to support the new development, will have high levels of infrastructure embodied carbon. Sites that can connect to existing infrastructure offsite, such as those adjacent to existing development or settlements, would have a lower level of infrastructure embodied carbon required, whilst sites on previous developed land, with existing onsite infrastructure that can be utilised as part of the development, will have the lowest level.

A high-level assessment of the existing highways, groundworks and utility infrastructure, onsite and close to the development, has been used to give each site a ranking to allow comparison.

A site will rank worst (1) where infrastructure requirements are higher, resulting in more embodied carbon associated with both the materials and construction, notably where more groundworks, highways and utility infrastructure is needed to support the development. A site will rank best (5) where additional infrastructure is minimised, particularly on dense sites in urban areas where groundworks are more limited and existing highways, public transport and utilities are present.

Key Considerations:

- Highways infrastructure
- Groundworks
- Utility infrastructure

Data Sources:

- Aerial photography
- Site Location
- Site Area

M4 – Transport Carbon

The transport carbon assessment has been designed to align with the existing Local Plan transport evidence and is based on three criteria:

- Existing levels of connectivity
- Potential future levels of connectivity
- Potential for the site to enhance sustainable connectivity.

Existing levels of connectivity is based on the original TAF mapping, the Rural Growth Accessibility Assessment and the Area of Search Assessment undertaken by AECOM to support the New Local Plan. The scale is 10 for the highest level of connectivity as found in Central Bath, to 1 for the lowest level of connectivity as found in rural and remote parts of the district without ease of access to services

Future Levels of Connectivity is based on a scale that ranges from 0 for no change to the Existing Levels of Connectivity to +2 for the greatest change to Connectivity. A score of +2 is given where there are committed interventions, such as the Bristol to Bath Corridor and Somer Valley Links, which will significantly enhance the connectivity of the site. A score of +1 is given where there is the potential for the connectivity to be improved and this score was given for all 'urban' locations which are physically near to services and facilities and hence it is likely to be possible to improve the connectivity by active modes or public transport.

Potential for the Site to Enhance Sustainable Connectivity is based on a scale that ranges from 0 for no change to the connectivity to +2 for the greatest change. A score of +2 is given where sufficient information is known about the site to be able to make a judgement that there is potential for a mode shift to occur for both existing and future residents. Insufficient information is known about the Bath sites to score +2, but given the urban location and potential for change, a +1 score has been given for these sites.

Key Considerations:

- Existing levels of connectivity
- Potential future levels of connectivity
- Potential for the site to enhance sustainable connectivity

Data Sources:

- TAF Mapping
- Rural Growth Accessibility Assessment
- Area of Search Assessment

M5 – Mitigation Opportunity Loss

This criteria aims to take account for the fact that sites will vary in their potential for other uses at some point in the future, in this case potential to be used for measures that could reduce climate emissions, such as renewable energy generation or carbon sequestration. Selecting the site for development will mean that this potential opportunity for the implementation of climate change mitigation measures has been lost, or significantly reduced.

The Council has previously undertaken a study assessing the potential renewable energy opportunity of the district. This study consists of a bottom-up assessment of the potential for the deployment of various renewable and low and zero carbon energy technologies at different scales and in different locations across Bath and North East Somerset (B&NES). The outputs of this study have been reflected in this assessment.

The key renewable energy opportunities are for wind and solar power. We have taken a more high level view of the potential for these that is not tied to some of the more complex restrictions that exist today (such as policy, planning or grid constraints) because these could well change in the future. What is more relevant to the relative opportunity loss is the size and location of the site. Although in the case of solar we would expect this to be incorporated into new buildings in line with local plan policies, the scale of PV will be significantly smaller (up to about 20-25%) of what could be installed if the land was used for a solar farm.

Land can also be used to support the sequestration of carbon from the atmosphere, such as through natural carbon storage including forests, grasslands, soils or bodies of water. This can also assist in climate mitigation and again the size and location is key to the potential for maximising carbon sequestration and therefore the relative opportunity loss.

Each site has been rated for how much climate mitigation opportunity is lost by developing the site, taking account of the potential opportunity for renewable energy, site area and location. A site will rank worst (1) where the most opportunity is lost, such as where a site is large and lies in landscape potential land for solar, wind and sequestration projects. A site will rank best (5) where it is small and does not have any potential for those alternative uses.

Key Considerations:

- Solar generation potential
- Wind generation potential
- Carbon sequestration potential

Data Sources:

- Renewable Energy Resource Assessment Report (2022)
- Aerial photography
- Site Location
- Site Area

A1 – Flood Risk

Flooding is a significant climate risk for the District. Climate change is likely to bring warmer wetter winters, heavier rain, and more frequent and intensive weather extremes. This will increase the frequency and severity of flood events, and places that are currently not at risk of flooding may experience flooding in the future, whilst those in existing flood zones will have an increased risk.

The NPPF, para 165, states that development should be directed away from areas at highest risk of flooding whether existing or future. The assessment is based on the relative impact on future flood risk, including river flooding, coastal and groundwater flooding.

The Council's Strategic Flood Risk Assessment (SFRA) analyses the current and future flood risk across the District. Appendix A mapping within the SFRA document sets out the extent of the current flood zones as well as a climate change sensitivity buffer.

The assessment determines the flood risk by assessing whether it lies within a flood zone, or within the climate change sensitivity buffer provided in the SFRA. A site will rank worst (1) where it already lies within Flood Zone 3, (2) where it lies in Flood Zone 2, (3) where it lies within the climate change sensitivity buffer, (4) where it lies adjacent to the buffer, and the site will rank best (5) where it is not in a flood zone, or near the buffer.

Key Considerations:

- SFRA Flood Zones
- SFRA Climate Change sensitivity buffer

Data Sources:

- Strategic Flood Risk Assessment (2018) Appendix A mapping

A2 – Overheating

Overheating is recognised as a key risk in the built environment in the future as a result of climate change and the impact of increasing temperatures and frequency of heat waves. High temperatures have been linked to mortality and wellbeing impacts. The UK Climate Change Risk Assessment 2017 projects that UK heat-related deaths could more than double by the 2050s from the 2,000-death per year baseline if there is no adaptation. This would be a substantial human cost, and DEFRA predictions from 2012 estimate that the economic cost associated with heat-related deaths would rise by £15-100 million per year.

Overheating risk in buildings is affected by external temperatures which can be significantly higher in urban areas due to the urban heat island effect. As such there will be a difference in the relative level of overheating risk for different sites depending upon their location.

Overheating risks can be mitigated through design and masterplanning, however this can be more challenging on sites that have greater physical and design constraints such as those in urban areas or on smaller sites. Larger greenfield sites can be more flexible with regards to design, orientation and layout of buildings, helping to reduce overheating risks.

The assessment evaluates the density of the site, alongside its planning constraints, and whether the site is in a rural or urban area. A site will rank worst (1) where there is the greatest risk of overheating – such that, it is small and dense, with planning constraints, in an urban area. A site will rank best (5) where it is large and sparse, with no planning restrictions, in a less urban area.

Key Considerations:

- Level of risk associated with the site location
- Potential constraints on design flexibility

Data Sources:

- Policies map
- Aerial photography
- Site Location
- Site Area

A3 – Surface Water Runoff

Climate change is predicated to result in greater levels of winter rainfall in the UK and more frequent extreme events which will increase the risks associated with surface runoff from new development. As well as causing the risk of potential localised flooding the increase in runoff could also result in more flow entering watercourses, increasing the risk of fluvial flooding downstream.

The SFRA identified areas of the District at risk of surface run off issues in Appendix J of the document. These maps have been used to assess the risk of the potential development sites, taking into account other site-specific criteria such as site area, density and current levels of development.

As well as varying in relation to the level of risk, sites will also vary in the level of flexibility to address the risk and install the Sustainable Urban Drainage Systems that can adequately mitigate the risks.

A site will rank worst (1) where it is a small, dense site, with planning constraints and lies in an area of surface water flood risk. A site will rank best (5) where it does not lie in an area of surface water flood risk, and is a large, sparse site with no planning restrictions.

Key Considerations:

- SFRA Surface Water Run off Area
- Greenfield or previously developed land

Data Sources:

- Strategic Flood Risk Assessment (2018) Appendix J mapping

A4 – Biodiversity

Climate change will have an impact on the natural environment and biodiversity of the District. It is one of the main drivers of biodiversity loss and ecosystem changes. Species populations and habitats are affected by variations in rainfall and extreme weather events, particularly droughts with some habitats particularly at risk where even small changes can have a significant impact. Conservation and enhancement of existing habitats is therefore an essential component of climate change adaptation.

The assessment utilises the outputs from the biodiversity assessments carried out for the Local Plan Sustainability Appraisal (SA). The SA uses GIS tools to undertake the appraisal of site option depending on the proximity and potential impact on each feature and assigned a Red, Amber, Green (RAG) rating.

For biodiversity features this assesses the proximity of sites to key habitats and designated areas including:

International sites

- Ramsar
- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)

Irreplaceable habitats and designated biodiversity sites

- Ancient Woodland
- Sites of Special Scientific Interest (SSSI)
- Sites of Nature Conservation Interest (SNCI)
- Strategic Nature Areas
- Ecological Network
- Priority Habitats
- National Habitat Network
- Nature Reserves

Where the SA information was not available a desktop analysis was undertaken in line with the SA methodology.

Key Considerations:

- Internationally protected biodiversity sites
- Irreplaceable habitats
- Designated biodiversity sites

Data Sources:

- Local Plan Sustainability Appraisal

A5 – Adaptation Opportunity Loss

As with Climate Opportunity Loss (M5) this criteria aims to take account for the fact that sites will vary in their potential for other uses at some point in the future, in this case potential to be used for measures that could help adapt to a changing climate, such as to enhance wildlife and biodiversity, mitigate the risks and impact of flooding or ensure future agricultural security. Selecting the site for development will mean that these potential opportunities could be lost.

This criterion is a high-level comparative assessment of the extent to which climate adaptation opportunity is lost by building on the site and seeks to assess the relative biodiversity opportunity, flood protection opportunities, and food production opportunities.

The assessment uses a range of land classifications and designations to inform this comparison. Sites within or adjacent to flood zones, areas of high biodiversity and land with higher agricultural value are therefore deemed to be areas with higher climate change adaptation potential.

A site will rank worst (1) where it is a large site, with numerous environmental constraints, in a flood zone, and in a very good/good agricultural land category so the opportunity loss is greater. A site will rank best (5) where less opportunity is lost if it is developed, so small sites with no environmental considerations, not in a flood zone, and with a poor agricultural value.

Key Considerations:

- SFRA Flood Zones
- SFRA Climate Change sensitivity buffer
- Agricultural Land Classification

Data Sources:

- Strategic Flood Risk Assessment (2018) Appendix A mapping
- Agricultural Land Classification Mapping
- Aerial photography
- Site Location
- Site Area

Scoring

General approach:

For most of the criteria the relative score for each site was derived by looking at the 2 or 3 key considerations (described on the previous pages) and defining whether the site was deemed to be high, medium or low against that issue and relative to the other sites. In all cases, high reflected better performance, medium represented average performance and low represented poor performance. Depending on whether a criteria had 2 or 3 key considerations these high, medium and low ratings were then converted to a score on a 1-5 scale as shown in the following table and expressed as % scores in the site assessments. Scoring was applied on a site-wide basis, such that sites that lie partially in an area of constraint (environmental, planning, flood zone), were assessed as though the whole site was constrained. This approach applies to M1, M2, M3, M5, A1, A2, A3 and A5.

Exceptions:

The two criteria that were assessed slightly differently were M4 (Transport) and A4 (Biodiversity) principally because input was sought from other teams working on other related assessments for B&NES to ensure alignment with other assessments.

For M4 the assessment was informed by separate work looking specifically at the relative sustainability of different sites from a transportation perspective. This used a slightly different score out of 12 with ratings allocated on the basis of the existing connectivity (up to 8) plus the potential for this to improve based on future plans (up to 2) and the potential for this to improve based further enhancements (up to 2). Although scored out of 12, as in the general approach described above, this was converted to a % score for the site assessments that normalises this with the other criteria.

For A4 the assessment used the RAG rating from the Sustainability Appraisal (SA) site assessment for 11 biodiversity designations. The RAG rating for each designation was converted into a rating out of 22 (R = 0, A= 1, G =2) and the rating converted into a 1-5 scale based on the lowest to highest performing sites.

One other slight exception was for M2 (Embodied carbon – buildings) because the embodied carbon policy in the Local Plan only applies to sites over 50 homes, so may not have the same impact on smaller sites. As such, the relative score of these small sites was downgraded by one point to account for this.

| Relative score | 3 Key Considerations | 2 Key Considerations |
|----------------|----------------------|----------------------|
| 5 | H/H/H or H/H/M | H/H |
| 4 | H/H/L or H/M/M | H/M |
| 3 | H/L/M or M/M/M | H/L and M/M |
| 2 | H/L/L or M/M/L | M/L |
| 1 | M/L/L or L/L/L | L/L |

Weighting

The following table describes the weighting that has been applied to the different criteria to derive an overall total score for each of the sites as well as the justification for these weightings, based upon a consideration of the following two issues:

1. The relative impact of the criteria in relation to either carbon emissions or addressing climate risks (taking account of the extent to which this is mitigated through policy or can be addressed through design); and
2. The extent to which there is variation between sites.

| Criteria ref | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 |
|--------------------------|--|--|--|--|---|--|--|--|--|---|
| Criteria name | Operational carbon | Building embodied carbon | Infrastructure embodied carbon | Transport carbon | Opportunity Loss - Mitigation | Flood risk | Overheating | Surface water runoff | Biodiversity | Opportunity Loss – Adaptation |
| Relative impact | Low | Low | High | High | Low | High | Low | Low | Medium | Low |
| Justification | Mitigated by policy so lower relative impact and more limited variation between sites. | Mitigated by policy so lower relative impact and more limited variation between sites. | Large impact and significant variation between sites | Large impact and significant variation between sites | More indirect impact compared to other criteria | Significant climate risk and significant variation between sites | Potential to address through design so lower variation between sites | Potential to address through design so lower variation between sites | Medium impact and likely to vary between sites | More indirect impact compared to other criteria |
| Weighting applied | 5% | 5% | 20% | 20% | 5% | 20% | 5% | 5% | 10% | 5% |

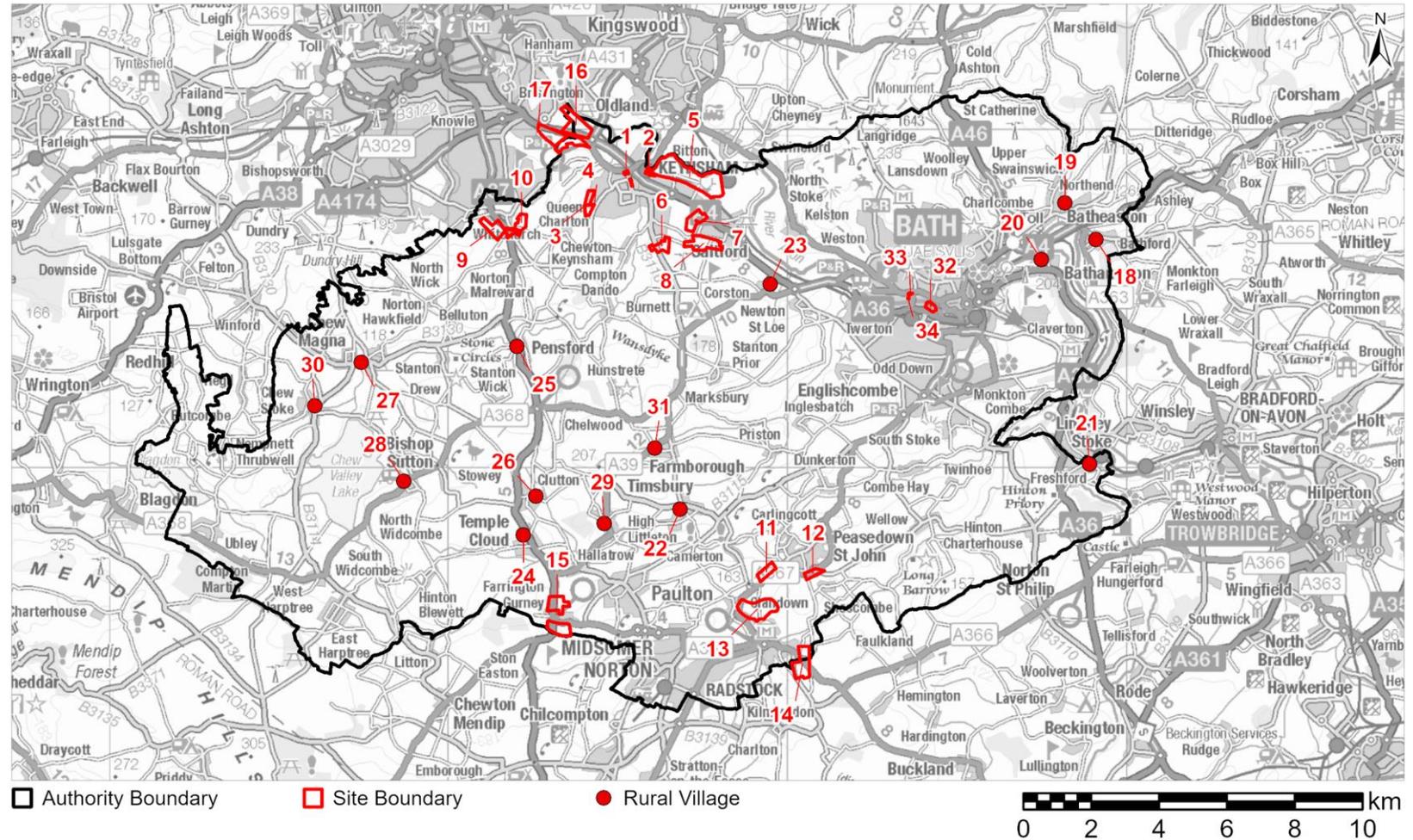
3. Site Assessments

Site Assessments

The following map shows the location of the potential development sites across the District that have been assessed against the climate impact criteria set out in [Section 2](#).

These sites were provided by the Council and have already undergone initial assessment through the Strategic Land Availability Assessment. Each site was scored against each criteria according to the assessment methodology described in the previous section and the individual criteria scores were then normalized and weighted to give an overall score for each site.

The individual site scores provide a comparative assessment of the climate risks for the sites proposed. The individual assessments presented over the following pages include notes to explain the basis for the scoring and the key issues associated with each of the sites. The assessments also identify the site-specific measures that can be taken to mitigate the risks identified. This can be used to help guide the development criteria for any future site allocation policy.



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Individual Site Assessment Key

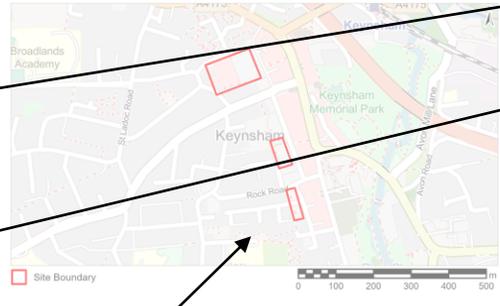
Site reference number

1

Site name

Central Keynsham

Indicative site details provided by B&NES



| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|-------------|
| 0.7ha | 100 units | Retail unit (0.3ha plot) | All flats |

Site Summary

The proposed site comprises three small parcels of brownfield land in the centre of the urban town of Keynsham, closely surrounded by public amenities. Due to the location of the site, there is existing infrastructure that can be utilised by the development. The site does not lie within a flood zone and has an overlap with the Keynsham High Street Conservation Area.

Key factors

- The existing site is hardstanding, with adequate existing highways and utilities to connect to thereby reducing groundworks and other infrastructure works are required, resulting in minimal embodied carbon produced.
- Central Keynsham is an urban area, with high levels of transport connectivity, and has potential to improve opportunities. Therefore, there is minimal loss for carbon mitigation opportunities.
- The site does not lie in any solar and wind landscape potential land, nor in potential land for carbon sequestration opportunities.
- The site is not in an area of flood risk; however, a portion of the site does lie within an area of surface water flood risk. The residential aspect of the proposed development is apartments, which impose a higher risk of overheating than houses - particularly in an urban, densely populated town.
- There are limited ecological designations. Due to the location of the site, there is minimal adaptation opportunity loss - with minimal environmental constraints, not being in a flood zone, and having a poor land category.

Conclusions and mitigation

As a high density, brownfield site in an accessible location, the site performs relatively well in terms of operational carbon, infrastructure embodied carbon, transport and mitigation opportunity loss. The site has a low risk of fluvial and surface water flooding and has only a limited impact on biodiversity and adaptation opportunity loss. Due to the relatively high density and urban location, the scores for overheating and embodied carbon are lower recognising that these will be more challenging.

If the site is taken forward, a TM59 study could be undertaken to assess the overheating risk and identify potential solutions, and careful design will be needed to reduce the potential impact of embodied carbon, recognising that there may be challenges due to the conservation area.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|------|-----|------|------|-----|-----|------|------|--------------|
| Score | 80% | 40% | 100% | 83% | 100% | 100% | 40% | 60% | 100% | 100% | 88% |

*This individual site assessment should be read in conjunction with the report it is contained within and in particular the sections around the methodology, scope and limitations and guidance on interpreting the results

Site summary setting out key context for the assessment

Key factors for each site contributing to the scoring against the relevant criteria

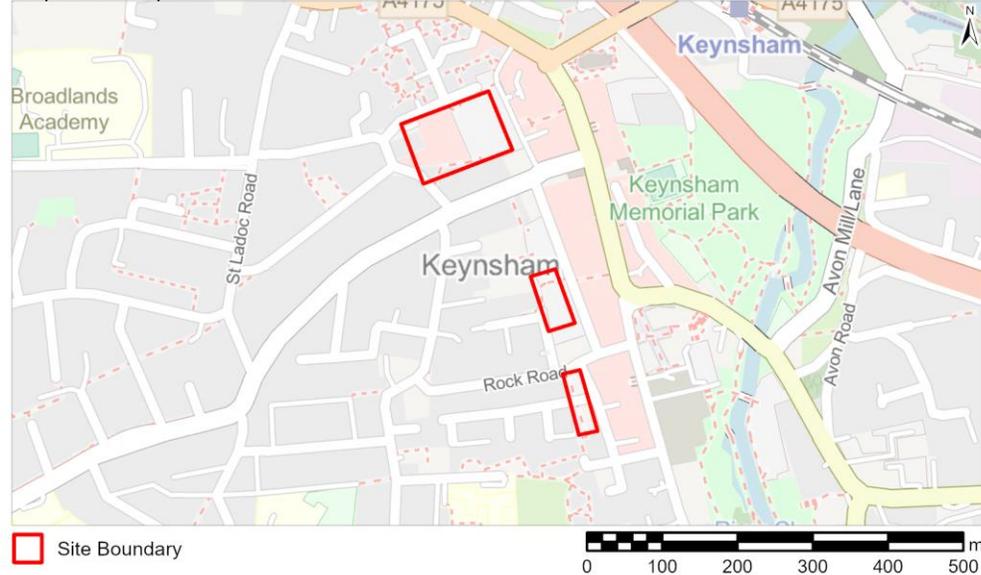
Score against each criteria and the total score including weighting

Map showing the site location

Key conclusions from the assessment and the options for mitigating the identified risks

Central Keynsham

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Conclusions and mitigation

As a high density, brownfield site in an accessible location, the site performs relatively well in terms of operational carbon, infrastructure embodied carbon, transport and mitigation opportunity loss. The site has a low risk of fluvial and surface water flooding and has only a limited impact on biodiversity and adaptation opportunity loss. Due to the relatively high density and urban location, the scores for overheating and embodied carbon are lower, recognising that these may be more challenging due to more constraints in choices of materials and construction type or processes. Also, any redevelopment of existing buildings within the site boundary may have a negative impact on embodied carbon and requires careful consideration.

If the site is taken forward, a TM59 study could be undertaken to assess the overheating risk and identify potential solutions, and careful design will be needed to reduce the potential impact of embodied carbon, recognising that there may be challenges due to the conservation area.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|-------------|
| 0.7ha | 100 units | Retail unit (0.3ha plot) | All flats |

Site Summary

The proposed site comprises three small parcels of brownfield land in the centre of the urban town of Keynsham, closely surrounded by public amenities. Due to the location of the site, there is existing infrastructure that can be utilised by the development. The site does not lie within a flood zone and has an overlap with the Keynsham High Street Conservation Area.

Key factors

- The existing site is hardstanding, with adequate existing highways and utilities to connect to thereby reducing groundworks and other infrastructure works are required, resulting in minimal embodied carbon produced.
- Central Keynsham is an urban area, with high levels of transport connectivity, and has potential to improve connectivity.
- The site does not lie in any solar and wind landscape potential land, nor in potential land for carbon sequestration opportunities. Therefore, there is minimal loss for carbon mitigation opportunities.
- The site is not in an area of flood risk; however, a portion of the site does lie within an area of surface water flood risk. The residential aspect of the proposed development is apartments, which impose a higher risk of overheating than houses - particularly in an urban, densely populated town.
- There are limited ecological designations. Due to the location of the site, there is minimal adaptation opportunity loss - with minimal environmental constraints, not being in a flood zone, and having a poor land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|------|-----|------|------|-----|-----|------|------|--------------|
| Score | 80% | 40% | 100% | 83% | 100% | 100% | 40% | 60% | 100% | 100% | 88% |

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Land east of Avon Mill Lane, Keynsham

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Conclusions and mitigation

As a high density, brownfield site in an accessible location, the site performs well in most criterion - operational carbon, infrastructure embodied carbon, transport, mitigation opportunity loss, flooding, overheating, surface water flooding, biodiversity and adaptation opportunity loss. The lowest scores are for embodied carbon and overheating, recognising that, although the site is brownfield, there is limited potential to reuse buildings or demolition materials and the shape of the site and proximity to the railway line could contribute to issues of overheating due to limitations associated with ventilation strategies.

If the site is taken forward, a TM59 study could be undertaken to assess the overheating risk and identify potential solutions, and careful design will be needed to reduce the potential impact of embodied carbon, recognising that there may be challenges due to the constraints associated with the site that might reduce the choices around the design, materials and construction types.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|-------------|
| 0.4ha | 150 units | N/A | All flats |

Site Summary

The proposed site comprises one small parcel of brownfield land on the edge of the urban town of Keynsham, closely surrounded by public amenities, and Keynsham train station. Due to the location of the site, there is existing infrastructure that can be utilised by the development. The site does not lie within a flood zone and has no other key climate risks.

Key factors

- The existing site is hardstanding, with adequate existing highways and utilities to connect to thereby reducing groundworks and other infrastructure works are required, resulting in lower embodied carbon associated with the supporting infrastructure.
- The site is on the edge of an urban settlement, with high levels of transport connectivity, and has potential to improve connectivity.
- The site does not lie in any solar and wind landscape potential land, nor in potential land for carbon sequestration opportunities. Therefore, there is minimal loss for carbon mitigation opportunities.
- The site is not in an area of flood risk, including surface water flood risk. The residential aspect of the proposed development is apartments, which impose a higher risk of overheating than houses - particularly in an urban, densely populated town.
- There are few ecological designations. Due to the location of the site, there is minimal adaptation opportunity loss - with no environmental constraints, not being in a flood zone, and having a poor land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|------|-----|------|------|-----|-----|-----|------|--------------|
| Score | 80% | 60% | 100% | 83% | 100% | 100% | 60% | 80% | 80% | 100% | 89% |

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Conclusions and mitigation

This large site on the edge of the urban area, performs relatively well in operational and embodied carbon, transport, flooding, overheating, surface water flooding, biodiversity and adaptation opportunity loss. The location and size of the site means it has relatively higher potential for renewables or carbon sequestration opportunities therefore, there is higher opportunity loss if the site is developed for housing resulting in a lower score for this criterion. As a predominately greenfield site, there are likely to be relatively significant highways and utility infrastructure required which results in a lower score for criterion M3.

If the site is taken forward, the scheme could integrate renewable energy measures to make the most of the potential identified in the RERAS. Existing infrastructure connections could also be maximised and any new infrastructure could be designed to try to minimise embodied carbon through both the layout and material choices. Increasing the density of the scheme could also improve the relative performance against several of the criteria.

West Keynsham 1

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|-------------|
| 7.4ha | 300 units | N/A | All houses |

Site Summary

The proposed large site comprises a mixture of brownfield and greenfield land on the edge of the urban town of Keynsham, closely surrounded by public amenities. Due to the location of the site, there is some existing infrastructure that can be utilised by the development. The site does not lie within a flood zone but does lie within the Green Belt.

Key factors

- The existing site is mostly greenfield, with some existing highways and utilities to connect to but likely to involve significant new site-wide infrastructure to support the development resulting in relatively higher embodied carbon.
- The site is on the edge of urban Keynsham, with high levels of transport connectivity, but the site itself has limited potential to improve future levels of connectivity, due to the natural barriers to the West.
- The site does lie in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is a clear loss of carbon mitigation opportunity.
- The site is not in an area of flood risk, including surface water flood risk. The residential aspect of the proposed development is houses, which impose a lower risk of overheating than apartments - particularly on the edge of an urban, densely populated town.
- There are some ecological designations which should be protected from damage resulting from development.
- Due to the location of the site, there is minimal adaptation opportunity loss – not being in a flood zone, and having a Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|--------------|
| Score | 60% | 80% | 40% | 67% | 20% | 100% | 100% | 80% | 60% | 80% | 68% |

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West Keynsham 2

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Conclusions and mitigation

This smaller portion of the site performs relatively well in the operational and embodied carbon, transport, mitigation opportunity loss, flooding, overheating, surface water flooding, biodiversity and adaptation opportunity loss categories. As a greenfield site there are limited opportunities to connect to existing infrastructure resulting in a lower score for infrastructure embodied carbon.

If the site is taken forward, the scheme could implement mitigation strategies to minimise infrastructure embodied carbon and ensuring it is designed to maximise efficiency and reduce climate impact. A higher density scheme, including some apartments, could also be considered in this location to further improve the relative performance.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|-------------|
| 3ha | 300 units | N/A | All houses |

Site Summary

The proposed site comprises one parcel of greenfield land on the edge of the urban town of Keynsham, closely surrounded by public amenities. Due to the location of the site, there is some existing infrastructure that can be utilised by the development. The site does not lie within a flood zone but does lie within the Green Belt. This is a smaller portion of another site option in this area.

Key factors

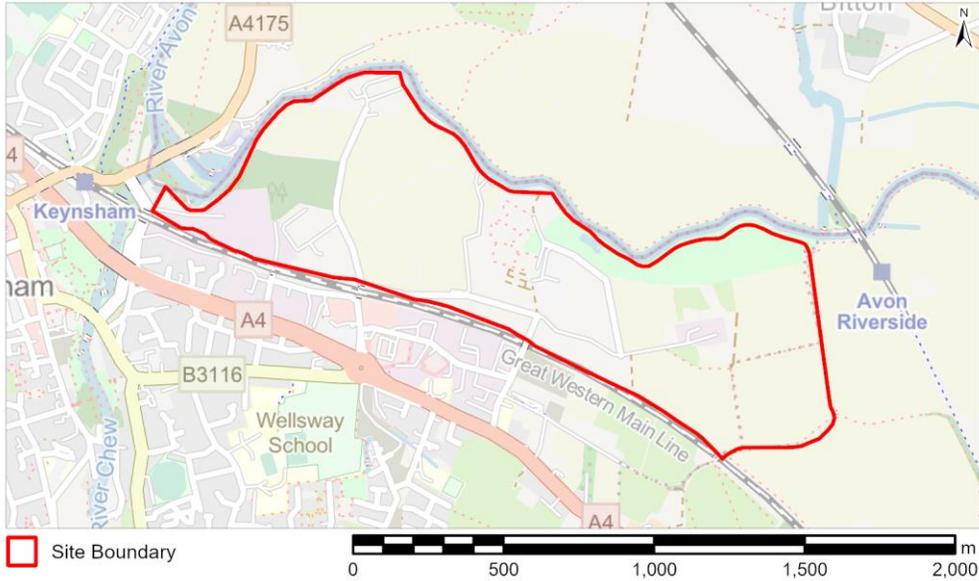
- The existing site is mostly greenfield, with some existing highways and utilities to connect to, resulting in embodied carbon production through necessary groundworks.
- The site is on the edge of urban Keynsham, with high levels of transport connectivity, but the site itself has limited potential to improve future levels of connectivity, due to the natural barriers to the West.
- The site does lie in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. There is a loss of carbon mitigation opportunity, however, this is mitigated as the site is not large.
- The site is not in an area of flood risk, including surface water flood risk. The residential aspect of the proposed development is houses, which impose a lower risk of overheating than apartments - particularly on the edge of an urban, densely populated town.
- There are limited ecological constraints. Due to the location of the site, there is minimal adaptation opportunity loss - with one environmental constraint, not being in a flood zone, and having a Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|------|------|-----|------|------|--------------|
| Score | 60% | 80% | 40% | 67% | 60% | 100% | 100% | 80% | 100% | 100% | 75% |

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North Keynsham

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Conclusions and mitigation

This is a large site with excellent connections and low carbon development opportunities, and it performs well against these criteria. However, given that areas of the site are at high risk of flooding, and there are biodiversity and environmental constraints, the site overall scores poorly for the most of the adaptation criteria. The location and size of the site also means it has relatively higher potential for renewables or carbon sequestration opportunities and for the alternative adaptation uses therefore, there is higher opportunity loss if the site is developed for housing resulting in a lower score for these criteria.

If the site is taken forward, the scheme could be carefully designed to exclude areas at risk of flooding and to conserve and enhance the environmental designations. Features such as sustainable drainage systems could be implemented to mitigate the risk of surface water flooding, and natural flood management can help reduce fluvial flooding and increase biodiversity value. The scheme could also integrate renewable energy measures to make the most of the potential identified in the RERAS.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|----------------------------|
| 35.7ha | 1365 units | 8.4ha UC E and Prim Sch | 15% apartments, 85% houses |

Site Summary

The proposed site comprises a large area of brownfield and greenfield land on the edge of the urban town of Keynsham, closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. Northern areas of the site lies within flood zones 2 and 3, has several environmental constraints – SSSIs, SNCIs, Priority Habitats, RIGS, and lies within the Green Belt.

Key factors

- The existing site is mostly greenfield, with minimal existing highways and utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- Keynsham is an urban area, with high levels of transport connectivity, and the site has potential to improve connectivity.
- The site lies in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is a clear loss of carbon mitigation opportunity.
- The site is in an area of flood risk, due to the River Avon adjacent. The site is also in an area of surface water flood risk. The residential aspect of the proposed development is mostly houses, which impose a lower risk of overheating than apartments - particularly in an urban, densely populated town.
- There are multiple ecological designations which should be protected from damage resulting from development.
- Due to the location of the site, there is great adaptation opportunity loss - with several environmental constraints, being in a flood zone, and having Grade 2 agricultural land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|
| Score | 60% | 80% | 60% | 83% | 20% | 20% | 80% | 20% | 40% | 20% | 51% |

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South East Keynsham

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Conclusions and mitigation

The site has no risk of flooding and scores well against the adaptation criteria. However, there are some environmental designations leading to a lower score for biodiversity impact. The site lies on the edge of the urban area and has some transport connections but as a greenfield site, there is limited existing infrastructure.

If the site is taken forward, the scheme could mitigate the impact on the ecological designations by excluding areas and including natural buffer zones. The scheme could also implement mitigation strategies to minimise infrastructure embodied carbon and ensuring it is designed to maximise efficiency and reduce climate impact. A higher density scheme, including some apartments, could also be considered in this location to maximise low carbon potential.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|-------------|
| 9.9ha | 350 units | N/A | All houses |

Site Summary

The proposed site comprises one large parcel of greenfield land on the edge of the urban town of Keynsham, closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. The site does not lie within a flood zone, but has several environmental constraints – SNCIs, Priority Habitats, and lies within the Green Belt

Key factors

- The existing site is greenfield, with minimal existing highways and utilities to connect to, thereby requiring significant groundworks and other infrastructure works, resulting in more embodied carbon emissions.
- The site is on the edge of an urban area, with adequate levels of transport connectivity, but has limited potential to improve connectivity, due to the site's location, and surrounding constraints.
- The site could potentially accommodate renewables or carbon sequestration opportunities, therefore there is loss of carbon mitigation opportunity.
- The site is not in an area of flood risk, including surface water flood risk. The residential aspect of the proposed development is all houses, which impose a lower risk of overheating than apartments - particularly in an urban, densely populated town.
- There are multiple ecological designations which should be protected from damage resulting from development.
- There is some adaptation opportunity loss notably the potential for agricultural use given that is designated as Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|------|------|------|-----|-----|--------------|
| Score | 60% | 60% | 20% | 58% | 60% | 100% | 100% | 100% | 40% | 60% | 62% |

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Conclusions and mitigation

Due to the location of the site, it performs well for transport connections, flooding and adaptation potential. However, the greenfield nature of the site means that there is limited existing infrastructure that can be incorporated into a scheme, that would result in higher site-wide embodied carbon, and the site is in close proximity to ecological designations. The proposed density is also on the lower side which impacts on several criteria.

If the site is taken forward, the scheme could mitigate the impact on the ecological designations by excluding areas and including natural buffer zones. The scheme could also implement mitigation strategies to minimise infrastructure embodied carbon and ensuring it is designed to maximise efficiency and reduce climate impact. A higher density scheme, including some apartments, could also be considered which could improve the performance against several of these criteria.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|-------------|
| 15.1ha | 500 units | 2.4ha | All houses |

Site Summary

The proposed site comprises one large parcel of greenfield land on the edge of the urban town of Saltford, closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. The site does not lie within a flood zone, but is adjacent to the buffer, and lies close to priority habitats and other ecological sites. The site also lies within the Green Belt.

Key factors

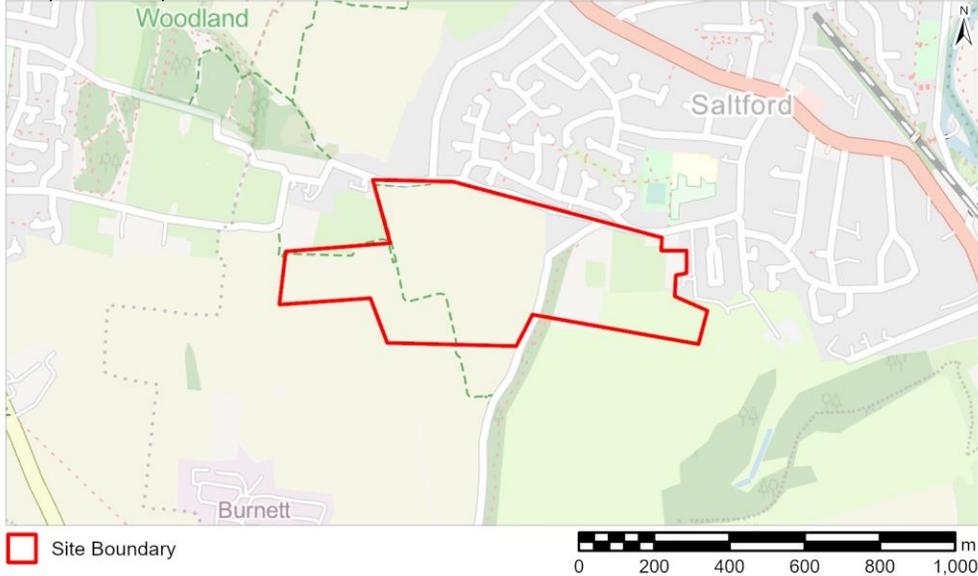
- The existing site is greenfield, with minimal existing highways and utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- Saltford is an urban area, with high levels of transport connectivity, and the site has some potential to improve connectivity.
- The site does lie in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is some loss of carbon mitigation opportunity.
- The site is not in an area of flood risk; however, the site does lie within an area of surface water flood risk. The residential aspect of the proposed development is houses, which impose a lower risk of overheating than apartments - particularly on the edge of an urban town.
- There are multiple ecological designations which should be protected from damage resulting from development.
- There is some adaptation opportunity loss notably the potential for agricultural use given that is designated as Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|--------------|
| Score | 40% | 60% | 40% | 75% | 60% | 80% | 100% | 60% | 40% | 80% | 63% |

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South Saltford

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Conclusions and mitigation

The site scores relatively well against the adaptation criteria, although the proximity of ecological designations does lower this score. It is well located with good transport links. However, as a greenfield site, the opportunities to utilise existing infrastructure are limited and due to its size and location, it has relatively higher potential for renewables or carbon sequestration opportunities therefore, there is higher opportunity loss if the site is developed for housing resulting in a lower score for this criterion. The proposed density is also on the lower side leading to a lower score against some criteria.

If the site is taken forward, the scheme could be carefully designed to mitigate the impact on the existing ecological designations and could integrate renewable energy measures to make the most of the potential identified in the RERAS. The scheme could also implement mitigation strategies to minimise infrastructure embodied carbon and ensuring it is designed to maximise efficiency. A higher density scheme, including some apartments, could be considered to maximise site operational carbon efficiencies.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|-------------|
| 23.1ha | 800 units | 2.4ha | All houses |

Site Summary

The proposed site comprises one large parcel of greenfield land on the edge of the urban town of Saltford, closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. The site does not lie within a flood zone but lies within the Green Belt.

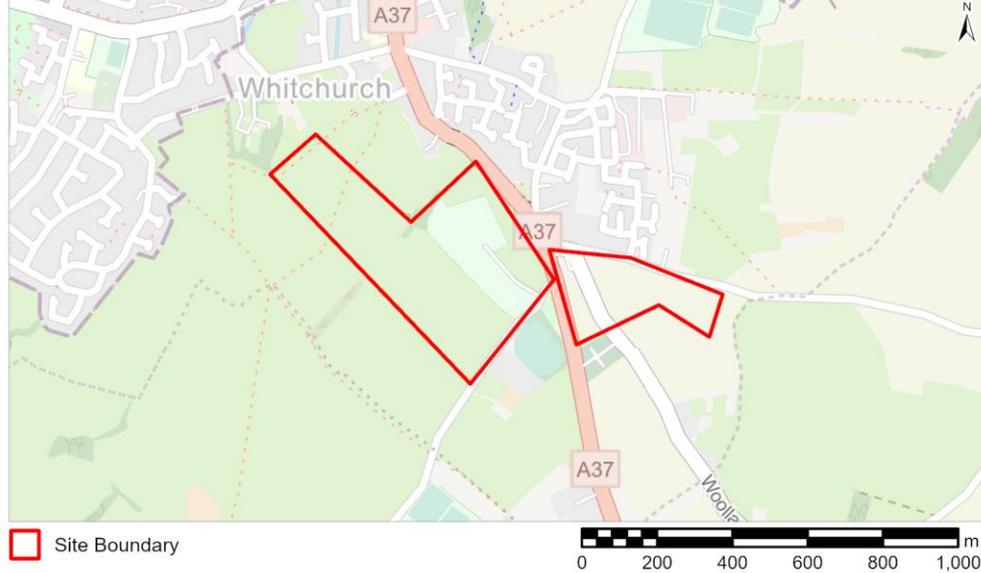
Key factors

- The existing site is greenfield, with some existing highways and minimal utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- Saltford is an urban area, with high levels of transport connectivity, and the site has some potential to improve connectivity.
- The site does lie in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is clear loss of carbon mitigation opportunity.
- The site is not in an area of flood risk, including surface water flood risk. The residential aspect of the proposed development is all houses, which impose a lower risk of overheating than apartments - particularly in an urban town.
- There are multiple ecological designations which should be protected from damage resulting from development.
- Due to the location of the site, there is minimal adaptation opportunity loss – with minimal constraints, not being in a flood zone, and having a Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|--------------|
| Score | 40% | 60% | 40% | 75% | 20% | 100% | 100% | 80% | 40% | 80% | 66% |

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Conclusions and mitigation

The site performs relatively well for climate adaptation as it is not at risk of flooding. However, there are ecological designations that result in a lower score. For the mitigation assessment, as a greenfield site there are limited opportunities to connect to existing infrastructure and due to its size and location, it has relatively higher potential for renewables or carbon sequestration opportunities therefore, there is higher opportunity loss if the site is developed for housing resulting in a lower score for this criterion. A low-density scheme in a less accessible location also results in lower scores for operational carbon and embodied carbon.

If the site is taken forward, the scheme could be carefully designed to mitigate the impact on the existing ecological designations and could integrate renewable energy measures to make the most of the potential identified in the RERAS. The scheme could also implement mitigation strategies to minimise infrastructure embodied carbon and ensuring it is designed to maximise efficiency and reduce climate impact. A higher density scheme could also be implemented to maximise opportunities to reduce operational carbon.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|----------------------------|-------------|
| 26ha | 600 units | 10.2ha Rugby Club Prim Sch | All houses |

Site Summary

The proposed site comprises two large parcels of greenfield land on the edge of Whitchurch, closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. The site does not lie within a flood zone but lies within the Green Belt.

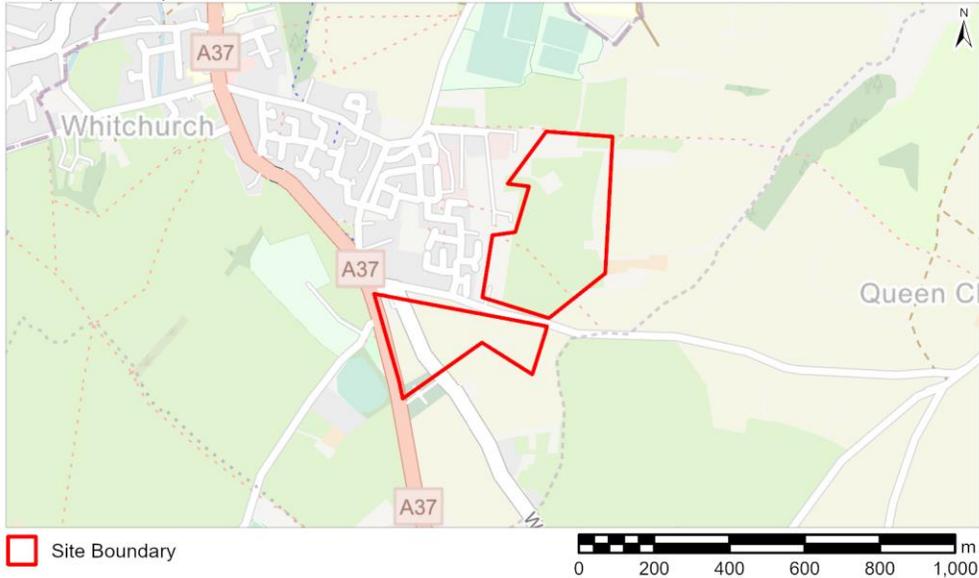
Key factors

- The existing site is greenfield, with minimal existing highways and utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- Whitchurch Village has adequate levels of transport connectivity, and the site has some potential to improve connectivity.
- The site does lie in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is clear loss of carbon mitigation opportunity.
- The site is not in an area of flood risk; however, a portion of the site does lie within an area of surface water flood risk. The residential aspect of the proposed development is all houses, which impose a lower risk of overheating than apartments - particularly in an urban town.
- There are multiple ecological designations which should be protected from damage resulting from development.
- Due to the location of the site, there is minimal adaptation opportunity loss – with minimal constraints, not being in a flood zone, and having Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|--------------|
| Score | 40% | 40% | 20% | 67% | 20% | 100% | 100% | 60% | 40% | 80% | 58% |

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Conclusions and mitigation

The site performs relatively well for climate adaptation as it is not at risk of flooding. However, there are ecological designations that result in a lower score. For the mitigation assessment, as a greenfield site there are limited opportunities to connect to existing infrastructure and due to its size and location, it has relatively higher potential for renewables or carbon sequestration opportunities therefore, there is higher opportunity loss if the site is developed for housing resulting in a lower score for this criterion. A low-density scheme in a less accessible location also results in lower scores for operational carbon and embodied carbon.

If the site is taken forward, the scheme could be carefully designed to mitigate the impact on the existing ecological designations and could integrate renewable energy measures to make the most of the potential identified in the RERAS. The scheme could also implement mitigation strategies to minimise infrastructure embodied carbon and ensuring it is designed to maximise efficiency and reduce climate impact. A higher density scheme could also be implemented to maximise opportunities to reduce operational carbon.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|-------------|
| 16.3ha | 540 units | 2.7ha | All houses |

Site Summary

The proposed site comprises two large parcels of greenfield land on the edge of Whitchurch, closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. The site does not lie within a flood zone, has one environmental constraint – SNCIs, and lies within the Green Belt.

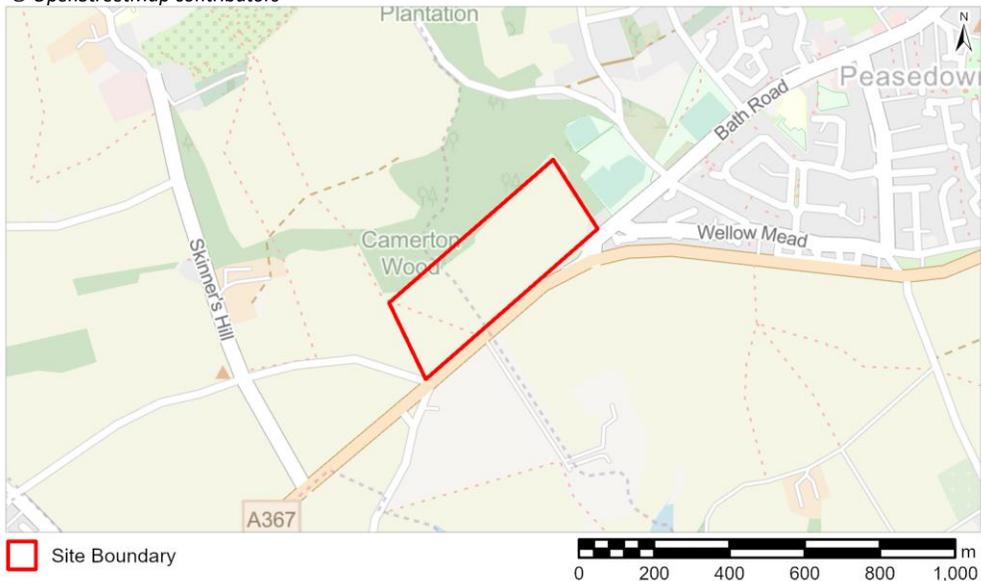
Key factors

- The existing site is greenfield, with minimal existing highways and utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- Whitchurch Village has adequate levels of transport connectivity, and the site has some potential to improve connectivity.
- The site does lie in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is clear loss of carbon mitigation opportunity.
- The site is not in an area of flood risk, including surface water flood risk. The residential aspect of the proposed development is all houses, which impose a lower risk of overheating than apartments - particularly in an urban town.
- There are multiple ecological designations which should be protected from damage resulting from development.
- Due to the location of the site, there is some adaptation opportunity loss - with two constraints, not being in a flood zone, and having Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|--------------|
| Score | 40% | 40% | 20% | 67% | 20% | 100% | 100% | 80% | 40% | 60% | 58% |

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Conclusions and mitigation

The site performs relatively well with regards to flooding and associated adaptation issues however, the proximity of ecological designations does lead to a lower score. As a less accessible, low density greenfield site there are limited opportunities to connect to existing infrastructure and it has lower scores for operational and embodied carbon.

If the site is taken forward, the scheme could mitigate the impact on the ecological designations by excluding areas and including natural buffer zones. The scheme could also implement mitigation strategies to minimise infrastructure embodied carbon and ensuring it is designed to maximise efficiency and reduce climate impact. A higher density scheme, including some apartments, could also be considered to maximise site operational carbon efficiencies.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|-------------|
| 5.9ha | 200 units | 2.7ha | All houses |

Site Summary

The proposed site comprises one parcel of greenfield land on the edge of the urban village of Peasedown St John in the Somer Valley, closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. The site does not lie within a flood zone and has several environmental constraints – Ancient Woodland, SNCIs, Priority Habitats.

Key factors

- The existing site is greenfield, with some existing highways and minimal utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- Peasedown St John is an urban village, with adequate levels of transport connectivity, but the site has no potential to improve connectivity.
- The site does lie in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is some loss of carbon mitigation opportunity.
- The site is not in an area of flood risk, including surface water flood risk. The residential aspect of the proposed development is all houses, which impose a lower risk of overheating than apartments - particularly in an urban town.
- There are multiple ecological designations which should be protected from damage resulting from development.
- Due to the location of the site, there is some adaptation opportunity loss - with several environmental constraints, not being in a flood zone, and having Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|--------------|
| Score | 40% | 40% | 40% | 58% | 60% | 100% | 100% | 60% | 40% | 60% | 62% |

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Conclusions and mitigation

The site scores well against the adaptation criteria. However, as a greenfield site, there are limited opportunities to connect to existing infrastructure and it has lower scores for operational and embodied carbon.

The scheme could implement mitigation strategies to minimise infrastructure embodied carbon and ensure it is designed to maximise efficiency and reduce climate impact. There are also opportunities for renewable energy generation which could be incorporated into the design.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|-----------------------|
| 3.8ha | 0 units | 3.8ha employment | Employment space only |

Site Summary

The proposed site comprises one parcel of greenfield land on the edge of the urban village of Peasedown St John in the Somer Valley, closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. The site does not lie within a flood zone but lies within the Green Belt.

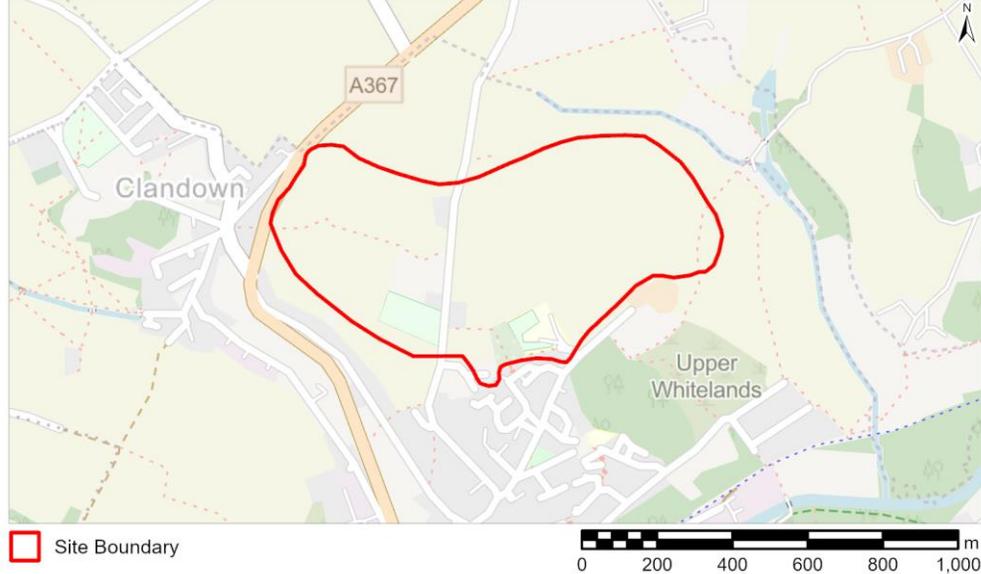
Key factors

- The existing site is greenfield, with some existing highways and minimal utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- Peasedown St John is an urban village, with adequate levels of transport connectivity, but the site has no potential to improve connectivity.
- The site does lie in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is some loss of carbon mitigation opportunity.
- The site is not in an area of flood risk; however, a portion of the site does lie within an area of surface water flood risk.
- There are limited ecological constraints. Due to the location of the site, there is minimal adaptation opportunity loss - with minimal environmental constraints, not being in a flood zone, and having Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|------|------|-----|------|------|--------------|
| Score | 40% | 40% | 60% | 58% | 60% | 100% | 100% | 80% | 100% | 100% | 75% |

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Conclusions and mitigation

The site performs relatively well in terms of adaptation impacts however the proximity of ecological designations does lead to a lower score. For the mitigation assessment, as a greenfield site there are limited opportunities to connect to existing infrastructure and due to its size and location, it has relatively higher potential for renewables or carbon sequestration opportunities therefore, there is higher opportunity loss if the site is developed for housing resulting in a lower score for M5. A low-density scheme in a less accessible location also results in lower scores for operational and embodied carbon.

If the site is taken forward, the scheme could be carefully designed to mitigate the impact on the existing ecological designations and could integrate renewable energy measures to make the most of the potential identified in the RERAS. The scheme could also implement mitigation strategies to minimise infrastructure embodied carbon and ensure it is designed to maximise efficiency and reduce climate impact. A higher density scheme could also be implemented to maximise opportunities to reduce operational carbon.

North of Radstock

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|----------------------------|
| 31.1ha | 600 units | 2.1ha | 15% apartments, 85% houses |

Site Summary

The proposed site comprises one large parcel of greenfield land on the edge of the urban town of Radstock, closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. The site does not lie within a flood zone and has two constraints – SNCl, Conservation Area.

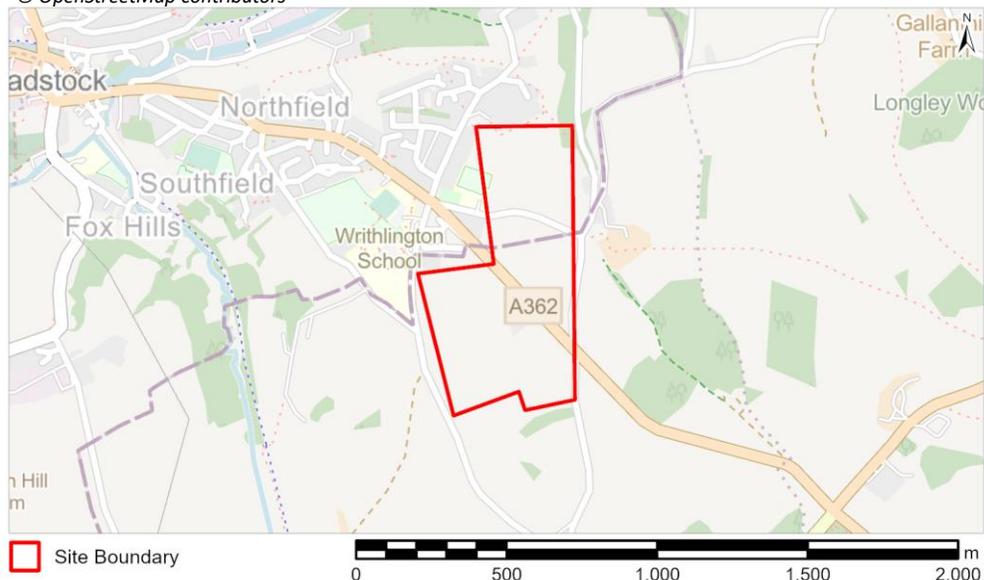
Key factors

- The existing site is greenfield, with minimal existing highways and utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- Radstock is an urban area, with adequate levels of transport connectivity, and the site has some potential to improve connectivity.
- The site does lie in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is clear loss of carbon mitigation opportunity.
- The site is not in an area of flood risk, including surface water flood risk. The residential aspect of the proposed development is mostly houses, which impose a lower risk of overheating than apartments - particularly in an urban town.
- There are some ecological designations which should be protected from damage resulting from development.
- Due to the location of the site, there is some adaptation opportunity loss - with two environmental constraints, not being in a flood zone, and having Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|
| Score | 40% | 40% | 20% | 58% | 20% | 80% | 80% | 80% | 60% | 60% | 54% |

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Conclusions and mitigation

The site performs relatively well in terms of adaptation impacts however the proximity of ecological designations does lead to a lower score. For the mitigation assessment, as a greenfield site there are limited opportunities to connect to existing infrastructure and due to its size and location, it has relatively higher potential for renewables or carbon sequestration opportunities therefore, there is higher opportunity loss if the site is developed for housing resulting in a lower score for M5. A low-density scheme in a less accessible location also results in lower scores for operational and embodied carbon.

If the site was taken forward, the scheme could be carefully designed to mitigate the impact on the existing ecological designations and could integrate renewable energy measures to make the most of the potential identified in the RERAS. The scheme could also implement mitigation strategies to minimise infrastructure embodied carbon and ensure it is designed to maximise efficiency and reduce climate impact. A higher density scheme could also be implemented to maximise opportunities to reduce operational carbon.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|----------------------------|
| 25.2ha | 800 units | 1.6ha | 15% apartments, 85% houses |

Site Summary

The proposed site comprises one large parcel of greenfield land on the edge of the urban town of Radstock, closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. The site does not lie within a flood zone and has one environmental constraint – SNCIs.

Key factors

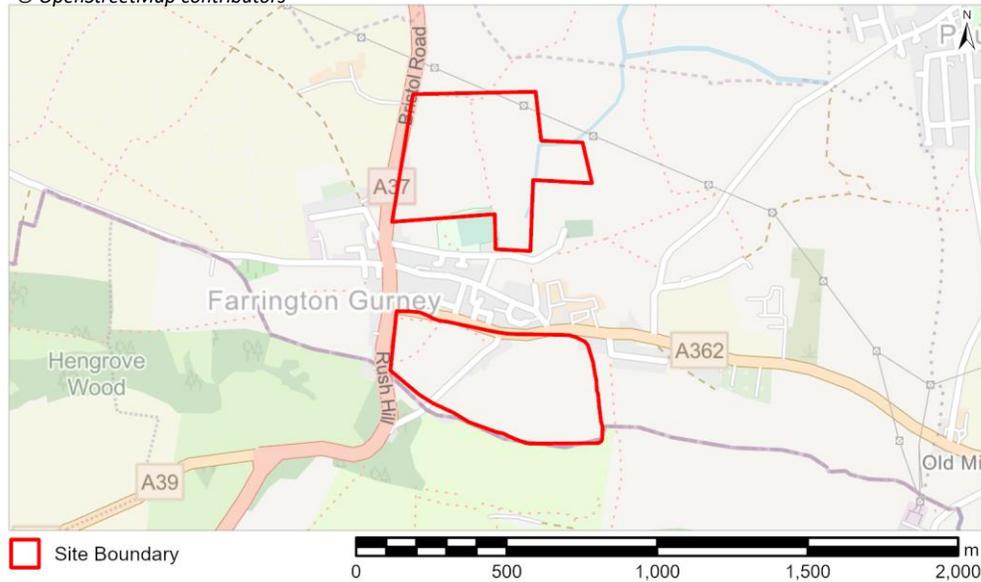
- The existing site is greenfield, with minimal existing highways and utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- Radstock is an urban area, with adequate levels of transport connectivity, and the site has some potential to improve connectivity.
- The site does lie in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is clear loss of carbon mitigation opportunity.
- The site is not in an area of flood risk, including surface water flood risk. The residential aspect of the proposed development is mostly houses, which impose a lower risk of overheating than apartments - particularly in an urban town.
- There are multiple ecological designations which should be protected from damage resulting from development.
- Due to the location of the site, there is minimal adaptation opportunity loss - with one environmental constraint, not being in a flood zone, and having Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|--------------|
| Score | 40% | 40% | 20% | 58% | 20% | 100% | 100% | 80% | 40% | 80% | 58% |

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Farrington Gurney

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Conclusions and mitigation

The site performs relatively well in terms of adaptation impacts; however, the proximity of ecological designations does lead to a lower score. For the mitigation assessment, as a greenfield site there are limited opportunities to connect to existing infrastructure and due to its size and location, it has relatively higher potential for renewables or carbon sequestration opportunities therefore, there is higher opportunity loss if the site is developed for housing resulting in a lower score for M5. A low-density scheme in a less accessible location also results in lower scores for operational and embodied carbon.

If the site was taken forward, the scheme could be carefully designed to mitigate the impact on the existing ecological designations and could integrate renewable energy measures to make the most of the potential identified in the RERAS. The scheme could also implement mitigation strategies to minimise infrastructure embodied carbon and ensure it is designed to maximise efficiency and reduce climate impact. A higher density scheme could also be implemented to maximise opportunities to reduce operational carbon.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|----------------------------|
| 27.3ha | 500 units | 1ha | 15% apartments, 85% houses |

Site Summary

The proposed site comprises two large parcels of greenfield land on the edge of the village of Farrington Gurney, closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. The site does not lie within a flood zone and has no environmental constraints.

Key factors

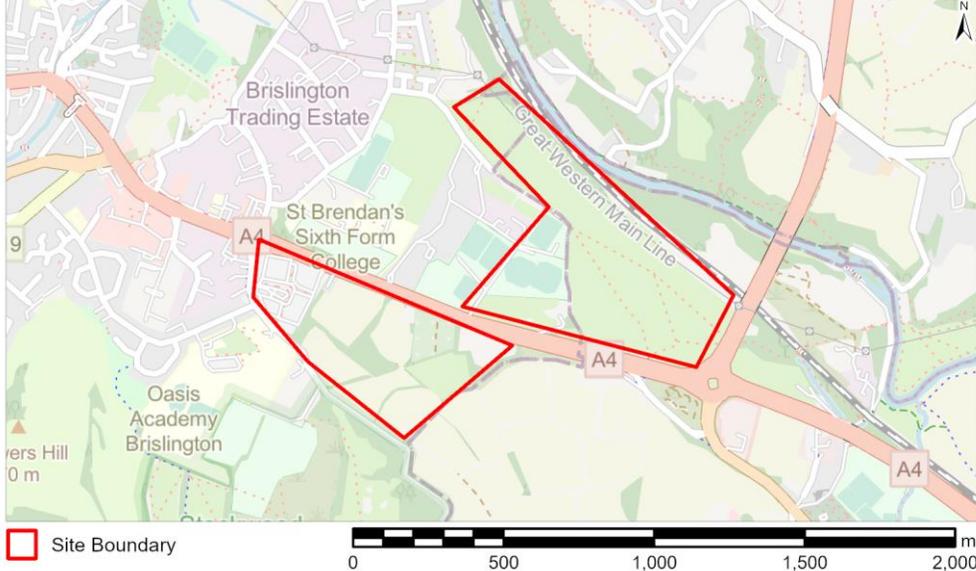
- The existing site is greenfield, with minimal existing highways and utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- The site is in a village with adequate levels of transport connectivity and has potential to improve connectivity.
- The site does lie in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is clear loss of carbon mitigation opportunity.
- The site is not in an area of flood risk; however, a portion of the site does lie within an area of surface water flood risk. The residential aspect of the proposed development is mostly houses, which impose a lower risk of overheating than apartments - particularly in an urban town.
- There are few ecological constraints. Due to the location of the site, there is minimal adaptation opportunity loss - with no environmental constraints, not being in a flood zone, and having Grade 1/Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|--------------|
| Score | 40% | 40% | 20% | 58% | 20% | 100% | 100% | 80% | 80% | 80% | 62% |

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Hicks Gate Option 1

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Conclusions and mitigation

This is a large site with good connections. However, as a greenfield site, there are limited opportunities to connect to and reuse existing infrastructure, this leads to lower scores for M1-M3. In addition, given that areas of the site are at high risk of flooding, and there are biodiversity and environmental constraints, the site scores poorly for most of the adaptation criteria. The location and size of the site also means it has relatively higher potential for renewables or carbon sequestration opportunities therefore, there is higher opportunity loss if the site is developed for housing resulting in a lower score for this criterion.

If the site is taken forward, it could be carefully designed to exclude areas at risk of flooding and to conserve and enhance the environmental designations. Features such as sustainable drainage systems could be implemented to mitigate the risk of surface water flooding, and natural flood management can help reduce fluvial flooding and increase biodiversity value. The scheme could also integrate renewable energy measures to make the most of the potential identified in the RERAS. A higher density scheme could also be considered.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|----------------------------|
| 15.65ha | 852 units | N/A | 15% apartments, 85% houses |

Site Summary

The proposed site comprises two parcels of greenfield land on the edge of the urban area of Hicks Gate, separated by the A4, and closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. Part of the site does lie within a flood zone, there are several environmental constraints – SNCIs, Ancient Woodland. The site also lies within the Green Belt.

Key factors

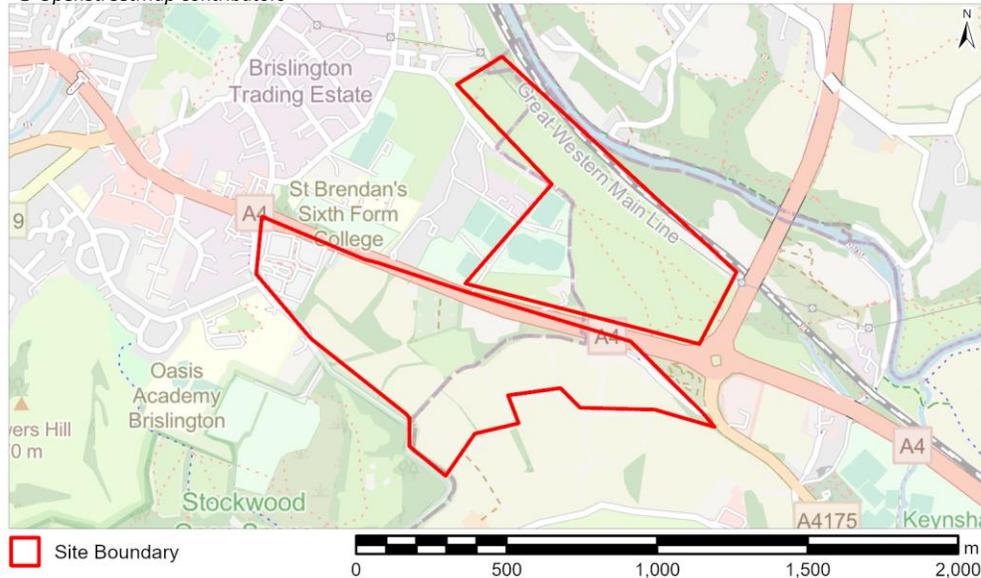
- The existing site is greenfield, with minimal existing highways and utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- Hicks Gate is an urban area, with adequate levels of transport connectivity, and the site has high potential to improve connectivity.
- The site lies in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is a clear loss of carbon mitigation opportunity.
- The site is in an area of flood risk, due to the river adjacent. The site is also in an area of surface water flood risk. The residential aspect of the proposed development is mostly houses, which impose a lower risk of overheating than apartments - particularly in an urban, densely populated area.
- There are significant ecological designations which should be protected from damage resulting from development.
- Due to the location of the site, there is great adaptation opportunity loss - with several environmental constraints, being in a flood zone, and having Grade 2/Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|--------------|
| Score | 40% | 40% | 40% | 75% | 20% | 40% | 100% | 40% | 20% | 20% | 46% |

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Hicks Gate Option 2

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Conclusions and mitigation

This is a larger site with good connections. However, as a lower density greenfield site there are limited opportunities to connect to and reuse existing infrastructure, this leads to lower scores for M1-M3. In addition, given that areas of the site are at high risk of flooding, and there are biodiversity and environmental constraints, the site scores poorly for most of the adaptation criteria. The location and size of the site also means it has relatively higher potential for renewables or carbon sequestration opportunities therefore, there is higher opportunity loss if the site is developed for housing resulting in a lower score for this criterion.

If the site is taken forward, it could be carefully designed to exclude areas at risk of flooding and to conserve and enhance the environmental designations. Features such as sustainable drainage systems could be implemented to mitigate the risk of surface water flooding, and natural flood management can help reduce fluvial flooding and increase biodiversity value. The scheme could also integrate renewable energy measures to make the most of the potential identified in the RERAS. A higher density scheme could also be considered.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|----------------------------|
| 25.18ha | 1313 units | N/A | 15% apartments, 85% houses |

Site Summary

The proposed site comprises two large parcels of greenfield land on the edge of the urban area of Hicks Gate, separated by the A4, and closely surrounded by public amenities. Due to the location of the site, there is minimal existing infrastructure that can be utilised by the development. The site does lie within a flood zone, has several environmental constraints – SNCIs, Ancient Woodland, and lies within the Green Belt. This is the larger option for Hicks Gate.

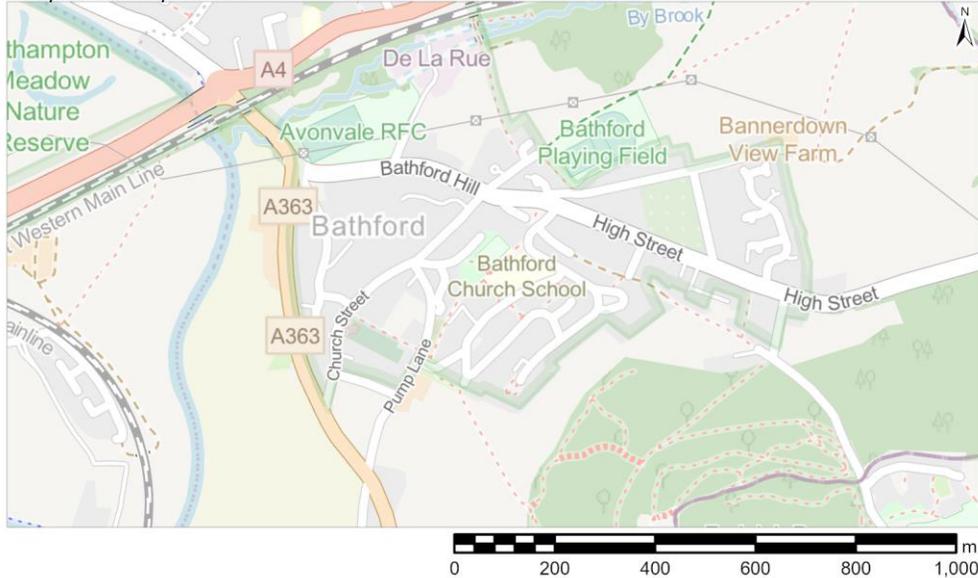
Key factors

- The existing site is greenfield, with minimal existing highways and utilities to connect to, thereby requiring groundworks and other infrastructure works, resulting in embodied carbon emissions.
- Hicks Gate is an urban area, with adequate levels of transport connectivity, and the site has high potential to improve connectivity.
- The site lies in solar and wind landscape potential land, and in potential land for carbon sequestration opportunities. Therefore, there is a clear loss of carbon mitigation opportunity.
- The site is in an area of flood risk, due to the river adjacent. The site is also in an area of surface water flood risk. The residential aspect of the proposed development is mostly houses, which impose a lower risk of overheating than apartments - particularly in an urban, densely populated area.
- There are significant ecological designations which should be protected from damage resulting from development.
- Due to the location of the site, there is great adaptation opportunity loss - with several environmental constraints, being in a flood zone, and having Grade 2/Grade 3 land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|--------------|
| Score | 40% | 40% | 20% | 75% | 20% | 40% | 100% | 40% | 20% | 20% | 42% |

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon, transport and mitigation opportunity loss. There is some minor fluvial flood risk, greater surface water flood risk and some ecological designations leading to overall lower adaptation scores. A low-density scheme in this location, as expected due to the character and historic constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could be carefully designed to exclude areas at risk of flooding and to conserve and enhance the environmental designations. Features such as sustainable drainage systems could be implemented to mitigate the risk of surface water flooding. Careful design of development will be needed to maximise operational carbon reduction, where possible, recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 1.3ha | 40 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

Bathford is a historic village on the outskirts of Bath. The settlement is excluded from but is surrounded by the green belt lies within the Cotswolds Area of Outstanding Natural Beauty. The village has a conservation area and lies adjacent flood zone 3. There is a primary school, village shop, some local services and facilities and good connections to Bath city.

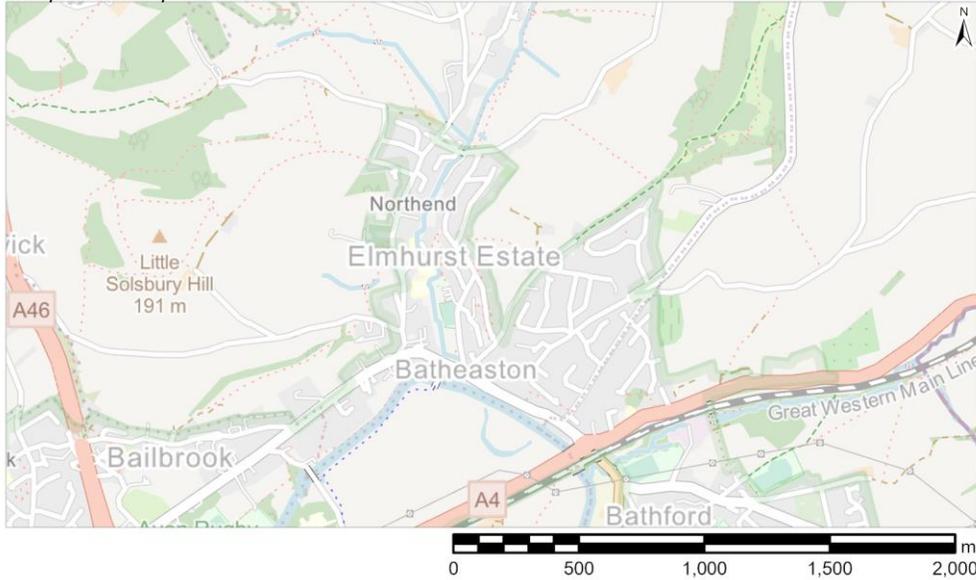
Key factors

- The rural village has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural and historic character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has good connections to Bath and has potential to improve.
- There is some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- There are multiple ecological designations which should be protected from damage resulting from development.
- The village lies adjacent to flood zone 3 and the climate change buffer zone. There is a high risk of surface water flooding within the village.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 20% | 20% | 80% | 67% | 100% | 60% | 60% | 20% | 40% | 60% | 59% |

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon, transport and mitigation opportunity loss. There is some fluvial flood risk, some surface water flood risk and some ecological designations leading to overall lower adaptation scores. A low-density scheme in this location, as expected due to the character and historic constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could be carefully designed to exclude areas at risk of flooding and to conserve and enhance the environmental designations. Features such as sustainable drainage systems could be implemented to mitigate the risk of surface water flooding. Careful design of development will be needed to maximise operational carbon reduction, where possible, recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 2.1ha | 63 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

Batheaston is a historic village on the outskirts of Bath. The settlement is excluded from but is surrounded by the green belt and most of the village is within the Cotswold Area of Outstanding Natural Beauty. The village lies on the banks of the River Avon and parts lies within flood zones 2 and 3. It has a conservation area, a primary school, a medical centre and other local services and facilities. It also has good connections to Bath city.

Key factors

- The rural village has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural and historic character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has good connections to Bath and has some potential to improve.
- There is some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- There are multiple ecological designations which should be protected from damage resulting from development.
- Areas of the village lie within flood zones 2 and 3 putting it at high risk of fluvial flooding. There is also a high risk of surface water flooding within the village.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 20% | 20% | 80% | 58% | 100% | 20% | 60% | 20% | 40% | 40% | 49% |

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon and mitigation opportunity loss. As a rural village the transport score is lower than for the larger settlements. There is some surface water flood risk and some ecological designations leading to overall lower adaptation scores. A low-density scheme in this location, as expected due to the character and historic constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could include features such as sustainable drainage systems to mitigate the risk of surface water flooding and impact on ecological designations. Careful design of development will be needed to maximise operational carbon reduction, where possible, recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 1.3ha | 40 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

Bathampton is a historic village on the outskirts of Bath. The settlement is excluded from but is surrounded by the green belt and adjacent to Areas of Outstanding Natural Beauty. The village has a conservation area and does not lie within flood zone 2 or 3. There is a primary school, some local services and facilities and good connections to Bath city.

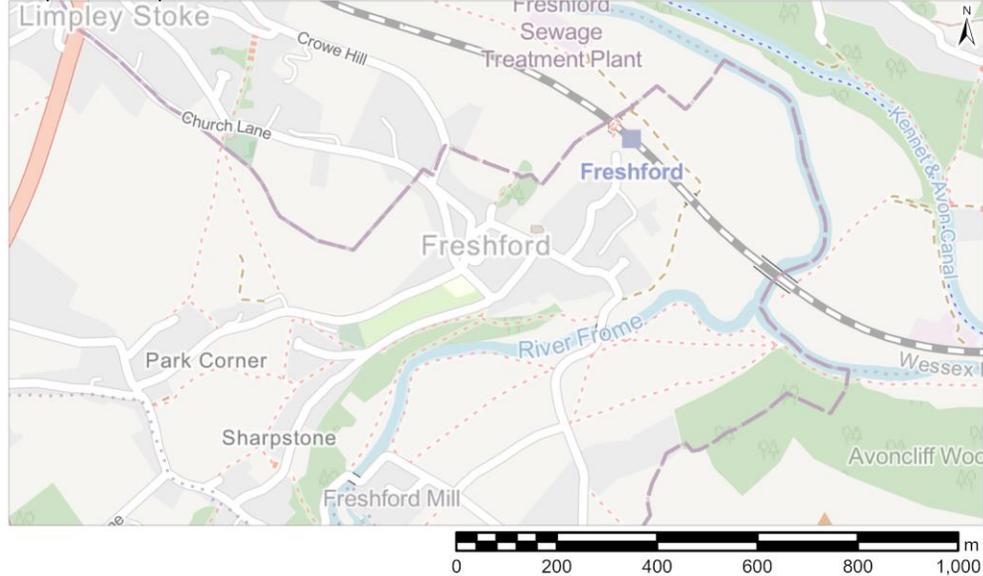
Key factors

- The rural village has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural and historic character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has good connections to Bath and has some potential to improve.
- There is some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- There are multiple ecological designations which should be protected from damage resulting from development.
- The village lies adjacent to the climate change flooding buffer zone and has a slight risk of surface water flooding.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 20% | 20% | 60% | 58% | 100% | 80% | 60% | 40% | 40% | 60% | 59% |

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon and mitigation opportunity loss. As a rural village the transport score is lower than for the larger settlements. There is some surface water flood risk and some ecological designations leading to overall lower adaptation scores. A low-density scheme in this location, as expected due to the character and historic constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could include features such as sustainable drainage systems to mitigate the risk of surface water flooding and impact on ecological designations. Careful design of development will be needed to maximise operational carbon reduction where possible recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 0.5ha | 15 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

Freshford is a small rural historic village south-east of Bath. The settlement lies within the green belt and the Cotswold Area of Outstanding Natural Beauty. The village has a conservation area and lies close to flood zone 2 and 3 from the River Frome. There is a primary school, a doctor's surgery and some local services and facilities. The railway station is a short walk north-east of the village.

Key factors

- The rural village has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural and historic character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has good connections to Bath and has some potential to improve.
- The site has some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- There are multiple ecological designations which should be protected from damage resulting from development.
- The village lies close to flood zone 2 and 3. There is a slight risk of surface water flooding within the village.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 20% | 20% | 60% | 58% | 100% | 60% | 60% | 40% | 40% | 60% | 55% |

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon and mitigation opportunity loss. As a rural village the transport score is lower than for the larger settlements and lower than some of the better-connected villages. It performs relatively well in terms of adaptation impacts however the proximity of ecological designations does lead to a lower score. A low-density scheme in this less accessible location, as expected due to the character and historic constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could include features to reduce impact on ecological designations. Careful design of development will be needed to maximise operational carbon reduction where possible recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 2.0ha | 59 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

The village of Timsbury lies south-west of Bath. The northern edge of the village lies within the Green Belt and there is a conservation area at the centre. The village has a primary school, a pharmacy, shop and some other local services and facilities.

Key factors

- The rural village has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural and historic character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has limited transport connections but has limited potential to improve future connectivity.
- The site has some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- There are multiple ecological designations which should be protected from damage resulting from development.
- The village does not lie in a flood zone although the south of the settlement does lie adjacent to the climate change buffer zone. There is a no known surface water risk within the village.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 20% | 20% | 80% | 42% | 100% | 80% | 80% | 80% | 40% | 80% | 63% |

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Conclusions and mitigation

As a small rural settlement, the village has limited accessibility and infrastructure embodied carbon. There is some fluvial flood risk, some surface water flood risk and some ecological designations leading to overall lower adaptation scores. A low-density scheme in this location, as expected due to the character and historic constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could be carefully designed to exclude areas at risk of flooding and to conserve and enhance the environmental designations. Features such as sustainable drainage systems could be implemented to mitigate the risk of surface water flooding. Careful design of development will be needed to maximise operational carbon reduction where possible recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 0.4ha | 11 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

Corston is a small rural historic village between Bath and Keynsham. The settlement lies within the Green Belt and the Cotswold Area of Outstanding Natural Beauty. The village has a conservation area, and a small proportion lies within flood zone 2 and 3. There are limited services and facilities.

Key factors

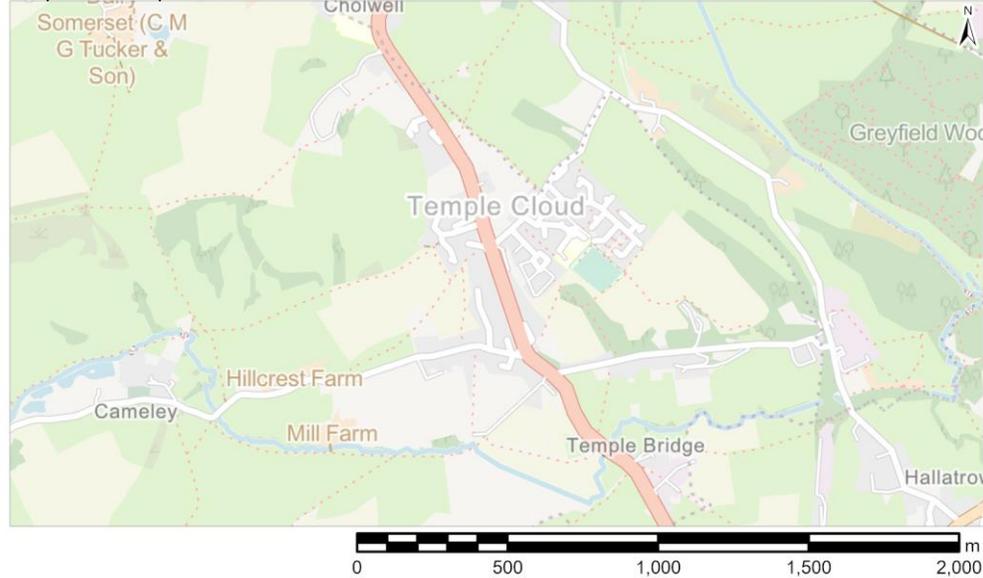
- The rural village has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural and historic character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has some transport connections with limited potential to improve future connectivity.
- The site has some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- There are some ecological designations which should be protected from damage resulting from development.
- The village lies close to flood zone 2 and 3. There is a slight risk of surface water flooding within the village.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 20% | 20% | 40% | 42% | 100% | 40% | 60% | 60% | 60% | 40% | 45% |

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Temple Cloud

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon and mitigation opportunity loss. As a rural village the transport score is lower than for the larger settlements. It performs relatively well in terms of adaptation impacts however the proximity of ecological designations does lead to a lower score. A low-density scheme in this less accessible location, as expected due to the character constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could include features to reduce impact on ecological designations. Careful design of development will be needed to maximise operational carbon reduction where possible recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 1.0ha | 30 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

The village of Temple Cloud lies within the west of the district along the A37 which connects Bristol to the Somerset settlements. It has limited constraints as it does not lie within the green belt or AONB and does not have a conservation area. There is a primary school, a doctor's surgery and some local services and facilities.

Key factors

- The rural village has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has poor transport connections but has potential to improve future connectivity.
- The site has some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- There are multiple ecological designations which should be protected from damage resulting from development.
- The village has a low risk of fluvial flooding. There is a slight risk of surface water flooding towards the south-west edge of the village.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 40% | 40% | 40% | 50% | 100% | 80% | 80% | 80% | 40% | 80% | 59% |

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon and mitigation opportunity loss. As a rural village the transport score is lower than for the larger settlements. There is some fluvial flood risk, surface water flood risk and some ecological designations leading to overall lower adaptation scores. A low-density scheme in this less accessible location, as expected due to the character and historic constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could be carefully designed to exclude areas at risk of flooding and to conserve and enhance the environmental designations. Features such as sustainable drainage systems could be implemented to mitigate the risk of surface water flooding. Careful design of development will be needed to maximise operational carbon reduction where possible recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 0.8ha | 25 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

Pensford village lies in the west of the District within the green belt. It has a conservation area and the River Chew flows through the centre and therefore much of the village lies within flood zone 2 and 3. There is a primary school, some local services and facilities and some public transport.

Key factors

- The rural village has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural and historic character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has some transport connections with potential to improve.
- The site has some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- There are multiple ecological designations which should be protected from damage resulting from development.
- The village has a high risk of fluvial flooding.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 20% | 20% | 80% | 50% | 100% | 20% | 60% | 60% | 40% | 20% | 48% |

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon and mitigation opportunity loss. As a rural village the transport score is lower than for the larger settlements. It also performs relatively well in terms of adaptation impacts however the proximity of ecological designations does lead to a lower score. A low-density scheme in this less accessible location, as expected due to the character constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could include features to reduce impact on ecological designations. Careful design of development will be needed to maximise operational carbon reduction where possible recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 1.2ha | 35 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

Clutton village is located east of the A37 which links Bristol to towns within Somerset. The northern edge of the village is in the green belt. A small portion of the village lies close to a flood zone. There is a primary school, some local services and facilities and some public transport.

Key factors

- The rural village has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has some transport connections with potential to improve.
- The site has some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- There are multiple ecological designations which should be protected from damage resulting from development.
- A minor proportion of the village lies close to existing flood zones and the climate change buffer surrounds the village envelope.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 40% | 40% | 80% | 50% | 100% | 60% | 80% | 60% | 40% | 80% | 62% |

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon and mitigation opportunity loss. As a rural village the transport score is lower than for the larger settlements and lower than the better-connected villages. There is fluvial flood risk, surface water flood risk and some ecological designations leading to overall lower adaptation scores. A low-density scheme in this less accessible location, as expected due to the character and historic constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could be carefully designed to exclude areas at risk of flooding and to conserve and enhance the environmental designations. Features such as sustainable drainage systems could be implemented to mitigate the risk of surface water flooding. Careful design of development will be needed to maximise operational carbon reduction where possible recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 0.9ha | 28 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

Chew Magna is a rural historic village south of Bristol. The settlement lies within the green belt and has a conservation area. Two rivers run through the village with associated flood zones. There is a primary school and some local services and facilities.

Key factors

- The rural village has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural and historic character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has poor transport connections with limited potential to improve future connectivity.
- The site has some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- There are multiple ecological designations which should be protected from damage resulting from development.
- Two rivers run through the village with associated flood zones, climate change could increase the risk of flooding in the future.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 20% | 20% | 80% | 33% | 100% | 20% | 60% | 20% | 40% | 20% | 43% |

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon and mitigation opportunity loss. As a rural village the transport score is lower than for the larger settlements and lower than the better-connected villages. It also performs relatively well in terms of adaptation impacts however the proximity of ecological designations does lead to a lower score. A low-density scheme in this less accessible location, as expected due to the character constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could include features to reduce impact on ecological designations. Careful design of development will be needed to maximise operational carbon reduction where possible recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 1.1ha | 33 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

Stowey Sutton parish includes Bishop Sutton village and the hamlet of Stowey. It lies within the setting of Mendip Hills Area of Outstanding Natural Beauty and is surrounded by green belt. Bishop Sutton has a primary school and some local services and facilities.

Key factors

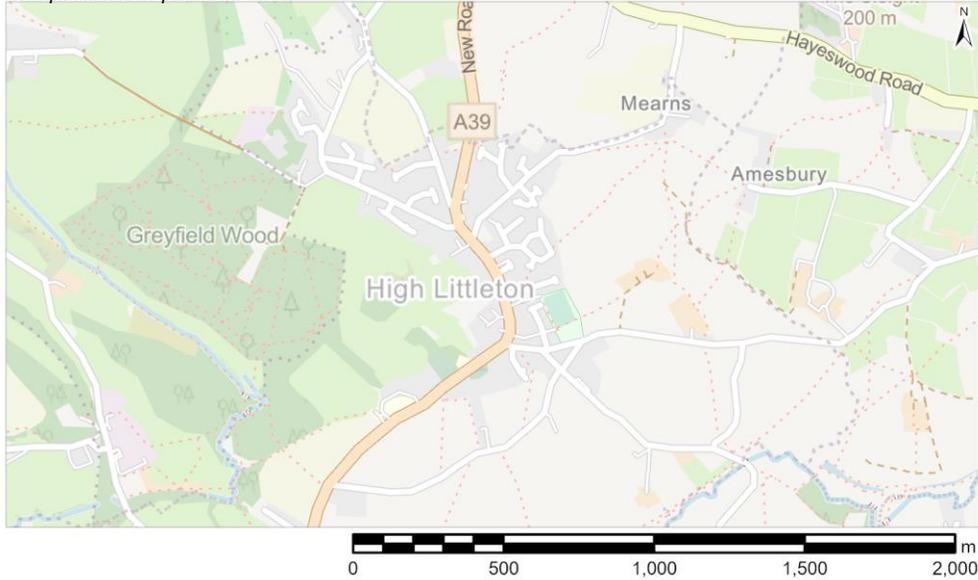
- Bishop Sutton has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has limited transport connections with little potential to improve.
- The site has some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- The area is not at risk of fluvial flooding and only has a slight risk of surface water flooding.
- There are multiple ecological designations which should be protected from damage resulting from development.
- The area is classified as grade 3 agricultural land with moderate potential for future food production.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|------|-----|-----|-----|-----|--------------|
| Score | 40% | 40% | 80% | 33% | 100% | 100% | 80% | 60% | 40% | 80% | 67% |

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High Littleton

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon and mitigation opportunity loss. As a rural village the transport score is lower than for the larger settlements and lower than the better-connected villages. It also performs relatively well in terms of adaptation impacts however the proximity of ecological designations does lead to a lower score. A low-density scheme in this less accessible location, as expected due to the character constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could include features to reduce impact on ecological designations. Careful design of development will be needed to maximise operational carbon reduction where possible recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 1.5ha | 45 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

High Littleton is a village in the south of the District in the Somer Valley. The green belt lies to the north of the village. High Littleton has a primary school, public transport links and some local services and facilities.

Key factors

- High Littleton has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has some transport connections but little potential to improve.
- The site has some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- The area is not at risk of fluvial flooding and only has a slight risk of surface water flooding.
- There are multiple ecological designations which should be protected from damage resulting from development.
- The area is classified as grade 1 and 3 agricultural land with potential for future food production.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|------|-----|-----|-----|-----|--------------|
| Score | 40% | 40% | 80% | 33% | 100% | 100% | 60% | 40% | 40% | 40% | 63% |

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon and mitigation opportunity loss. As a rural village the transport score is lower than for the larger settlements and lower than the better connected villages. There is fluvial flood risk, surface water flood risk and some ecological designations leading to overall lower adaptation scores. A low density scheme in this less accessible location, as expected due to the character and historic constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could be carefully designed to exclude areas at risk of flooding and to conserve and enhance the environmental designations. Features such as sustainable drainage systems could be implemented to mitigate the risk of surface water flooding. Careful design of development will be needed to maximise operational carbon reduction where possible recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 0.7ha | 21 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

Chew Stoke is a historic village in the west of the District. The village lies within the green belt and has a conservation area. A river runs through the village with associated flood zones. There is a primary school and some local services and facilities.

Key factors

- The rural village has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural and historic character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has limited transport connections with little potential to improve.
- The site has some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- A river runs through the village with associated flood zones, climate change could increase the risk of flooding in the future.
- There are some ecological designations which should be protected from damage resulting from development.
- The area is classified as grade 1 agricultural land with excellent potential for future food production.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 20% | 20% | 60% | 33% | 100% | 20% | 80% | 60% | 60% | 40% | 45% |

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Conclusions and mitigation

As an existing settlement the village performs relatively well in terms of infrastructure embodied carbon and mitigation opportunity loss. As a rural village the transport score is lower than for the larger settlements and lower than the better-connected villages. It also performs relatively well in terms of adaptation impacts however the proximity of ecological designations does lead to a lower score. A low-density scheme in this less accessible location, as expected due to the character constraints, would limit the potential to reduce operational and embodied carbon.

If development is taken forward, the scheme could include features to reduce impact on ecological designations. Careful design of development will be needed to maximise operational carbon reduction where possible recognising the historic and rural character of the settlement.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|---------------------------------------|
| 0.9ha | 28 units | N/A | 5% growth potential. All houses 30dph |

Site Summary

The village of Farmborough lies south-west of Bath. The village is surrounded by green belt with a defined boundary. It has low flood risk and does not have a conservation area. Farmborough has a primary school, public transport links and some local services and facilities.

Key factors

- Farmborough has a defined settlement boundary including highways, utilities and groundworks to support the existing development. New development may be able to connect to existing services resulting in minimal embodied carbon produced. However, due to the rural character of the village the capacity and suitability of existing infrastructure should be considered.
- The village has some transport connections but little potential to improve.
- The site has some potential for solar generation but there is limited potential for wind power generation and carbon sequestration opportunities. Therefore, there is limited loss for carbon mitigation opportunities.
- The area is not at risk of fluvial flooding and only has a slight risk of surface water flooding.
- There are some ecological designations which should be protected from damage resulting from development.
- The area is classified as grade 3 agricultural land with moderate potential for future food production.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|-----|-----|------|------|-----|-----|-----|-----|--------------|
| Score | 40% | 40% | 80% | 33% | 100% | 100% | 80% | 60% | 60% | 80% | 69% |

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Sydenham Park

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Conclusions and mitigation

This brownfield site within Bath performs relatively well in the mitigation criteria. It has existing infrastructure and excellent transport connections. The site also performs well for biodiversity and as a brownfield site there is minimal loss of mitigation and adaptation opportunity. However, part of the site does lie in an area of flood risk and the historic character of Bath does limit the flexibility of design.

If the site is taken forward, the scheme could be carefully designed and laid out to minimise fluvial flood risk and to maximise low carbon design recognising that this could be challenging given the historic character of the area.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|----------------|
| 4.8ha | 650 units | 1.4ha | All apartments |

Site Summary

The proposed site comprises one parcel of brownfield land in the centre of the urban city of Bath, closely surrounded by public amenities. Due to the location of the site, there is existing infrastructure that can be utilised by the development. The site does lie within a flood zone, on the edge of the Bath conservation area and within the world heritage site.

Key factors

- The existing site is hardstanding, with adequate existing highways and utilities to connect to thereby reducing groundworks and other infrastructure works are required, resulting in minimal embodied carbon produced.
- Bath is an urban area, with high levels of transport connectivity, and the site has potential to improve connectivity.
- The site does not lie in any solar and wind landscape potential land, nor in potential land for carbon sequestration opportunities. Therefore, there is minimal loss for carbon mitigation opportunities.
- The site is in an area of flood risk but not in an area of surface water flood risk. The residential aspect of the proposed development is apartments, which impose a higher risk of overheating than houses - particularly in an urban, densely populated town.
- There are few ecological constraints, although the site lies within the Policy NE5 Ecological Network.
- Due to the location of the site, there is minimal adaptation opportunity loss - with no environmental constraints, being in a flood zone, and having a poor land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|------|-----|------|-----|-----|------|-----|-----|--------------|
| Score | 80% | 60% | 100% | 92% | 100% | 20% | 60% | 100% | 80% | 80% | 74% |

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Conclusions and mitigation

This brownfield site within Bath performs well in the mitigation criteria. It has access to existing infrastructure and excellent transport connections. The site also performs well for biodiversity and as a brownfield site there is minimal loss of mitigation and adaptation opportunity. However, part of the site does lie in an area of both fluvial and surface water flood risk and the historic character of Bath does limit the flexibility of design.

If the site is taken forward, the scheme could be carefully designed and laid out to minimise flood risk and to maximise low carbon design recognising that this could be challenging given the historic character of the area.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|----------------|
| 0.7ha | 112 units | N/A | All apartments |

Site Summary

The proposed site comprises one parcel of brownfield land in the centre of the urban city of Bath, closely surrounded by public amenities. Due to the location of the site, there is existing infrastructure that can be utilised by the development. The site does lie within a flood zone and within the Bath conservation area and the world heritage site.

Key factors

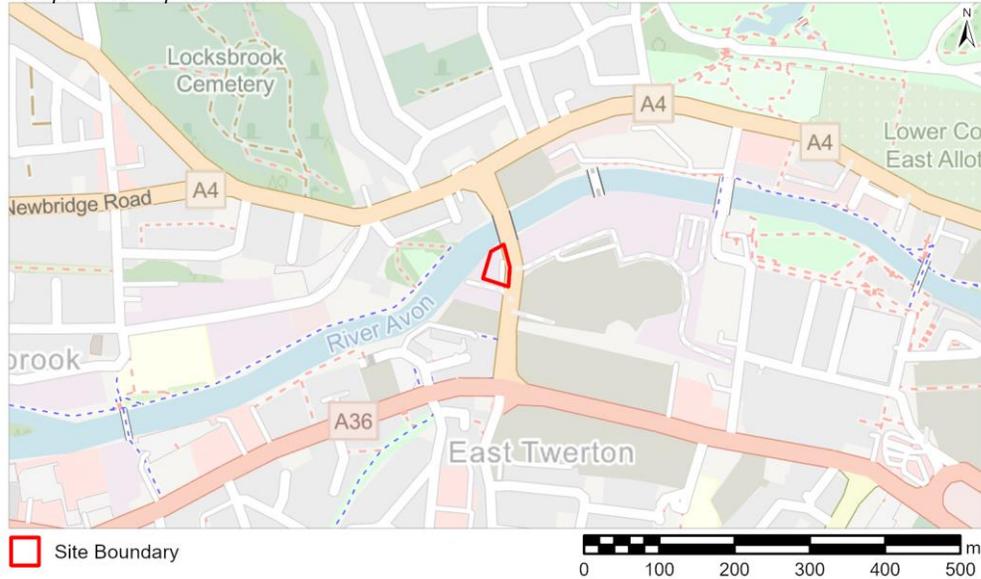
- The existing site is hardstanding, with adequate existing highways and utilities to connect to thereby reducing groundworks and other infrastructure works are required, resulting in minimal embodied carbon produced.
- Bath is an urban area, with high levels of transport connectivity, and the site has potential to improve connectivity.
- The site does not lie in any solar and wind landscape potential land, nor in potential land for carbon sequestration opportunities. Therefore, there is minimal loss for carbon mitigation opportunities.
- The site is in an area of flood risk, due to the adjacent River Avon – but not in an area of surface water flood risk. The residential aspect of the proposed development is apartments, which impose a higher risk of overheating than houses - particularly in an urban, densely populated town.
- There are few ecological designations. Due to the location of the site, there is minimal adaptation opportunity loss - with no environmental constraints, being in a flood zone, and having a poor land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|------|-----|------|-----|-----|------|-----|-----|--------------|
| Score | 80% | 80% | 100% | 92% | 100% | 20% | 60% | 100% | 80% | 80% | 75% |

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Stable Yard

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Conclusions and mitigation

This brownfield site within Bath performs relatively well in the mitigation criteria. It has existing infrastructure and excellent transport connections. The site also performs well for biodiversity and as a brownfield site there is minimal loss of mitigation and adaptation opportunity. However, part of the site does lie in an area of flood risk and the historic character of Bath does limit the flexibility of design.

If the site is taken forward, the scheme could be carefully designed and laid out to minimise flood risk and to maximise low carbon design recognising that this could be challenging given the historic character of the area.

| Site Area | Estimated residential | Estimated non-residential | Assumptions |
|-----------|-----------------------|---------------------------|----------------|
| 0.3ha | N/A | 0.3ha | Industrial use |

Site Summary

The proposed site comprises one parcel of brownfield land in the centre of the urban city of Bath, closely surrounded by public amenities. Due to the location of the site, there is existing infrastructure that can be utilised by the development. The site does lie within a flood zone, on the edge of the Bath conservation area and within the world heritage site.

Key factors

- The existing site is hardstanding, with adequate existing highways and utilities to connect to thereby reducing groundworks and other infrastructure works are required, resulting in minimal embodied carbon produced.
- Bath is an urban area, with high levels of transport connectivity, and the site has potential to improve connectivity.
- The site does not lie in any solar and wind landscape potential land, nor in potential land for carbon sequestration opportunities. Therefore, there is minimal loss for carbon mitigation opportunities.
- The site is in an area of flood risk, due to the adjacent River Avon - and surface water flood risk.
- There are few ecological designations. Due to the location of the site, there is minimal adaptation opportunity loss - with no environmental constraints, being in a flood zone, and having a poor land category.

| Criterion | M1 | M2 | M3 | M4 | M5 | A1 | A2 | A3 | A4 | A5 | Total score* |
|-----------|-----|-----|------|-----|------|-----|-----|-----|-----|-----|--------------|
| Score | 80% | 80% | 100% | 92% | 100% | 20% | 60% | 60% | 80% | 80% | 73% |

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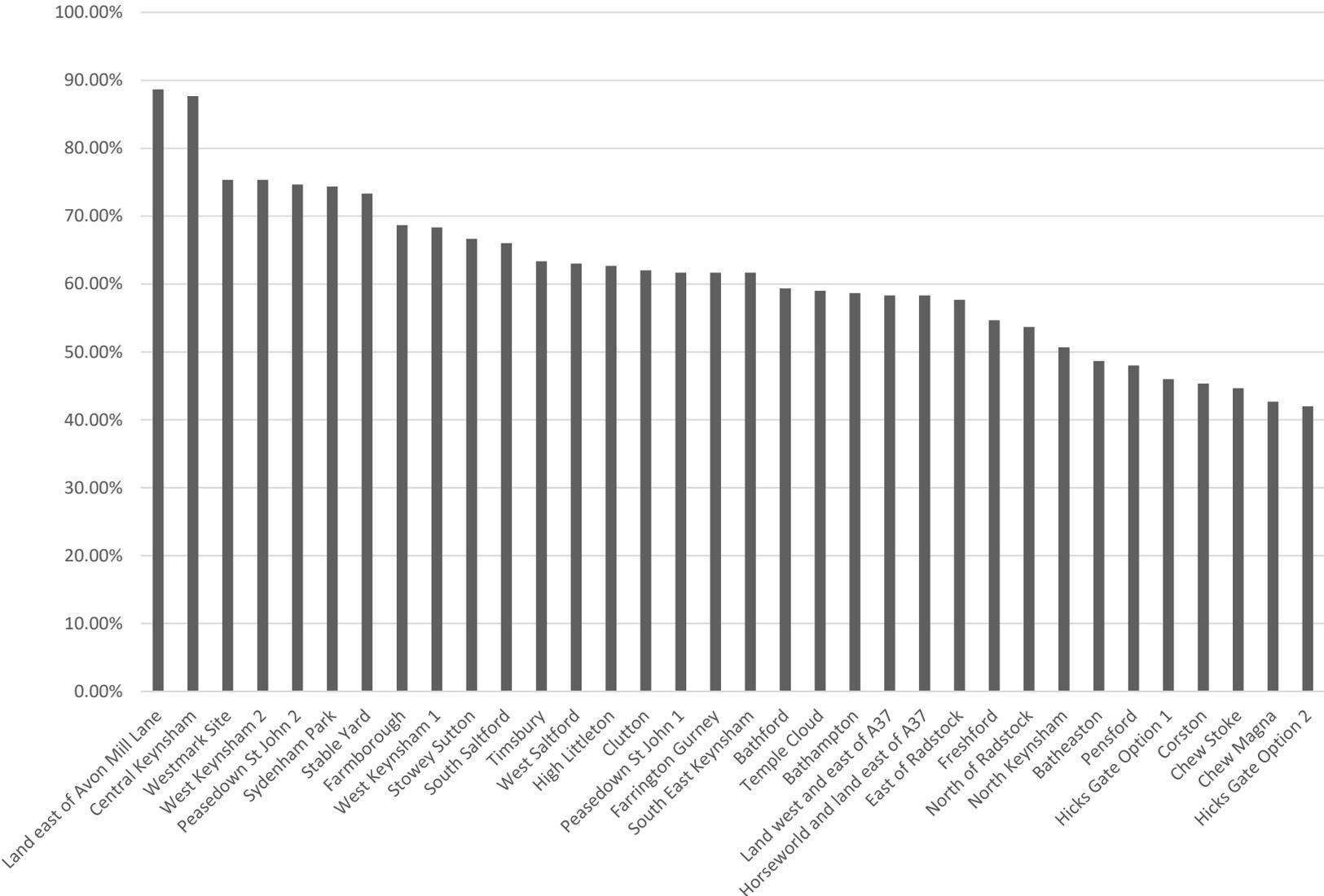
Comparison of site-assessment results

In general, the results show that sites on brownfield sites in urban areas perform much better against this assessment methodology than those on greenfield land or in more rural locations.

This is a consequence of the higher weighting placed on transport emissions and the embodied carbon associated with sitewide infrastructure as well as the opportunity loss, for both climate mitigation and adaptation initiatives, which is likely to be higher for those rural sites.

The relative impact of flooding is also significant as this impacts on the scoring against several of the criteria, so the score for sites that fall within or near flood designations, or are considered to be at risk in the future, are more significantly impacted.

As such, in general the sites in Bath and Keynsham score relatively higher while the rural sites score relatively lower. Some of the large sites outside the urban areas also score relatively lower, this is partly linked to their greenfield nature but also the assessment of much bigger redline boundaries, which is discussed on the following pages.



Interpreting these results

The scores presented in the individual site assessments need to be interpreted with regard to the following:

- The scope and limitations of this assessment (as described in [Section 1](#))
- The approach to scoring each of the criteria (as described in [Section 2](#))
- An understanding that the scores are comparative so are relative to the list of sites rather than an absolute performance
- An understanding that the assessment is relatively high level and qualitative in nature so while it has been designed to minimise subjectivity there is still an element of this in the process
- Some assumptions have been made where information is limited
- The scores are based on a face value assessment of the red-line boundary of the site and therefore some of the larger sites which have much bigger red-line boundaries are penalised against criteria judged against proximity to designations and opportunity loss
- The scores can be improved, so a relatively low scoring site, particularly large sites with greater flexibility, might be able to address some of the risks through provision of mitigatory measures, masterplanning, design and specification.
- Sites that score relatively low should be reviewed to understand the extent to which the scores can be improved, which will depend upon both the particular criteria (as some are inherently more open to improvement than others) and the flexibility of the site (with larger sites being more flexible as already explained).

Improving site scores

Some site results could potentially be improved with further masterplanning, more detailed design work and provision of mitigatory measures within site allocation policies. The climate impact assessment takes account of land-based features and designations, some of which only apply to proportions of the site rather than the site as a whole. In these cases, development of a smaller portion of the site may mitigate or even remove the potential climate impact thereby improving the scoring.

An example would be for areas at risk of flooding, where the developable area could be reduced to exclude the flood zone and provide a suitable buffer. This could also be the case with existing biodiversity designations.

The following diagram illustrates this effect.

- For the **Redline Boundary** there are designations within, adjacent and near the site that would reduce the score against certain criteria.
- For the illustrative **Development Boundary** however, which could be designed to locate buildings away from the designations, the score may improve. Furthermore, the areas not used for development could be used for measures such as flood mitigation, sustainable drainage or habitat restoration measures that might improve the site and further help to address some of the climate impacts and risks, and potentially reduce the opportunity loss, all of which could potentially further improve the score.

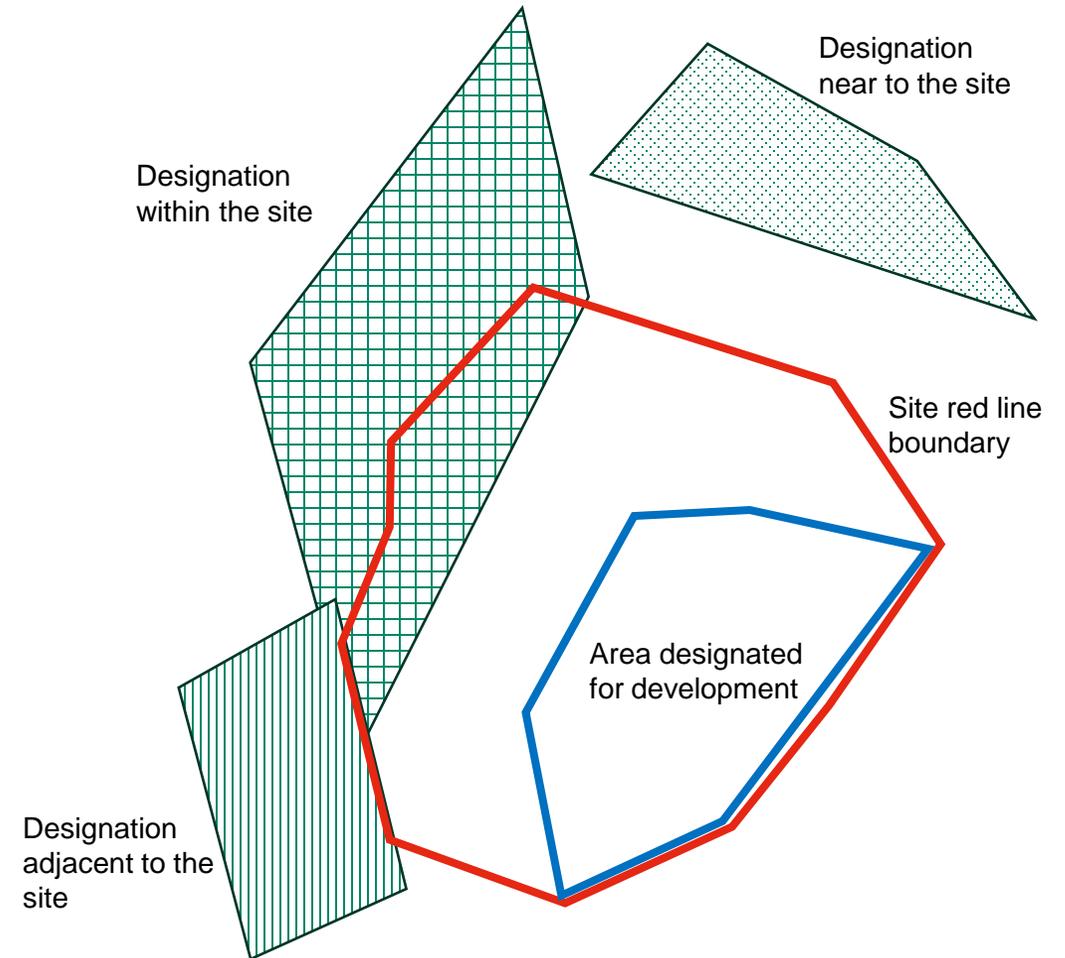


Diagram to illustrate the potential for improvement though site masterplanning

4. Growth Scenarios

Draft growth scenario options

The following table sets out the four draft options for the growth scenarios that we have been asked to assess as part of this study.

This information was provided by the Council and was correct at the time of the study although we understand that it is still undergoing development and some of the information is subject to change.

The data in the table includes existing commitments and expected windfalls as well as the named sites included in this study.

The sites are listed by sub-area and indicative housing capacities or ranges are given for each site. Some of these details vary between options.

In regard to the rural areas, the sites are not listed individually and are shown as two groups with a total capacity given for each group.

| Sub-Area | Location | CAPACITY INFO | | | OPTION 1 | | | OPTION 2 | | | OPTION 3 | | | OPTION 4 | | |
|--------------------------------|---------------------------------|------------------|-------------|---------------|------------------|-------------|---------------|------------------|-------------|---------------|------------------|-------------|---------------|------------------|-------------|------|
| | | Housing capacity | AH capacity | PBSA | Housing capacity | AH capacity | PBSA |
| Bath | Existing commitments | 4,349 | 849 | 510 | 4,349 | 849 | 510 | 4,349 | 849 | 510 | 4,349 | 849 | 510 | 4,349 | 849 | 510 |
| | Small windfalls | 660 | | | 660 | | | 660 | | | 660 | | | 660 | | |
| | Urban capacity | 500 | | | 500 | 175 | | 500 | 175 | | 500 | 175 | | 500 | 175 | |
| | West of Bath | 1,000 | | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Bath Total | | | | 5,509 | 1,024 | | |
| Keynsham/Saltford | Existing commitments | 671 | 195 | | 671 | 195 | | 671 | 195 | | 671 | 195 | | 671 | 195 | |
| | Small windfalls | 100 | | | 100 | | | 100 | | | 100 | | | 100 | | |
| | Tesco/car parks | 40-100 | | | 100 | 30 | | 100 | 30 | | 100 | 30 | | 100 | 30 | |
| | Avon Mill Lane Industrial | 110-160 | | | 160 | 48 | | 160 | 48 | | 160 | 48 | | 160 | 48 | |
| | North Keynsham | 1365 | | | 1365 | 409.5 | | 1365 | 409.5 | | 1365 | 409.5 | | 1365 | 409.5 | |
| | West Keynsham | 140-300 | | | 300 | 90 | | 300 | 90 | | | | | | | |
| | South Keynsham | 350 | | | 350 | 105 | | 200 | 60 | | | | | | | |
| | West Saltford | 510 | | | 510 | 153 | | | | | 460 | 138 | | | | |
| | South Saltford | 830 | | | 830 | 249 | | 830 | 249 | | | 0 | | | | |
| Keynsham/Saltford Total | | | | 4,386 | 1,280 | | 3,726 | 1,082 | | 2,856 | 821 | | 1,031 | 273 | | |
| Hicks Gate | Existing commitments | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | |
| | Small windfalls | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | |
| | Hicks Gate | 850-1240 | | | 1,240 | 372 | | 1,240 | 372 | | 1,000 | 300 | | 0 | | |
| Hicks Gate Total | | | | 1,240 | 372 | | 1,240 | 372 | | 1,000 | 300 | | 0 | | | |
| Whitchurch | Existing commitments | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | |
| | Small windfalls (under rural) | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | |
| | West of Whitchurch | 500 | | | 500 | 150 | | 600 | 180 | | | | | | | |
| | East of Whitchurch (Horseworld) | 150-500 | | | | | | | | | 150 | | | | | |
| | Adj. Bristol (Taylor W) | 0 | | | 100 | 30 | | 600 | 180 | | 150 | | | 0 | | |
| Whitchurch Total | | | | 600 | 180 | | 600 | 180 | | 150 | | | 0 | | | |
| Somerset Valley | Existing commitments | 830 | 157 | | 830 | 157 | | 830 | 157 | | 830 | 157 | | 830 | 157 | |
| | Small windfalls | 380-420 | | | 380 | | | 380 | | | 377 | | | 377 | | |
| | Peasedown | 200 | | | 200 | 60 | | 200 | 60 | | 200 | 60 | | 200 | 60 | |
| | North Radstock | 420-980 | | | 980 | 294 | | 420 | 126 | | 980 | 294 | | 980 | 294 | |
| | East Radstock/Writhlington | 540 - 1010 | | | 250 | 75 | | | | | 250 | 75 | | 250 | 75 | |
| | MSN smaller sites | 500 | | | 500 | 150 | | 500 | 150 | | 500 | 150 | | 500 | 150 | |
| | Farrington Gurney | 500 - 1,000 | | | 500 | 150 | | | | | 500 | 150 | | 500 | 150 | |
| Somerset Valley Total | | | | 3,640 | 886 | | 2,330 | 493 | | 3,637 | 886 | | 3,637 | 886 | | |
| Rural areas | Existing commitments | 390 | 14 | | 390 | 14 | | 390 | 14 | | 390 | 14 | | 390 | 14 | |
| | Small windfalls | 250 | | | 250 | | | 250 | | | 250 | | | 250 | | |
| | 5 x most sustainable villages | 220 - 330 | | | 330 | 99 | | 220 | 66 | | 330 | 99 | | 90 | 27 | |
| | 9 x next most sustainable | 260 - 380 | | | 380 | 114 | | 260 | 78 | | 380 | 114 | | 220 | 66 | |
| Rural Areas Total | | | | 1,350 | 227 | | 1,120 | 158 | | 1,350 | 227 | | 950 | 107 | | |
| B&NES Total | | | | 16,725 | 3,969 | | 14,525 | 3,309 | | 14,502 | 3,258 | | 11,127 | 2,290 | | |

Comparative assessment of options

Based on the details in the draft growth scenario we have defined which of the individual sites assessed as part of this study are included within each of the options.

As described previously the existing allocations and windfalls are not included in the individual site assessments, which is focused on new sites.

The different growth scenario options show a significant amount of commonality with a large number of sites included in all options. Because these are common, they are excluded from the comparative assessment.

The rural sites are included in all options, but the housing capacity varies between options which will affect the weighting of these sites so have been included in the comparative assessment.

Because the overall quantum of development varies between the options, we have sought to normalise this to enable a comparative assessment of the relative climate impact associated with the set of sites selected. To do this we have used the housing capacity figures and generated an overall % score for each option by weighting the score based on the proportion of the total allocation delivered on each site.

The following pages set out the score associated with each of the options based on the methodology described above.

| Site ref | Name | Option 1 | Option 2 | Option 3 | Option 4 |
|----------|---------------------------------|----------|----------|----------|----------|
| 1 | Central Keynsham | Y | Y | Y | Y |
| 2 | Land east of Avon Mill Lane | Y | Y | Y | Y |
| 3 | West Keynsham 1 | Y | Y | | |
| 4 | West Keynsham 2 | | | | |
| 5 | North Keynsham | Y | Y | Y | |
| 6 | South East Keynsham | Y | Y | | |
| 7 | West Saltford | Y | | Y | |
| 8 | South Saltford | Y | Y | | |
| 9 | Land west and east of A37 | Y | Y | | |
| 10 | Horseworld and land east of A37 | | | Y | |
| 11 | Peasedown St John 1 | Y | | | |
| 12 | Peasedown St John 2 | | | | |
| 13 | North of Radstock | Y | | | |
| 14 | East of Radstock | Y | | | |
| 15 | Farrington Gurney | Y | | Y | Y |
| 16 | Hicks Gate Option 1 | | | Y | |
| 17 | Hicks Gate Option 2 | Y | Y | | |
| 18 | Bathford | Y | Y | Y | Y |
| 19 | Batheaston | Y | Y | Y | Y |
| 20 | Bathampton | Y | Y | Y | Y |
| 21 | Freshford | Y | Y | Y | Y |
| 22 | Timsbury | Y | Y | Y | Y |
| 23 | Corston | Y | Y | Y | Y |
| 24 | Temple Cloud | Y | Y | Y | Y |
| 25 | Pensford | Y | Y | Y | Y |
| 26 | Clutton | Y | Y | Y | Y |
| 27 | Chew Magna | Y | Y | Y | Y |
| 28 | Stowey Sutton | Y | Y | Y | Y |
| 29 | High Littleton | Y | Y | Y | Y |
| 30 | Chew Stoke | Y | Y | Y | Y |
| 31 | Farnborough | Y | Y | Y | Y |
| 32 | Sydenham Park | Y | Y | Y | Y |
| 33 | Westmark Site | Y | Y | Y | Y |
| 34 | Stable Yard | Y | Y | Y | Y |

Key

| |
|--|
| Excluded from options analysis as assumed to be the same in all options |
| Included in options analysis as inclusion varies between options |
| Included in options analysis as although all sites are in all scenarios some of the details vary between options |

Option 1

| Site ref | Name | Resi units | % Resi | Site score | Weighted score |
|----------|---------------------------|-------------|---------------|------------|----------------|
| 3 | West Keynsham 1 | 300 | 4% | 68% | 2.7% |
| 5 | North Keynsham | 1365 | 18% | 51% | 9.0% |
| 6 | South East Keynsham | 350 | 5% | 62% | 2.8% |
| 7 | West Saltford | 510 | 7% | 63% | 4.2% |
| 8 | South Saltford | 830 | 11% | 66% | 7.1% |
| 9 | Land west and east of A37 | 500 | 6% | 58% | 3.8% |
| 11 | Peasedown St John 1 | 200 | 3% | 62% | 1.6% |
| 13 | North of Radstock | 980 | 13% | 54% | 6.8% |
| 14 | East of Radstock | 250 | 3% | 58% | 1.9% |
| 15 | Farrington Gurney | 500 | 6% | 62% | 4.0% |
| 17 | Hicks Gate Option 2 | 1240 | 16% | 42% | 6.7% |
| 18 | Bathford | 50 | 1% | 59% | 0.4% |
| 19 | Batheaston | 50 | 1% | 49% | 0.3% |
| 20 | Bathampton | 50 | 1% | 59% | 0.4% |
| 21 | Freshford | 50 | 1% | 55% | 0.4% |
| 22 | Timsbury | 50 | 1% | 63% | 0.4% |
| 23 | Corston | 50 | 1% | 45% | 0.3% |
| 24 | Temple Cloud | 50 | 1% | 59% | 0.4% |
| 25 | Pensford | 50 | 1% | 48% | 0.3% |
| 26 | Clutton | 50 | 1% | 62% | 0.4% |
| 27 | Chew Magna | 50 | 1% | 43% | 0.3% |
| 28 | Stowey Sutton | 50 | 1% | 67% | 0.4% |
| 29 | High Littleton | 50 | 1% | 63% | 0.4% |
| 30 | Chew Stoke | 50 | 1% | 45% | 0.3% |
| 31 | Farmborough | 50 | 1% | 69% | 0.4% |
| | | 7725 | 100.0% | | 55.5% |

Option 2

| Site ref | Name | Resi units | % Resi | Site score | Weighted score |
|----------|---------------------------|-------------|---------------|------------|----------------|
| 3 | West Keynsham 1 | 300 | 5% | 68% | 3.2% |
| 5 | North Keynsham | 1365 | 22% | 51% | 10.9% |
| 6 | South East Keynsham | 350 | 6% | 62% | 3.4% |
| 8 | South Saltford | 830 | 13% | 66% | 8.6% |
| 9 | Land west and east of A37 | 600 | 9% | 58% | 5.5% |
| 11 | Peasedown St John 1 | 200 | 3% | 62% | 1.9% |
| 13 | North of Radstock | 980 | 15% | 54% | 8.3% |
| 17 | Hicks Gate Option 2 | 1240 | 20% | 42% | 8.2% |
| 18 | Bathford | 34 | 1% | 59% | 0.3% |
| 19 | Batheaston | 34 | 1% | 49% | 0.3% |
| 20 | Bathampton | 34 | 1% | 59% | 0.3% |
| 21 | Freshford | 34 | 1% | 55% | 0.3% |
| 22 | Timsbury | 34 | 1% | 63% | 0.3% |
| 23 | Corston | 34 | 1% | 45% | 0.2% |
| 24 | Temple Cloud | 34 | 1% | 59% | 0.3% |
| 25 | Pensford | 34 | 1% | 48% | 0.3% |
| 26 | Clutton | 34 | 1% | 62% | 0.3% |
| 27 | Chew Magna | 34 | 1% | 43% | 0.2% |
| 28 | Stowey Sutton | 34 | 1% | 67% | 0.4% |
| 29 | High Littleton | 34 | 1% | 63% | 0.3% |
| 30 | Chew Stoke | 34 | 1% | 45% | 0.2% |
| 31 | Farmborough | 34 | 1% | 69% | 0.4% |
| | | 6341 | 100.0% | | 54.4% |

Option 3

| Site ref | Name | Resi units | % Resi | Site score | Weighted score |
|----------|---------------------------------|-------------|---------------|------------|----------------|
| 5 | North Keynsham | 1365 | 26% | 51% | 13.2% |
| 7 | West Saltford | 460 | 9% | 63% | 5.5% |
| 8 | South Saltford | 830 | 16% | 66% | 10.4% |
| 10 | Horseworld and land east of A37 | 150 | 3% | 58% | 1.7% |
| 15 | Farrington Gurney | 500 | 10% | 62% | 5.9% |
| 16 | Hicks Gate Option 1 | 1240 | 24% | 46% | 10.9% |
| 18 | Bathford | 50 | 1% | 59% | 0.6% |
| 19 | Batheaston | 50 | 1% | 49% | 0.5% |
| 20 | Bathampton | 50 | 1% | 59% | 0.6% |
| 21 | Freshford | 50 | 1% | 55% | 0.5% |
| 22 | Timsbury | 50 | 1% | 63% | 0.6% |
| 23 | Corston | 50 | 1% | 45% | 0.4% |
| 24 | Temple Cloud | 50 | 1% | 59% | 0.6% |
| 25 | Pensford | 50 | 1% | 48% | 0.5% |
| 26 | Clutton | 50 | 1% | 62% | 0.6% |
| 27 | Chew Magna | 50 | 1% | 43% | 0.4% |
| 28 | Stowey Sutton | 50 | 1% | 67% | 0.6% |
| 29 | High Littleton | 50 | 1% | 63% | 0.6% |
| 30 | Chew Stoke | 50 | 1% | 45% | 0.4% |
| 31 | Farmborough | 50 | 1% | 69% | 0.7% |
| | | 5245 | 100.0% | | 55.1% |

Option 4

| Site | Name | Resi units | % Resi | Site score | Weighted score |
|------|---------------------|-------------|---------------|------------|----------------|
| 14 | East of Radstock | 250 | 11% | 58% | 6.3% |
| 15 | Farrington Gurney | 500 | 22% | 62% | 13.4% |
| 17 | Hicks Gate Option 2 | 1240 | 54% | 42% | 22.7% |
| 18 | Bathford | 22 | 1% | 59% | 0.6% |
| 19 | Batheaston | 22 | 1% | 49% | 0.5% |
| 20 | Bathampton | 22 | 1% | 59% | 0.6% |
| 21 | Freshford | 22 | 1% | 55% | 0.5% |
| 22 | Timsbury | 22 | 1% | 63% | 0.6% |
| 23 | Corston | 22 | 1% | 45% | 0.4% |
| 24 | Temple Cloud | 22 | 1% | 59% | 0.6% |
| 25 | Pensford | 22 | 1% | 48% | 0.5% |
| 26 | Clutton | 22 | 1% | 62% | 0.6% |
| 27 | Chew Magna | 22 | 1% | 43% | 0.4% |
| 28 | Stowey Sutton | 22 | 1% | 67% | 0.6% |
| 29 | High Littleton | 22 | 1% | 63% | 0.6% |
| 30 | Chew Stoke | 22 | 1% | 45% | 0.4% |
| 31 | Farmborough | 22 | 1% | 69% | 0.7% |
| | | 2298 | 100.0% | | 49.9% |

Comparison of options assessments

It should be restated that in terms of absolute climate impacts, higher levels of development will have a greater impact than lower levels of development. As shown previously, Option 1 has a much higher quantum of development so in absolute terms would be the worst.

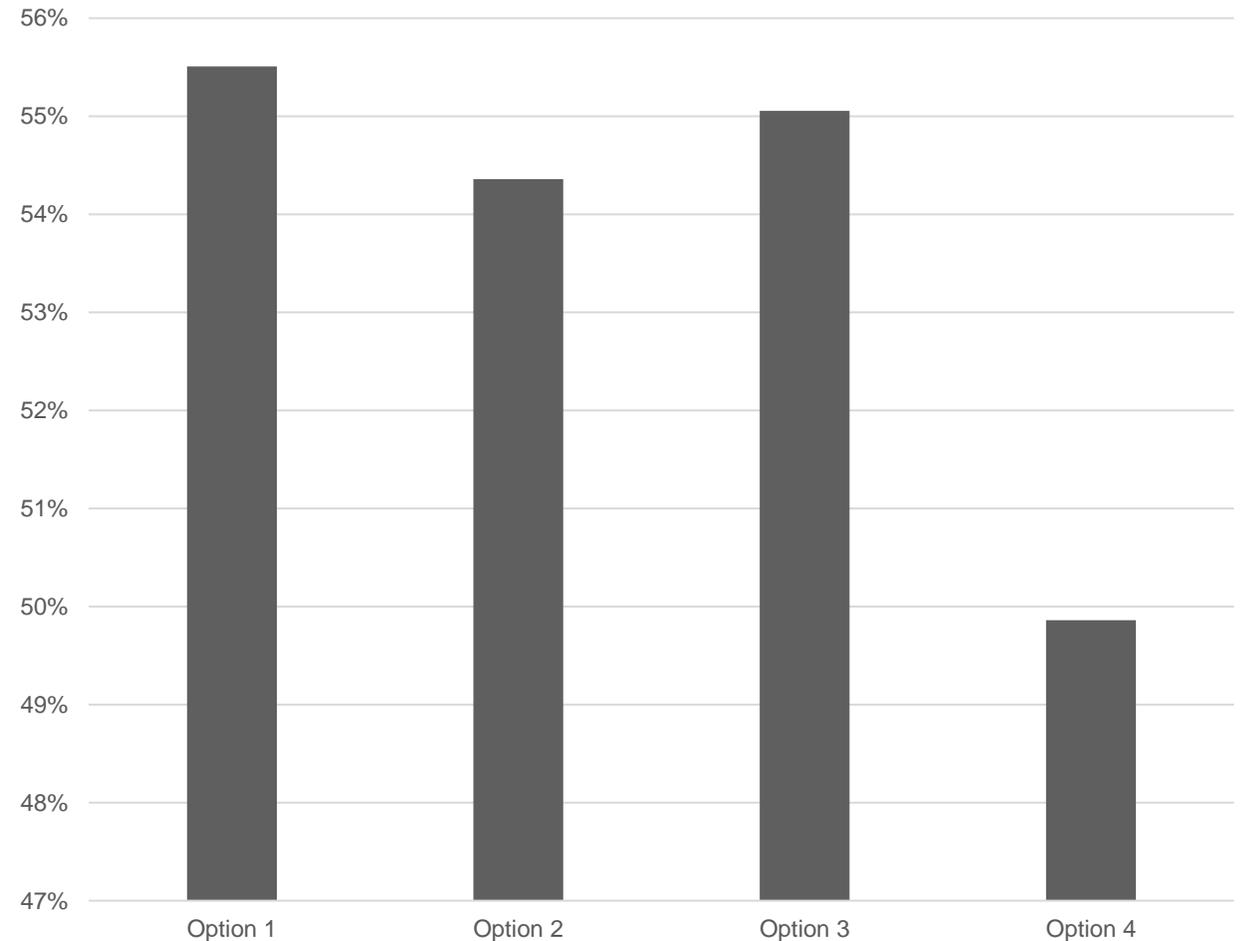
However, the approach taken to compare the options has sought to normalise the data against the number of housing units to provide a comparative assessment of the choice of sites being taken forward.

The overall results across the Options are broadly similar (note the scale used on the following graph) which reflects the commonality between the options, with Options 1 scoring slightly better and Option 4 the worst.

The variation between the options results from the selection of sites and more importantly the weight placed on those sites in terms of the proportion of the overall development quantum.

As such, the reason that Option 4 scores lower than the other options is because a higher proportion of development is linked to sites that score relatively lower. Conversely, Option 1 scores relatively well because it is aiming for a higher quantum of development that is spread over a wide range of sites and dilutes the impact of those sites with relatively lower scores.

Similarly, although Options 2 and 3 have a very similar overall quantum of development, but the higher proportion development on lower-scoring sites in Option 2 results in a slightly lower score.

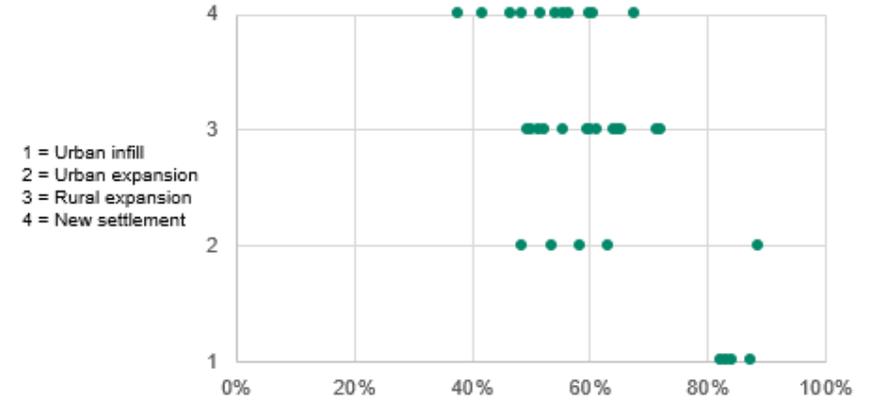


Relative scores of the four growth scenario options

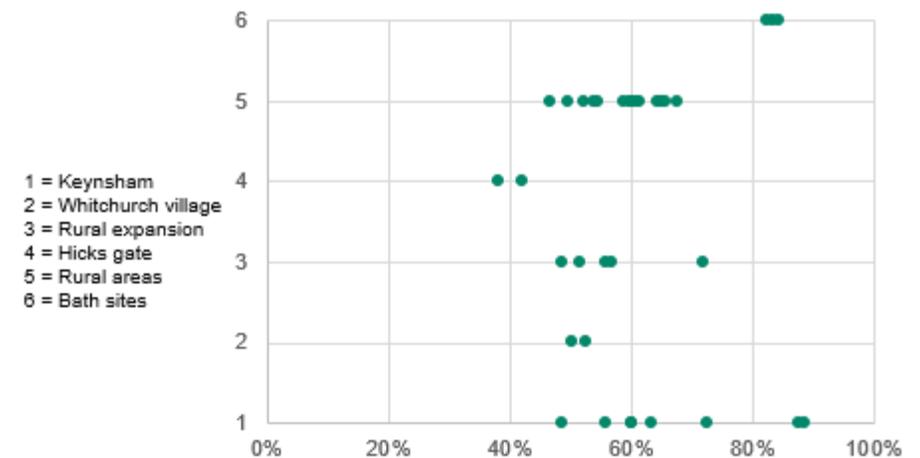
5. Conclusions and Recommendations

Conclusions

- **Generally urban brownfield sites score better:** Based upon the criteria used, scoring approach and weightings applied, sites with a more urban location score significantly better. The key criteria driving this are the transport emissions and the embodied carbon associated with infrastructure which are relatively higher on rural and greenfield sites.
- **The range of scores in different types and areas reflects specific site characteristics:** The graphs shown here demonstrate that there are still ranges in the score associated within types of development and locations of sites, which reflects site specific differences.
- **Flood risk has a big impact:** The impact of flooding has an impact on multiple criteria including flood risk, surface water runoff and the loss of opportunity for flood mitigation so has a strong impact on the scores.
- **Poor performing sites are a result of both general and specific issues:** Larger greenfield sites or those in more rural locations which also have site specific characteristics that score poorly result in low overall scores, notably this is the case for the two Hicks Gate options as well as the Whitchurch Village North Keynsham, and Radstock sites.
- **Large sites have lower relative scores but have the greatest potential for improvement:** Because of the assessment approach and use of red-line boundaries, larger sites are penalised because they could have a bigger impact if poor choices were made in delivery. However, on these sites there is significant scope for improvement through decisions on how the site is developed and more ability to make interventions in other areas such as transport. With further refinement of the site masterplan and better understanding of how the land inside the redline boundary will be used or other interventions that could be taken, the scores could improve significantly.
- **Some criteria can be mitigated but others not:** Although some scores are linked to criteria that are defined by the site, such as flooding, biodiversity and opportunity loss, others can be addressed through the design of the scheme and supporting infrastructure (like public transport and active travel measures)



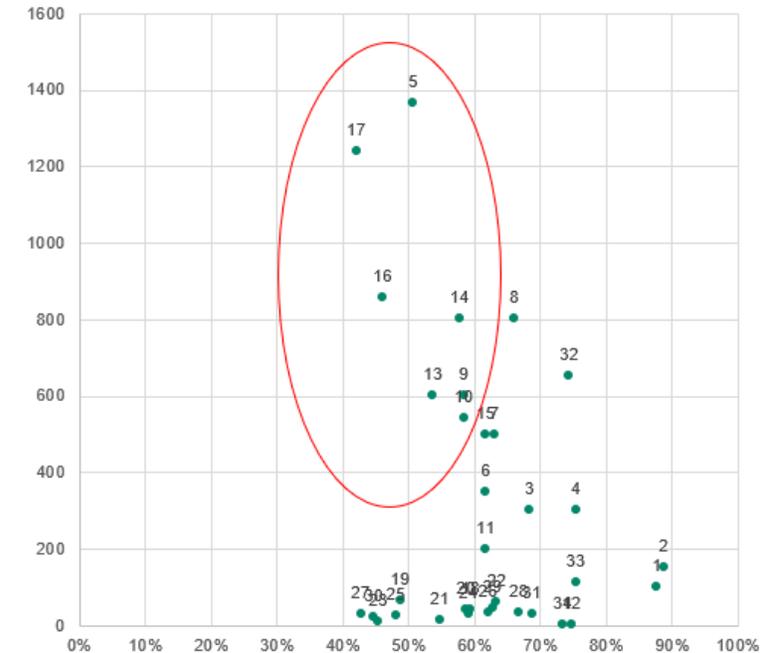
Plot of site scores against type of development



Plot of site scores against location of development

Recommendations

- **Focus on relatively lower scoring but high impact sites:** As shown in the following graph these are the sites at North Keynsham (5), Hicks Gate (16+17), Whitchurch Village (13+14), Radstock (9+10). As previously described, these large sites carry more risk of higher climate impacts but also the greatest potential to mitigate these. If selected further work should be undertaken to see how these can be reduced either through masterplanning, design or stronger policies or requirements (see earlier page on improving site scores).
- **Focus on the better 'Rural Areas':** Of the 14 'rural areas' there is a range of performance, so there is potential for further selection or prioritisation to reduce impacts and inform further policy or design measures. Given the smaller size of these sites, they are likely to have less potential for improvement through site planning or delivery. They are also unlikely to provide sufficient scale to support interventions in areas such as transport connectivity, which might suggest prioritising those with better existing transport links.
- **Urban sites should take advantage of sustainable location and seek to overcome design constraints:** Most of the urban locations score well purely on the basis of the benefits associated with the location and nature of the site. The one area they score more poorly is in relation to the potential design constraints limiting performance against operational and embodied emissions, so this is an area of focus for those site, potentially with help from the Council for example though guidance on material use, supply chains or construction approaches.
- **Opportunity loss results could be used to inform approach on sites that score poorly against this criteria:** Sites could be encouraged to increase levels of on-site renewables, achieve higher biodiversity net gain or have a greater focus on SUDs. For rural sites there is the potential to focus development on the higher scoring settlements to retain the opportunities.
- **Consider a more proactive approach to allocating sites for climate mitigation and adaptation to address opportunity loss:** Further studies could be undertaken to inform the identification of sites within the District that are best suited to addressing climate impacts and risks through renewable energy generation, sequestration or biodiversity projects. These could then be formally allocated both to avoid the loss of priority sites to development and encourage them to be delivered.



Plot of site scores against number of housing units