



**Waverley Borough  
Council**

**Climate Change  
and Sustainability  
Supplementary  
Planning  
Document**

Prepared by LUC  
October 2022



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## Glossary

| Term                         | Meaning / Definition   |
|------------------------------|--|
| Air Quality Management Areas | Areas designated by local authorities because they are not likely to achieve national air quality objectives by the relevant deadlines.  |
| Appropriate Assessment       | An assessment of the effects of a plan or project on the network of European sites of nature conservation significance, in accordance with Habitats Regulations 2017. The assessment focuses on a plan / project's implications on a site, and any potential adverse impacts on its integrity. |
| Anaerobic Digestion          | A process through which natural matter is broken down in a sealed space, without oxygen, to produce biofuel which is then used for heating or to generate electricity.   |
| Ancient Woodland             | An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS).  |
| Biodiversity Net Gain        | An approach used to improve a sites biodiversity value. Sites completed to a 'net gain' standard will have a positive ecological impact and deliver improvements through habitat creation and enhancements.  |
| Carbon Footprint             | The total amount of carbon dioxide released into the atmosphere as the direct result of activities of an organisation, individual, or community.   |
| Carbon-neutral               | Resulting in no net release of carbon dioxide into the atmosphere, particularly as a result of carbon offsetting.  |
| Conservation Status          | The state of a species or habitat including for example, extent abundance, distribution and their trends.  |
| Conservation                 | The process of maintaining and managing change to a heritage asset in a way that sustains and, where appropriate, enhances its significance.   |
| Cumulative Effects           | The likely effects that a development may have in combination with other relevant developments in its vicinity.  |
| District Heat Networks       | A distribution system of insulated pipes that takes heat from a central source and delivers it to a number of domestic or non-domestic buildings.  |
| Embodied Carbon              | Carbon dioxide emissions associated with the whole lifecycle of a building or piece of infrastructure, including emissions associated with building materials and the construction process.  |
| Fabric First                 | An approach to building design involving maximising the performance of the components and materials that make up the building fabric, before considering the use of mechanical or electrical systems of the building.  |
| Flood Plain                  | An area of land adjacent to a river that experiences flooding during periods of high discharge.  |

| Term                                | Meaning / Definition  |
|-------------------------------------|---|
| Greenbelt                           | A belt of parks, farmlands and green spaces that encircles a community and is designated as such.   |
| Greenhouse Gas                      | A gas that absorbs and emits radiant energy within the thermal infrared range, which causes the heating of the atmosphere, otherwise known as the greenhouse effect.  |
| Green and Blue Infrastructure       | A network of multi-functional green and blue spaces and other natural features, urban and rural, which is capable of delivering a wide range of environmental, economic, health and wellbeing benefits for nature, climate, local and wider communities and prosperity. |
| Green Corridors                     | Land that provides sufficient habitat to support wildlife and the movement of wildlife between two or more habitats.  |
| Greywater                           | Domestic wastewater that comes from showers, laundry, bath, and untreated spa water.  |
| Paris Agreement                     | A legally binding international treaty on climate change, adopted on 12 <sup>th</sup> December 2015.  |
| Passivhaus                          | A leading international design standard for energy usage within buildings.  |
| Surface Water Runoff                | The flow of water occurring on the ground surface when excess rainwater, stormwater, meltwater, or other sources can no longer infiltrate into the ground.  |
| Sustainable Drainage Systems (SuDS) | Systems and infrastructure that is designed to efficiently manage the drainage of surface water in the urban environment.   |
| Wildlife Corridors                  | Areas of habitat connecting wildlife populations, including green infrastructure.   |

## List of Abbreviations

| Abbreviation | Definition  |
|--------------|---|
| AGLV         | Areas of Great Landscape Value                                  |
| AONB         | Areas of Outstanding Natural Beauty                             |
| BNG          | Biodiversity Net Gain   |
| BREEAM       | Building Research Establishment Environmental Assessment Method |
| CHP          | Combined Heat and Power   |
| COP          | Coefficient of Performance                                      |
| EA           | Environmental Assessment  |
| FSC          | Forest Stewardship Council                                      |
| GBI          | Green and Blue Infrastructure                                   |
| GHG          | Greenhouse Gas  |
| GI           | Green Infrastructure  |
| GPW          | Global Warming Potential  |
| IPCC         | Intergovernmental Panel on Climate Change                       |
| LCA          | Life Cycle Assessment   |
| LCWIP        | Local Cycling and Walking Infrastructure Plan                   |
| LTP          | Local Transport Plan  |
| LULUCF       | Land Use, Land Use Change and Forestry                          |

| Abbreviation | Definition                            |
|--------------|---------------------------------------|
| PPG          | Planning Policy Guidance              |
| PRoW         | Public Right of Way                   |
| PV           | Photovoltaic                          |
| RBD          | River Basin District                  |
| RCP          | Representative Concentration Pathways |
| SCC          | Surrey County Council                 |
| SPD          | Supplementary Planning Document       |
| SPA          | Special Protected Areas               |
| SSSI         | Site of Special Scientific Interest   |
| SuDS         | Sustainable Drainage Systems          |
| UKCP         | United Kingdom Climate Projection     |
| WBC          | Waverley Borough Council              |
| WFD          | Water Framework Directive             |

# Chapter 1

## Introduction

### Background

**1.1** Climate change is leading to more extreme weather events such as heat waves, flooding, wildfires and droughts. In 2019, Waverley Borough Council (WBC) declared a climate emergency, committing the Council to becoming carbon neutral by 2030 as well as doing everything in its power to ensure that Waverley is a carbon neutral Borough by 2030.

**1.2** WBC's Climate Change and Sustainability Strategy (2020) stated our intention to use legislation, Local Plans and Supplementary Planning Documents to ensure developments are sustainable, energy efficient, and use renewable energy and Passivhaus standards where possible.

**1.3** In relation to WBC's own actions, the document includes the following aims:

- Implement Waverley's Carbon Neutrality Action Plan 2020-2030.
- Promote reduction and re-use as well as recycling to achieve WBC's targets on household waste and recycling.
- Promote a pedestrian-friendly and cycle-friendly transport network.
- Take action on air quality issues, especially those caused by vehicle emissions, and encourage zero-carbon buses and taxis.

- Work with partners to ensure the environmental stewardship of open spaces are of the highest quality including the promotion of biodiversity, rewilding, and the phasing out of pesticide use other than in exceptional and defined circumstances.
- Making WBC a zero-carbon organisation, including the offices and other assets, by working with staff and partners to implement carbon reduction schemes and other projects.

### Purpose of this SPD

**1.4** This SPD is part of the Council's response to the climate emergency. It supports the current Waverley Borough Local Plan Part 1, which sets out strategic policies and development proposals for strategic allocated sites.

**1.5** This SPD is a material consideration in the determination of planning applications. However, it also provides useful guidance for development permitted under a General Permitted Development Order, such as residential extensions.

**1.6** The Local Plan policies most relevant to climate change and sustainability are:

- **ST1: Sustainable Transport**, which sets out a number of criteria including requirements to ensure that opportunities for sustainable transport modes are exploited and that the necessary transport infrastructure is delivered.



- **CC1: Climate Change**, which sets out requirements for development in order to move to a low carbon future and promotes development that seeks to mitigate and adapt to climate change through renewable and low carbon energy supply, ensuring flood storage capacity, ensuring resilience to climate risks, provides green infrastructure, SuDS and habitat networks.
  - **CC2: Sustainable Construction and Design**, which sets out requirements for development to contribute to reducing Greenhouse Gas (GHG) emissions by minimising energy, waste, and water use, taking advantage of natural lighting and ventilation, encouraging active travel, providing higher housing density, and enhancing biodiversity.
  - **CC3: Renewable Energy Development**, which sets out requirements for new renewable energy developments to ensure that they avoid any potential negative impacts on landscape, wildlife, heritage assets and amenity.
  - **CC4: Flood Risk Management**, which sets out requirements to minimise flood risk and to implement SuDS.
  - **NE1: Biodiversity and Geological Conservation**, which sets out requirements to conserve and enhance biodiversity within the Borough.
  - **NE2: Green and Blue Infrastructure**, which sets out requirements to protect and enhance the existing river corridor and canal network including landscaping, water quality and habitat creation.
- 1.7 The SPD provides guidance on the implementation of these policies. It does not form part of the development plan,

and therefore does not introduce new planning policies into the development plan.

1.8 This SPD applies to all development proposals including proposals for allocated and non-allocated sites.

1.9 It is structured around six key topics that relate to policies **ST1**, **CC1**, **CC2**, **CC3**, **CC4**, **NE1** and **NE2** which are as follows:

1. Minimising energy use in new developments
2. Sustainable site layout, landscaping, layout, and orientation of buildings
3. Climate change resilience and adaptation
4. Use of sustainable resources and materials and sustainable management of waste
5. Water efficiency
6. Design to encourage use of sustainable forms of transport

1.10 The purposes of this SPD are to:

- Provide guidance on how to apply policies and what the applicants are required to deliver.
- Clarify what information should be provided with planning applications.
- Demonstrate what is possible and appropriate for developments in Waverley.
- Provide best practice and exemplar developments.
- Provide links to latest guidance and codes of practice.

## Requirements Introduced by this SPD

This SPD introduces a requirement for policy CC1, CC2, CC3 and ST1 and the SPD itself to be considered at the earliest stage of the development process.

Applicants should demonstrate this by:

- Ensuring requests for pre-application advice provide a summary of how this SPD and the corresponding policies have been considered as part of the proposal's design evolution.
- Submitting a completed Climate Change and Sustainability checklist as part of planning applications.
- Demonstrating in the checklist that a number of different measures have been considered that result in energy use reductions and enhancing climate resilience and why chosen measures have been selected or reasons why they have not been taken up.

**The SPD refers to measures that must be implemented and others that should or could be taken up by an applicant:**

**“must” – means that the measure is a minimum requirement (policy compliant);**

**“should” means that the measure is an expectation (target best practice compliant);**

**“could” means that the measure is an aspiration (opportunity to exceed best practice).**

**Applications that can demonstrate delivery of ‘could’ measures in addition to ‘should’ and ‘must’ will be looked on more favourably.**

## Building Regulations

**1.11** The 2025 Future Homes Standard<sup>1</sup> will introduce Building Regulations which ensure that an average home will produce at least 75% lower CO<sub>2</sub> emissions than one built to part L1A 2013 (with 2016 revisions) Regulations. Homes built in 2025 under the Future Homes Standard will also be ‘zero carbon ready’, which means that in the longer term, no further retrofit work for energy efficiency will be necessary to enable them to become zero-carbon homes as the electricity grid continues to decarbonise.

**1.12** Applicants should be aware that an interim uplift to Building Regulations came into force in June 2022<sup>2</sup>. The Government published new Approved Documents for the interim changes in December 2021<sup>3</sup>.

## Biodiversity Net Gain

**1.13** Biodiversity net gain delivers measurable improvements for biodiversity by creating or enhancing habitats in association with development. Biodiversity net gain can be achieved on-

site, off-site or through a combination of on-site and off-site measures.

**1.14** In July 2018, the revised National Planning Policy Framework strengthened planning policy on biodiversity net gain by making it clearer that all development in scope should deliver biodiversity net gains.

**1.15** Section 98 of the Environment Act applies a new general condition to all planning permissions granted in England, subject to exceptions<sup>4</sup>. This condition requires that a biodiversity net gain plan must be submitted and approved before development may lawfully commence.

**1.16** Applicants should be aware that biodiversity net gain is expected to become mandatory in 2023 following publication of detailed BNG Regulations.

## The Waverley context

### Natural environment

**1.17** Located within Surrey in the southeast of England, Waverley Borough is predominantly rural and 61% lies within the Metropolitan Green Belt. Additionally, 31% of the Borough is designated as Countryside Beyond the Green Belt, and 77% as an Area of Outstanding Natural Beauty (AONB) and/or Areas of Great Landscape Value (AGLV)<sup>5</sup>.

**1.18** The Borough contains all or part of 15 Sites of Special Scientific Interest (SSSIs) and there are three Special Protected Areas (SPAs) designated under the European Birds Directive as being of importance for their populations of the woodlark, nightjar, and Dartford warbler<sup>6</sup>. Woodlands cover about 32% of the Borough’s total area, and 12% of that woodland is classified as ancient woodland<sup>7</sup>.

### Transport

**1.19** The A3 provides good connections to London, Guildford and Portsmouth, but there is relatively poor road connectivity between the A3 and settlements in the east and west of the Borough.

**1.20** Similarly, with the exception of Farnham, there are no east-west railway links within the Borough. The north-south railway services are heavily used and there are already concerns about their future capacity.

**1.21** Bus services are relatively frequent within urban areas, however there are limited services within rural areas, especially at evenings and weekends. Limited bus services are having an impact on accessibility for residents and is one of the key factors determining high levels of car dependence in

<sup>1</sup> UK Government (2021) The Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings. [online] Available at: <https://www.gov.uk/government/consultations/the-future-homes-standard-changes-to-part-l-and-part-f-of-the-building-regulations-for-new-dwellings>

<sup>2</sup> UK Government (2022) Statutory Guidance: Conservation of fuel and power: Approved document L. [online] Available at:

<https://www.gov.uk/government/publications/conservation-of-fuel-and-power-approved-document-l>

<sup>3</sup> UK Government (n.d.) Building Regulations and Approved Documents. [online] Available at:

<https://www.gov.uk/government/collections/approved-documents>

<sup>4</sup> UK Government (2021) Environment Act 2021. [online] Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>

<sup>5</sup> Waverley Borough Council (2018) Waverley Borough Local Plan Part 1: Strategic Policies and Sites. [online] Available at: [https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/LPP1\\_July\\_2019\\_web.pdf?ver=M4C0VK\\_SH7V54tLWEaTftA%3d%3d](https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/LPP1_July_2019_web.pdf?ver=M4C0VK_SH7V54tLWEaTftA%3d%3d)

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

the area<sup>8</sup>. Recently, bus services in Surrey have been significantly reduced due to driver shortages, which further exacerbates the issue<sup>9</sup>.

**1.22** Transport is the key source of carbon emissions in Waverley and is also contributing to poor air quality in some areas. Farnham and Godalming have Air Quality Management Areas, mainly as a result of traffic<sup>10</sup>. 64% of Surrey's population in employment uses a private vehicle for work commute. In Waverley, the proportion is slightly higher, as 65.1% of workforce travels using a private car to get to work, which is also higher than the national average of 63.4%. Only 13.2% of the work commuters use public transport, which is above the regional average of 12.1% and below the national average of 16.9%. Walking and cycling have a very limited uptake and account for only 0.7% of the total workforce commute<sup>11</sup>.

## Housing

**1.23** Waverley is an affluent area with high house prices, high incomes, households with more than two cars, and a relatively high proportion of children who attend private schools. However, there are areas of relative deprivation and a need for

genuinely affordable housing and an accelerated build programme for extant permissions<sup>12</sup>.

## Climate Change

**1.24** The Met Office UK Climate Projections 2018 study (UKCP18)<sup>13</sup> provide up-to-date information on how the UK's climate is expected to change by the end of this century. In the highest emissions scenario (Representative Concentration Pathways (RCP8.5)), summer temperatures in the UK could be 5.4°C warmer by 2070 than the average summer temperature between 1981 and 2000. Average summer rainfall would, however, fall by 47% in this scenario. Winters could be up to 4.2°C warmer, with up to 35% more rainfall. The greatest warming in the UK is likely to be experienced in the South East England where summer temperatures may increase by another 3 to 4°C relative to the present day<sup>14</sup> and which is already recognised as being an area of water stress<sup>15</sup>.

**1.25** Changes to the climate will bring new challenges to the Borough's built and natural environments. Hotter, drier summers may have adverse health impacts and further worsen adverse environmental effects of air and water pollution. A changing climate may place pressure on some

native species and create more suitable conditions for new species, including invasive non-native species.

**1.26** Climate change presents a global risk, with a range of different impacts that are likely to be felt within Waverley. The 2018 Intergovernmental Panel on Climate Change (IPCC) report<sup>16</sup> identified a reduced timeframe to act to ensure limiting world temperature rises to 1.5°C before 2050 in line with the Paris Agreement.

**1.27** The Tyndall Centre calculated the 'fair contribution' of WBC towards the Paris Agreement, and it recommended the following:

- The Borough should stay within the recommended carbon budget of 3.6 MtCO<sub>2</sub> by achieving mitigation rates of CO<sub>2</sub> from energy of around -13.4% per year and reach net zero no later than 2041.
- The Borough should seriously consider strategies for significantly limiting emissions growth from aviation.
- Waverley should promote the deployment of low carbon electricity generation within the region and where possible influence national policy on this issue.
- The Land Use, Land Use Change and Forestry (LULUCF) sector should be managed to ensure CO<sub>2</sub>

<sup>8</sup> Ibid.

<sup>9</sup> SurreyLive (2021) Shortage of bus drivers 'worse than previously thought'. [online] Available at: <https://www.getsurrey.co.uk/news/uk-world-news/shortage-bus-drivers-worse-previously-22303616>

<sup>10</sup> Ibid.

<sup>11</sup> Surrey-I (2011) Method of travel to work. [online] Available at: <https://www.surreyi.gov.uk/2011-census/method-of-travel-to-work/>

<sup>12</sup> Waverley Borough Council (2018) Waverley Borough Local Plan Part 1: Strategic Policies and Sites. [online] Available at: <https://www.waverley.gov.uk/Portals/0/Documents/services/planning->

[and-building/planning-strategies-and-policies/local-plan/LPP1\\_July\\_2019\\_web.pdf?ver=M4C0VK\\_SH7V54tLWEaTftA%3d%3d](and-building/planning-strategies-and-policies/local-plan/LPP1_July_2019_web.pdf?ver=M4C0VK_SH7V54tLWEaTftA%3d%3d)

<sup>13</sup>

<sup>14</sup> Met Office (2018) UKCP18 Factsheet: Derived projections [Online] Available at:

<https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-fact-sheet-derived-projections.pdf>

<sup>15</sup> ATKINS (2020) Sustainability Appraisal of Waverley Borough Local Plan Part 2: Sustainability Appraisal Report – Regulation 19. [online]

Available at:

[https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/Waverley\\_SA\\_Final\\_Report\\_v3.0\\_2020.pdf?ver=WF4IHziCdY4bX1NrOmX7uQ%3D%3D](https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/Waverley_SA_Final_Report_v3.0_2020.pdf?ver=WF4IHziCdY4bX1NrOmX7uQ%3D%3D)

<sup>16</sup> Intergovernmental Panel on Climate Change (2018) Global Warming of 1.5 degrees of C. [online] Available at: <https://www.ipcc.ch/sr15/>

sequestration where possible. The management of LULUCF could also include action to increase wider societal and environmental benefits<sup>17</sup>.

**1.28** Across the county, transport has consistently accounted for majority of emissions. In Waverley up until 2015 domestic heating has been responsible for most emissions. With improved energy efficiency in buildings, this figure has gradually decreased, and from 2015 transport has been the key source of emissions. Due to the improvements in energy efficiency in buildings, GHG emissions in Waverley have decreased from 753 kt of CO<sub>2</sub> in 2005 to 502.5 kt CO<sub>2</sub> in 2019. Tree coverage across the Borough is relatively high and accounts for 33% of land use, however, it offers limited potential to further reduce emissions<sup>18</sup>. Surrey County Council approved the Local Transport Plan 4 (LTP4) in July 2022 which aims to reduce carbon emissions currently generated by transport in the county<sup>19</sup>.

### Flood risk

**1.29** Waverley features a large number of “ordinary watercourses”<sup>20</sup>, which make some areas at risk from flooding.

**1.30** Lying within the River Wey catchment, parts of the Borough are within Flood Zone 1, but most of the Borough is within Flood Zones 2, 3a and 3b. Settlements with areas in Flood Zones 2 and 3 include north Farnham (Blackwater), central and southeast Farnham (North Wey and Farnham Bourne), west Elstead (River Wey), south and central Godalming (the Ock, River Wey), Cranleigh (Cranleigh Waters, Nuthurst Stream, Littlemead Brook), Chiddingfold (River Lox) and Bramley/Wonersh (Cranleigh Waters and Hascombe Stream)<sup>21</sup>.

**1.31** Historically, the area has been flooded on multiple occasions. The most recent and extensive flooding events have occurred in July 2007, winter of 2008 and 2009 and winter of 2013 and 2014<sup>22</sup>. It is expected that with the progressing climate change these events may become even more frequent and severe.

**1.32** Development proposals should be accompanied by an appropriate Flood Risk Assessment (FRA) that considers flood risk from all sources of flooding, such as both fluvial flood risk, and surface water flood risk. FRAs should consider the cumulative impacts of the development proposal, and how

flood risk may be affected in local areas susceptible to flooding.

### Water resources

**1.33** The Waverley Borough Local Plan aims to deliver up to 11,200 new homes from 2013 to 2032. The growth areas are spread across six Water Framework Directive (WFD) water bodies, predominantly located in the Thames River Basin District (RBD), with Chiddingfold being located in the South East RBD. In 2015, all water bodies were at less than ‘Good’ Ecological Status although water quality was generally found to be compliant with an exception for phosphates which was a ‘Moderate’ or ‘Poor’ Status in all water bodies<sup>23</sup>. The Waverley High Level Water Cycle Study found that greater capacity will be necessary to accommodate additional wastewater from future development. However, there is potential to use technologies which will reduce environmental impact, for example in Dunsfold Park<sup>24</sup>.

**1.34** The Wey Abstraction Management Strategy highlights that the Tillingbourne area (which covers the northern edge of the Borough south of Chilworth) has a ‘water not available for

<sup>17</sup> Tyndall Centre (2021) Setting Climate Commitments for Waverley: Quantifying the implications of the United Nations Paris Agreement for Waverley [online] Available at: <https://carbonbudget.manchester.ac.uk/reports/E07000216/>

<sup>18</sup> Waverley Borough Council (2020) Climate Emergency Action Plan 2020 -2030. [online] Available at: [https://www.waverley.gov.uk/Portals/0/Documents/services/environmental-concerns/conservation-and-sustainability/Climate\\_Emergency\\_Action\\_Plan\\_2020\\_2030\\_Draft\\_Feb\\_2020.pdf?ver=etJy687FqjQDs8nIPRpcvw%3D%3D](https://www.waverley.gov.uk/Portals/0/Documents/services/environmental-concerns/conservation-and-sustainability/Climate_Emergency_Action_Plan_2020_2030_Draft_Feb_2020.pdf?ver=etJy687FqjQDs8nIPRpcvw%3D%3D)

<sup>19</sup> Surrey County Council (n.d.) Local Transport Plan 4 (LTP4). [online] Available at: <http://www.surreycc.gov.uk/roads-and-transport>.

<sup>20</sup> This includes “all rivers and streams and all ditches, drains, cuts, culverts, dikes, sluices (other than public sewers within the meaning of the Water Industry Act 1991) and passages, through which water flows” according to the Land Drainage Act 1991.

<sup>21</sup> AECOM and Waverley Borough Council (2018) Waverley Borough Council Level 1 Strategic Flood risk Assessment. [online] Available at: [https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/WBC%20Level%201%20SFRA%20Report-Appendix%20A%20and%20Figures%201-2.pdf?ver=o\\_qbW3wq84MwsLz9OcS6ng%3D%3D](https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/WBC%20Level%201%20SFRA%20Report-Appendix%20A%20and%20Figures%201-2.pdf?ver=o_qbW3wq84MwsLz9OcS6ng%3D%3D)

<sup>22</sup> Ibid.

<sup>23</sup> Waverley Borough Council, Amec Foster Wheeler Environment & Infrastructure UK Limited (2017) Waverley Borough Water Quality Assessment. [online] Available at: [https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/ERea008i3R\\_Final.pdf?ver=3IDftzxZRXbEZJh82D7PgA%3D%3D](https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/ERea008i3R_Final.pdf?ver=3IDftzxZRXbEZJh82D7PgA%3D%3D)

<sup>24</sup> Waverley Borough Council (2016) Waverley Borough Council High Level Water Cycle Study. [online] Available at: [https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/WBC\\_High\\_Level\\_Water\\_Cycle\\_Study\\_wastewater\\_Final\\_18](https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/WBC_High_Level_Water_Cycle_Study_wastewater_Final_18)

licencing' status, and the Guildford area (which covers Godalming, Milford, and the eastern part of Farnham) has a 'restricted water available for licencing' status. It is because there was more water removed from these catchments than the amounts available. These parts of the Borough lie within areas of water stress where consumption is greater than production<sup>25</sup>. Water suppliers have taken measures to reduce water use and leaks. However, there may be reduced water availability in the area, particularly during the summer, which will lead to more frequent water use restrictions and water shortages<sup>26</sup>.

### Pattern of development (Local Plan Part 1 Strategic Sites)

**1.35** This SPD will apply to allocated and non-allocated sites.

**1.36** For the new settlement at Dunsfold Aerodrome, the Council has produced a separate Dunsfold Park Garden Village SPD<sup>27</sup> which contains requirements for sustainable development and climate change that are specific to that site. However, applicants will also have to consider this SPD when preparing applications for development at Dunsfold Aerodrome.

**1.37** The 9 strategic sites allocated in the Local Plan Part 1 are:

- SS1: Strategic Housing Site at Coxbridge Farm, Farnham – allocated for around 350 dwellings.
- SS2: Strategic Housing Site at Land West of Green Lane, Farnham – allocated for 105 dwellings.
- SS3: Strategic Mixed-Use site at the Woolmead, Farnham – allocated for a mix of uses including around 100 dwellings and 4,200 sqm of replacement retail floorspace.
- SS4: Strategic Housing Site at Horsham Road, Cranleigh – allocated for around 250 dwellings.
- SS5: Strategic Housing Site at Land South of Elmbridge Road and the High Street, Cranleigh – allocated for around 765 dwellings and a country park.
- SS6: Strategic Housing Site at Land opposite Milford Golf Course – allocated for around 180 dwellings.
- SS7: New settlement at Dunsfold Aerodrome – allocated for around 2,600 dwellings, mixed use strategic development to accommodate housing, employment and associated supporting uses.
- SS8: Strategic Mixed-Use Site at Woodside Park, Godalming – allocated for around 100 dwellings, community and employment uses.
- SS9: Strategic Employment Site on Land off Water Lane, Farnham – allocated for Class B employment uses.

[August 2016 ISSUEDM.pdf?ver=wwxAx\\_EYatq6In7NjYoXxw%3D%3D](#)

<sup>25</sup> Environmental Agency (2019) Wey Abstraction Licensing Strategy: A strategy to manage water resources sustainably. [online] Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/796089/Wey-Abstraction-Licensing-Strategy.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/796089/Wey-Abstraction-Licensing-Strategy.pdf)

<sup>26</sup> ATKINS (2020) Sustainability Appraisal of Waverley Borough Local Plan Part 2: Sustainability Appraisal Report – Regulation 19. [online] Available at: [https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/Waverley\\_SA\\_Final\\_Report\\_v3.0\\_2020\\_.pdf?ver=WF4IHjCdY4bX1NrOmX7uQ%3D%3D](https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/Waverley_SA_Final_Report_v3.0_2020_.pdf?ver=WF4IHjCdY4bX1NrOmX7uQ%3D%3D)

<sup>27</sup> Waverley Borough Council. Allies and Morrison. (2022) Dunsfold Park Garden Village SPD. [online] Available at: <https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-applications-and-enforcement/dunsfold%20park/Dunfold%20Park%20Garden%20Village%20SPD.pdf?ver=V55EICFbjDxrh1CsShzUzA%3d%3d>

## Chapter 2

# Minimising energy use in new developments

**2.1** In 2018, domestic sector emissions have accounted for 43% of the total Waverley Borough's emissions and were estimated to be 227.2kt CO<sub>2</sub><sup>28</sup>. Median energy efficiency of all dwellings in Waverley Borough for 2021 was 65, on a scale ranging from 0 to 103 (0 being the worst)<sup>29</sup>. The score reflects the pattern of housing stock across the Borough, where 41.5% of the dwellings in Waverley are detached houses, which is higher than the national average of 22.4%. Detached houses are also considered to be the least energy efficient<sup>30</sup>.

### Link to Key Local Plan Policy Criteria

- **CC1: Climate Change** - development will be supported where it contributes to mitigating and adapting to the impacts of climate change, including measures that:
  - use renewable and low carbon energy supply systems.
- **CC2: Sustainable Construction and Design** – the Council will seek to promote sustainable patterns of

development and reduce the level of greenhouse gas emissions by:

- Ensuring all new development, including residential extensions, include measures to minimise energy and water use through its design, layout, landscape and orientation.
- **CC3: Renewable Energy Development** - renewable energy development should be located and designed to avoid significant adverse impacts on landscape, wildlife, heritage assets and amenity. Appropriate steps should be taken to mitigate any adverse impacts, such as noise nuisance, flood risk, shadow flicker and interference with telecommunications, through careful consideration of location, scale, design, and other measures. The Council particularly encourages applications from community-led projects.

**2.2** The supporting text for Policy CC2 states that the Council will adopt a “**Fabric FirstFabric FirstFabric First**” approach to maximise the performance of the building's components and materials and minimise the need for expensive technologies reducing capital and operational costs.

<sup>28</sup> UK government (2020) UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2018. [online] Available at: <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018>

<sup>29</sup> ONS (2021) Energy efficiency of housing in England and Wales: 2021. [online] Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/housing/articles/energyefficiencyofhousinginenglandandwales/2021>

<sup>30</sup> Ibid.

**2.3** Supporting text for Policy CC3 sets out additional considerations for renewable energy development including:

- The contribution the development will make towards achieving national, regional, and sub-regional renewable energy targets and carbon dioxide savings.
- The potential to integrate the proposal with existing or new development.
- The potential benefits to host communities and opportunities for environmental enhancement.
- The proximity of biomass combustion plant to fuel source and the adequacy of local transport networks.
- Availability of a suitable connection to the electricity and gas distribution network.
- The visual impact of the development on the character and appearance of the surrounding area.
- The effect of the proposal on the amenities of any nearby residential properties.

## Requirements and Guidance

**2.4** The Government's Heat and Buildings Strategy (2021)<sup>31</sup> guides the transition to high-efficiency low-carbon buildings. It focuses on improving building energy performance and lists relevant current and planned activities for the 2020s including:

- **Future Homes Standard:** a 75 – 80% reduction in carbon emissions from new homes compared to current

standards, from 2025, with low-carbon heating and very high fabric standards.

- **Future Building Standard:** pathway to highly efficient new non-domestic buildings which use low-carbon heat.
- **Building Regulations Part L and F Interim Standards:** increase of energy performance standards for domestic and non-domestic buildings ahead of the Future Homes Standard and Future Buildings Standard, effective from June 2022.
- **Consultation on ending new gas connections in new dwellings:** consulting as to whether it is appropriate to end gas grid connections to homes constructed from 2025, in favour of alternative low-carbon heat sources.

### Guidance on minimising energy use by applying renewable low carbon technologies suitable for the Borough

#### Energy efficiency in new developments

**2.5** The 'Fabric First' approach to building design involves maximising the performance of the components and materials that make up the building fabric, before considering the use of mechanical or electrical systems of the building. In medium to long-term scales, such an approach can help to reduce capital and operational costs, improve energy efficiency, reduce carbon emissions and ongoing maintenance costs.

**2.6** Some of the key 'Fabric First' approach measures include:

- Maximising airtightness (with Mechanical Ventilation with Heat Recovery);
- Increased levels of insulation;
- Optimising solar gain through the provision of openings and shading;
- Optimising natural ventilation;
- Using the thermal mass of the building fabric.

**2.7 Applicants must demonstrate that a 'Fabric First' approach has been considered for the development by implementing solutions such as maximising airtightness of the building, increasing levels of insulation, optimising solar gain through the provision of openings and shading, optimising natural ventilation, using the thermal mass of the building fabric and triple glazing.**

**2.8** Applicants should also ensure that appropriate ventilation will be installed to prevent accumulation of moisture. This includes ventilation systems that should be energy efficient and adequate to the size and function of a room (most important ones are in kitchen and bathroom) and also installing openable windows at both sides of the building.

<sup>31</sup> HM Government (2021) Heat and Buildings Strategy. [online] Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/u>

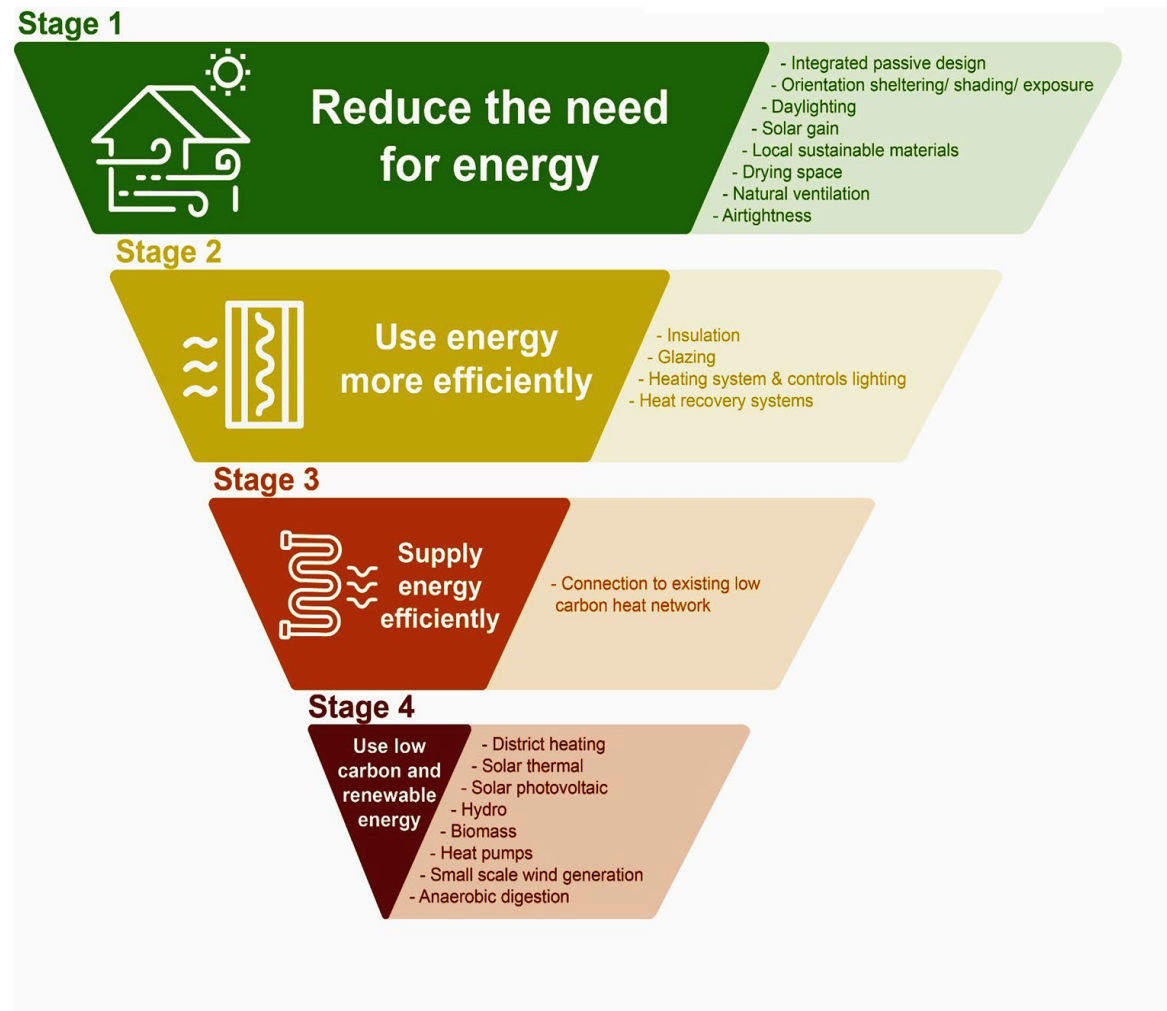
[loads/attachment\\_data/file/1036227/E02666137\\_CP\\_388\\_Heat\\_and\\_Buildings\\_Elay.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1036227/E02666137_CP_388_Heat_and_Buildings_Elay.pdf)

**2.9 Applicants must demonstrate that appropriate levels of insulation are being considered for the building, especially for loft areas and for the floors to prevent heat loss.**

**2.10 Applicants must demonstrate that at least double-glazed windows are considered for the building.** Energy efficiency measures can significantly reduce the energy use within a building leading to reduced costs for the resident over the medium- to long-term. If supported by renewable and low carbon energy supply systems, they can enable net zero housing.

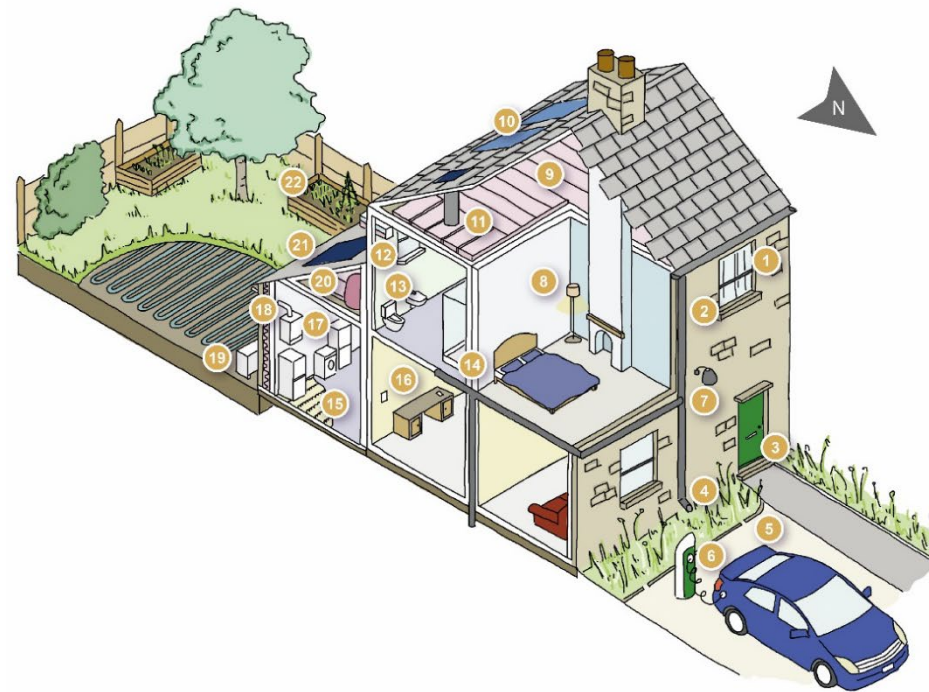
**2.11** The Energy Hierarchy (Figure 1) presents the hierarchy of energy efficiency measures.

Figure 1: The Energy Hierarchy.





- Applicants must demonstrate how the energy hierarchy has been considered within the planning application to minimise carbon dioxide emissions across the development (orientation, Fabric FirstFabric FirstFabric First approach, passive building design, energy efficiency, and fabric performance, renewable energy generation). If certain measures are not viable for a development, applicants must provide evidence to show that all possible measures have been considered and why certain measures in this SPD are not viable.
- Some of the key energy efficiency measures, in no particular order are included in Figure 2. Other measures not included in Figure 2 include “Green Roof Vegetation”, serving multiple purposes. It enhances biodiversity, provides cooling during summer months and helps to store heat during cold months improving the overall thermal performance of the building. Applicants should implement measures such as green roof or green wall vegetation to improve the overall energy performance of the building.
- Issues with strong northern winds and heat loss could be solved through provision of shelters in a form of vegetation or arranging buildings in irregular street patterns to avoid channelling of wind. Applicants should include measures that reduce impacts from strong northerly winds and improve the overall energy efficiency of a building.



| No. | Measure                                     |
|-----|---|
| 1   | Thick curtains                              |
| 2   | Double/ triple glazing                      |
| 3   | Draught strips on doors and letter boxes    |
| 4   | Rain garden                                 |
| 5   | Permeable paving                            |
| 6   | Electric car charging point                 |
| 7   | Motion sensor lighting                      |
| 8   | Low energy lighting                         |
| 9   | Loft and roof insulation                    |
| 10  | Solar hot water panels                      |
| 11  | Sun pipe                                    |
| 12  | Heat exchanger                              |
| 13  | Low flow toilet                             |
| 14  | Rainwater harvesting                        |
| 15  | Under floor insulation                      |
| 16  | Smart meter and programmable boiler         |
| 17  | A+++ white goods and high efficiency boiler |
| 18  | Cavity wall insulation                      |
| 19  | Heat pump                                   |
| 20  | Hot water cylinder insulation               |
| 21  | Solar photovoltaic panels                   |
| 22  | Sustainable food growth                     |

Figure 2: Common Energy Efficiency measures in new developments.

## Consideration of embodied carbon

**2.12** Applicants should use materials that have lowest embodied carbon (e.g. lime-based products or timber) and which have been manufactured through processes with low consumption of energy. Applicants should demonstrate how embodied carbon has been reduced at the design stage of the development. Applicants should also prioritise the use of materials from sustainably managed sources (such as FSC certified timber<sup>32</sup>, Concrete Sustainability Council certificate<sup>33</sup> and zero carbon steel production).

**2.13** The use of low carbon and environmental impact materials (including those with recycled content) helps minimise the impact of the resources used. Re-use of materials from the development site, use of reclaimed or recycled materials should be prioritised and considered where possible.

**2.14** Where possible, applicants should prioritise the use of local materials to reduce transportation costs and related carbon emissions.

**2.15** Applicants should engage with the council at the pre-application stage to ensure that embodied carbon is considered at the design stage of a development.

## Future-proofing

**2.16** Applicants could include measures for new homes which would make it easier to install low carbon heating in the future.

## Latest technologies and links to guidance

### Heating

**2.17 Heat pumps** – if designed, selected and installed correctly provide opportunities to significantly reduce the carbon footprint of a building in comparison to conventional fossil fuel systems (e.g. gas boilers). Heat pumps use the natural warmth from the air, water, or ground to heat a building using a compressor powered by a relatively small amount of electrical energy. Air Source Heat Pumps require a heat exchanger located outside of a building, and location should be optimised taking account of practical constraints, conservation issues and noise. Ground Source Heat Pumps tend to be more expensive than Air Source Heat Pumps and require pipes of at least 2m in length to be buried in the ground. During design stage, consideration should be given to potential effects on landscape and biodiversity. For Water Source Heat Pumps, heat can come from the bottom of a pond, reservoir, river, lake, or borehole, and therefore, impacts on biodiversity should also be considered.

**2.18** There are two main categories, individual heat pumps for single dwellings and communal heat pumps for larger developments. Heat pumps must be sized correctly to meet the heat and hot water load. It is important to choose heat pumps with a refrigerant that has a low Global Warming Potential (GWP) for example propane. Moreover, minimising pipe lengths will reduce heat losses. Further reductions can be made by choosing a heat pump with a high efficiency

(Coefficient of Performance or COP). The COP is the ratio between the heat energy delivered and the electrical input. On average, a heat pump would have a COP of 2 – 4, meaning that for every 1 unit of energy, 2 units of heat are provided, which is better than gas or oil boilers which deliver less heat for each energy input. In order to make the most efficient use of a heat pump, radiators need to be larger, as heat pumps run best at lower temperatures (around 35 – 45°C) or under floor heating can be installed (with temperatures around 25 – 30°C).

**2.19 District heat networks** – supply heat to a number of buildings from a central heat source with a low carbon energy source through a network of insulated pipes and heat exchangers. Newly built district heating networks should provide potential to switch to a low carbon source (e.g. communal heat pumps) in the future. District heating networks should be designed to achieve the best practice standards of the ADE & CISBE Code of Practice for the UK (2020)<sup>34</sup>.

**2.20** Where possible, homes and buildings should connect to an existing or planned local carbon district heat network or a new network with neighbouring energy demand requirements

**2.21** Where district heating is specified it would not justify reduced thermal performance of new dwellings. In some cases, district heating infrastructure will not be necessary if the Fabric First/Fabric First/Fabric First approach results in a minimal space heating requirement.

**2.22** One of the key challenges linked with district heating is the estimation of a sufficient heat demand density. However,

<sup>32</sup> Forestry England (n.d.) Certification. [online] Available at: <https://www.forestryengland.uk/certification>

<sup>33</sup> Concrete Sustainability Council (n.d.) Who we are. [online] Available at: <https://www.concretesustainabilitycouncil.com/>

<sup>34</sup> CIBSE (n.d.) CPI Heat networks: Code of Practice for the UK (2020). [online] Available at: <https://www.cibse.org/knowledge/knowledge-items/detail?id=a0q3Y00000IMrmGQAT>

tools such as [Thermos](#) can be used to guide this process. Thermos is a free online user-friendly tool with open-source software that has address-level mapping and built-in demand estimations<sup>35</sup>.

**2.23** Considering the construction requirements for district heating, such solutions are most viable for new developments. Different solutions for heat source technology can be used for district heating include combined heat and power engines (CHP), biomass boilers or heat pumps. Pipeline installations and networks must be considered carefully to avoid any potential impact on landscape and biodiversity.

**2.24** Depending on the heat source technology, District Heating can be a carbon efficient means of energy supply, compared to individual heating systems. The most efficient heat source technologies include combined heat and power engines (CHP), biomass boilers or heat pumps. District heating is beneficial for new development sites and in areas where there is a high energy demand. However, consideration must be given to the installation of the pipe networks and other wider development plans in the area and the potential impact on local landscape and biodiversity due to the scale of works required.

**2.25 Thermal storage** – thermal storage can be used to manage peaks in district heating or cooling. Thermal energy storage refers to storage of cold or hot water in insulated tanks to use when demand is increasing.

## Renewable Energy

**2.26** Applicants should use renewable energy technologies. Considering that much of the Borough is located within an Area of Outstanding Natural Beauty (AONB), large scale renewable energy schemes such as wind farms may not be appropriate for many locations. However, there is potential for smaller scale renewable energy generation through solar thermal and photo voltaic, heat pumps, and small-scale wind technologies.

**2.27 Solar technologies** – such as photovoltaic (PV) panels and solar thermal units can be easily installed on new and existing buildings across Waverley. For listed and more traditional in character buildings there are solutions such as solar roof tiles, which work as PV panels however they completely neutralise the potential visual impact. PV panels produce electricity from sunlight and can either be mounted or integrated on roofs or façades of buildings or used freestanding on the ground (e.g. PV farms).

**2.28** Solar thermal units heat water which is integrated to a building's hot water system using a heat exchanger or co-location<sup>36</sup>. To extract the most energy from the sunlight, solar panels should ideally be located anywhere between south east and south west to ensure that a direct sunlight reaches the panel.

**2.29** Installation of solar panels on a residential dwelling may require compliance with Building Regulations. Consideration must be given to:

- Electrical safety.

- Structural loading and stressing, including snow loading.
- Wind uplift which may affect wind pressure influencing the roof.
- Resistance to moisture, ensuring water tightness of the roof.

**2.30 Wind turbines** – wind turbines use wind power to rotate blades and generate electricity. Macro wind turbines usually comprise a tower, blades, a generator, and a transformer. Whereas micro wind turbines suitable for application at the building scale comprise of blades, rotor, gearbox, and generator. Wind turbines can be grid-connected or off-grid. Off-grid systems require battery storage to store surplus electricity, providing a more stable electricity supply. Their application is particularly useful in rural and more remote areas, where grid power is not available. Building-integrated turbines can be mounted to new and existing buildings. Micro wind turbines are being designed to be more visually attractive, without compromising their performance. Moreover, using low-noise blades design, vibration isolators and sound absorbing materials around the gearbox and generator majority of noise can be eliminated. Consideration must be given to available wind speed and direction, as well as impacts in terms of noise, trees, local ecology and impact on local landscape and historic environment.

**2.31 Hydropower** – harnesses energy from falling or fast-flowing water in rivers and streams. Opportunities for small scale hydropower generation may exist on the River Wey, wherever a stream runs down a hillside, a river passes over a waterfall or weir, or a reservoir discharges back into a river.

<sup>35</sup> Thermos (n.d.) Thermos Tool. [online] Available at: <https://www.thermos-project.eu/home/>

<sup>36</sup> Co-location combines a battery storage with another form of intermittent generation.

However, careful assessment of potential impacts of a hydropower development on the local landscape, ecology and historic environment should be carried out.

**2.32 Biomass boilers** - Biomass boilers and wood fuelled heating systems use logs, woodchip, wood pellets, and waste products as a fuel alternative to oil and gas. Consideration must be given to potential disturbance to protected species (e.g. bats in chimneys/roofs), the impact of chimneys or flues, storage of fuel, and the impact on local air quality.

**2.33 Anaerobic digestion** - is a process through which natural matter (e.g. agricultural manure, wastewater biosolids, and food waste) is broken down in a sealed tank (without oxygen) to produce biofuel which can then be used as a fuel for heating or to generate electricity. There is scope for small scale anaerobic digesters which could be used by small scale farmers. Key considerations must include access, storage of natural matter, and the potential for impacts on landscape, ecology, and the historic environment. There is also potential to inject biomethane from anaerobic digestion process into the national gas grid, as in the case of the anaerobic digestion facility at Dunsfold Park.

**2.34** In accordance with the NPPF and Policy CC3, the Council will support community-led initiatives for renewable and low carbon energy.

### Existing buildings

**2.35** Retrofitting of existing buildings has the potential to play a significant role in reducing our carbon footprint. It ensures that existing buildings stay in use for a longer period of time and reduces demand for virgin materials.

**2.36** Applicants should consider the re-use of existing buildings. Where demolition is proposed, this should be justified in relation to sustainability objectives.

**2.37** There is a range of energy efficiency solutions and micro-generation of renewable energy that can be installed without planning permission on existing buildings.

**2.38** Where an existing building has a degree of historic significance, planning permissions are required. Applicants should discuss with the Council's Conservation Team where measures are being considered. Appropriate measures include:

- Insulating the loft.
- Improved ventilation.
- Energy efficient lightbulbs (LED bulbs).
- Refurbishing of the single glazed windows, secondary glazing.
- Installation of a heat pump.
- Installation of solar panels to generate power.
- Maintenance of the roof and gutters.

**2.39** For traditional buildings, a 'whole building approach' to energy efficiency should be taken to ensure improvements are effective, will not cause damage or harm to the building, will not harm its occupant's health and to ensure that improvements are cost and time effective. Traditional buildings may not need expensive or intrusive measures to improve their energy performance. There are a range of low-cost measures compatible with most buildings of traditional construction including:

- Understanding the building's original heating, cooling and ventilation measures before additional measures are considered.
- Ensuring that damp and draught issues are addressed using appropriate materials.
- Reducing the overall energy demand by optimising natural lighting, ensuring better use of rooms, and adding thick curtains, blinds, and carpets etc.
- Implementing draught proofing measures where possible, for suspended wooden floors, open chimneys, and gaps around windows to minimise heat loss.

### Dunsfold Park

**2.40** Dunsfold Park is a new garden village planned in the south-east of the Borough, and it aims to support sustainable rural living. The proposals included in the Dunsfold Garden Village SPD align with the advice provided within this SPD and require applicants to demonstrate:

- How energy hierarchy principles and suggestions have informed the approach to design and construction; and
- How the proposals have employed 'Fabric FirstFabric First' principles including well considered orientation of the building, window placement, planting for shade, air-tight and well-insulated buildings, dual aspect homes with openable windows on both sides to allow for cross ventilation, avoidance of excessive solar heat gain, active demand responsive appliances and enable achieving Passivhaus certification.

## Chapter 3

# Sustainable site layout, landscaping, and orientation of buildings

**3.1** Due to the changing climate, Waverley Borough will have hotter and drier summers and warmer and wetter winters. The area is already prone to flooding, and flood risk is likely to intensify further with the changing climate<sup>37</sup>. Therefore, appropriate site layout, landscaping and orientation of buildings, green infrastructure, Sustainable Drainage Systems (SuDS) and other water retention solutions will not only reduce risk of flooding but also minimise the risk of overheating.

### Link to Key Local Plan Policy Criteria

- **CC1: Climate Change** - development will be supported where it contributes to mitigating and adapting to the impacts of climate change, including measures that:
  - use of green infrastructure and SuDS to help absorb heat, reduce surface water runoff, and support habitat network.
- **CC2: Sustainable Construction and Design** - the Council will seek to promote sustainable patterns of development and reduce the level of greenhouse gas emissions by:

- ensuring all new development, including residential extensions, include measures to minimise energy use through its design, layout, landscape and orientation.
  - encouraging the use of natural lighting and ventilation.
  - incorporating measures that protect and, where possible, enhance the biodiversity value of the development.
- **CC4: Flood Risk Management** – development must be located, designed and laid out to ensure that it is safe. Developments which minimise risk of flooding will be supported. Moreover, development should not increase risk of flooding elsewhere. Planning permission will only be granted where it can be demonstrated that:
- Sequential and exceptions tests were undertaken and passed;
  - Development is located in the lowest appropriate flood risk location; and
  - Development does not constrain the natural function of the flood plain.

<sup>37</sup> DEFRA, DBEIS, Met Office, EA (2019) UKCP18: Factsheet: Derived Projections. [online] Available at:

(<https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-fact-sheet-derived-projections.pdf>)

- **NE1: Biodiversity and Geological Conservation** - the Council will seek to conserve and enhance biodiversity within the Borough by:
  - Retaining, protecting and enhancing features of biodiversity and geological interest and ensuring appropriate management of those features.
  - Ensuring any adverse effects are avoided, or if unavoidable, are appropriately mitigated.
- **NE2: Green and Blue Infrastructure** – the Council will seek to protect and enhance benefits to the existing river corridor and canal network, including landscaping, water quality or habitat creation.

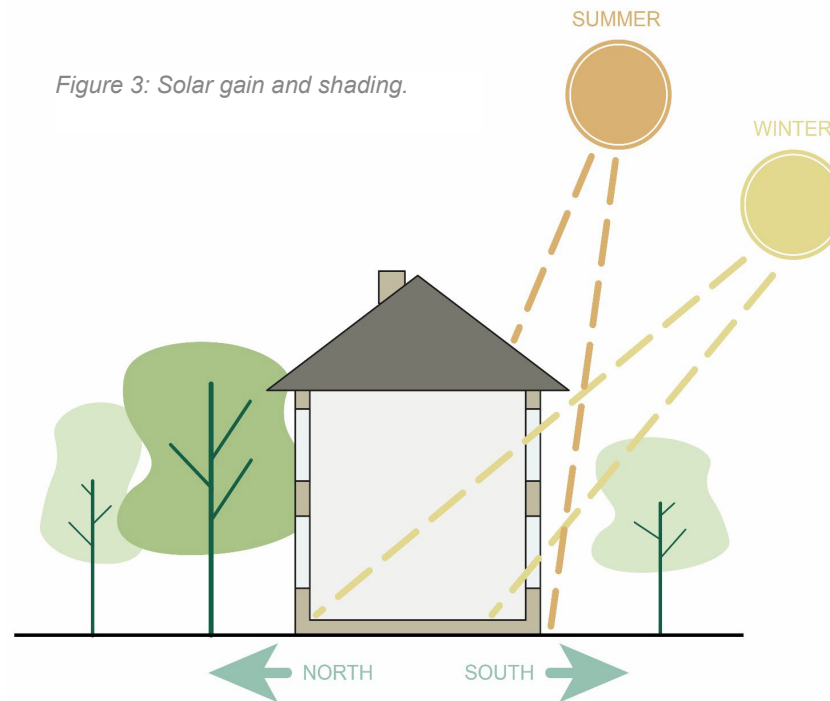
## Requirements and Guidance

### Optimising Development Orientation and Density

**3.2 Passive solar design** – orientation of buildings should take advantage of and maximise solar gain during the high summer and low winter sun angles on southern exposures, whilst minimising excessive solar gain on east and west exposures from low sun angles. Such orientation of a building can significantly reduce the overall energy consumption of a building. **Applicants must demonstrate how orientation of the building/s has been considered.**

**3.3 Overheating** – provision of natural shading through building overhangs, balconies, grouping, green walls and trees, should be encouraged to reduce the risk of overheating during the summer and minimise heat loss in the winter. Secondary measures include internal blinds and thick curtains. **Applicants must demonstrate what measures are taken to reduce overheating of buildings.**

Figure 3: Solar gain and shading.



### Use of green and blue infrastructure and SuDS

#### Requirements and guidance for trees, landscaping, local food growing and green and blue infrastructure

**3.4** Green and blue infrastructure include parks, open spaces, green roofs and walls, rivers, canals, and open water, and it is key to the Borough's climate resilience. By improving habitats and species it can also help to reduce flood risk.

**3.5** There is also a range of other benefits to be gained through Green Infrastructure networks such as improved opportunities for walking and cycling, reduced carbon emissions and improved health and well-being of local communities.

**3.6** Considering that the Borough has a relatively low uptake of active travel and in particular cycling, **Applicants must take opportunities to ensure that new and existing developments are well connected and provide safe and convenient opportunities for walking, cycling, and wheeling along green corridors.**

- Green and blue infrastructure should be considered at the design stage of the development. Applicants should consult representative stakeholders to identify, appraise and agree actions for the project that will optimise the benefits of green and blue infrastructure.

- Green and blue infrastructure should be designed to provide flood prevention, cooling buildings during summer months, sustainable transport, active travel, and biodiversity.

- **Applicants must demonstrate how the development protects, enhances, and prevents from fragmentation of existing green infrastructure. Also, applicants must demonstrate how existing and new natural features will be integrated into a**



Figure 4: Benefits of Green Infrastructure.

**multifunctional green infrastructure network to deliver a range of benefits and ecosystem services. Green corridors in particular must be used to extend and enhance existing ecosystems extending habitat networks.**

- Proposals for green and blue infrastructure should ensure that the location, materials, scale, and use complement the Borough's landscape character. This can be achieved by for example increasing the mosaic of

habitats including grasslands and woodland. Applicants should prioritise native planting that provides habitat for local wildlife following 'the right tree in the right place' approach. Where possible, transitional habitats should be created between woodland and grasslands to increase the diversity of microclimates and habitats for species, which is an important feature for climate change adaptation.

- Consideration should be given to the location, landscape character and heritage significance of conservation areas, historic parks and gardens, archaeological features and important trees and

hedgerows.

- Green and blue infrastructure will require management and maintenance after installation if long-term benefits and ecosystem services are to be delivered. Provision of funding will be required, and this should be factored into the design and implementation, balancing the costs with the benefits. Applicant should also liaise with the Council to agree on the management of verges for wildlife.

- Proposals should specifically include planting of deciduous trees to provide shade to buildings, helping to limit direct exposure to sunlight in the summer months, and to provide shade for public open space and outdoor seating.
- Applications should demonstrate how street trees and other street planting will be planted to soften the impact of car parking, help improve air quality and contribute to biodiversity (Figure 6). Moreover, provision should be made to ensure long-term maintenance of street trees.
- Other forms of multi-functional green infrastructure should be included such as natural play areas alongside green and blue infrastructure, SuDS and the use of formal and native hedging instead of fences or walls, for example around public open space, play and picnic table areas.
- Applicants should also demonstrate how growing spaces and composting spaces will be incorporated into the design of the development (Figure 5).



Figure 5: LUC owned image

#### Guidance on integrating green infrastructure into development

- When integrating green infrastructure into a development, consideration of the site context for green infrastructure is important and the linking of green space to create wildlife corridors. **Applicants must demonstrate how site's context have been accounted for in designing green infrastructure.**

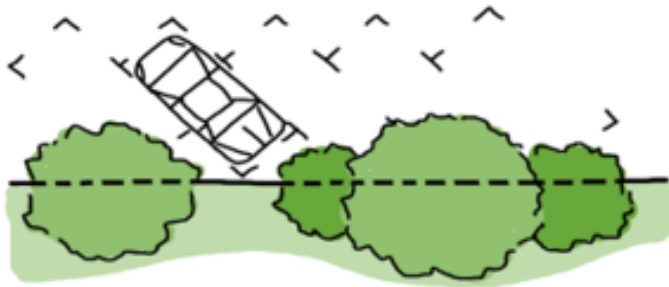
The council encourages that for every felled tree, two trees are planted, following 'the right tree in the right place' approach and ensuring long-term suitability of a tree type for the changing climate<sup>38</sup>.

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<sup>38</sup> Forest Research (n.d.) Urban Tree Manual. [online] Available at: <https://www.forestresearch.gov.uk/tools-and-resources/fthr/urban-tree-manual/>



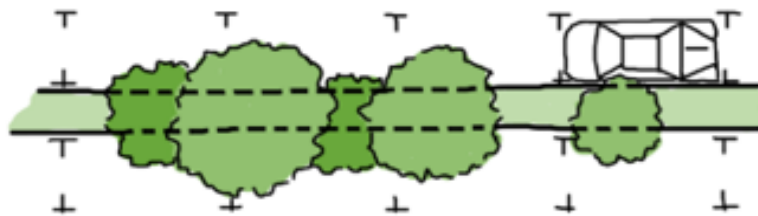
Angled to with parking spaces



In line with pavement



Central reservation



Housing square



Figure 6: Trees and planting used to soften parking impact

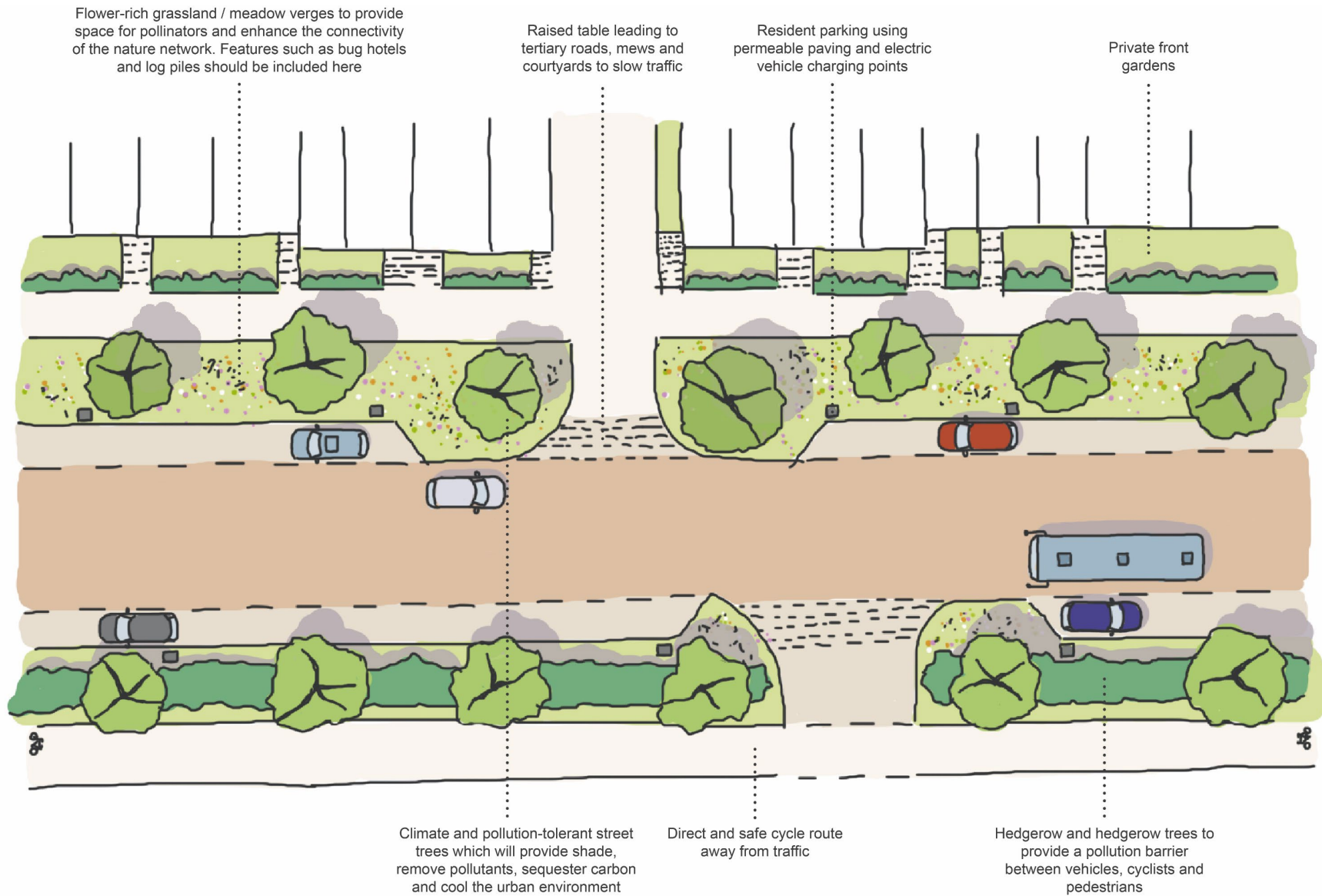


Figure 7: Incorporating green infrastructure and active travel features into a primary residential street.

### Applying sustainable drainage principles to new streets in development

**3.7** Traditionally, the approach to removing excessive water from flash flooding off the site focused on installation of pipes which would push the water off the site quickly. SuDS try to mimic natural drainage systems and retain water on or near the site, reducing the rate of surface water run-off even at times of peak rainfall.

**3.8** Applicants should find alternative drainage measures to discharging rainwater directly into the sewer system.

**3.9** SuDS ensure ground water recharge, improve water quality, improve amenity, and help to reduce the frequency and intensity of floods if the capacity of sewers is exceeded. Well-designed SuDS schemes can also enhance biodiversity and habitats.

**3.10 Applicants must include SuDS within major development proposals.** There is a range of SuDS solutions enabling any development to install solutions most suitable to its context. Applicants should demonstrate what SuDS solution is the most suitable for the development and how it will be incorporated. Moreover, **Applicants must make arrangements for the ongoing maintenance of the SuDS schemes over the lifetime of the development ensuring the health, safety and well-being of residents and visitors.**

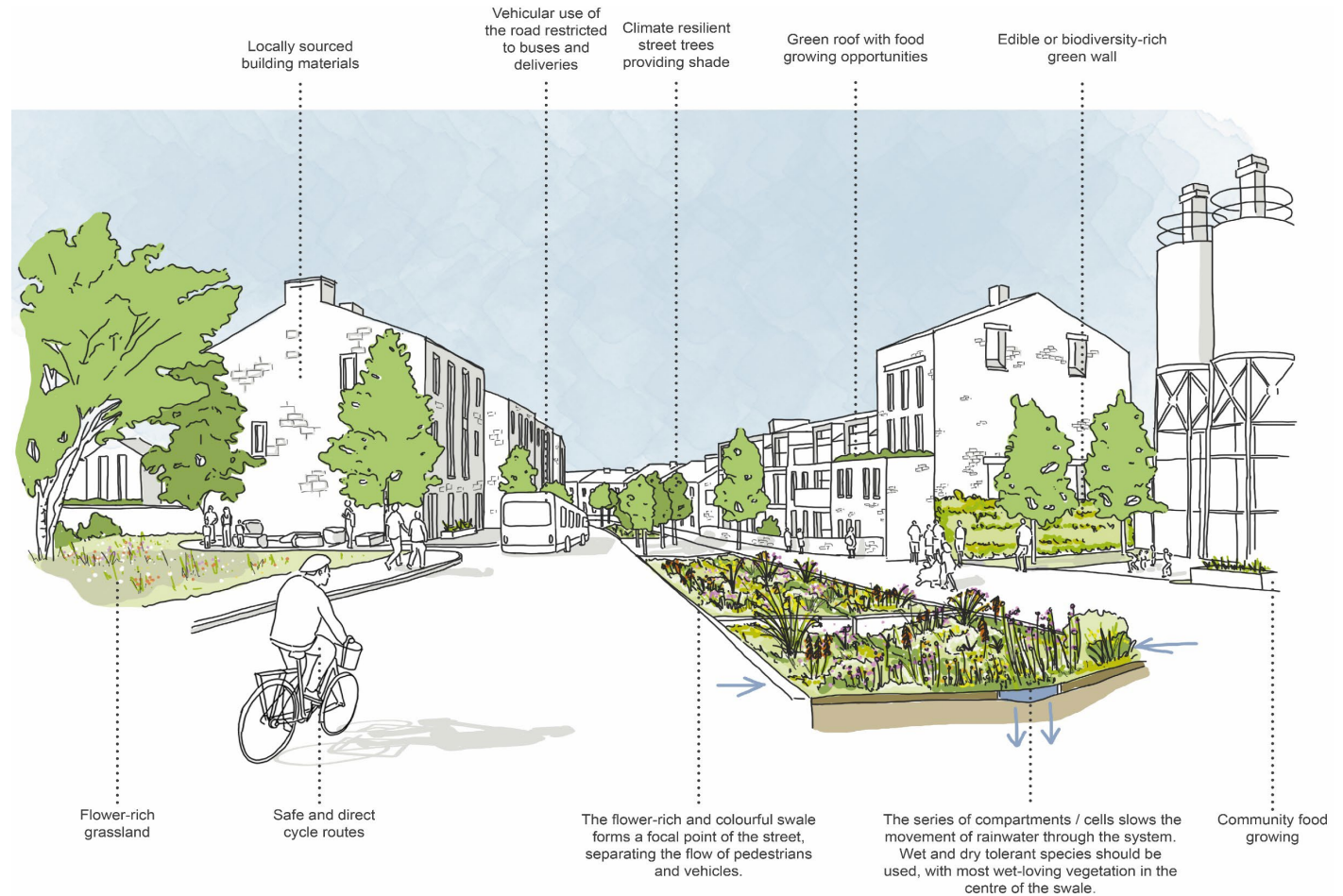


Figure 8: Applying sustainable drainage principles to new streets in development.

### The Drainage Hierarchy

**3.11 Applicants must demonstrate compliance with the drainage hierarchy (Figure 9).**

**3.12** Applicants should ensure appropriate pollution prevention and water treatment measures are designed and installed in drainage systems in accordance with C753 The SuDS Manual and the National Standards for Sustainable Drainage Systems. Examples of SuDS include swales, permeable surfaces, wetlands, rainwater harvesting systems and green roofs.

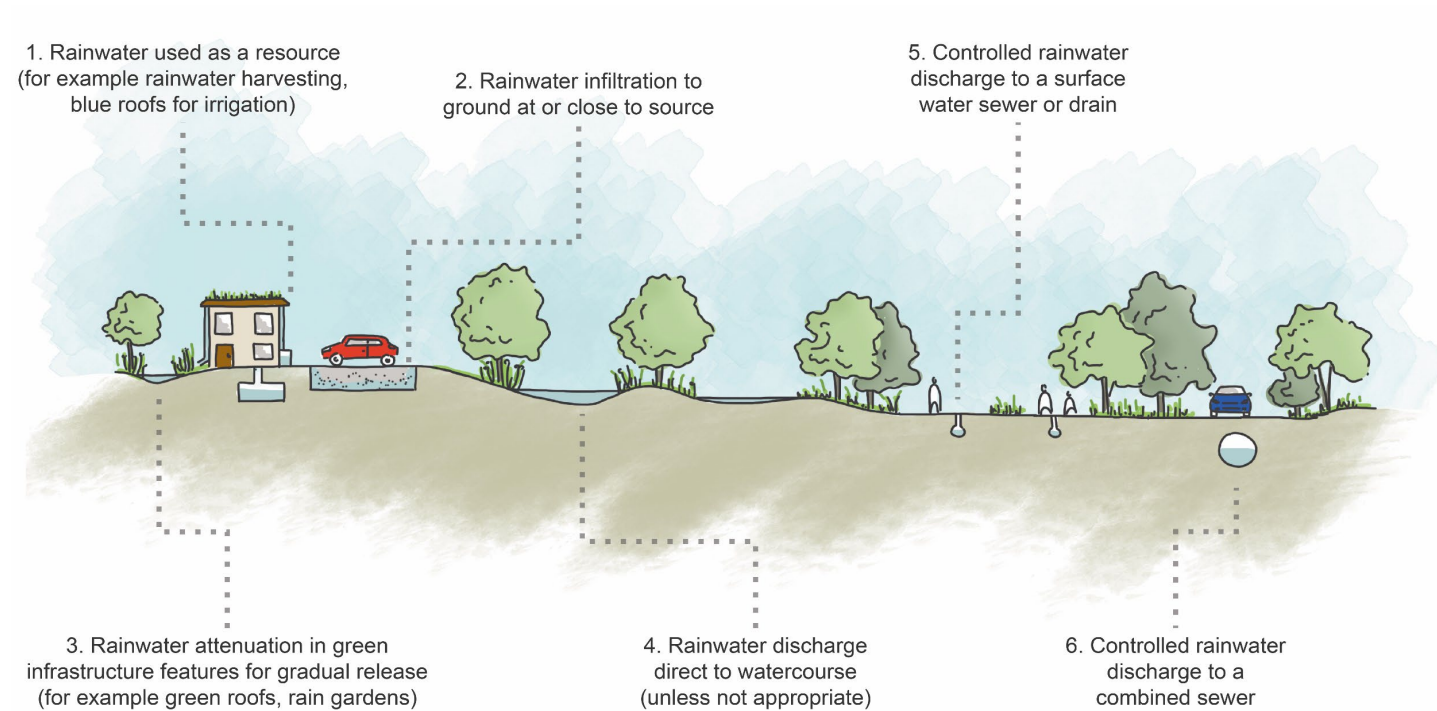


Figure 9: The Drainage Hierarchy.

**3.13** Figure 10 provides an example of incorporating large-scale retention basins into the public open space adjacent to residential development. Although a large proportion of the area is taken up by sustainable drainage features, a variety of recreation and ecosystem services are provided whilst also ensuring the new development is climate resilient.

**3.14** The example of Figure 10 is just one potential option for large-scale water retention, but other options, including retention of non-stagnant water bodies should be given due consideration when implementing such features.



Figure 10: How large-scale retention basins can be incorporated into the design of residential schemes.

### Incorporating measures that protect and where possible, enhance the biodiversity value of the development

#### Guidance on achieving Biodiversity Net Gain

**3.15** Development should aim to provide a minimum of 10% net gain in biodiversity ahead of the mandatory requirement coming in 2023, and Applicants could go beyond the 10% of BNG. Measures to achieve this should reflect Biodiversity Net Gain (BNG) guidance<sup>39</sup> and the following BNG principles:

- Apply the mitigation hierarchy – first avoid, then minimise any potential impact on biodiversity.
- Avoid losing biodiversity that cannot be offset elsewhere.
- Be inclusive and adaptable – engage stakeholders early and involve them in designing, implementing, monitoring, and evaluating.
- Address risk – mitigate uncertainty and other risks to achieving net gain.
- Make a measurable net gain contribution – achieve a measurable, overall gain for biodiversity and ecosystem services.

**3.16** Proposed green walls and rooftops should enhance biodiversity of the area by including suitable and varied plant species that include a mix of native and ornamental species.

**3.17** Proposed planting should include nectar and pollen-rich plants to encourage pollinators and should be drought tolerant.

**3.18** Proposals should include wildlife infrastructure such as swift bricks, bat boxes, beehives, and hedgehog tunnels under the streets and fences.

#### Linking of green spaces to make wildlife corridors

**3.19 Applicants must demonstrate how the existing and new green infrastructure will link with the wider wildlife corridors in the area. This also includes highlighting the role of gardens in wildlife corridors.**

**3.20** Green spaces can include biodiversity corridors, trees, shrubs and hedges and greenways.

#### Dunsfold Park SPD

**3.21** The proposals included in the Dunsfold Garden Village SPD align with the advice provided within this SPD and will require applicants to demonstrate:

- How a design process has sought to achieve getting maximum natural light into dwelling spaces and outdoor spaces.
- That all homes are dual aspect, unless exceptional circumstances justify otherwise, Spatial Daylight Autonomy of 300 lux for 50% of occupied hours over a minimum of 50% floor area, generous floor to ceiling heights (in excess of 2.3m) with large window sizes to living areas and smaller windows to bedrooms and kitchens, layouts that all windows should be openable on the quieter side of the home, and positive outlook onto

gardens, courtyards, streets and open spaces avoiding servicing, parking or enclosed areas.

- Undertake a Life Cycle Assessment (LCA) achieving an upfront embodied carbon target of < 300kg CO2/m2 for residential buildings.
- Design and choose materials that limit embodied carbon, demonstrating how a target of 30% of re-used materials have been utilised, local materials sources transported sustainably.
- Ensure longevity of materials to limit maintenance and replacement over time.
- Design for flexibility and adaptability so buildings require less energy for alternation and modification.
- Design for a circular economy using Modern Methods of Construction.
- Plant species should include nectar and pollen rich plants and other native species for the new landscaping scheme and planted rooftops should improve biodiversity and building environmental performance.

<sup>39</sup> CIEEM (2019) Biodiversity net Gain. Good practice principles for development: A practical guide. [online] Available at: <https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net->

[gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf](https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf)

# Chapter 4

## Climate change resilience and adaptation

**4.1** Flood risk within Waverley is expected to intensify with the changing climate.

### Link to Key Local Plan Policy Criteria

- **CC1: Climate Change** - development will be supported where it contributes to mitigating and adapting to the impacts of climate change, including measures that:
  - provide appropriate flood storage capacity
  - provide high standards of sustainable design and construction with built-in resilience to climate change (e.g. from flood risk, storms, higher temperatures and drought).
- **CC4: Flood Risk Management** – development must be located, designed and laid out to ensure that it is safe. Developments which minimise risk of flooding will be supported. Moreover, development should not increase risk of flooding elsewhere. Planning permission will only be granted where it can be demonstrated that:

- Sequential and exceptions tests were undertaken and passed;
- Development is located in the lowest appropriate flood risk location; and
- Development does not constrain the natural function of the flood plain.

### Requirements and Guidance

**4.2** The Surrey Local Flood Risk Management Strategy<sup>40</sup> sets out a long-term vision for reducing the impact of flooding in Surrey at a catchment scale. It aims to enable partnership working to mitigate the risk of flooding and encourages sustainable flood risk management through planning and development. It focuses on utilising measures such as SuDS and environmentally beneficial measures.

**4.3 Reflecting national policy, a development's location must avoid flood risk areas. If this is impossible, the development should ensure it is safe throughout its lifetime and it is not increasing flood risk elsewhere. Buildings and their surroundings must be safe from flooding by for example raising them above the design flood level.** As set out in the Planning Practice Guidance<sup>41</sup>,

<sup>40</sup> Surrey County Council (n.d.) Surrey Local Flood Risk Management Strategy 2017 – 2032. [online] Available at:

[https://www.surreycc.gov.uk/\\_data/assets/pdf\\_file/0005/136724/Surrey-Local-Flood-Risk-Management-Strategy-FINAL\\_v2.pdf](https://www.surreycc.gov.uk/_data/assets/pdf_file/0005/136724/Surrey-Local-Flood-Risk-Management-Strategy-FINAL_v2.pdf)

<sup>41</sup> UK Government (2021) Flood Zone and flood risk tables. [online] Available at: <https://www.gov.uk/guidance/flood-risk-and-coastal-change#flood-zone-and-flood-risk-tables>

flood resistance and resilience measures cannot be used to justify development in locations with a flood risk.

**4.4 For sites which require site-specific flood risk assessment, all current and future sources of flooding and climate change must be considered, following the Environmental Agency's (EA) guidance<sup>42</sup>.** This should include consideration of sewer flooding.

**4.5** Applicants should address the cumulative impacts in, or affecting, local areas susceptible to flooding and provide space for physical protection measures, or make provision for possible future relocation of vulnerable development or infrastructure.

**4.6** It may be necessary for more stringent measures which go above and beyond what is outlined in this SPD to be required to ensure proposed developments are safe from the risk of flooding over the lifetime of the development.

**Consider an adaptive approach: measures to manage flood risk now and in the future**

**4.7** An adaptive approach allows for better planning and for adaptation to future climate risks. Such an approach enables practitioners and policy makers to plan, monitor and review how the adaptation measures are fit for future flooding. Adaptive approaches should be proportionate and appropriate to particular places and circumstances, ranging from simple no regret actions (such as avoiding inappropriate development in

high flood risk zones or incorporating drainage into the design of new development) to more complex activities (e.g. developing adaptive pathway plans to manage future flooding over large geographies)<sup>43</sup>.

**Guidance on increasing resilience to flooding in building design**

**4.8** The Department for Communities and Local Government's *Improving the Flood Performance of New Buildings: flood resilient construction (2007)*<sup>44</sup> details how to achieve flood resilience for new properties using suitable materials and construction methods.

**4.9** The key principle refers to flood resilient design which uses durable materials which are water resistant. Moreover, the guidance advises to rely on construction methods and materials that will allow for easy draining and drying, and appropriate drainage system and management of surface water runoff. Some other solutions

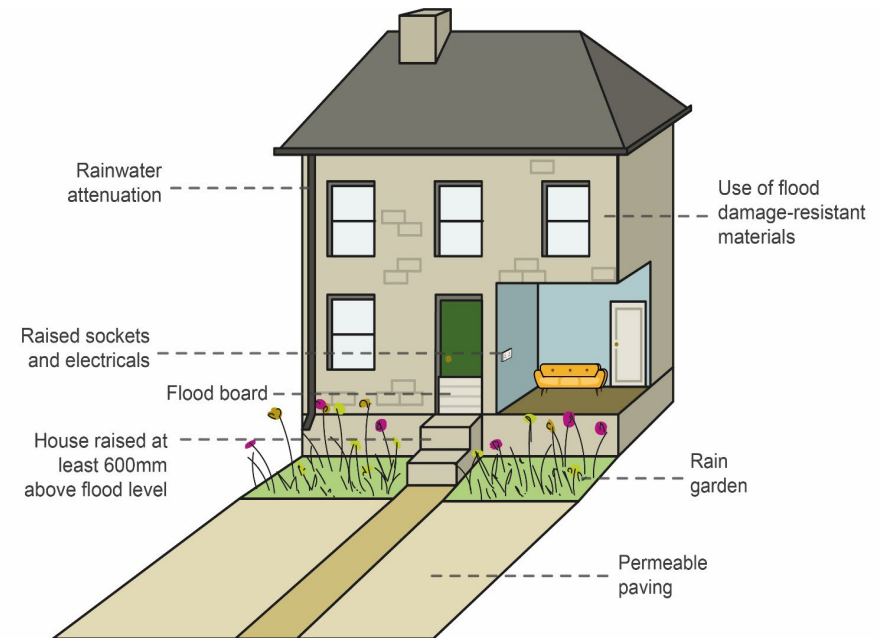


Figure 11: Flood resilient dwelling.

include using boundary walls and fencing that can have a dual purpose and protect people and property from flood risk. This can be ensured by using solid gates with discreet waterproof seals if viable, integral drains, or fencing. Guidance includes actions that can be taken to avoid flooding from occurring such

<sup>42</sup> UK Government (2021) Flood risk assessment: climate change allowances. [online] Available at: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

<sup>43</sup> EA (2021) Delivering benefits through evidence: literature review on an adaptive approach to flood and coastal risk. [online] Available at:

[https://assets.publishing.service.gov.uk/media/606ef21fe90e076f5589bb7d/Evidence\\_to\\_support\\_an\\_adaptive\\_approach\\_to\\_flood\\_and\\_coastal\\_risk\\_management\\_report.pdf](https://assets.publishing.service.gov.uk/media/606ef21fe90e076f5589bb7d/Evidence_to_support_an_adaptive_approach_to_flood_and_coastal_risk_management_report.pdf)

<sup>44</sup> Environment Agency (2007) Flood resilient construction of new buildings. [online] Available at:

<https://www.gov.uk/government/publications/flood-resilient-construction-of-new-buildings>



as ensuring the threshold levels into property are above the design flood level. Another solution is to ensure that the design of the internal layout of the property allows for living accommodation, essential services, storage space for key provisions and equipment to be above predicted flood level<sup>45</sup>.

**4.10** To increase the resilience and resistance of the development to flooding, applicants should ensure that (Figure 11):

- The ground level of all habitable parts of the home and access to both the site and homes, are designed to be at least a 600mm<sup>46</sup> threshold above the design flood level of the flood zone in which the development site is located. In areas where short duration flooding outside with water depths of 0.6 metres or less occurs. However, construction in such areas should be delivered with caution and ensured by resilience measures<sup>47</sup>.
- The design of the building and the wider site follow the recommendations made by an appropriately qualified professional in accordance with BS 8552000:2015<sup>48</sup>.
- The process of selection and installation of property flood resilience measures should comply with the Property Flood Resilience Code of Practice<sup>49</sup> to ensure the suitability of the measures and their correct installation.

**4.11** Applicants should ensure that permeable surfaces, which allow for infiltration and reduce surface water runoff, are considered at the design stage.

**4.12** A Landscape Management Plan should be provided for applications that include a landscaping scheme. Such plans should also be prepared for any developments that host important habitats, greenspaces or are public facing.

**4.13** Appropriate land management can enhance water infiltration, reduce surface water run-off, and diffuse pollution from agricultural activities.

**4.14** Applicants should ensure that layout and form of development is flood resilient, safeguarding land for flood risk management, designing off-site works required to protect and support development.

**4.15** Traditional buildings in flood risk areas tend to be constructed using materials which absorb and release water, but the drying process is slow. In most cases, historic materials and finishes can be retained after flooding, if treated carefully. However, it is important to ensure that appropriate measures are taken during retrofitting to ensure that drying processes will be secured. Therefore, it is discouraged to apply solutions such as cement-based coatings or injected damp-proof courses<sup>50</sup>.

**4.16** Water basins and swales can be incorporated into a development. Swales are grassed depressions which help to drain water, for example from roads or pavements. They have relatively low maintenance costs. Basins are designed to help hold back storm runoff for a period of time, providing temporary storm water storage and reduced peak flows to receiving waters.

#### Reference to codes of practice

**4.17** CIRIA C790 – Making your property more flood resilient<sup>51</sup> sets a benchmark for those installing or constructing property flood resilience and includes six standards specifying what should be achieved when delivering property flood resilience.

#### Dunsfold Park SPD

**4.18** The proposals included in the Dunsfold Garden Village SPD align with the advice provided within this SPD and will expect applicants to:

- Take a comprehensive approach to water management through the integration of Sustainable Drainage Systems with reference to the Surrey Local Flood Risk Management Strategy or the updated version of the document.

<sup>45</sup> Ibid.

<sup>46</sup> Ibid.

<sup>47</sup> Planning Practice Guidance Paragraph: 059 Reference ID: 7-059-20140306

<sup>48</sup> Home Quality Mark (2018) Technical Manual. [online] Available at: <https://www.homequalitymark.com/wp-content/uploads/2018/09/HQM-ONE-Technical-Manual-England.pdf>

<sup>49</sup> Ciria (n.d.) Code of practice for property flood resilience (C790). [online] Available at: [https://www.ciria.org/Resources/Free\\_publications/CoP\\_for\\_PFR\\_reso\\_urce.aspx](https://www.ciria.org/Resources/Free_publications/CoP_for_PFR_reso_urce.aspx)

<sup>50</sup> Historic England (2015) Flooding and Historic Buildings. [online] Available at: <https://historicengland.org.uk/images->

<books/publications/flooding-and-historic-buildings-2ednrev/heag017-flooding-and-historic-buildings/>

<sup>51</sup> Ciria (n.d.) Code of practice for property flood resilience (C790).

[online] Available at: [https://www.ciria.org/Resources/Free\\_publications/CoP\\_for\\_PFR\\_reso\\_urce.aspx](https://www.ciria.org/Resources/Free_publications/CoP_for_PFR_reso_urce.aspx)

- Consider flood risk management at early stages and should promote and protect green and blue corridors.

# Chapter 5

## Use of sustainable resources and materials and sustainable management of waste

**5.1** In 2018 England generated 61.4 million tonnes of non-hazardous construction and demolition waste, of which 93.8% was recovered. Even though the recovery rate is high, the process requires a lot of energy and is costly<sup>52</sup>. Therefore, applying more sustainable approaches to the use of resources and materials is important to both reducing the amount of virgin materials required and reducing the overall carbon footprint of a building.

### Link to Key Local Plan Policy Criteria

- **CC1: Climate Change** - development will be supported where it contributes to mitigating and adapting to the impacts of climate change, including measures that:
  - provide high standards of sustainable design and construction with built-in resilience to climate change (e.g. from flood risk, storms, higher temperatures and drought).
- **CC2: Sustainable Construction and Design** - the Council will seek to promote sustainable patterns of

development and reduce the level of greenhouse gas emissions by:

- minimising construction and demolition waste and promoting the reuse and recycling of building materials.
- requiring the design of new development to facilitate the recycling and composting of waste.

### Requirements and Guidance

#### Requirements for Site Waste Management Plan

**5.2** A Site Waste Management Plan should be prepared and adopted for the construction phase of the development to design waste out from the lifecycle of the building or at least minimise it (minimal waste during construction, operation, deconstruction, next life of the built asset), and to divert as much waste as possible from landfill.

**5.3 All developments must provide the necessary space to facilitate recycling, including glass, cans, cardboard, paper, plastics, aerosols, cartons, and batteries, in accordance with Waverley Borough waste collection**

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<sup>52</sup> Chau, W. Y. Ng. (2015) New Life of the Building Materials – Recycle, Reuse and Recovery. Energy Procedia. [online] Available at: <https://www.sciencedirect.com/science/article/pii/S1876610215013491>

**services.** This also includes food and garden waste for households and could be accomplished by:

- Adopting community composting schemes; and
- Providing in-built compost heaps within the gardens of individual properties or shared amenity spaces.

**5.4** Where off-site disposal is necessary, appropriate measures should be taken to help minimise transportation distances.

#### Re-use of materials

The demolition of buildings should be minimised as far as possible to make the best use of embodied energy. Materials derived from any demolition should be re-used on site, and if this is not feasible, opportunities for off-site refurbishing/repurposing should be considered. Applicants should demonstrate how material waste minimisation has been considered at the design stage.

#### Modular design

**5.5** Modular construction, where structures are built using prefabricated parts and manufactured offsite, can result in more efficient use of materials and more control over the quality of elements such as insulation. It is also easier to manage energy and material use in a factory setting than in an open construction site. Modular construction techniques are now able to incorporate materials which complement traditional settings. Standardised element or modular designs

can also reduce construction waste and facilitate reuse at the end of its first life.

#### Use of low carbon and environmental impact materials

**5.6** Applicants should make use of low carbon and environmental impact materials (including materials with recycled content) throughout the building lifecycle. This helps minimise the impact of the resources consumed, and such approach should be prioritised.

**5.7** Applicants should make use of locally sourced building materials. This not only helps to maintain local character of the Borough, but also reduces the carbon impacts of transport over longer distances and are strongly encouraged. Guidance on locally appropriate materials can be found in Surrey Design Guide SPD<sup>53</sup> or within Neighbourhood Plans that include policies on local design.

**5.8** Building materials should also be chosen to be resilient and withstand the expected changes in climate, including warmer summers and wetter winters. Resilient building materials will minimise the need to replace materials, thus reducing embodied carbon and reducing waste.

#### Principles of a 'circular economy'

**5.9** Applicants should demonstrate how the planned development will conserve resources, increase resource efficiency and sustainable sourcing of materials.

**5.10** Applicants should design waste out from the lifecycle of a building.

**5.11** Applicants should demonstrate how sustainable construction and operational waste will be managed and ensure that it is managed at the highest value.

**5.12** Structural elements should last as long as the building does, whenever possible. If this is not possible due to for example anticipated change in requirements (e.g. IT infrastructure), those elements should be reusable, recyclable or dismantlable.

**5.13** Development should prevent premature building demolition by anticipating changes in requirements and enabling adaptations.

**5.14** Applicants should consider how buildings could be adapted to meet changing community needs and how products and materials can be designed for assembly, deconstruction, reuse, or recycling at the end of their lifetime. This will help to reduce embodied carbon and waste in the long term.

#### Dunsfold Park SPD

**5.15** The proposals included in the Dunsfold Garden Village SPD align with the advice provided within this SPD and will promote measures such as:

- All materials should be attractive, high quality, robust, and require limited maintenance.
- Locally sourced materials should be used where possible to reduce transportation distances and carbon emissions.

<sup>53</sup> Surrey County Council (2002) Surrey Design: A strategic guide for quality-built environments. [online] Available at:

[https://www.surreycc.gov.uk/\\_data/assets/pdf\\_file/0008/66887/Surrey-Design.pdf](https://www.surreycc.gov.uk/_data/assets/pdf_file/0008/66887/Surrey-Design.pdf)

# Chapter 6

## Water efficiency

**6.1** Water resources are becoming scarcer across England, but in particular in the South. Some areas of Waverley are already experiencing water stress during summer months including Godalming, Milford, Haslemere, Cranleigh and the eastern part of Farnham. In 2013, the Environment Agency confirmed that all three water companies serving Waverley have serious water stress issues<sup>54</sup>. Ensuring all new developments, including residential extensions, include measures to minimise water use through design, layout, landscape, and orientation will be crucial for future water security.

### Link to Key Local Plan Policy Criteria

- **CC2: Sustainable Construction Design** - the Council will seek to promote sustainable patterns of development and reduce the level of greenhouse gas emissions by:
  - ensuring all new development, including residential extensions include measures to minimise water use through its design, layout, landscape, and orientation.

- ensuring that new dwellings shall meet the requirement of 110 litres of water per person per day.

### Requirements and Guidance

**Guidance on water efficiency measures – water efficient toilets, taps, showers, and domestic appliances**

**6.2** The Building Regulations (Part G)<sup>55</sup> has a mandatory standard of 125 litres person per day for all new homes. However, further water savings must be achieved as reflected in Policy CC2.

**6.3 Applicants must demonstrate how the development will implement water efficiency measures, what type of appliances will be installed in bathrooms, kitchens and gardens and water recycling schemes in order to meet the 110 litres per person per day requirement.**

**6.4** Applicants could reduce this requirement even further. Other water efficiency measures include:

- Ensuring correct water pressure levels.

<sup>54</sup> ATKINS (2020) Sustainability Appraisal of Waverley Borough Local Plan Part 2. [online] Available at: [https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-](https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/Waverley_SA_Final_Report_v3.0_2020_.pdf?ver=WF4IHZjCdY4bX1NrOmX7uQ%3D%3D)

[plan/Waverley\\_SA\\_Final\\_Report\\_v3.0\\_2020\\_.pdf?ver=WF4IHZjCdY4bX1NrOmX7uQ%3D%3D](https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/Waverley_SA_Final_Report_v3.0_2020_.pdf?ver=WF4IHZjCdY4bX1NrOmX7uQ%3D%3D)

<sup>55</sup> UK Government (2016) Sanitation, hot water safety and water efficiency: Approved Document G. [online] Available at:

<https://www.gov.uk/government/publications/sanitation-hot-water-safety-and-water-efficiency-approved-document-g>

- Water-saving fittings and appliances (such as dual-flush toilets, water-saving shower heads).
- Low-water-use washing and dishwashing machines.
- Devices that measure water consumption in a household.
- Insulated water tanks and hot water thermostat.

### Greywater recycling and rainwater harvesting

**6.5** The Council supports development that promotes water efficiency measures and incorporates water conservation techniques, including rainwater harvesting and greywater recycling.

**6.6** The use of recycled rainwater or greywater can considerably reduce demand for non-potable water from the mains supply for applications such as toilet flushing and irrigation. Applicants could achieve this by installing separate wastewater drainage systems for toilets and greywater resources.

**6.7** Rainwater collection and greywater recycling facilities such as communal rainwater tanks and water butts should be installed in residential developments where feasible. For non-residential developments of 1,000 sqm or more, Applicants should achieve the BREEAM 'Very Good' standard<sup>56</sup> which requires a minimum level of water consumption improvements over baseline usage.

### Guidance on the application of water efficiency measures in different types of development

**6.8** Applicants should demonstrate a fittings-based approach<sup>57</sup> to determine the water consumption for different types of development (residential, commercial, industrial, institutions e.g. schools). This approach is compatible with the emerging Water Label<sup>58</sup> which the Government and many water suppliers are supporting.

- For commercial and industrial operations, water efficiency measures may require rethinking parts of the production process that require water and installing water efficiency or recycling systems or upgrading existing solutions. Measures may also require detecting and preventing any leaks and delivering staff/student training to raise awareness on how water can be saved.
- For certain commercial and industrial processes rainwater harvesting and greywater recycling can deliver significant savings on water use.

### Dunsfold SPD

**6.9** The proposals included in the Dunsfold Garden Village SPD align with the advice provided within this SPD and will promote measures such as:

- Greywater recycling systems; these can make use of wastewater from kitchen and bathroom sinks, showers, baths, and dishwashers.
- Rainwater harvesting systems uses water tanks or butts to collect rainwater or redirect this for storage and reuse.
- On-site water management technology using sensors will monitor and anticipate extreme weather conditions.
- Permeable surfacing and vegetation can increase rainwater infiltration and direction towards natural watercourses, reducing surface water run-off.

<sup>56</sup> BREEAM (n.d.) Scoring and Rating BREEAM assessed building. [online] Available at: [https://www.breeam.com/BREEAM2011SchemeDocument/Content/03\\_ScoringRating/scoring.htm](https://www.breeam.com/BREEAM2011SchemeDocument/Content/03_ScoringRating/scoring.htm)

<sup>57</sup> Fitting's approach is based on water efficiency calculator methodology. More details provided in [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/504207/BR\\_PDF\\_AD\\_G\\_2015\\_with\\_2016\\_amendments.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/504207/BR_PDF_AD_G_2015_with_2016_amendments.pdf)

<sup>58</sup> Waterwise (n.d.) Advice on water efficient new homes. [online] Available at: <https://waterwise.org.uk/wp-content/uploads/2019/10/Advice-on-water-efficient-homes-for-England061118.pdf>

# Chapter 7

## Design to encourage use of sustainable forms of transport

**7.1** The majority of Waverley's population (69%) lives within the four main settlements of Farnham, Godalming, Haslemere and Cranleigh. Access to sustainable transport is variable within the Borough and this is reflected in the mode share used when travelling to work or higher education, as recorded by the 2011 Census<sup>59</sup>, with 79.7% of Waverley residents commuting by car. This is only marginally reduced for the main settlements (77.7%) and is noticeably higher than the 74% average recorded across the south-east of England.

**7.2** National data confirms that in 2018 transport produced 48.2% of carbon emissions in Waverley, a significant increase from the 34.7% recorded in 2005. The Borough also compares poorly in relation to the rest of England where transport emission equated to 37.6% of the total in 2018<sup>60</sup>.

**7.3** Department for Transport statistics extracted from the National Travel Survey<sup>61</sup> confirm that a quarter of trips are under a mile in length, with almost half (46%) of trips under 2 miles in length. There is therefore good opportunity for an increased proportion of trips to be made on foot or by bicycle within Waverley's main settlements.

**7.4** Whilst the car will still have a role to play for residents living in rural areas, there is opportunity to encourage more sustainable travel practices through the introduction of measures including local and demand responsive bus services to provide access to the main settlements and the area's two main rail lines supporting access to a range of settlements including into the centre of London. The implementation of additional local bus services could reduce the existing demand on station parking by capturing rural trips and encourage a shift from the private car to public transport for longer trips.

**7.5** Waverley's current transport emissions highlights that there is a need to change travel habits through promoting home working and encouraging the use of sustainable transport modes, in addition to promoting the use of electric / hydrogen vehicles if it is to tackle the climate emergency. This section of the SPD provides advice and guidance to support future development to promote the use of sustainable transport modes to reduce carbon emissions and improve air quality.

### Link to Key Local Plan Policy Criteria

- **ST1: Sustainable Transport** - The Council will work in partnership with Surrey County Council (SCC),

<sup>59</sup> Office for National Statistics (2011) 2011 Census. [online] Available at: <https://www.ons.gov.uk/census/2011census>

<sup>60</sup> UK Government (2020) UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2018. [online]

Available at: <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018>

<sup>61</sup> UK Government (2021) Mode of travel. [online] Available at: <https://www.gov.uk/government/statistical-data-sets/nts03-modal-comparisons>

neighbouring authorities, town and parish councils, transport providers and other key stakeholders to ensure that development schemes:

1. are located where opportunities for sustainable transport modes can be maximised, reflecting the amount of movement generated, the nature and location of the site and recognising that solutions and measures will vary from urban to rural locations;
2. make the necessary contributions to the improvement of existing, and provision of new, transport schemes that lead to improvements in accessibility and give priority to the needs of pedestrians, cyclists, users of public transport, car sharers and users of low and ultra-low emission vehicles;
3. include measures to encourage non-car use such as on-site cycle parking and high quality bus stops with real time travel information;
4. ensure development proposals are consistent with, and contribute to the implementation of the Surrey Local Transport Plan;
5. require the submission of Transport Assessments and Travel Plans and other appropriate measures in new developments that generate significant traffic volumes or have significant impact on the Strategic Road Network;
6. contribute to transport infrastructure improvements, where appropriate and viable;

7. are consistent with the objectives and actions within the Air Quality Action Plan;
8. encourage the provision of new and improved footpaths, bridleways, and cycleways, provided there would be no significant effect on SPAs and other areas of importance for nature conservation (Policies NE1 and NE3); and
9. make appropriate provision for car parking, having regard to the type of development and its location, in accordance with local standards.
  - **CC2: Sustainable Construction and Design** - The Council will seek to promote sustainable patterns of development and reduce the level of greenhouse gas emissions by:
    1. being designed to encourage walking, cycling and access to sustainable forms of transport.
    2. building at higher densities where appropriate and supporting mixed-use development.
    3. requiring that all new buildings are provided with the highest available speed broadband infrastructure.

**7.6** Paragraph 7.26 of the Waverley LPP1 states that new development that generates a high number of trips will be directed towards previously developed land in sustainable locations or will be required to demonstrate that it can be made sustainable to reduce the need to travel and promote travel by sustainable modes of transport<sup>62</sup>. All new development should be appropriately located in relation to public transport and the highway network.

**7.7** Supporting text for Policy ST1 specifies that in relation to Criterion 5, a Transport Assessment will be required to demonstrate:

- safe and suitable access for all people;
- opportunities for sustainable transport modes have been taken up;
- the possibility of car clubs and shared community minibuses have been considered; and
- the highway/transport infrastructure improvements required to mitigate significant impacts of the development.

**7.8** Paragraph 7.8 of the Waverley LPP1 confirms that Parking Guidelines were published in 2013, based on 2012 Surrey County Council Parking Guidelines.

**7.9** Supporting Paragraph 7.7 of the Waverley LPP1 confirms that the Council will, where appropriate, require the use of Travel Plans by new development and promote their use within other areas. Paragraph 7.22 states that Surrey County Council has published good practice guidance on the thresholds for and preparation of Travel Plans.

**7.10** Paragraph 7.27 of the Waverley LPP1 confirms that the Council will support and promote measures to reduce reliance on travel by car both in providing for new development and in supporting measures promoted through the Surrey Local

<sup>62</sup> Waverly Borough Council (2018) Waverly Borough Local Plan Part 1: Strategic Policies and Sites February 2018. [online] Available at:

<https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local->

[plan/LPP1\\_July\\_2019\\_web.pdf?ver=M4C0VK\\_SH7V54tLWEaTftA%3d%3d](https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/local-plan/LPP1_July_2019_web.pdf?ver=M4C0VK_SH7V54tLWEaTftA%3d%3d)



Transport Plan (LTP3). This has been superseded by Local LTP4 which aims to further reduce emissions from transport<sup>63</sup>.

**7.11** Paragraph 7.25 of the Waverley LPP1 confirms that the Council will, in conjunction with Surrey County Council, seek to improve the existing network of pedestrian and cycle routes where opportunities arise through development proposals.

**7.12** Paragraph 7.9 of the Waverley LPP1 confirms that improvements in the extent and quality of pedestrian and cycle routes can contribute to providing sustainable access to services, facilities, and jobs. Preferred cycle routes are set out within Waverley Cycling Plan Supplementary Planning Document (SPD). The County Council's Rights of Way Improvements Plan<sup>64</sup> sets out improvement projects that could encourage users onto the PRow network, whether for recreation or commuting purposes. Moreover, Surrey County Council is currently preparing the Waverley Local Cycling and Walking Infrastructure Plan (LCWIP) which is going to provide investment for walking and cycling paths<sup>65</sup>. Notably, Farnham is being dealt with separately to the rest of Waverley, and should therefore consider the Farnham LCWIP.

**7.13** Paragraph 7.24 of the Waverley LPP1 confirms that, where appropriate and justified, contributions will continue to be sought from new development to produce improvements to the transport network.

**7.14** Paragraph 7.11 of the Waverley LPP1 confirms that the Council will encourage travel choice in the rural areas through initiatives such as demand responsive bus services, although

it is accepted that there is unlikely to be a single model given the diverse needs of the rural areas.

## Requirements and Guidance

### Reducing the need to travel by vehicle

**7.15** In accordance with Policy ST1 of the adopted Local Plan, **major developments must be located in an accessible location to provide opportunity for residents to access local facilities in addition to education, health, exercise, and employment opportunities on foot, by bicycle or by public transport rather than by car.** Locating employment developments close to established residential areas could also provide opportunity for commuting using active travel modes.

**7.16** Large-scale residential developments should be supported by a range of convenience retail, medical and sport facilities, and other social and community uses in addition to providing local employment opportunities where possible, to reduce the need for residents to travel outside the site.

**7.17** The recent pandemic has demonstrated that more agile working practices can be adopted when supported by appropriate technology. This reduces the need to travel and with this, the emissions generated by the travel mode. **Developments must include high-speed broadband as supported by Local Plan Policy CC2.**

**7.18** The provision of local office hubs as part of larger residential developments can also support agile working practices and reduce the need for travel by car.

**7.19** Any major residential or commercial development should implement a delivery and servicing plan to determine the potential impact of deliveries to properties once in use. For residential properties this should consider online shopping and provisions for missed collections (with the potential for unattended locker box drop stations). For commercial properties, the obligation should be on the tenant of the buildings to implement a detailed delivery and servicing plan aimed at reducing traffic and emissions associated with business operations. Freight consolidation centres could be introduced on the edge of sites, with goods transferred to low emission vehicles for the final part of the journey to both reduce the number of vehicles accessing the site and with this, benefit the area's air quality.

### Promotion of sustainable travel modes

**7.20 Major developments must be planned with respect to existing active travel and public transport networks.** Developments should include active travel infrastructure (segregated where possible) throughout the site, and importantly link to the existing external network and / or enhance the existing network wherever possible.

**7.21** The Council is implementing a programme of infrastructure improvements across the Borough's pedestrian and cycle networks and any new development should assist in

<sup>63</sup> Surrey County Council (n.d.) <http://www.surreycc.gov.uk/roads-and-transport>

<sup>64</sup> Surrey County Council (2014) Rights of Way Improvement Plan for Surrey. [online] Available at:

[https://www.surreycc.gov.uk/\\_data/assets/pdf\\_file/0003/72849/ROWI-P-Main-Text.pdf](https://www.surreycc.gov.uk/_data/assets/pdf_file/0003/72849/ROWI-P-Main-Text.pdf)

<sup>65</sup> Surrey County Council (n.d.) Plans to improve walking and cycling. [online] Available at: <https://www.surreycc.gov.uk/roads-and-transport/cycling-and-walking/plans>

the delivery of these measures where possible. The Council is working with SCC to develop two Local Cycle and Walking Infrastructure Plans (LCWIP) which will map out:

- Core Walking Zones in the centre of the Borough's towns and villages;
- Networks of walking routes radiating out from the Core Walking Zones; and
- A network of cycle routes linking settlements and residential areas both across the Borough and to adjacent boroughs and districts.

**7.22 Safe, secure, visible, and convenient cycle parking as part of new residential and non-residential developments must be provided to assist with the promotion of cycling.**

The level of cycle parking should be in excess of the minimum parking standards set out within the Council's Parking Guidelines document,<sup>66</sup> with showers and changing facilities provided within non-residential developments. Improving technologies have resulted in an increased use of e-bikes and charging stations should be provided to accommodate these in larger developments. Cycle parking should be undercover, lit, secure, adequately signed and as close to the destination as possible (within 20m), in accordance with SCC Vehicular, Electric Vehicle And Cycle Parking Guidance For New Developments<sup>67</sup>.

**7.23** Applicants should comply with Cycle Infrastructure Design (LTN 1/20)<sup>68</sup> which provides guidance and sets out good practice in relation to the design of cycling infrastructure to ensure that it is accessible to all. The document has the aim of promoting cycling as a means of everyday transit and confirms that networks and routes should be Coherent, Direct, Safe, Comfortable and Attractive to help to achieve this.

**7.24** The Department for Transport sets a vision for cycling and walking within its Gear Change document<sup>69</sup> setting the following nine key principles. Applicants should seek to achieve the following principles:

- Cyclists must be separated from volume traffic, both at junctions and on the stretches of road between them.
- Cyclists must be separated from pedestrians.
- Cyclists must be treated as vehicles, not pedestrians.
- Routes must join together; isolated stretches of good provision are of little value.
- Routes must feel direct, logical and be intuitively understandable by all road users.
- Routes and schemes must take account of how users actually behave.
- Purely cosmetic alterations should be avoided.

- Barriers, such as chicane barriers and dismount signs should be avoided.
- Routes should be designed only by those who have experienced the road on a cycle.

**7.25** The layout of new developments should align with LTN 1/20 and Gear Change by providing highly legible transport networks and segregated cycling facilities where possible.

**7.26** Convenient pedestrian access should be provided to the nearest public transport facilities to promote the use of sustainable transport modes. Major developments should be located within a 5 minute (400m) walk of the nearest bus stops to promote public transport use in accordance with local and national planning policy. Where available, major developments should be located within a 10 minute (800m) walk of the nearest rail station.

**7.27** Site accessibility reviews should be undertaken using actual walking distances rather than relying on radius measurements, with commitment provided to implementing improvements to the local pedestrian network where required to support convenient pedestrian access to local bus stops and rail stations, and where possible and practicable, schools, shops, business and medical facilities, places of worship, and green space.

<sup>66</sup> Waverley Borough Council (2013) Parking Guidelines. [online] Available at: <https://www.waverley.gov.uk/Portals/0/Documents/services/planning-and-building/planning-strategies-and-policies/Waverley%20Parking%20Guidelines%20October%202013.pdf?ver=VdM6DGQxSckAJbqXFKXGFw%3D%3D>

<sup>67</sup> <https://www.surreycc.gov.uk/roads-and-transport/parking/development-parking-guidance#section-8>

<sup>68</sup> Department for Transport (2020) Cycle Infrastructure Design. [online] Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/951074/cycle-infrastructure-design-ltn-1-20.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/951074/cycle-infrastructure-design-ltn-1-20.pdf)

<sup>69</sup> Department for Transport (n.d.) Gear Change: a bold vision for cycling and walking. [online] Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/904146/gear-change-a-bold-vision-for-cycling-and-walking.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904146/gear-change-a-bold-vision-for-cycling-and-walking.pdf)

**7.28** Consideration should also be given to the diversion of existing, or provision of new bus services in association with large-scale sites to ensure that developments are accessible by public transport, to reduce the level of trips generated by car. These local services could be demand responsive if appropriate and be supported by low emission or emission-free vehicles.

**7.29** Any improved or new bus services should be convenient and attractive to use, being integrated with the wider public transport network as far as possible.

**7.30** Travel Plans should be developed in accordance with the SCC Travel Plan Good Practice Guide<sup>70</sup>. Meaningful and achievable targets should be identified to provide a sufficient level of information to those accessing a site to enable an informed travel choice to be made. Commitment should be provided to monitoring the travel plan, with additional measures and incentives implemented if required to support sustainable travel.

**7.31** Whilst residential developments should seek to minimise the level of general parking to encourage sustainable travel, spaces should be allocated for car club vehicles to support the use of a car by residents for longer journeys. SCC have negotiated a discounted rate for Surrey residents to join a car club scheme<sup>71</sup> and information can be provided about this within the development's travel plan.

**7.32** Car sharing can also offer a sustainable means to commute and Surrey Liftshare<sup>72</sup> has a number of members

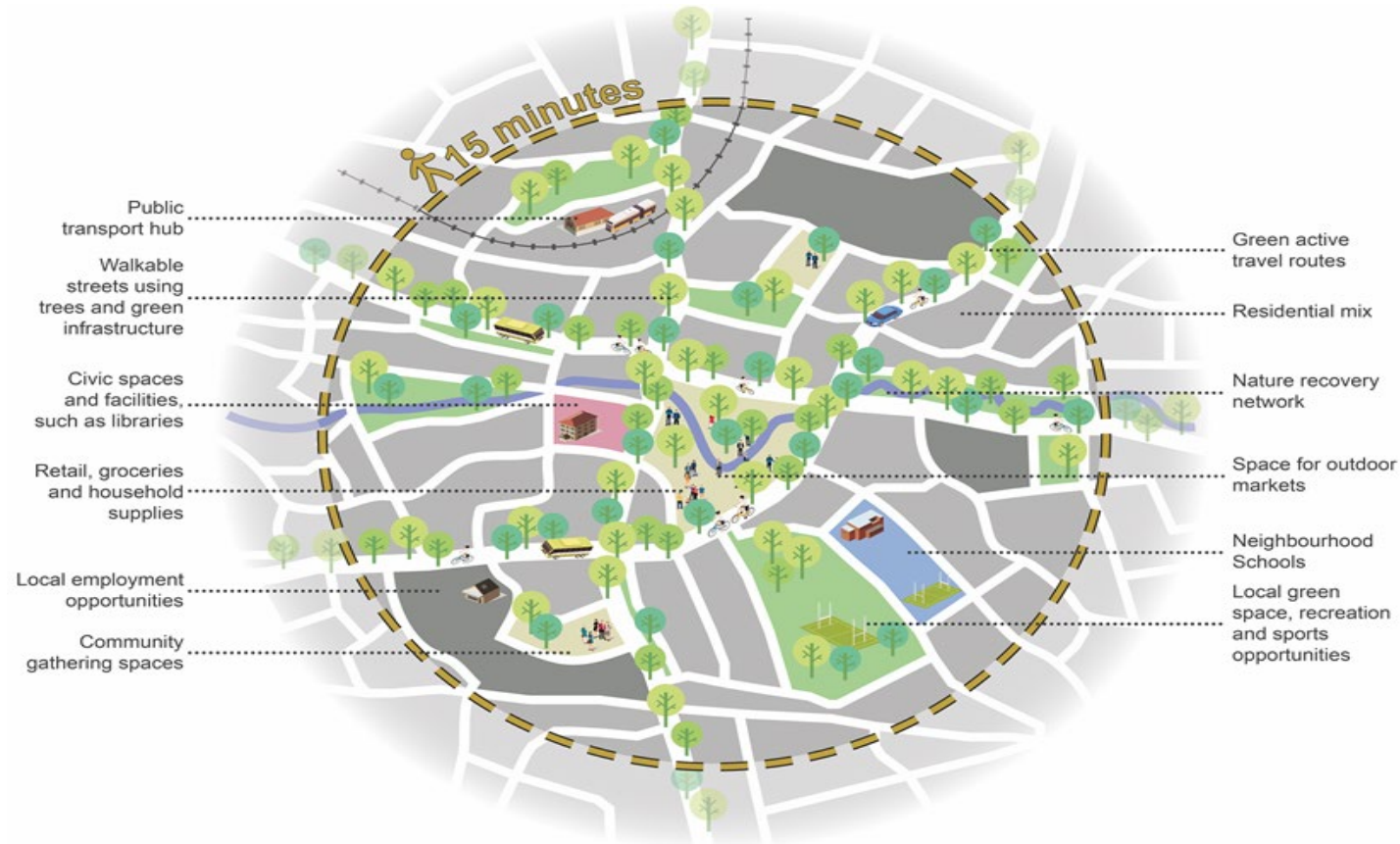


Figure 12: 15-minute neighbourhood.

<sup>70</sup> Surrey County Council (2018) Travel Plans – a good practice guide for Applicants. [online] Available at: [https://www.surreycc.gov.uk/\\_data/assets/pdf\\_file/0008/192635/TP-Good-Practice-Guide-July18-v5.pdf](https://www.surreycc.gov.uk/_data/assets/pdf_file/0008/192635/TP-Good-Practice-Guide-July18-v5.pdf)

<sup>71</sup> Surrey County Council (n.d.) Car Clubs. [online] Available at: <https://www.surreycc.gov.uk/roads-and-transport/sustainable-driving/car-clubs>

<sup>72</sup> Liftshare (n.d.) Liftshare. [online] Available at: <https://liftshare.com/uk/community/surrey>

throughout the county. Parking spaces should be allocated within employment developments for those who car share to encourage multiple occupant car journeys.

### Liveable Neighbourhoods

**7.33** Development should align with Surrey Council's LTP4, in particular, Planning for Place includes a section defining 'liveable neighbourhoods' and their key characteristics<sup>73</sup>.

**7.34** As previously highlighted, the national travel survey confirms that a quarter of trips are under a mile in length. Applicants should aim to achieve 15-minute neighbourhoods as part of larger residential or mixed-use developments. This can support walkable neighbourhoods and reduce the number of shorter trips being made by car to day-to-day facilities including convenience shops, education, and healthcare facilities.

**7.35** The removal of a need for vehicles to undertake these shorter trips enables space to be allocated to providing attractive and convenient walking and cycle routes to further encourage active travel for shorter trips.

**7.36** Residential development design should align with the Surrey Design Guide<sup>74</sup> which was produced jointly between Surrey County Council, all eleven Surrey districts, the Home Builders' Federation, the Royal Institute of British Architects, the Landscape Institute, the Surrey Access forum, and Surrey Police. The guide provides a range of advice including supporting the objective 'to create places for people that are

*safe and easy to move through and are accessible to all.*' This includes the promotion of a street network which encourages low vehicle speeds through the provision of measures including:

- Tight bends rather than sweeping curves;
- More frequent junctions;
- Reduce straight lengths of road for building up speed; and
- Buildings, walls, trees, and hedges close to the road.

**7.37** In accordance with the guidance, a well-connected and highly legible network of pedestrian and cycle facilities should be provided to encourage local trips to be made on foot or by bicycle.

**7.38** In the new town of Houten, in the Netherlands, sustainable travel options have been prioritised alongside restricted through-highway movements. As a result, walking and cycling are the most direct and convenient options for most local journeys, resulting in nearly 60% of trips being by these modes, despite car ownership being comparable to UK levels<sup>75</sup>.

**7.39** A new garden village is planned for Dunsfold Park in the south-east of the Borough and aims to support sustainable rural living<sup>76</sup>. The proposals align with the advice provided within this SPD and will promote the following measures to

support sustainable transport modes to, from and within the development:

- Provision of direct and attractive walking and cycling routes to promote active travel for all internal journeys.
- Provision of pedestrian and cycle linkage to adjacent areas.
- Introduction of enhanced bus services to connect the site with nearby settlements and ensure that every new residential dwelling is within a convenient 5 minute (400m) walk of a bus stop.
- Promote electric vehicle and car club use in addition to car sharing to accommodate an anticipated future reduction in car ownership levels.
- Provision of a range of uses within the garden village to reduce the need to travel outside the site.
- Issue of welcome packs and sustainable travel incentives to new residents and employees along with the offer of personal travel planning advice.

### Role of Transport Statements / Assessments and Travel Plans

**7.40** Transport Statements and Assessments should demonstrate that a development proposal complies with local and national transport policy. The Council confirms within Policy ST1 of the adopted Local Plan, that there is a requirement to submit 'Transport Assessments and Travel

<sup>73</sup> <https://www.surreycc.gov.uk/roads-and-transport/policies-plans-consultations/transport-plan/policy-areas/planning-for-place>

<sup>74</sup> Surrey County Council (n.d.) Surrey Design: A strategic guide for quality-built environments. [online] Available at:

[https://www.surreycc.gov.uk/\\_data/assets/pdf\\_file/0008/66887/Surrey-Design.pdf](https://www.surreycc.gov.uk/_data/assets/pdf_file/0008/66887/Surrey-Design.pdf)

<sup>75</sup> Folette, N. and Henderson, J. (2016). *Low Car(bon) Communities: Inspiring car-free and car-lite urban futures*. Routledge

<sup>76</sup> Dunsfold Park (n.d.) Masterplan. [online] Available at: <https://www.dunsfoldparkmasterplan.com/masterplan>

*Plans and other appropriate measures in new developments that generate significant traffic volumes or have significant impact on the Strategic Road Network’.*

**7.41** Transport Statements and Assessments should be prepared with reference to the Waverley LCWIP (and where relevant the Farnham LCWIP), identifying where the development will support the implementation of local active travel infrastructure. They should also include an assessment of the propensity to cycle as a proportion of commuter and school journeys using the DfT sponsored Propensity to Cycle tool<sup>77</sup>.

**7.42** SCC provide guidance on what should be provided to support planning applications within its Transportation Development Planning Good Practice Guide. The document includes guidance on the preparation of Transport Assessments with further available via the Government’s website<sup>78</sup>.

**7.43** As previously highlighted, SCC provide a Travel Plan Good Practice Guide<sup>79</sup> which confirms that the ‘*aim of all travel plans is to reduce the amount of vehicular traffic generated by a site, which in turn will both improve local air quality and site users’ health, as well as reduce safety issues associated with higher levels of traffic*’.

**7.44** The guide identifies the following example objectives which should be included within a Travel Plan:

- the number of staff cars being driven to and from the office will be reduced;
- staff parking to cease along Acacia Avenue;
- all parking associated with the care home to be accommodated within the car park and not on neighbouring roads;
- the amount of single occupied vehicles entering/leaving the site during peak periods will be reduced; and
- the number of passengers using the bus service through Rose Bush Gardens will increase.

**7.45** Where possible, the objectives should be Specific, Measurable, Achievable, Relevant, and Time-Bound (SMART).

### Promotion of Electric Vehicles

**7.46** With the Government’s plans to stop the sale of petrol and diesel cars by 2030, there is a clear requirement to accommodate low or zero emission vehicles within new developments. Whilst hydrogen cars are likely to become more prevalent in the future, they do not require any local

infrastructure to support their use. Electric vehicles will, however, require a significant investment in additional infrastructure to support their increased use, with charging points installed as part of all developments. Technology is constantly advancing, and further advice is provided at the Office for Low Emission Vehicles’ website<sup>80</sup> to support the delivery of infrastructure to promote electric vehicle usage.

**7.47** The Council are working to install electric vehicle chargers across the Borough’s public car parks and are reviewing the potential to install chargers to support on-street parking<sup>81</sup>.

**7.48** SCC’s Electric Vehicle Strategy<sup>82</sup> forms part of the Surrey Transport Plan and aims to ‘*Develop a Surrey-wide approach to encourage the transition from petrol and diesel vehicles to electric vehicles as part of a sustainable, integrated transport system*’. The strategy recognises that Surrey has the potential for a significant electric vehicle market due in part to existing levels of second car ownership and commuting distances.

**7.49** SCC’s Vehicular and Cycle Parking Guidance<sup>83</sup> is constantly under review to ensure that it remains up to date in relation to emerging technologies and highlights the level of parking required to support different land uses. New developments should align with the guidance which identifies

<sup>77</sup> PCT (n.d.) Cycling to work. [online] Available at: <https://www.pct.bike>

<sup>78</sup> UK Government (2014) Travel Plans, Transport Assessments and Statements. [online] Available at: <https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements>

<sup>79</sup> Surrey County Council (2018) Travel Plans – a good practice guide for Applicants. [online] Available at: [https://www.surreycc.gov.uk/\\_data/assets/pdf\\_file/0008/192635/TP-Good-Practice-Guide-July18-v5.pdf](https://www.surreycc.gov.uk/_data/assets/pdf_file/0008/192635/TP-Good-Practice-Guide-July18-v5.pdf)

<sup>80</sup> UK Government (n.d.) Office for Zero Emissions Vehicles. [online] Available at: <https://www.gov.uk/government/organisations/office-for-low-emission-vehicles>

<sup>81</sup> Waverley Borough Council (n.d.) Electric Vehicle (EV) charging points in Waverley. [online] Available at: <https://www.waverley.gov.uk/Services/Environmental-concerns/Sustainability-and-conservation/Electric-Vehicle-EV-charging-points-in-Waverley>

<sup>82</sup> Surrey County Council (n.d.) Electric Vehicle Strategy: surrey Transport Plan. [online] Available at: [https://www.surreycc.gov.uk/\\_data/assets/pdf\\_file/0008/189107/Electric-Vehicle-Strategy\\_p1.pdf](https://www.surreycc.gov.uk/_data/assets/pdf_file/0008/189107/Electric-Vehicle-Strategy_p1.pdf)

<sup>83</sup> Surrey County Council (2018) Vehicular, electric vehicle and cycle parking guidance for new developments. [online] <https://www.surreycc.gov.uk/roads-and-transport/parking/development-parking-guidance>

the following requirements for residential and commercial developments:

- Residential Developments:
  - Houses - 1 fast charge socket per house.
  - Flats / Apartments, Care / Nursing Home or Sheltered Housing - 20% of available spaces to be supported by a fast charge socket and a power supply to a further 20% of spaces to support future installation of fast charge sockets.
- Commercial Developments:
  - 10% of available spaces to be supported by a fast charge socket.
  - a further 20% of spaces to be provided with a power supply to support future installation of fast charge sockets.

**7.50** The charge points are to be supported by a minimum of 7kw Mode 3 with Type 2 Connector supported by a 230v AC 32 Amp Single Phase dedicated supply. As highlighted within the strategy document, it is the developer's responsibility to ensure that there is sufficient capacity in the electrical supply to meet future demands with power balancing technology installed if required.

**7.51** Charge points should not encroach on pedestrian and cycling infrastructure and be implemented into lampposts where possible. Consideration should be given to installing all

new lighting columns as electric vehicle charge points enabled, to allow for later retrofitting.

**7.52** The use of any spaces dedicated to electric vehicle use in commercial developments, should be managed to prevent use by other vehicles at any point during the day.

### Rural Travel Measures

**7.53** As previously highlighted, whilst the majority of Waverley's population lives within its four main settlements, a large proportion of the Borough is rural in nature and 31% of residents live outside the four main settlements. A number of the concepts identified within this document can also be applied to smaller-scale developments and developments in rural areas.

**7.54** By their nature, rural areas are generally less accessible by sustainable modes of transport although there are a number of rural rail stations provided in the west of Waverley, with bus services operating throughout the Borough. The level of provision reflects the rural nature of the area which they serve, nevertheless, there will be opportunity to promote future demand responsive bus services or existing car share schemes to occupiers of a future development.

**7.55** There may also be opportunities to provide a financial contribution to the enhancement of existing local services or to support the continued operation of the existing Hoppa service which currently serves Farnham, Godalming, Haslemere, Cranleigh and the surrounding villages<sup>84</sup>. The services should

be highlighted within Travel Plans along with confirming the benefits associated with using the services which can provide a low-cost sustainable travel option.

**7.56** The promotion of car sharing schemes<sup>85</sup>, provision of electric vehicle charging infrastructure<sup>86</sup> and ensuring that new developments have high speed broadband is essential to supporting sustainable rural development and guidance is provided with regard to these measures within this chapter.

<sup>84</sup> Hoopa (n.d.) About us. [online] Available at: <https://www.hoppa.org.uk/>

<sup>85</sup> Liftshare (n.d.) Lifeshare. [online] Available at: <https://liftshare.com/uk/community/surrey>

<sup>86</sup> Surrey County Council (2018) Vehicular and Cycle Parking Guidance. [online] Available at: [https://www.surreycc.gov.uk/\\_data/assets/pdf\\_file/0005/155660/January-2018-Parking-Guidance-for-Development\\_p1.pdf](https://www.surreycc.gov.uk/_data/assets/pdf_file/0005/155660/January-2018-Parking-Guidance-for-Development_p1.pdf)

## Chapter 8

### Exemplar Development

#### The Wintles, Bishops Castle, Shropshire



Figure 13: The Living Village Trust<sup>87</sup>

**8.1** The development comprises of 12 eco-homes and achieves many energy efficiency objectives through:

- Settlement includes 12 acres of shared woodland and allotments for food production.
- Buildings are largely made of timber.

<sup>87</sup> The Living Village Trust (n.d.) [online] Available at: <http://www.thelivingvillagetrust.com/the-wintles/>

- Homes are insulated using warmcel recycled paper and have large windows placed on the southern side to harness sun light.
- Solar panels are installed for energy generation and heating of water.

#### BedZED, South London



Figure 14: Bioregional<sup>88</sup>

**8.2** Development includes 100 homes, offices, a college, and community facilities.

<https://www.bioregional.com/projects-and-services/case-studies/bedzed-the-uks-first-large-scale-eco-village>

- Built using locally sources materials (at least 50% come from within a 35-mile radius of the site).
- Buildings use reclaimed products such as steel – up to 15% of the total build amounting to 3,400 tonnes.
- Development was delivered on a derelict land (brownfield land).
- Homes are fitted in biomass boilers, solar panels, and energy efficient lighting.
- Roofs are well insulated with roof cowls to enable air circulation.
- Water saving appliances include dual flush toilets, aerated flow taps and shower heads and water efficient washing machines.

#### TY Eco Homes, Pembrokeshire



Figure 5: TY Solar<sup>89</sup>

8.3 The development includes residential dwellings that are:

- Powered by solar energy, using 15kW PV integrated solar roof systems with a 13.8 kWh Tesla Powerwall battery storage.
- Finished with local Douglas Fir tree cladding and insulated using warmcel recycled paper insulation.
- Using a low carcinogen Swedish painting system that does not trigger reactions in asthma sufferers.
- South facing to take advantage of natural light and space heating.
- Equipped with EV charging for electric cars.

#### East Village, London



Figure 16: East Village, Newham, Hidden London<sup>90</sup>

8.4 This development includes 2,818 urban residential housing:

- Development contains an onsite biomass power station, with 90% efficient heating systems and 90% of construction waste was saved from landfill.
- Each dwelling and common areas are fitted with LED lighting.
- Buildings have roof gardens installed.

#### Primrose Hill Passivhaus, Plymouth



Figure 17: Passivhaus Trust<sup>91</sup>

8.5 The development included 72 homes that are:

- Highly energy efficient and airtight, with triple glazed windows and doors.
- Each house has a small gas boiler and just two radiators.

<sup>89</sup> TY Solar (n.d.) Our Story: Towards a greener future. [online] Available at: <https://tysolar.co.uk/ty-solar-story/>

<sup>90</sup> Hidden London (n.d.) East Village, New Village, Hidden London. [online] Available at: <https://hidden-london.com/gazetteer/east-village/>

<sup>91</sup> Passivehaus Trust (n.d.) Primrose Park claims UK's largest residential Passivhaus title. [online] Available at: <https://www.passivhaustrust.org.uk/news/detail/?nId=786>



## **Appendix A**

### **Climate Change and Sustainability Checklist**

Figure A.1: Climate Change and Sustainability Checklist

| Relevant Local Plan Policy  | Topic                      | Measures   | Has this been considered in the planning application submission? (Yes/No/not Applicable) If No or Not Applicable please state reasons for this | If Yes, please signpost to relevant information within planning application submission |
|---|----------------------------|--|--|--|
| Minimising energy use in new developments (Chapter 2)                         |                            |  |  |  |
| CC1: Climate Change   | Energy Hierarchy           | Adherence to the energy hierarchy.   |  |  |
|   |                            | Others (please state):   |  |  |
| CC2: Sustainable Construction and Design<br>CC3: Renewable Energy Development | Energy Efficiency measures | Demonstrate what energy efficiency measures are included in the planning application for the development (double glazing, EV charging points, etc.). |  |  |
|   |                            | State what renewable and/or low carbon energy generation technologies are included.  |  |  |
|   |                            | Demonstrate that low energy internal and external lighting (e.g. LED lightbulbs) is provided.  |  |  |
|   |                            | Draught proofing (strips on doors, proofing of floors).  |  |  |
|   |                            | Heating systems and controls (heat pumps, solar hot water panels, etc.).   |  |  |
|   |                            | Heat recovery systems.   |  |  |
|   |                            | Connection to existing low carbon heat network.  |  |  |
|   |                            | A+++ standard white goods and boiler, smart meters   |  |  |
|   |                            | Cavity wall insulation, loft, and roof insulation, under floor insulation.   |  |  |
|   |                            | Other (please state):  |  |  |

| Relevant Local Plan Policy   | Topic  | Measures   | Has this been considered in the planning application submission? (Yes/No/not Applicable) If No or Not Applicable please state reasons for this | If Yes, please signpost to relevant information within planning application submission |
|--|--|--|--|--|
| Sustainable site layout, landscaping, and orientation of buildings   |  |  |  |  |
| CC1: Climate Change<br>CC2: Sustainable Construction and Design<br>CC4: Flood Risk Management<br>NE1: Biodiversity and Geological Conservation<br>NE2: Green and Blue Infrastructure | Design, layout, landscape, and orientation               | Plot and dwelling orientation to optimise solar gain.  |  |  |
|  |  | Window positioning to optimise solar gain.   |  |  |
|  | Overheating  | Demonstrate how the development will provide natural shading to avoid overheating                  |  |  |
|  | Fabric First<br>Fabric First<br>Fabric First<br>measures | Ventilation systems are energy efficient and adequate to the size and function of a room.          |  |  |
|  |  | Use of natural ventilation   |  |  |
|  |  | Insulation of floors and loft areas.   |  |  |
|  |  | High-capacity gutters.   |  |  |
|  |  | Space provided for outdoor drying  |  |  |
|  | Embodied carbon  | Re-use of existing buildings   |  |  |
|  |  | Use of materials with the lowest embodied carbon possible.   |  |  |
|  |  | Re-use of materials from the development site and use reclaimed or recycled materials.             |  |  |
|  |  | Use of local sustainable materials.  |  |  |
|  | Green and blue infrastructure                            | Protect and enhance existing green and blue infrastructure, such as green spaces and watercourses. |  |  |

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Climate Change and Sustainability Checklist

Climate Change and Sustainability  
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| Relevant Local Plan Policy | Topic | Measures   | Has this been considered in the planning application submission? (Yes/No/not Applicable) If No or Not Applicable please state reasons for this | If Yes, please signpost to relevant information within planning application submission |
|----------------------------|-------|--|--|--|
|                            |       | Demonstrate how selected green infrastructure will enable cooling of the building.   |  |  |
|                            |       | Reinstate areas of floodplains and riverside meadows, restoring the natural course of rivers.  |  |  |
|                            |       | Ensure that any new green and blue infrastructure is connected to the wider habitat network.   |  |  |
|                            |       | Long term maintenance of green and blue infrastructure.  |  |  |
|                            |       | Provide food growing spaces.   |  |  |
|                            |       | Integrate green infrastructure into parking design.  |  |  |
|                            |       | Other (please state):  |  |  |
|                            | SuDS  | Achieve greenfield run-off rates and manage surface water run-off as close to its source as possible, in line with the drainage hierarchy. |  |  |
|                            |       | Demonstrate how the drainage hierarchy has been considered.  |  |  |
|                            |       | Use of blue roofs and rainwater harvesting including private and communal rainwater collection and reuse points/water butts.               |  |  |
|                            |       | Use of soakaways.  |  |  |
|                            |       | Use of landscape features - swales, wetlands, raingardens.   |  |  |
|                            |       | Use of natural water courses (unless not appropriate).   |  |  |

| Relevant Local Plan Policy                        | Topic                 | Measures   | Has this been considered in the planning application submission? (Yes/No/not Applicable) If No or Not Applicable please state reasons for this | If Yes, please signpost to relevant information within planning application submission |
|---|-----------------------|--|--|--|
|   |                       | Other (please state):  |  |  |
|   | Biodiversity Net Gain | Specify how BNG principles have been applied to the development.                         |  |  |
|   |                       | Existing and new green infrastructure links with the wider green infrastructure network. |  |  |
|   |                       | Demonstrate how biodiversity has been enhanced at the site.                              |  |  |
| Climate change resilience and adaptation          |                       |  |  |  |
| CC1: Climate Change<br>CC4: Flood Risk Management | Flood risk            | Demonstrate that development is located away from a river and floodplains.               |  |  |
|   |                       | Provide a site-specific flood risk assessment.   |  |  |
|   |                       | Describe measures taken to minimise flood risk.  |  |  |
|   |                       | Demonstrate how the development is flood resistant.                                      |  |  |
|   |                       | Demonstrate what permeable surfaces will be implemented.                                 |  |  |
|   |                       | Provide a Landscape Management Plan (for large-scale sites).                             |  |  |

| Relevant Local Plan Policy   | Topic  | Measures   | Has this been considered in the planning application submission? (Yes/No/not Applicable) If No or Not Applicable please state reasons for this | If Yes, please signpost to relevant information within planning application submission |
|--|--|--|--|--|
|  |  | Integrate flood risk solutions (e.g. safeguarding land for flood risk management, designing off-site works required to protect and support development). |  |  |
|  |  | Other (please specify):  |  |  |
| Use of sustainable resources and materials and sustainable management of waste |  |  |  |  |
| CC1: Climate Change<br>CC2:<br>Sustainable Construction and Design             | Waste management                               | Provide a Site Waste Management Plan.  |  |  |
|  |  | Provide facilities for waste sorting and recycling.  |  |  |
|  |  | Provide facilities for food waste and garden waste composting.   |  |  |
|  | Re-use of materials                            | Re-use materials derived from any on-site demolition.  |  |  |
|  | Modular design and circular economy principles | Use of modular prefabricated parts.  |  |  |
|  |  | Demonstrate how construction and operational waste will be managed.  |  |  |
|  | Circular economy                               | Demonstrate how the planned development conserved resources, increased resources efficiency, and adhered to sustainable sourcing of materials.           |  |  |
|  |  | Demonstrate how the development prevented premature demolition of existing buildings.  |  |  |
|  |  | Demonstrate how the while lifecycle of the building has been considered.   |  |  |

| Relevant Local Plan Policy                                | Topic                       | Measures   | Has this been considered in the planning application submission? (Yes/No/not Applicable) If No or Not Applicable please state reasons for this | If Yes, please signpost to relevant information within planning application submission |
|---|-----------------------------|--|--|--|
| Water efficiency  |                             |  |  |  |
| CC2: Sustainable Construction and Design                  | Water efficiency measures   | Demonstrate how the development minimises the water use through installation of efficient appliances (A+++ white goods and boilers). |  |  |
|   |                             | Demonstrate how greywater recycling has been integrated.   |  |  |
|   |                             | Demonstrate how rainwater harvesting has been integrated.  |  |  |
| Design to encourage use of sustainable forms of transport |                             |  |  |  |
| ST1: Sustainable Transport                                | Reducing the need to travel | Development is accessible and provides an access to local facilities (concept of 15-minutes neighbourhood).                          |  |  |
|   |                             | Provides a hub for remote working.   |  |  |
|   |                             | A Delivery and Servicing Plan (for major developments).  |  |  |
|   |                             | Provide segregated active travel routes within the development and connections to wider networks.                                    |  |  |
|   |                             | Provided cycle and walking paths are safe, secure, visible, and convenient.  |  |  |
|   |                             | Provision of cycle parking exceeds the minimum parking standard set out within the Council's Parking Guidelines document.            |  |  |
|   |                             | Charging stations for e-bikes are provided.  |  |  |

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| Relevant Local Plan Policy | Topic | Measures   | Has this been considered in the planning application submission? (Yes/No/not Applicable) If No or Not Applicable please state reasons for this | If Yes, please signpost to relevant information within planning application submission |
|----------------------------|-------|--|--|--|
|                            |       | Development is within 5 minutes (400m) walk of the nearest bus stop with frequent and multiple bus services. |  |  |
|                            |       | Large development is located within 10 minutes (800m) walk from a railway station.                           |  |  |
|                            |       | Provide a Travel Plan (in accordance with the SCC Travel Plan Good Practice Guide).                          |  |  |
|                            |       | Provides a car club scheme.  |  |  |
|                            |       | Development is mixed-use.  |  |  |
|                            |       | Residential development design aligns with the Surrey Design Guide and LTP4.                                 |  |  |