



**HODKINSON**



**Sustainability  
Statement**

Chase New Homes

# **The Barn Hotel**

Final

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## DOCUMENT CONTROL RECORD

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Our emphasis is to provide innovative and cost-effective solutions that respond to increasing demands for quality and construction efficiency.

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## Executive Summary

The purpose of this Sustainability Statement is to demonstrate that the proposed development at The Barn Hotel by Chase New Homes in the London Borough of Hillingdon is considered sustainable, as measured against relevant local, regional and national planning policies.

The proposed development will comprise redevelopment of the site to provide 72 dwellings spread across two apartment blocks, houses, maisonettes and two refurbished Grade II listed buildings.

Through the incorporation of sustainable design and construction methods, energy and water saving measures, sustainable transport methods, waste reduction techniques and measures to enhance the ecological value of the site, a good quality and sustainable development is proposed.

The key sustainability features outlined in this Sustainability Statement are listed below:

- > **Energy efficiency:** The development will target a 73% reduction in Regulated CO<sub>2</sub> emissions over Building Regulations Part L 2021 through the energy efficiency measures, Individual monobloc air source heat pumps, Air Source Heat Pumps, and PV panels.
- > **Overheating:** The scheme has been designed to ensure overheating risk is reduced to acceptable levels in accordance with CIBSE TM59:2017 requirements and Building Regulation Part O requirements.
- > **Water efficiency:** Flow control devices and water efficient fixtures and fittings will be installed in all dwellings to target a maximum internal daily water consumption of 105 litres/person/day.
- > **Waste and recycling:** Adequate facilities will be provided for domestic and construction related waste, including segregated bins for refuse and recycling.
- > **Circular Economy:** The principles of a circular economy shall be incorporated into the development, where possible.
- > **Materials:** Where practical, new building materials will be sourced locally to reduce transportation pollution and support the local economy. New materials will be selected based on their environmental impact and responsible suppliers will be used where possible.
- > **Pollution:** The proposed development will achieve noise levels in line with national and local policy.
- > **Flood Risk and SUDs:** The proposed development site lies in a low flood risk zone and will benefit from SUDs such as permeable paving, storage tanks, and sedum roofs.
- > **Security:** Consultation with a Security Specialist will take place to ensure the development is safe and secure for its residents.

- > **Sound insulation:** The dwellings are to target an improvement on Building Regulations Part E through party walls and floors.
- > **Inclusive access:** 90% of the new dwellings will be designed to meet Building Regulations Approved Document M4(2) and 10% will meet Part M4(3).
- > **Sustainable transport:** The site will benefit from a good existing public transport network and sustainable modes will be encouraged through the provision of 128 cycle storage spaces and electric vehicle charging points.
- > **Biodiversity and ecology:** Enhancements will be implemented through the provision of landscaped areas, play space and additional tree and shrub planting across the site.
- > **Sustainable construction:** The site will aim to achieve a Very Good score with the Considerate Constructors Scheme and will closely monitor construction site impacts.

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## 1. INTRODUCTION

- 1.1 This Sustainability Statement has been prepared by Hodkinson Consultancy, a specialist energy and environmental consultancy for planning and development, appointed by Chase New Homes.
- 1.2 This Statement sets out the sustainable design and construction measures included in the planning application for the proposed development at The Barn Hotel in the London Borough of Hillingdon.

### Sustainability Statement Structure and Methodology

- 1.3 The formulation of the Sustainability Strategy for the proposed development has taken into account several important objectives, including:
- > To address all national, regional and local planning policies and requirements;
  - > To achieve a viable reduction in CO<sub>2</sub> emissions with an affordable, deliverable and technically appropriate strategy;
  - > To provide a high quality development that is adaptable to future changes in climate;
  - > To minimise the negative impact of the proposed development on both the local and wider climate and environment;
  - > To achieve the highest viable levels of sustainable design and construction;
  - > To minimise emissions of pollutants such as oxides of nitrogen and particulate matter; and
  - > To create a pleasant, safe and friendly living environment that will be flexible to its occupants' needs.
- 1.4 This Sustainability Statement does not duplicate the work of the technical reports prepared in support of the application, but presents the findings in the overall context of sustainability.
- 1.5 **Chapter 2** provides an introduction to the site and the proposed development.
- 1.6 **Chapter 3** sets out the relevant national, regional and local policy documents which have been used to guide and inform the sustainability strategy for the proposed development.
- 1.7 **Chapters 4 to 14** outline the sustainability strategy of the proposed development in relation to the policy documents listed in Chapter 3.
- 1.8 **Chapter 15** provides a summary of the key sustainability features associated with the proposed development.

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## 2. DEVELOPMENT OVERVIEW

### Site Location

2.1 The proposed development is located off West End Road in Ruislip, in the London Borough of Hillingdon. The site is located to the south of overground rail line (Metropolitan and Piccadilly) and Ruislip train station and to the east of West End Road (A4180), as shown in Figure 1 below.

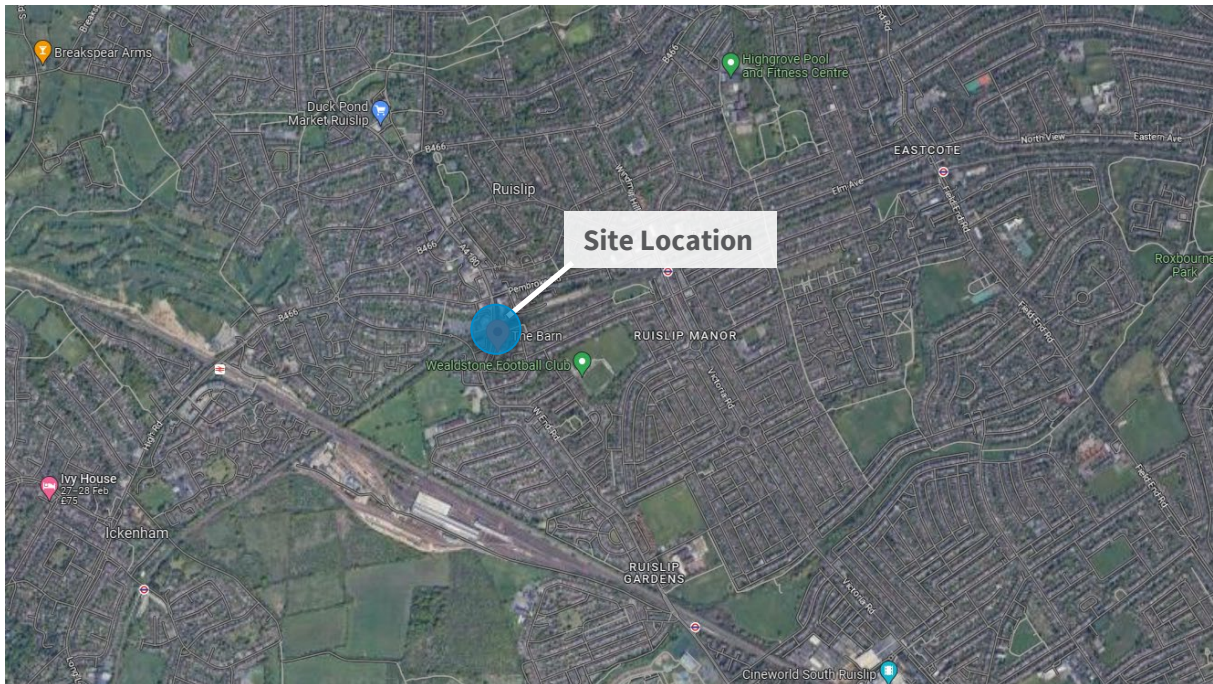


Figure 1: Site Location – Map data © 2024 Google

2.2 The site is currently occupied by a hotel, with three Grade II listed buildings.

## Proposed Development

2.3 The proposed development is described as follows:

*“Redevelopment of the site to provide 72 dwellings spread across two apartment blocks, terraced houses and two refurbished Grade II listed buildings.”*

2.4 Figure 2 below illustrates the proposed site layout.

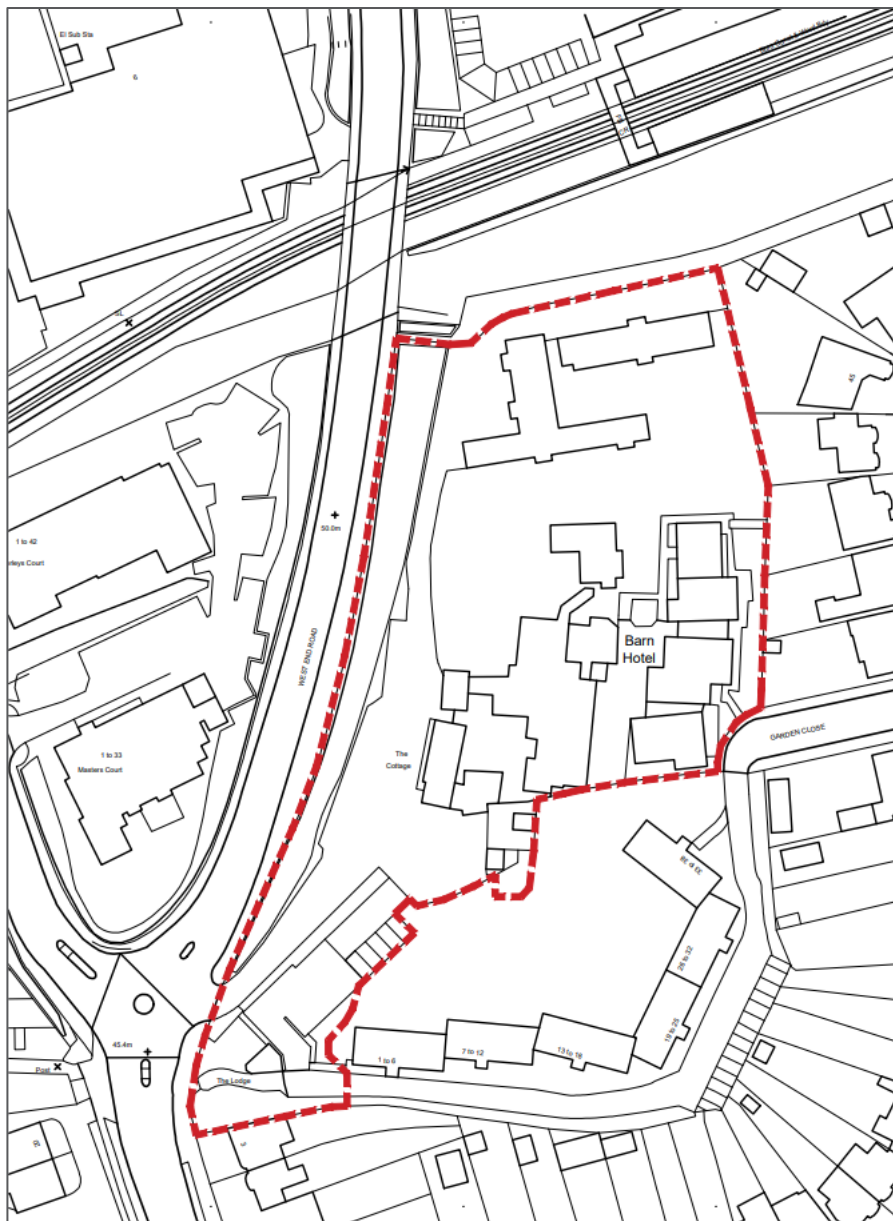


Figure 2: Proposed Site Layout - (Chase New Homes, June 2024)



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## 3. RELEVANT PLANNING POLICY

- 3.1 The following planning policies and requirements have informed the sustainable design of the proposed development.

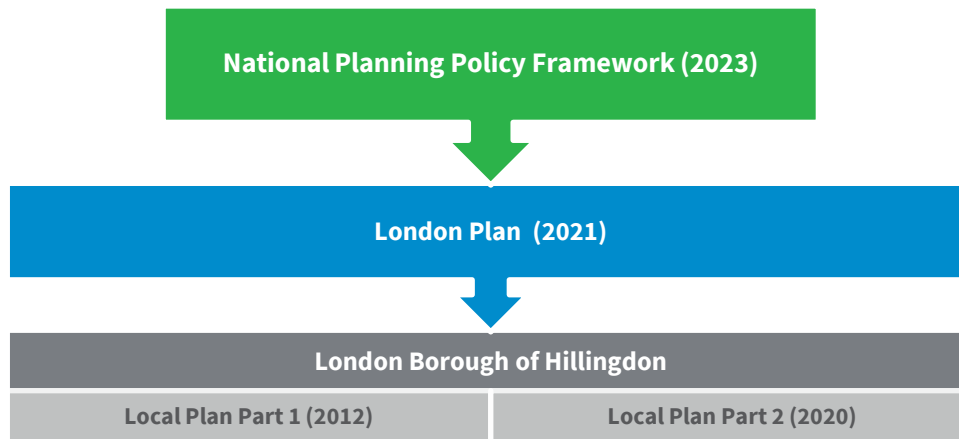


Figure 3: Relevant Planning Policy Documents

### National Policy: NPPF

- 3.2 The revised National Planning Policy Framework (NPPF) was published on the 20<sup>th</sup> December 2023 and sets out the Government’s planning policies for England.
- 3.3 The NPPF provides a framework for achieving sustainable development, which has been summarised as “*meeting the needs of the present without compromising the ability of future generations to meet their own needs*” (Resolution 42/187 of the United Nations General Assembly). These address social progress, economic well-being and environmental protection. At the heart of the framework is a **presumption in favour of sustainable development**.
- 3.4 The document states that the planning system has three overarching objectives which are interdependent and need to be pursued in mutually supportive ways:
- a) **An economic objective** – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;
  - b) **A social objective** – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed, beautiful and safe places, with

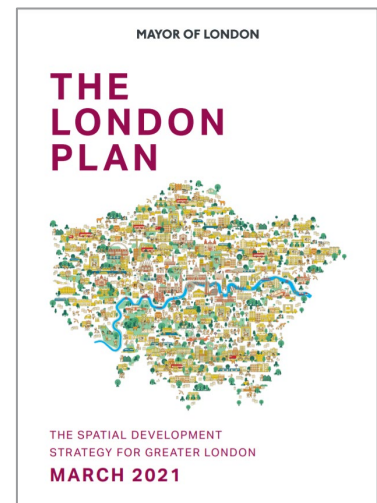
accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and

- c) **An environmental objective** – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

## Regional Policy: The London Plan

### The London Plan (2021)

- 3.5 The London Plan sets out an integrated economic, environmental, transport and social framework for the development of London. The following policies are considered relevant to the proposed development and this Statement:
- 3.6 **Policy G5 Urban Greening** states that urban greening should be included as a fundamental element of site and building design by incorporating measures such as landscaping, green roofs, green walls and nature-based sustainable drainage. Boroughs should develop an Urban Greening Factor and in the interim, the Mayor recommends a target score of 0.4 for residential development 0.3 for commercial development.
- 3.7 **Policy SI1 Improving Air Quality** states that development should seek opportunities to identify and deliver further improvements to air quality. Where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site.
- 3.8 **Policy SI2 Minimising Greenhouse Gas Emissions** states that major development should be net zero-carbon. This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand.
- 3.9 **Policy SI3 Energy Infrastructure** states that energy masterplans should be developed for large-scale development locations which establish the most effective energy supply options.
- 3.10 **Policy SI4 Managing Heat Risk** states that major development proposals should demonstrate through an energy strategy how they will reduce the potential for internal overheating and reliance on air conditioning systems in accordance with the cooling hierarchy.
- 3.11 **Policy SI5 Water Infrastructure** states that in order to minimise the use of mains water, water supplies and resources should be protected and conserved in a sustainable manner. Development proposals should minimise the use of mains water in line with the Optional Requirement of the



Building Regulations (residential development) achieving mains water consumption of 105 litres or less per head per day (excluding allowance of up to five litres for external water consumption). Commercial development should achieve at least the BREEAM excellent standard for the 'Wat 01' category.

**3.12 Policy SI7 Reducing Waste and Supporting the Circular Economy** states that referable applications should promote circular economy outcomes and aim to be net zero-waste.

**3.13 Policy T2 Healthy Streets** states that development should deliver patterns of land that facilitate residents making shorter, regular trips by walking or cycling. Development Plans should demonstrate the application of the Mayors Healthy Streets Approach.

## Local Policy: London Borough of Hillingdon

### Local Plan Part 1

**3.14** The London Borough of Hillingdon's Local Plan Part 1 document was adopted in November 2012 is the key strategic planning document for Hillingdon. It sets out a long term spatial vision and objectives for the Borough until 2026. The following policies are considered relevant to this Statement:

**3.15 Policy BE1: Built Environment** states that the Council will require all new development to improve and maintain the quality of the built environment in order to create successful and sustainable neighbourhoods. All new developments should:

- > Achieve a high quality of design in all new building, alterations, extensions, and the public realm which enhances the local distinctiveness of the area;
- > Improve areas of poorer environmental quality;
- > Incorporate a clear network of routes that are easy to understand, inclusive, safe, secure, and connect positively with interchanges, public transport, and community facilities and services;
- > Create safe and secure environments that reduce crime and fear of crime; and
- > Maximise the opportunities for all new homes to contribute to tackling and adapting to climate change and reducing emissions of local air quality pollutants.

**3.16 Policy EM1: Climate Change Adaptation and Mitigation** states that the Council will ensure that climate change mitigation is addressed at every stage of the development process by:

- > Prioritising high density development in urban and town centres that are well served by public transport;

- > Promoting a modal shift away from private car use and requiring new development to include innovative initiatives to reduce car dependency;
- > Ensuring development meets the highest possible design standards whilst still retaining competitiveness within the market;
- > Working with developers of major schemes to identify the opportunities to help provide efficiency initiatives that can benefit the existing building stock;
- > Promoting the use of decentralised energy within large scale development whilst improving local air quality levels;
- > Targeting areas with high carbon emissions for additional reductions through low carbon strategies. These strategies will also have an objective to minimise other pollutants that impact on local air quality;
- > Encouraging sustainable techniques to land remediation to reduce the need to transport waste to landfill;
- > Encouraging the installation of renewable energy for all new development in meeting the carbon reduction targets savings set out in the London Plan;
- > Promoting new development to contribute to the upgrading of existing housing stock where appropriate;
- > Locating and design development to minimise the probably and impacts of flooding;
- > Requiring major development proposals to consider the whole water cycle impact which includes flood risk management, foul and surface water drainage, and water consumption;
- > Giving preference to development of previously development land to avoid the loss of further green areas;
- > Promoting the use of living walls and roofs, alongside sustainable forms of drainage to manage surface water run-off and increase the amount of carbon sinks; and
- > Promoting the inclusion of passive design measure to reduce the impact of urban heat effects.

**3.17 Policy EM4: Open Space and Informal Recreation** states that the Council will safeguard, enhance, and extend the network of open spaces, informational recreational and environmental opportunities that operate as carbon sinks and that meet local community needs and facilitate active lifestyles by providing spaces within walking distance of homes.

**3.18 Policy EM6: Flood Risk Management** states that the Council will require new development to be directed away from Flood Zones 2 and 3 in accordance with the principles of the NPPF. The Council

will require all development across the borough to use sustainable urban drainage systems (SuDS) unless demonstrated that this is not viable.

**3.19 Policy EM7: Biodiversity and Geological Conservation** states that Hillingdon's biodiversity and geological conservation will be preserved and enhanced with particular attention given to:

- > The protection and enhancement of all Sites of Importance for Nature Conservation;
- > The protection and enhancement of populations of protected species as well as priority species and habitats identified within the UK, London, and the Hillingdon Biodiversity Action Plans;
- > The provision of biodiversity improvements from all development, where feasible;
- > The provision of green roofs and living walls which contribute to biodiversity and help tackle climate change; and
- > The use of sustainable drainage systems that promote ecological connectivity and natural habitats.

**3.20 Policy EM8: Land, Water, Air, and Noise** states that:

- > The Council will seek to safeguard and improve all water quality, both ground and surface;
- > All major development should not cause deterioration in the local air quality levels and should ensure the protection of both existing and new sensitive receptors;
- > The Council will promote the maximum possible reduction in noise levels and will minimise the number of people potentially affected;
- > The Council will expect proposals for development on contaminated land to provide mitigation strategies that reduce the impacts on surrounding land uses; and
- > The Council will require that all new development demonstrates the incorporation of water efficiency measures with new development to reduce the rising demand on potable water.

**3.21 Policy EM11: Sustainable Waste Management** states that the Council will aim to reduce the amount of waste produced in the Borough. The Council will require all new development to address waste management at all stages of a development's life from design and construction through to the end use and activity on site, ensuring that all waste is managed towards the upper end of the waste hierarchy.

**3.22 Policy T1: Accessible Local Destinations** states that the Council will steer development to the most appropriate locations in order to reduce their impact on the transport network. All development should encourage access by sustainable modes and include good cycling and walking provision.

## Local Plan Part 2: Development Management Policies

**3.23** The London Borough of Hillingdon's Local Plan Part 2 Development Management Policies document was adopted in January 2020. It provides detailed policies that will form the basis of the Council's decisions on individual planning applications. The following policies are considered relevant to this Statement:

**3.24 Policy DME1 1: Living Walls and Roofs and On-site Vegetation** states that all development proposals are required to comply with the following:

- > All major development should incorporate living roofs and/or walls into the development; and
- > Major development in Air Quality Management Areas must provide onsite provision of living roofs and/or walls.

**3.25 Policy DME1 2: Reducing Carbon Emissions** states that:

- > All developments are required to make the fullest contribution to minimising carbon dioxide emissions in accordance with the London Plan targets; and
- > All major development proposals must be accompanied by an energy assessment showing how these reductions will be achieved.

**3.26 Policy DME1 7: Biodiversity Protection and Enhancement** states that the design and layout of new development should retain and enhance any existing features of biodiversity or geological value within the site. Where loss of a significant existing feature of biodiversity is unavoidable, replacement features of the equivalent biodiversity value should be provided on site. Proposals that result in significant harm to biodiversity which cannot be avoided, mitigated, or, as the last resort, compensated for, will normally be refused.

**3.27 Policy DME1 5: Management of Flood Risk** states that:

- > Development proposals in Flood Zones 2 and 3a will be required to demonstrate that there are no suitable sites available in areas of lower flood risk.
- > Development proposals in these areas will be required to submit an appropriate level Flood Risk Assessment to demonstrate that the development is resilient to all sources of flooding; and
- > Proposals that fail to make appropriate provision for flood risk mitigation, or which would increase the risk or consequences of flooding, will be refused.

**3.28 Policy DMEI 10: Water Management, Efficiency, and Quality** states that:

- > Applications for all new build developments, change of use, or refurbishment are required to include a drainage assessment demonstrating that appropriate sustainable drainage systems (SuDS) have been incorporated in accordance with the London Plan hierarchy;
- > Schemes for the use of SuDS must be accompanied by adequate arrangements for the management and maintenance of the measures used, with appropriate contributions made to the Council where necessary;
- > Developments should be drained by a SuDS system and must include appropriate methods to avoid pollution of the water environment;
- > All new development proposals will be required to include water efficiency measures, including the collection and reuse of rain water and grey water;
- > All new residential development should demonstrate water usage rates of no more than 105 litres/person/day;
- > All new development proposals will be required to demonstrate that there is sufficient capacity in the water and wastewater infrastructure network to support the proposed development; and
- > All new development proposals will be required to demonstrate that there is sufficient capacity in the water and wastewater infrastructure network to support the proposed development.

**3.29 Policy DMEI 14: Air Quality** states that development proposals should demonstrate appropriate reductions in emissions to sustain compliance with and contribute towards meeting EU limit values and national air quality objectives and should, as a minimum:

- > Be at least 'air quality neutral';
- > Include sufficient mitigation to ensure there is no unacceptable risk from air pollution to sensitive receptors, both existing and new; and
- > Actively contribute towards the improvement of air quality, especially within the Air Quality Management Area.

**3.30 Policy DMIN 4: Re-use and Recycling of Aggregates** states that the Council will promote the recycling of construction, demolition, and excavation waste. All developments will be encouraged to:

- > Process and re-use the recyclable material on-site, and where this is not possible, the material should be re-used at another site or for land restoration; and
- > Use substitute or recycled materials in new development in place of primary minerals

**3.31 Policy DMT 1: Managing Transport Impacts** states that development proposals will be required to meet the needs of the development and address its transport impacts in a sustainable manner. In order to developments to be acceptable they are required to:

- > Be accessible by public transport, walking, and cycling;
- > Maximise safe, convenient, and inclusive accessibility to, and from within developments for pedestrians, cyclists, and public transport users;
- > Provide equal access for all people, including inclusive access for disable people;
- > Adequately address delivery, servicing, and drop-off requires; and
- > Have no significant adverse transport or associated air quality and noise impacts on the local and wider environment, particularly on the strategic road network; and
- > Undertake a satisfactory Transport Assessment and Travel plan if they meet or exceed the appropriate thresholds.

**3.32 Policy DMT 5: Pedestrians and Cyclists** states that development proposals will be required to ensure that safe, direct, and inclusive access for pedestrians and cyclists is provided on the site connecting to the wider network, including:

- > The retention and, where appropriate, enhancement of any existing pedestrian and cycle routes;
- > The provision of a high quality and safe public realm or interface with the public realm, which facilitates convenient and direct access to the site for pedestrians and cyclists;
- > The provision of well signposted, attractive pedestrian and cycle routes separated from vehicular traffic where possible; and
- > The provision of cycle parking and changing facilities.



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## 4. ENERGY AND CO<sub>2</sub> REDUCTION

### Energy Strategy

- 4.1 An Energy Statement has been prepared by Hodkinson Consultancy (August 2024) and is submitted as part of this planning application. A summary of this statement has been outlined as follows however this document should be referred to for greater detail.
- 4.2 The energy strategy has been formulated following the current London Plan Energy Hierarchy: **Be Lean, Be Clean, Be Green** and **Be Seen**. The overriding objective in the formulation of the strategy is to maximise the reductions in Regulated CO<sub>2</sub> emissions through the application of this Hierarchy with a cost-effective, viable and technically appropriate approach.
- 4.3 A range of *Be Lean* energy efficiency measures are proposed for the new dwellings which enable the proposed development to significantly reduce regulated CO<sub>2</sub> emissions by 13% over the baseline through energy efficiency measures alone. These include very well insulated building fabric, efficient mechanical ventilation systems and low energy lighting throughout.
- 4.4 The refurbished buildings will be thermally upgraded as far as technically feasible, preserving their Grade II listed character. The external walls will be internally insulated, roof insulation will be upgraded, where space allows for it, and all windows will be fitted with secondary glazing panels. The proposed improvements will result in approximately 18% CO<sub>2</sub> emissions reduction over the baseline scenario.
- 4.5 The opportunity for the proposed development to link into an existing or planned decentralised energy network has been considered. The proposal is located approximately 4km away from the nearest planned district heat network and is not included in a Heat Network Priority Area. As the development is relatively small, the heat network serving only the development would not benefit from the economy of scale and therefore the system's running costs would be higher when compared to individual heating systems. A connection to district heating is concluded to be impractical and unfeasible.
- 4.6 A highly optimised energy strategy based on passive design, building fabric performance and building services systems and controls, and suitable Low and Zero Carbon systems will allow the scheme to achieve an improvement on total regulated carbon dioxide emissions over the existing scenario of over 73%, exceeding the Building Regulations Part L 2021 targets for compliance and London Plan carbon emissions reduction target of 35%. Please refer to the full report (Hodkinson Consultancy, August 2024) for further information.

## Lighting

- 4.7 All external lighting, and any security lighting, will be energy efficient and adequately controlled using PIR sensors, daylight cut-off sensors or time switches where possible. This will ensure the conservation of energy when the lighting is not in use.

## Energy Monitoring

- 4.8 Energy display devices, which can monitor electricity and primary heating fuel consumption, will be provided to each of the flats and houses. This can empower the occupants to be more aware of their usage and therefore make energy and cost savings, where possible.



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## 5. WATER REDUCTION

### Internal Water Efficiency

**5.1** Increased frequency of drought across Europe lines up with climate change projections and water companies in the UK capture much less rain for our use than people assume.

**5.2** The Environment Agency updated their determination of areas of water stress in 2021<sup>1</sup>. The water stress method takes a long-term view of the availability and the demand for public water supply, rather than a snapshot of shorter or peak periods. It accounts for future population growth, climate change, environmental needs and increased resilience. As of 2021, 15 out of the 23 water companies operating in areas of England were classified as being under ‘serious’ stress, including Thames Water where the site is located. This indicates the need to reduce internal water use where possible and specify water efficient fixtures and fittings in new development.

**5.3** Reducing water consumption will not only help to preserve our water sources but will also save energy. Approximately 15% of a typical gas-heated household’s heating bill is from heating water for showers, baths and taps and the energy used to heat water for devices and appliances emits an average of 875 kg of CO<sub>2</sub> per household per year (Energy Saving Trust, 2013). As such, internal water consumption will be significantly reduced through the use of practical and hygienic water saving measures.



### Residential Water Use

**5.4** All new flats and houses will target a maximum water efficiency standard of **105 litres/person/day** in accordance with Policy DMEI 10 and the optional tighter Building Regulations Approved Document G requirement (110 litres/person/day). An evaluation of the proposed fixtures and fittings will be undertaken during the detailed design however an illustrative strategy to achieve this water target is set out in the Water Efficiency Calculator in **Appendix A**.

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<sup>1</sup> <https://www.gov.uk/government/publications/water-stressed-areas-2021-classification>

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## 6. WASTE MANAGEMENT

- 6.1 Waste reduction and recycling is another key challenge of sustainable development and something which is strongly encouraged in the London Plan (Policy SI7). The waste hierarchy, illustrated in Figure 4 below, prioritises those waste management options which are best for the environment.



Figure 4: Waste Hierarchy

- 6.2 The waste hierarchy establishes waste management options according to what is best for the environment. It places great importance on preventing waste in the first place. When waste is created it prioritises preparing it for re-use, then recycling, recovery and lastly disposal (e.g. landfill).

### Construction Waste

- 6.3 The reduction of construction waste not only minimises environmental impacts through ensuring the responsible use of resources and waste disposal but can also significantly reduce construction costs for the developer.
- 6.4 Prior to construction, Chase New Homes will develop a Site Waste Management Plan which will establish ways of minimising waste at source, assess the use, reuse and recycling of materials on and off-site and prevent illegal waste activities. This plan will then be disseminated to all relevant personnel on and off-site.
- 6.5 The following waste minimisation actions will be considered:
- > Consider opportunities for zero cut and fill to avoid waste from excavation or groundworks;
  - > Design for standardisation of components and the use of fewer materials;
  - > Design for off-site or modular build;

- > Return packaging for reuse;
- > Consider community reuse of surplus materials or offcuts; and
- > Engage with supply chains and include waste minimisation initiatives and targets in tenders and contracts.

**6.6** As part of their commitment to divert construction waste from landfill, Chase New Homes will regularly monitor and record the site's waste reduction performance. This will be compared against a target benchmark where at least 95% (by volume) of non-hazardous waste is to be diverted from landfill.

## Household Waste

- 6.7** Chase New Homes is committed to following the above waste hierarchy and reducing waste sent to landfill. As such, adequate storage is to be provided where both recyclable and non-recyclable waste can be stored in accordance with the London Borough of Hillingdon's waste collection service.
- 6.8** In addition, space will be provided for segregated recycling waste bins within the kitchen areas. This will involve the installation of recycling bins, where waste can be segregated into paper, glass, cans, plastic and cardboard, if necessary.



## 7. CIRCULAR ECONOMY

- 7.1** Current and future trends point toward the need for a fundamental shift in the way resources are consumed. A shift to a circular economy will provide considerable economic opportunities as a result.
- 7.2** In contrast to a linear economy (take, make, dispose), a circular economy keeps products and materials circulating through the system at their highest value for as long as possible, through re-use, recycling, refurbishment and remanufacturing. As 60% of total UK waste is generated from construction, demolition and excavation (Defra and Government Statistical Service, 2019) this transition from linear to circular is essential.

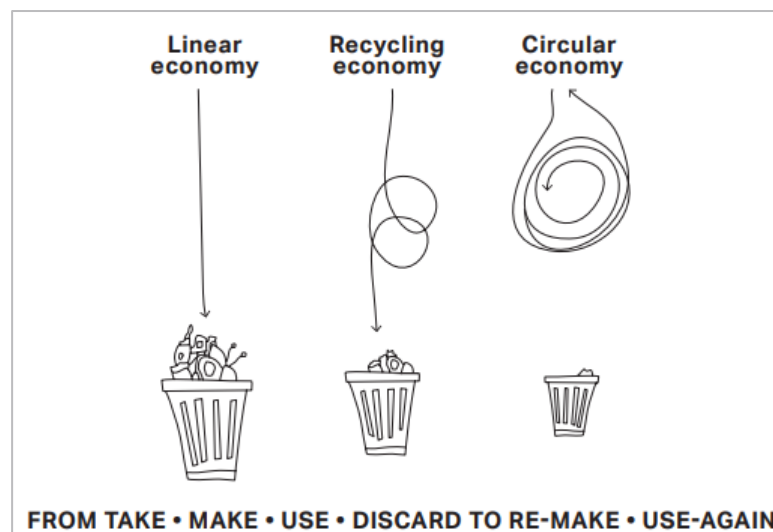


Figure 5: Linear, Recycling and Circular Economies (GLA, 2019)

- 7.3** The circular economy refers to a state whereby resources are kept in a continuous cycle of use so that:
- > Virgin resources are no longer extracted;
  - > Existing products, once used, are reused or recycled to make new products without loss of value; and
  - > No resources are disposed of and no value is lost.
- 7.4** The end goal is to retain the value of materials and resources indefinitely, with no residual waste at all. This is possible but will require a fundamental change in the way that buildings are designed, built, operated, and deconstructed.

- 7.5** Applying circular economy thinking to the built environment is complex, with many overlapping issues and trade-offs to consider. However, there are some core guiding principles that promote a regenerative and restorative whole system approach that should be applied on every project. These are as follows:
- > Conserve resources and source ethically;
  - > Design to eliminate waste (and for ease of maintenance); and
  - > Manage waste sustainably and at the highest value.
- 7.6** Chase New Homes will adopt these three core principles in order to significantly reduce the amount of raw and new materials required for the development. Alongside this, a reduction in vehicle movements, air pollution, noise and greenhouse gas emissions will also be beneficial.
- 

## 8. MATERIALS

### Environmental Impact

- 8.1** New building materials will be selected, where possible, to ensure that they minimise environmental impact and have low embodied energy – from manufacture, transportation and operational stages, through to eventual demolition and disposal.
- 8.2** All insulation materials will have an Ozone Depleting Potential (ODP) of zero and a Global Warming Potential (GWP) of less than 5. In addition, all decorative paints and varnishes will meet the relevant standards in order to reduce the emission levels of volatile organic compounds (VOCs).

### Local and Responsible Sourcing

- 8.3** Preference will be given to the use of locally sourced materials and local suppliers, where viable. This will benefit the local economy as well as having environmental benefits through reduced transportation.
- 8.4** The main building materials will be responsibly and legally sourced from manufacturers with environmental management systems and/or responsible sourcing credentials, such as BES 6001.
- 8.5** Timber used on site, including timber used in the construction phase, such as hoarding, fencing and scaffolding, will be sourced from sustainable forestry sources (e.g. PEFC and FSC) where possible.



## Recycled Materials

- 8.6 Where feasible, Chase New Homes will commit to using materials that have been recycled. The use of recycled materials (e.g. crushed concrete from waste, used for hard-standing) has less embodied energy impact, other than that expended in their processing or transport.
- 

## 9. POLLUTION

### Noise Pollution

- 9.1 Chase New Homes are committed to reducing noise disturbance to internal and external areas of flats and homes to improve the health and wellbeing of the occupants and to help protect community cohesion.
- 9.2 A Noise Impact Evaluation was undertaken by Cass Allen (August 2024). Noise levels at the site are dictated by road traffic noise emissions from West End Road and railway noise emissions from Ruislip Underground Station.
- 9.3 The evaluation concluded that the noise levels achieved by the proposed development are in line with both local and national noise policy. For the residential properties situated near main roads, it is recommended that the properties are acoustically upgraded where necessary to achieve acceptable noise levels. Please refer to the full evaluation for further detail.

### Air Quality

- 9.4 Poor air quality is the greatest environmental risk to public health in the UK and is known to exacerbate the impact of pre-existing health conditions. It is not only a major risk to human health, but it also has significant damaging impacts on both plants and animals.
- 9.5 Between 1990 and 2017, the UK's estimated emissions of nitrogen oxides reduced by 70%, and the estimated emissions of PM<sub>10</sub> particulate matter reduced by 55% (DEFRA, 2018). This must continue to fall in future years. Chase New Homes are committed to reducing the proposed development's negative impact on air quality during construction and operation.
- 9.6 An Air Quality Assessment was undertaken by Cass Allen (August 2024) which notes air quality in the vicinity is primarily influenced by vehicle emissions along the A4180 West End Road and the local road network.
- 9.7 The report concluded that pollutant concentrations at proposed sensitive receptors are expected to be below the relevant Air Quality Objectives (AQOs) and within London Air Pollution Exposure Criteria (APEC) Category A during the operational phase, with no requirement for additional mitigation and no requirement for windows to be fixed shut.



- 9.8 Furthermore, no significant impacts on local air quality as a result of development-generated traffic are anticipated. Accordingly, the overall effect of the proposed development is considered 'not significant' with regard to air quality. Please refer to the full report for further detail.

## Air Tightness and Ventilation

- 9.9 Mechanical ventilation units with heat recovery will be installed to all flats and new houses. The proposed units are expected to achieve a specific fan power of less than 0.7W/l/s and heat recovery efficiency of more than 88% with a function of a summer bypass.
- 9.10 The refurbished listed buildings will utilise natural ventilation with extract fans in all wet rooms.
- 9.11 Mechanical Ventilation with Heat Recovery (MVHR) installation to the flats and the new houses provides a constant supply of fresh air to dwellings which has been filtered to remove external pollutants. It operates regardless of external conditions and provides the additional benefit of incorporating boost modes for use during hot weather or when internal humidity levels increase beyond acceptable levels.

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## 10. FLOOD RISK & SURFACE WATER RUN-OFF

### Flood Risk

- 10.1 Developments in low flood risk areas are promoted to not only protect homes and local communities and reduce the cost implications if flooding occurs, but to protect the environment from the transfer of pollutants during flooding events.
- 10.2 According to the Flood Risk Assessment by Infrastructure Design Ltd (August 2024) and the Environment Agency's Flood Map shown in Figure 6 below, the proposed development lies in a low risk flood zone (Flood Zone 1).

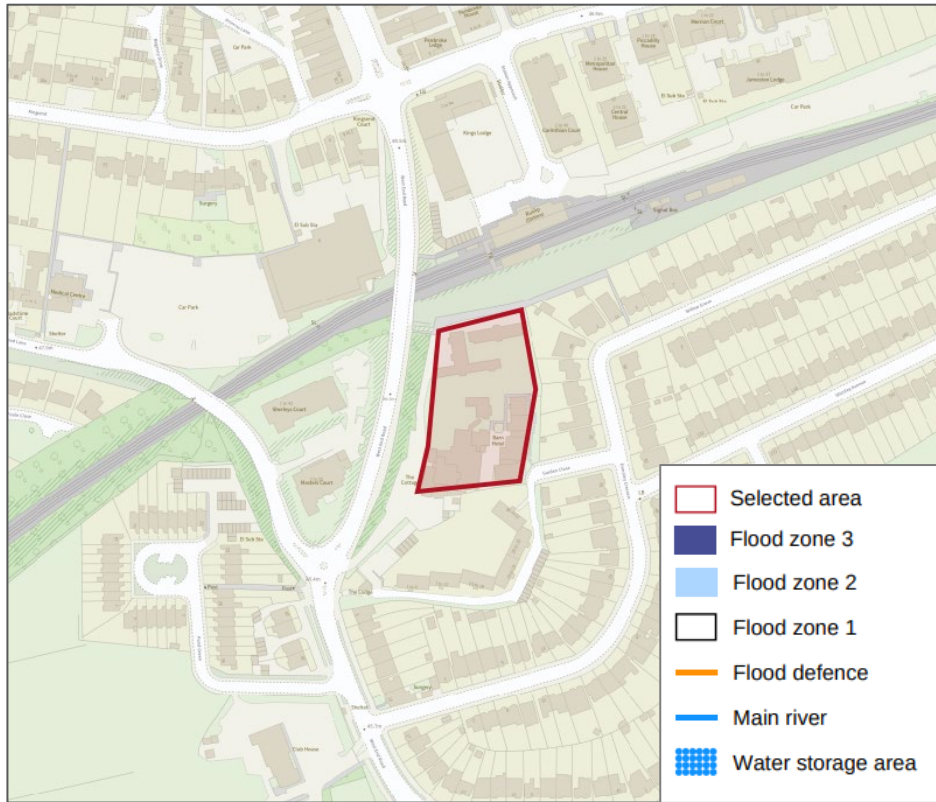


Figure 6: Environment Agency Flood Map – <https://flood-map-for-planning.service.gov.uk>

## Sustainable Drainage Systems

- 10.3** Sustainable drainage systems (SuDS) can deliver multiple benefits which broadly fit into four categories: water quantity, water quality, amenity and biodiversity, shown in Figure 7 below. The overarching principle of SuDS design is that surface water runoff should be managed for maximum benefit.
- 10.4** Long term environmental and social factors must be included in decisions regarding sustainable drainage. Sustainable drainage takes account of the quantity and quality of runoff, and the amenity and aesthetic value of surface water in the urban environment.

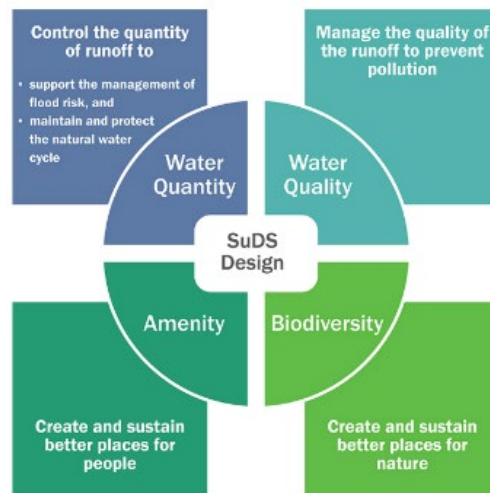


Figure 7: The four 'pillars' of SuDS – CIRIA SuDS Manual (2015)

**10.5** The following listed SuDS are proposed. These will not only help to attenuate surface water but will provide the necessary water treatment.

- > **Living roofs** will help to intercept and retain precipitation, reducing the volume of runoff and attenuating peak flows.
- > **Crate storage** to accommodate the runoff from all storm events.
- > **Permeable paving** will allow rainwater to infiltrate downwards and be temporarily stored before infiltration to the ground, reused or directed towards the cellular attenuation tanks.
- > **Rainwater harvesting systems** for Railway line apartment block and water butts proposed for two-storey flats and residential houses. Water reused for irrigation purpose & bin store washdown.

**10.6** A Drainage Strategy has been produced by Infrastructure Design Ltd (August 2024). The proposed drainage strategy will reduce the runoff from the site greenfield rates in line with the London Plan, reducing the risk of surface water flooding in the area of and surrounding the site. The surface water drainage arrangements will be sized to accommodate storm water flows for rainfall events up to and including the 1 in 100 year plus 40% climate change event with flows to the Thames Water sewer network restricted to greenfield rates. Therefore, the proposed surface water drainage strategy is considered robust and does not increase flood risk on or off-site. Please refer to the drainage strategy for further detail.

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## 11. BUILDING QUALITY

### Security

- 11.1** Chase New Homes are committed to ensuring the development is safe and secure for the occupants; reduce the risks and costs associated with crime; and improve occupiers' quality of life by reducing the fear of crime.
- 11.2** As such, the proposed development will be aiming to incorporate the principles of Secured by Design where appropriate.



### Safe Access

- 11.3** Chase New Homes are committed to ensuring that the development is safe and secure for its users. As such, footpaths will provide direct access from the site's entrance to the main doors of the building. All paths will consider dedicated pedestrian crossings and will be appropriately lit and signposted.
- 11.4** Cars will access the site from the dedicated parking bays throughout the site. As noted in the Transport Statement prepared by Paul Basham Associates Ltd (August 2024), there will be 26 dedicated parking bays, including 8 disabled parking bays.
- 11.5** Service vehicles, including those for refuse and skips, will have a different means of accessing the site to allow for manoeuvring. Dedicated spaces for the storage of refuse skips and pallets will be kept away from manoeuvring areas and car parking.

### Sound Insulation

- 11.6** In order to reduce the likelihood of noise complaints and to ensure a high quality development is created, the development will be aiming to achieve airborne sound insulation values that will improve upon the performance standards outlined within the Building Regulations for England and Wales, Approved Document E.

### Inclusive Design

- 11.7** Chase New Homes' commitment to inclusivity will ensure that the proposed development is scaled appropriately so as to respond to the needs of all its users. They will endeavour to incorporate the requirements of the Equality Act (2010) into their design, making reasonable adjustments to enable

disabled access, regularly reviewing whether the buildings are accessible and effective, and providing necessary design adjustments where it is practical to do so.

- 11.8** In addition, 90% of the new dwellings will be designed and built to Building Regulations Approved Document M4(2) standards, with 10% to Part M4(3) in accordance with London Plan Policy D7. These standards will ensure accessible and adaptable accommodation for everyone; young families, older people, individuals with a temporary or permanent physical impairment, and allow residents to stay in their home despite developing disabilities. They also enable flexibility, visitability (facilitating ease of visiting access to the homes by everyone, regardless of mobility or disability) and future-proofing i.e. the accommodation will be adaptable and able to respond to changing technological and environmental conditions.

## Daylight and Sunlight

- 11.9** The promotion of good daylighting levels contributes to sustainability through improving the occupant's quality of life and reducing the building's energy consumption by minimising the need for artificial lighting.



- 11.10** Anstey Horne have undertaken a Daylight and Sunlight Assessment. Their report notes the illuminance method (SDA) for daylight and sunlight exposure (SE) for sunlight have been considered. For daylight, the results of the assessment show that 98% of all of the rooms considered achieve illuminance levels that either meet or exceed the BRE's guideline values. For sunlight, the results of the assessment sunlight show that 77% of the main living areas considered will either meet or exceed the BRE's minimum criteria for sunlight availability. In summary, this is considered to be a good level of adherence to the guideline values provided by the BRE.

- 11.11** Please refer to the full assessment for further detail.

## Overheating

- 11.12** Minimising the risk of summer overheating and high uncontrollable temperatures is important so as to ensure that homes are comfortable for their occupants and remain comfortable in the future. Chase New Homes commits to ensuring that all dwellings will not have a high risk of summer overheating and will adopt appropriate measures to ensure this is delivered.

- 11.13** A Dynamic Overheating Assessment was undertaken by Hodkinson Consultancy (August, 2024). The assessment was undertaken in accordance with CIBSE TM59:2017 criteria and Approved Document O (2021). The following options have been explored as far as practicable to avoid the need for active cooling:

- > Openable windows as primary means of ventilation;
- > Background mechanical ventilation;
- > High performance solar control glazing;
- > Peak lopping MVHR system; and
- > Juliet balcony window type for all bedrooms.

**11.14** Please refer to the full assessment for further detail.

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## **12. TRANSPORT AND LOCAL AMENITIES**

### **Sustainable Transport**

- 12.1** Sustainable transport links are central to the sustainability debate. They provide a positive contribution to environmental, societal and economic sustainability of the places they serve.
- 12.2** The provision of alternative sustainable transport options and associated facilities reduces dependency on traditionally fuelled cars and has the following benefits:
- > Encourages active travel and helps improve people's health and wellbeing;
  - > Reduces congestion and encourages clean travel which helps to improve the air quality of the local area; and
  - > Provides cost savings compared with maintaining and running traditionally fuelled cars.
- 12.3** A Transport Statement was prepared by Paul Basham Associates Ltd (August, 2024). The statement concluded that the proposed development will not have a severe impact on the operation of the highway network and that safe and suitable access is achievable. Please refer to the full assessment for further detail.

### **Local Amenities**

- 12.4** The proposed development has access to the following key amenities in the local area which will help to reduce dependency on private transport:
- > Administrative services (e.g. post office, banks and cash points);
  - > Health services (e.g. GP practices, health centres and pharmacies);
  - > Small/large scale retail services (e.g. shops and restaurants);

- > Recreation and leisure facilities (e.g. sports centres and cinemas); and
- > Education and community facilities (e.g. nurseries, schools and community centres).

**12.5** Table 1 below identifies the local amenities near the development, as outlined in the Transport Statement prepared by Paul Basham Associates Ltd (August, 2024).

**Table 1: Local Amenities to the Development**

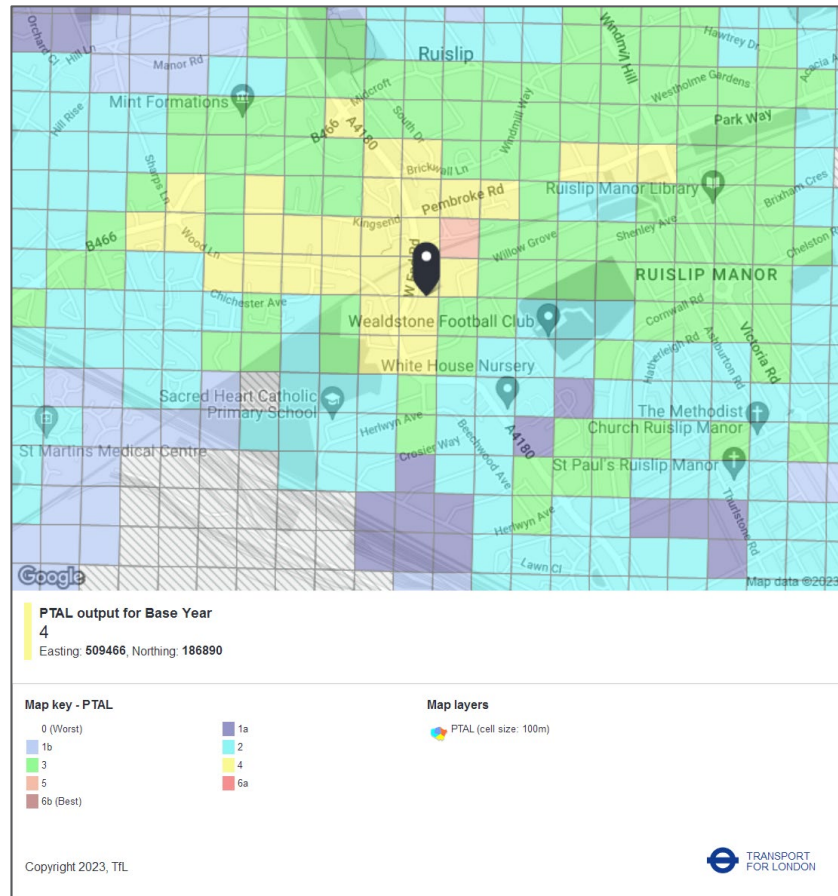
| Amenity  | Distance (m) | Walking Time (mins) | Cycling Time (mins) |
|--|--------------|---------------------|---------------------|
| Ruislip Physiotherapy sports and spinal clinic   | 100          | 1                   | 1                   |
| Ruislip Underground Station  | 150          | 2                   | 1                   |
| Waitrose Supermarket   | 180          | 2                   | 1                   |
| Woods Lane Medical Centre  | 215          | 2                   | 1                   |
| Ruislip High Street (access to banks, local shops, McDonald's, Coffee shops and local bike services) | 250          | 3                   | 1                   |
| Brickwall Lane Bus stops C/D   | 350          | 3                   | 2                   |
| Whitehouse Nursery   | 450          | 6                   | 3                   |

## Public Transport

**12.6** The site is well located within close proximity to a number of transport links, such as:

- > **Ruislip Manor Underground station** which provides access to the Metropolitan and Piccadilly lines;
- > **Ruislip Gardens Underground Station** which provides access to the Central line;
- > **West Ruislip Station** which provides access to Chiltern Railways trains to London Marlybone, Gerrards Cross, Oxford, and High Wycombe; and
- > **Local bus services** within the immediate vicinity of the site, providing frequent trips in all directions.

**12.7** The Transport for London Public Transport Accessibility Level (PTAL) map for the site is presented in Figure 8 overleaf. The site's PTAL rating of 4 represents a good level of transport accessibility.



**Figure 8: PTAL Map – [www.tfl.gov.uk](http://www.tfl.gov.uk)**

## Cycle Parking

**12.8** Encouraging cycling not only makes a positive contribution to health and well-being, but also reduces pressure on existing transport systems in accordance with Policy T5 of the London Plan.

**12.9** All of the dwellings will have access to secure cycle stores, located within a cycle store located on the ground floor for the flats and within the curtilage of each plot for the houses. A total of 128 spaces, 125 long stay and 3 visitor spaces, will be provided.





## Car Parking

**12.10** As outlined in the Transport Statement prepared by Paul Basham Associated Ltd (August 2024), for the proposed 72 dwellings, this equates to a maximum requirement of 36-54 spaces. A total of 26 parking spaces will be provided including 8 accessible spaces to directly serve the 8 accessible dwellings.

## Electric Car Charging

**12.11** Electric vehicles have the benefit of eliminating emissions, including carbon dioxide, oxides of nitrogen, carbon monoxide and particulates that normal cars emit. With road transport accounting for 66% of particulate emissions and 42% of NO<sub>x</sub> emissions in London, measures such as electric vehicle charging points are strongly encouraged.

**12.12** 100% of the spaces will have active charging facilities in live with the level required by the London Plan.



## Travel Plan

**12.13** A Travel Plan was developed by Paul Basham Associated Ltd (June, 2024). Transport for London define a Travel Plan as a *'long term management strategy for an organisation or site that seeks to deliver sustainable transport objectives through action and is articulated in a document that is regularly reviewed'*.

**12.14** This began with an assessment of the existing travel patterns, current local environment for walkers and cyclists, disabled access arrangements and local public transport links. Then a package of measures was proposed to promote sustainable modes of transport, such as walking and cycling. These measures are used to meet the specific targets of the Travel Plan, often relating to a specific increase in cycling rates or to minimise the need to travel to and from the site, especially by private car, taken from a baseline situation. It also includes a monitoring regime, whereby surveys will be done to assess progress towards these targets.

**12.15** The Travel Plan proposed the following measures:

- > Appoint a Travel Plan Coordinator;
- > Liaise with local cycle shops to discuss discounts and vouchers;
- > Produce a Resident Welcome Pack that includes information about local walking and cycling routes, rail and bus information, and electric charging information;

- > Personalised Travel Planning advice; and
- > A resident questionnaire to be undertaken at 75% occupancy at the end of Years 1, 3, and 5.

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## 13. BIODIVERSITY AND ECOLOGY

### Brownfield Site

**13.1** The site has been previously used for development which is predominantly covered in hard standing and is therefore considered 'brownfield'. Redeveloping and revitalising vacant and under-used sites is supported by the NPPF.

### Protection of Ecological Value

**13.2** A Preliminary Ecological Appraisal was undertaken by The Landscape Partnership (May, 2023). Subject to mitigation measures, the overall impact of the proposed development is considered to be neutral.

**13.3** To protect existing biodiversity, a series of measures will be implemented to reduce any impact on local wildlife. These include the following:

- > Structural and native trees and shrubs should be planted across the site as a foraging resources for a variety of species.
- > Strengthen retained hedgerows with additional native shrub understorey planting.
- > Provision of bat and bird boxes in addition to the creation of two habitat piles and hedgehog highways.

### Enhancement of Ecological Value

**13.4** Enhancing a site's ecological value not only helps to reduce a development's environmental impact but improves the health and wellbeing of the occupants through their interaction with the natural environment.

**13.5** The proposed landscaping strategy includes:

- > A sedum green roof to provide additional urban greening and biodiversity enhancements;
- > Planting, including ornamental shrubs and trees, plus a natural pond;



- > Flowering bulbs within flowering lawn to provide varying seasonal features; and
- > Planting of ornamental evergreen hedgerows.

## Sedum Roofs

**13.6** 100 m<sup>2</sup> of sedum roof is to be provided in order to meet Policy G5 of the London Plan. Green/brown/living roofs have demonstrable sustainability benefits, including:

- > Reduction in urban heat island effect (localised cooling through increased evaporation);
- > Provision of ecological habitats for fauna and flora, particularly where these roofs can replicate pre-existing ecological conditions; and
- > Reduction in surface water run-off.

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# 14. SUSTAINABLE CONSTRUCTION

**14.1** Sustainable construction involves the prudent use of existing and new resources and the efficient management of the construction process. This includes the following measures:

- > Reducing waste during construction and demolition and sorting waste on site where practical;
- > Reducing the risk of statutory nuisance to neighbouring properties as much as possible through effective site management;
- > Controlling dust and emissions from demolition and construction; and
- > Complying with protected species legislation.

## Considerate Constructors Scheme

**14.2** The development site will be registered with the Considerate Constructors Scheme. This is designed to encourage environmentally and socially considerate ways of working, to reduce any adverse impacts arising from the construction process. As commonly known, the Considerate Constructors Scheme aims are as follows:

- > Respecting the community (includes appearance)
- > Care for the environment;
- > Value their workforce (includes site safety).



- 14.3** The site will target a Very Good score of at least 33 out of 50, with all three sections scoring at least eleven points.

## Monitoring Construction Site Impacts

- 14.4** During the construction processes, control procedures will be put in place to minimise noise and dust pollution and roads will be kept clean. The management systems will generally comprise procedures and working methods that are approved by the development team together with commercial arrangements to ensure compliance.

- 14.5** Further to the above, additional measures will be adopted to minimise the impact on the local area during construction. This will include the limiting of air and water pollution in accordance with best practice principles, as well as the recording, monitoring and displaying of energy and water use from site activities during construction.

- 14.6** In terms of construction traffic, this will be minimised by restricting deliveries and arrival times in order to manage potential impacts on existing and future occupants. Work will be limited to appropriate hours to be agreed with the Council, and suppressors will be used to reduce noise from machinery.



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## 15. CONCLUSION

- 15.1** The issue of sustainable development has been considered throughout the design of the proposed development at The Barn Hotel by Chase New Homes in the London Borough of Hillingdon. In particular, the incorporation of sustainable design and construction methods, energy and water saving measures, waste reduction techniques as well as measures to enhance the ecological value of the site, a good quality and sustainable development is proposed.
- 15.2** The key sustainability features outlined in this Sustainability Statement are listed below:
- > **Energy efficiency:** The development will target a 73% reduction in Regulated CO<sub>2</sub> emissions through the energy efficiency measures, Individual monobloc air source heat pumps, Air Source Heat Pumps, and PV panels.
  - > **Overheating:** The scheme has been designed to ensure overheating risk is reduced to acceptable levels in accordance with CIBSE TM59:2017 requirements.
  - > **Water efficiency:** Flow control devices and water efficient fixtures and fittings will be installed in all dwellings to target a maximum internal daily water consumption of 105 litres/person/day.
  - > **Waste and recycling:** Adequate facilities will be provided for domestic and construction related waste, including segregated bins for refuse and recycling.
  - > **Circular Economy:** The principles of a circular economy shall be incorporated into the development, where possible.
  - > **Materials:** Where practical, new building materials will be sourced locally to reduce transportation pollution and support the local economy. New materials will be selected based on their environmental impact and responsible suppliers will be used where possible.
  - > **Pollution:** The proposed development will achieve noise levels in line with national and local policy.
  - > **Flood Risk and SUDs:** The proposed development site lies in a low flood risk zone and will benefit from SUDs such as permeable paving, storage tanks, and sedum roofs.
  - > **Security:** Consultation with a Security Specialist will take place to ensure the development is safe and secure for its residents.
  - > **Sound insulation:** The dwellings are to target an improvement on Building Regulations Part E through party walls and floors.

- > **Inclusive access:** 90% of the new dwellings will be designed to meet Building Regulations Approved Document M4(2) and 10% will meet Part M4(3).
- > **Sustainable transport:** The site will benefit from a good existing public transport network and sustainable modes will be encouraged through the provision of 179 cycle storage spaces and electric vehicle charging points.
- > **Biodiversity and ecology:** Enhancements will be implemented through the provision of landscaped areas, play space and additional tree and shrub planting across the site.
- > **Sustainable construction:** The site will aim to achieve a Very Good score with the Considerate Constructors Scheme and will closely monitor construction site impacts.

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## 16. REFERENCES

- > Greater London Authority (2021) *The London Plan*
- > Ministry of Housing, Communities & Local Government (2021) *National Planning Policy Framework*. MHCLG: London
- > HM Government (2016) *The Building Regulations Approved Document L1A: Conservation of Fuel and Power*. NBS: London
- > Energy Saving Trust (2013) *At home with water*
- > Department for Environmental Food and Rural Affairs (2018) *Air Pollution in the UK 2017*

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## **APPENDICES**

### **Appendix A**

#### Water Efficiency Calculator



| Water Efficiency Calculator<br>The Barn Hotel                |  |                      |                   |   |
|--|--|----------------------|-------------------|---|
| Internal Water Consumption                                   |  |                      |                   |   |
| Installation Type  | Unit of Measure                          | Capacity / Flow Rate | Litres/person/day | Notes   |
| WC   | Full Flush Volume (Litres)               | 6                    | 8.76              | Low flush WCs will be installed to reduce the volume of water consumed during flushing. All WCs will have dual flush cisterns which will provide both part (4L) and full (6L) flushes.  |
|  | Part Flush Volume (Litres)               | 4                    | 11.84             |   |
| Basin Tap  | Flow Rate (Litres/minute)                | 4                    | 7.90              | All taps (excluding kitchen taps) will be reduced to 4 litres/minute using flow restrictors. Where multiple taps are to be provided the average flow rate will be used.   |
| Bath   | Capacity (Litres to overflow)            | 160                  | 17.60             | All baths will have reduced capacities of 160 litres (excluding displacement). The bath taps are not included in this calculation as they are already incorporated into the use factor for the baths.                             |
| Shower   | Flow Rate (Litres/minute)                | 8                    | 34.96             | Shower flow rates will be reduced to a maximum of 8 litres/minute using flow restrictors fixed to the shower heads. These contain precision-made holes or filters to restrict water flow and reduce the outlet flow and pressure. |
| Kitchen Tap  | Flow Rate (Litres/minute)                | 5                    | 12.56             | Kitchen taps will be reduced to 5 litres/minute using flow restrictors which will be fitted within the console of the tap or in the pipework.   |
| Washing Machine  | Water Consumption (Litres/kg)            | 8.17                 | 17.16             | Water efficient washing machines or washer-dryers will be specified. The make and model numbers of the appliances are unknown at this stage therefore a default figure of 8.17 litres/kg has been assumed.                        |
| Dishwasher   | Water Consumption (Litres/place setting) | 1.25                 | 4.50              | All dishwashers will be water efficient. The make and models numbers are unknown therefore a default figure of 1.25 litres/place setting has been assumed at this stage.  |
| Net Internal Water Consumption (Litres/person/day)           |  |                      | 115.3             |   |
| Normalisation Factor   |  |                      | 0.91              |   |
| Total Internal Water Consumption (Litres/person/day)         |  |                      | 104.9             | The total <i>internal</i> water consumption target of ≤105 litres/person/day will be achieved in accordance with Regulation 36 para (2)b optional requirement Approved Document G.  |
| Allowance for External Water Consumption (Litres/person/day) |  |                      | 5                 |   |
| Total Water Consumption (Litres/person/day)                  |  |                      | 109.9             | The <i>total</i> water consumption target of ≤110 litres/person/day will be achieved in accordance with Regulation 36 para (2)b optional requirement of Approved Document G.  |