



HODKINSON



**Sustainability
Statement**

Elstree Land Ltd

**45 Caversham
Road**

Final

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We are able to advise at all stages of projects from planning applications to handover.

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

This report has been prepared by Hodkinson Consultancy using all reasonable skill, care and diligence and using evidence supplied by the design team, client and where relevant through desktop research.

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Executive Summary

The purpose of this Sustainability Statement is to demonstrate that the proposed development at 45 Caversham Road by Elstree land Ltd in the Borough of Reading is considered sustainable, as measured against relevant local and national planning policies.

The proposed development will comprise 40 dwellings, a communal garden, and associated car and cycle parking.

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 35% reduction in Regulated CO₂ emissions over the Part L 2013 baseline through energy-efficiency measures and PV panels.
- > **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.
- > **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.
- > **Flood Risk and SUDs:** The proposed development site lies partially in Flood Zone 2 and will benefit from SUDs such as permeable paving.
- > **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:** The new dwellings will be designed to meet Building Regulations Approved Document M4(2) and at least 5% 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 22 cycle storage spaces and 2 electric vehicle charging points.

- > **Biodiversity and ecology:** Enhancements will be implemented through the provision of landscaped areas, amenity space and additional tree and shrub planting across the site.
- > **Sustainable construction:** The site will aim to achieve a 'Beyond Best Practice' 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 Elstree Land Ltd.
- 1.2** This Statement sets out the sustainable design and construction measures in the planning application for the proposed development at 45 Caversham Road in the Borough of Reading.

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 conform to the agreed level of sustainability within the masterplan for the development;
 - > To address all national and local planning policies and requirements;
 - > To achieve a viable reduction in CO₂ 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 is 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 and local policy documents which have been used to guide and inform the sustainability strategy for the proposed development.
- 1.7** **Chapters 4 to 13** outline the sustainability strategy of the proposed development in relation to the policy documents listed in Chapter 3.
- 1.8** **Chapter 14** provides a summary of the key sustainability features associated with the proposed development.

2. DEVELOPMENT OVERVIEW

Site Location

- 2.1 The proposed development site at 45 Caversham Road in the Borough of Reading is located at 45 Caversham Road, Reading RG1 7BT as shown in Figure 1 below.

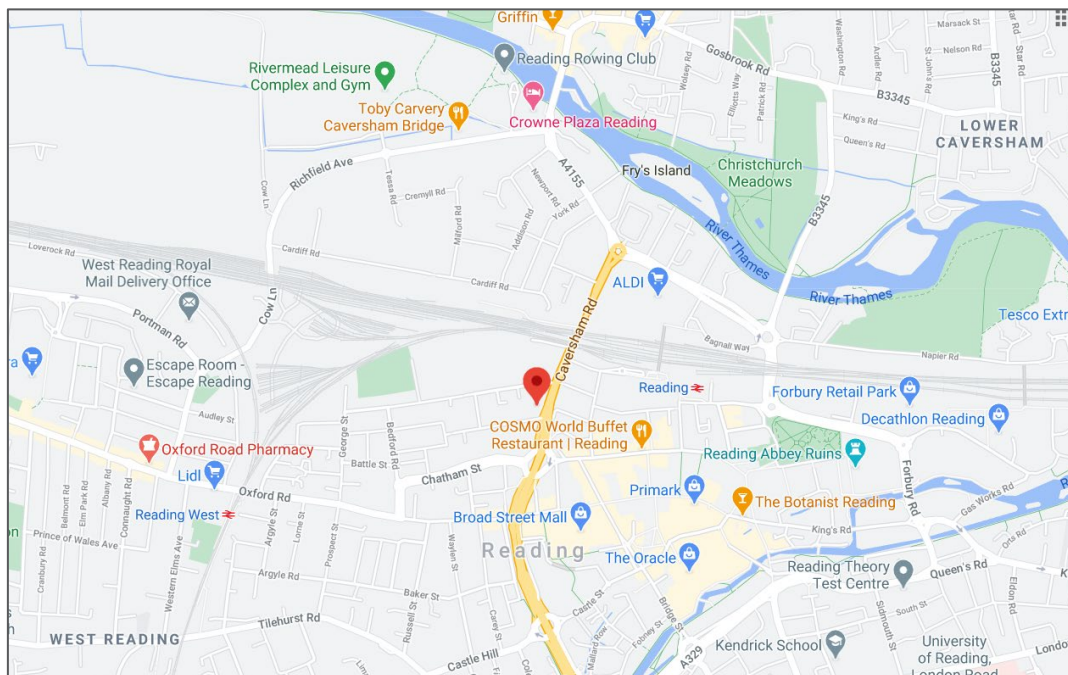


Figure 1: Site Location – Map data © 2020 Google

- 2.2 The site is currently occupied by Avis Car Rental and is located in a mixed-use area, bound to the north by Great Knollys Street and to the east by Caversham Road. There are residential dwellings to the west and south of the site. Further to the east are offices and residential premises and to the north are residential and commercial premises including Thimbleby & Shotland Auction Centre and Farmers Market.

Proposed Development

- 2.3 The proposed development is described as follows:

“Demolition of existing buildings and construction of 40 flats with associated landscaping and parking.”

2.4 Figure 2 below illustrates the proposed site layout.



Figure 2: Proposed Site Layout – Ground Floor (DHA Architecture Ltd, 2020)

3. RELEVANT PLANNING POLICY

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

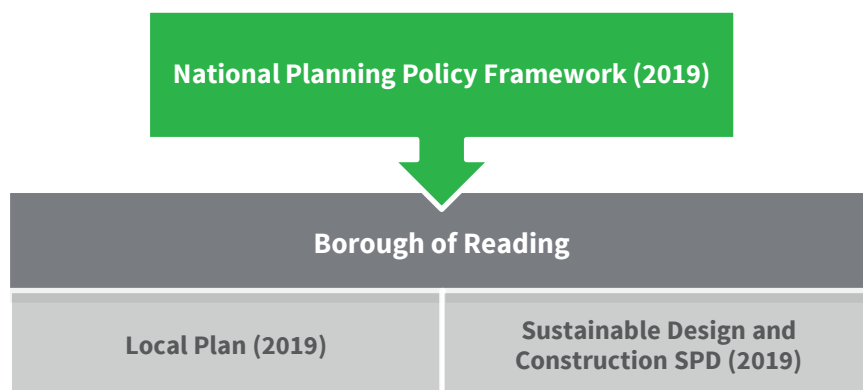


Figure 3: Relevant Planning Policy Documents

National Policy: NPPF

- 3.2 The revised National Planning Policy Framework (NPPF) was published on the 19th June 2019 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 National General Assembly). 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 type 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 and safe built environment, 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 contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

Local Policy: Borough of Reading

Local Plan (2019)

- 3.5 The Borough of Reading's Local Plan was adopted in 2019. The following policies are considered relevant to this Statement:
- 3.6 **Policy CC2: Sustainable design and construction** requires development to use energy, water, minerals, and other natural resources appropriately, efficiently and with care and account for the effects of climate change. Development should include measures for recycling greywater and rainwater harvesting where this is energy- and cost-effective.
- 3.7 **Policy CC3: Adaptation to climate change** requires development to incorporate measures to adapt to climate change. This includes measures such as solar shading, tree planting to provide

shade in amenity areas. Development should also be designed to minimise the impact of surface water runoff.

- 3.8 Policy CC5: Waste minimisation and storage** requires development to demonstrate measures to minimise waste generation in the construction, use and life of buildings and promote more sustainable approaches to waste management, including the reuse and recycling of construction waste and the provision of adequate space to facilitate waste storage, reuse, recycling and composting.
- 3.9 Policy CC7: Design and the public realm** requires development to create safe and accessible environments where crime and disorder or fear of crime does not undermine quality of life. Design should ensure suitable access for all users, including disabled people.
- 3.10 Policy CC8: Safeguarding amenity** states that there should be no detrimental impact on exiting residential properties or unacceptable living conditions for new residential properties with regard to daylight and sunlight, noise, and safety, among others.
- 3.11 Policy EN9: Provision of open space** states that development should provide appropriate open space based on the needs of the development.
- 3.12 Policy EN12: Biodiversity and the green network** states that the development should not result in a net loss of biodiversity and geodiversity, and should provide a net gain for biodiversity wherever possible. Development should include new tree planting, wildlife-friendly landscaping and ecological enhancements. It should also protect and enhance features of biodiversity interest on site.
- 3.13 Policy EN14: Trees, hedges and woodlands** requires development to include new tree planting to provide for biodiversity and contribute to measures adapt to climate change.
- 3.14 Policy EN18: Flooding and sustainable drainage systems** states that development should be designed to reduce flood risk on and off site and incorporate sustainable urban drainage systems.
- 3.15 Policy H5: Standards for new housing** states that new development should comply with the nationally described space standard and be built to the higher water efficiency standard under Regulation 36(3) of the Building regulations. In addition, residential development should be designed to achieve zero carbon homes. New build housing should be accessible and adaptable in line with M4(2) of the Building Regulations unless it is built in line with M4(3). At least 5% of dwellings should be wheelchair user dwellings in line with M4(3).
- 3.16 Policy H10: Private and communal outdoor space** requires development to provide functional private or communal open space, including green space wherever possible, that allows for play areas, composting, refuse storage, outdoor storage, and drying space. For flats, this may include communal outdoor space, balconies and/or roof gardens.

- 3.17 Policy TR1: Achieving the transport strategy** requires development to make appropriate provision for transport, particularly by public transport, walking and cycling, and to ensure an adequate level of accessibility.
- 3.18 Policy TR5: Car and cycle parking and electric vehicle charging** requires development to provide car parking and cycle parking appropriate to the accessibility of locations within the Borough to sustainable transport facilities, particularly public transport. Development should also make provision for electric charging points – at least 10% of spaces should have an active charging point.

Sustainable Design and Construction Supplementary Planning Document (SPD)

- 3.19** This SPD explains planning requirements with regard to energy, climate change, water management and waste reduction. It is intended to supplement the policies of the local plan. It was adopted in 2019.
- 3.20** In achieving zero carbon homes for major residential developments, the preference is to achieve true carbon neutral development on-site. If this is not achievable, a minimum of 35% improvement in regulated emissions over the Target Emissions Rate in the 2013 Building Regulations, plus a Section 106 contribution towards carbon offsetting must be made.
- 3.21 Ventilation:** The use of natural ventilation should be maximised. However, mechanical ventilation may be required to supplement natural ventilation, but this should be energy efficient.
- 3.22 Landscaping and energy efficiency:** Landscaping should be carefully considered in the design. Planting can also help avoid overheating. A balance should exist between the solar gain and shading strategies.
- 3.23 Energy efficient appliances:** The most energy efficient domestic appliances should be used as far as possible, particularly with regard to energy and water efficient white goods.
- 3.24 Reducing water consumption:** The higher water efficiency standard set out in the Building Regulations of 110 litres per person per day should be met. Water-saving devices should be installed to meet these requirements.
- 3.25 Sustainable drainage systems:** SuDS should be implemented and they should ensure that development does not result in any additional surface water run-off compared to pre-development levels.
- 3.26 Waste reduction:** Measures to minimise waste generation should be implemented. Development should also promote sustainable approaches to waste management, including re-use and recycling of construction waste and provision of space for waste storage, re-use, recycling, and composting. Building materials should be sourced locally and from sustainable or certified sources

where possible. Low-environmental-impact building materials should be used as much as possible. A Site Waste Management Plan should be developed to adopt good practice measures for waste minimisation.

4. ENERGY AND CO₂ REDUCTION

Energy Strategy

- 4.1** An Energy Statement has been prepared by Hodkinson Consultancy 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** In line with Reading Borough Council's Sustainable Design and Construction SPD, the predicted CO₂ emissions of the proposed development have been estimated using both SAP 2012 and updated SAP 10 carbon emission factors. The figures presented throughout the Energy Statement have been calculated using SAP 10 carbon emission factors, as these are considered a more accurate representation of CO₂ emissions. The performance using SAP 2012 carbon emission factors is also presented.
- 4.3** A range of advance energy efficiency measures is proposed. Along with an electric boiler heating strategy, this allows the development to achieve a 22% CO₂ reduction over the Part L 2013 baseline.
- 4.4** In line with Reading Borough Council's Local Plan, the feasibility of decentralised energy production has been considered. There are no known heat networks in close proximity of the development, and due to the small scale of the development, it is not considered feasible to install a site-wide network. It is proposed that the heating and hot water is supplied by electric boilers.
- 4.5** A range of Renewable Energy Technologies has been considered. It is proposed to maximise the roof space available to provide 30 kWp of Solar PV to the proposed development. This provides a further 13% reduction in Regulated CO₂ emissions over the first stage of the Energy Hierarchy.
- 4.6** The combination of these measures results in an on-site 35% CO₂ reduction over a Part L 2013 baseline, using SAP 10 carbon emission factors.
- 4.7** Any residual CO₂ emissions will be offset so the development achieves the zero carbon homes standard.

Lighting

- 4.8** 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.

Appliances

- 4.9** The EU Labelling Scheme shows how appliances are rated according to their energy consumption. Due to improved energy efficiency in many new products, more appliances achieve A+, A++ and A+++. In January 2019, it was announced that A+ to A+++ will be phased-out over the coming years and the new grading system will revert back to A to G ratings. This should make it easier for consumers to understand how appliances compare against each other.
- 4.10** The choice of energy-efficient appliances and the effective use of them will not only reduce unregulated CO₂ emissions but will save occupants money. Where provided, white goods will aim to be energy efficient with at least a B rating.
- 4.11** The purchasing of energy-efficient white goods will also be promoted through the provision of information on the EU Labelling Scheme contained within the Home Information Manual.
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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. As of February 2019, 12 out of the 23 water companies operating in areas of England were classified as being under 'serious' stress (Energy Saving Trust, 2019).
- 5.2** Each individual in the UK currently uses on average 140 litres/person/day and total UK demand for water in the 2080s is projected to increase by between 4-18% (CCRA2, 2015).
- 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 CO₂ per household per year. This is equivalent to the CO₂ emissions from driving more than 1,700 miles in an average family car (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 dwellings will target a minimum water efficiency standard of **110 litres/person/day** in accordance with Policy H5 of the Local Plan and the optional tighter Building Regulations Approved Document G requirement. 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**.

6. WASTE MANAGEMENT

- 6.1** Waste reduction and recycling is another key challenge of sustainable development and something which is strongly encouraged in the Local Plan (Policy CC5). The waste hierarchy, illustrated in Figure 4 below, prioritises those waste management options which are best for the environment.

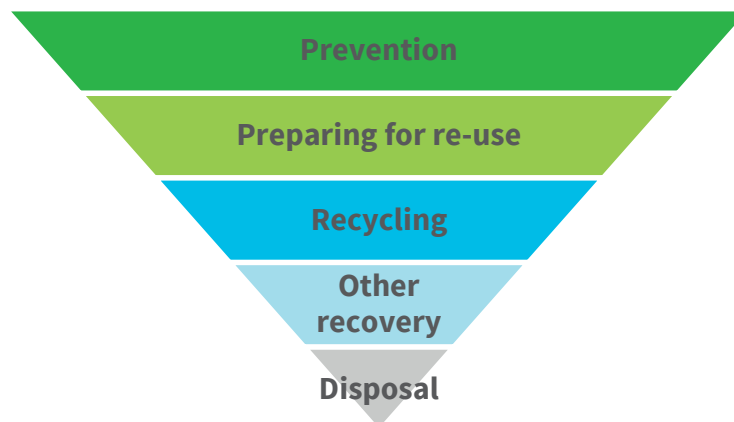


Figure 4: Waste Hierarchy

- 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 if 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, a Site Waste Management Plan will be prepared that 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 the commitment to divert construction waste from landfill, the site's waste reduction performance will be regularly monitored and recorded.

Household Waste

6.7 The above waste hierarchy will be followed to reduce the amount of waste sent to landfill. To facilitate this, adequate storage is to be provided in communal stores in an accessible location, where both recyclable and non-recyclable waste can be stored in accordance with Reading'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. Internal kitchen bins, with a minimum capacity of 7 litres, will also be provided.

7. MATERIALS

Environmental Impact

7.1 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.

7.2 All insulation materials will have an Ozone Depleting Potential (ODP) of zero and a Global Warming Potential (GWP) of less than 5.

Local and Responsible Sourcing

- 7.3** In accordance with Local Plan Policy CC5 and the Sustainable Design and Construction SPD, 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.
- 7.4** 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.
- 7.5** 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

- 7.6** Where feasible, materials that have been recycled will be used. 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.

8. POLLUTION

Noise Pollution

- 8.1** The development seeks to reduce noise disturbance to internal and external areas of dwellings to improve the health and wellbeing of the occupants and to help protect community cohesion.
- 8.2** A Noise Assessment has been undertaken by Cass Allen. The report concludes that the design of the development is considered to be acceptable subject to certain mitigation measures being implemented including upgraded glazing and mechanical ventilation in certain rooms.
- 8.3** Please refer to the full report for more detail.

Air Quality

- 8.4** 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.
- 8.5** Between 1990 and 2017, the UK's estimated emissions of nitrogen oxides reduced by 70%, and the estimated emissions of PM₁₀ particulate matter reduced by 55% (DEFRA, 2018). This must continue

to fall in future years. Elstree land Ltd are committed to reducing the proposed development's negative impact on air quality during construction and operation.

- 8.6** An Air Quality Assessment has been undertaken by Syntegra Consulting Ltd. The report indicates that provided the necessary mitigation measures are taken, the air quality impacts are predicted to be not significant.

Air Tightness and Ventilation

- 8.7** Air leakage is to be minimised and an air permeability of 3 m³/hr/m² will be targeted.
- 8.8** It is proposed to install Mechanical Ventilation with Heat Recovery (MVHR). MVHR 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.

9. FLOOD RISK & SURFACE WATER RUN-OFF

Flood Risk

- 9.1** 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.
- 9.2** According to the Flood Risk Assessment by Odyssey and the Environment Agency's Flood Map shown in Figure 5 below, the proposed development is partially located in Flood Zone 2. The site is considered to be at a low risk of surface water flooding.

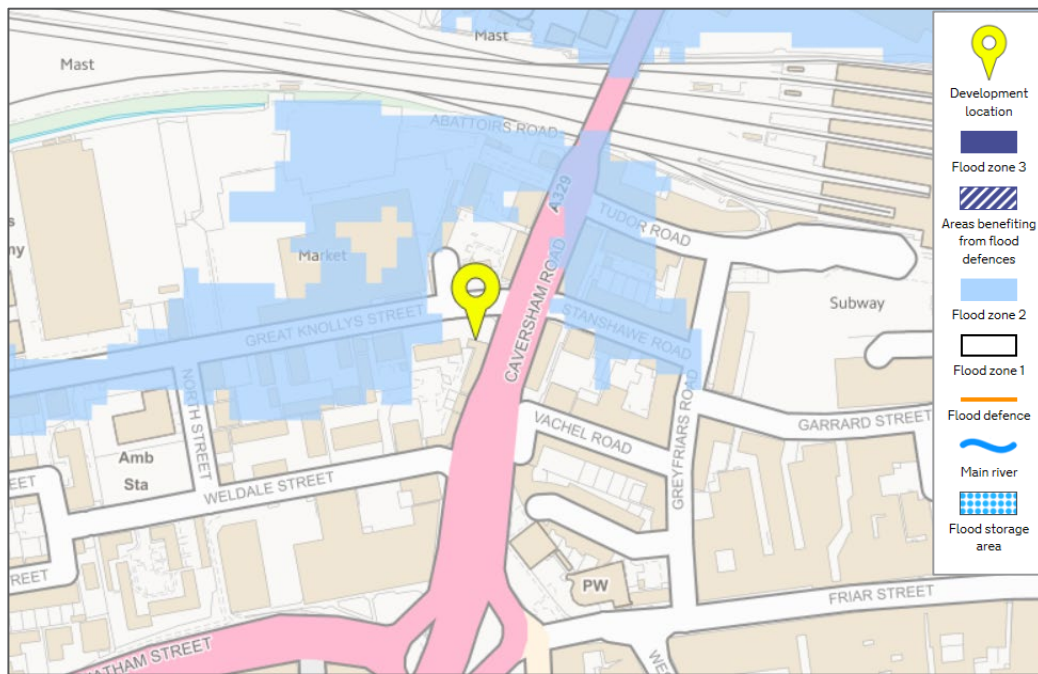


Figure 5: Environment Agency Flood Map – <https://flood-map-for-planning.service.gov.uk>

Sustainable Drainage Systems

- 9.3** Sustainable drainage systems (SuDS) can deliver multiple benefits which broadly fit into four categories: water quantity, water quality, amenity, and biodiversity, shown in Figure 6 below. The overarching principle of SuDS design is that surface water runoff should be managed for maximum benefit.
- 9.4** 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.

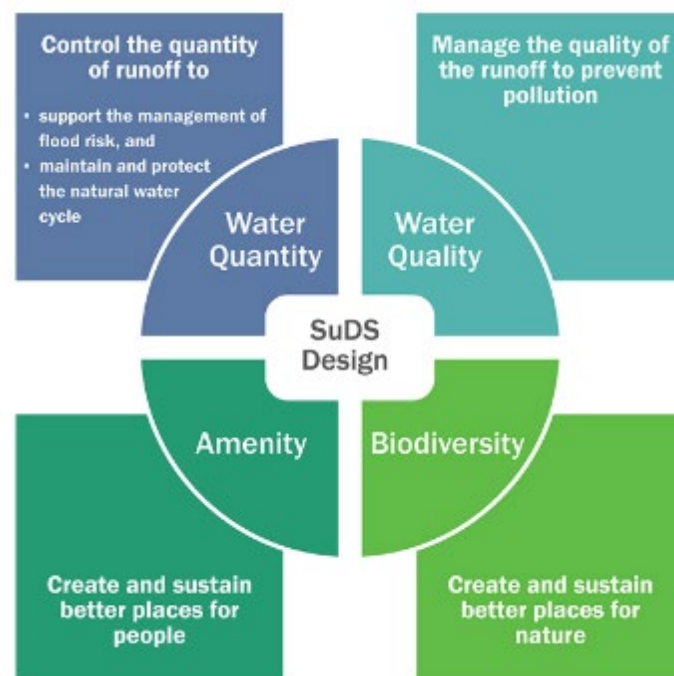


Figure 6: The four 'pillars' of SuDS – CIRIA SuDS Manual (2015)

- 9.5 The Drainage Strategy has been designed by Odyssey. Permeable paving has been proposed as the SuDS. This will allow rainwater to infiltrate downwards and be temporarily stored before infiltration to the ground, reused or directed towards the cellular attenuation tanks. This will not only help to attenuate surface water but will provide the necessary water treatment. This will allow for a significant reduction in surface water discharge rates from the site.

10. BUILDING QUALITY

Security

- 10.1 The development has been designed to ensure it 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.
- 10.2 As such, the proposed development will be aiming to incorporate the principles of Secured by Design where appropriate. This may involve consultation with a Security Consultant during the detailed design stage.

Sound Insulation

- 10.3** 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

- 10.4** The development is scaled appropriately so as to respond to the needs of all its users. The approach is to seek to incorporate the requirements of the Equality Act (2010) into the 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.
- 10.5** In addition, the new dwellings will be designed and built to Building Regulations Approved Document M4(2) standards, with at least 5% to Part M4(3) in accordance with Local Plan Policy H5. 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

- 10.6** 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.
- 10.7** A Daylight and Sunlight Assessment has been undertaken by eb7. The report finds that all rooms within the proposed units will meet the targets for the Average Daylight Factor (ADF).



Overheating

- 10.8** 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. The applicant is committed 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. TRANSPORT AND LOCAL AMENITIES

Sustainable Transport

- 11.1** 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.
- 11.2** 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.
- 11.3** A Transport Statement has been undertaken by i-Transport. The report shows that the development is likely to generate a total of 9 two-way vehicle movements in the morning peak period and 11 in the evening peak period. This is a significant reduction in the number of traffic movements generated from the current use of the site.

Local Amenities

- 11.4** 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. gyms); and
 - > Education and community facilities (e.g. nurseries, schools, and community centres).

Public Transport

- 11.5** The site is well located within close proximity to a number of transport links. This will encourage the use of sustainable transport modes and reduces the need to use a car. The transport links include:

- > **Reading Railway Station** is located approximately 400 m from the site. It is served by the GWR, CrossCountry, South Western Railway and TfL Rail lines and provides access to local stops as well as London Paddington, London Waterloo, London Heathrow Airport, London Gatwick Airport, Oxford, Manchester, Basingstoke, Southampton, Swansea, and Bristol.
- > **Local bus services** within the immediate vicinity of the site, providing frequent trips in all directions. These stops are serviced by bus numbers 22, 23, 24, 25, 27, 29, 42 and 82.

Cycle Parking

- 11.6** Encouraging cycling not only makes a positive contribution to health and well-being, but also reduces pressure on existing transport systems.
- 11.7** The dwellings will have access to secure cycle stores. A total of 22 spaces will be provided.

Car Parking

- 11.8** A total of 12 car parking spaces are to be provided across the development. Two spaces are to be for disabled use.

Electric Car Charging

- 11.9** 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 a significant amount of particulate emissions and NO_x emissions, measures such as electric vehicle charging points are strongly encouraged.
- 11.10** Therefore, in accordance with Policy TR5 of the Local Plan, the proposed development will allow for the provision of 10% of spaces with active vehicle charging points.

12.BIODIVERSITY AND ECOLOGY

Brownfield Site

- 12.1** 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

- 12.2** An Ecological Appraisal has been undertaken by Aspect Ecology. The report indicates that the habitats that dominate the site are not considered to be of ecological importance. Therefore, the loss of habitat resulting from the development is of negligible ecological significance.
- 12.3** To protect existing biodiversity, a series of measures will be implemented to reduce any impact on local wildlife. These include the following:
- > All site operatives to be made aware of current legislation, including the protection of certain species;
 - > Removal of any roofs or other structures with potential to support or conceal roosting bats should be undertaken with care under favourable weather conditions under an appropriate watching brief;
 - > Safeguards will be put in place to protect and avoid harm to mammals during site works;
 - > Site clearance works to be timed to avoid the main bird nesting season. If this is not possible, a check should be carried out prior to the works to determine the presence of any active nests; and
 - > Native species, or species of known wildlife value, should be used for the proposed new planting.

Enhancement of Ecological Value

- 12.4** 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.
- 12.5** The proposed landscaping strategy includes the provision of amenity space, landscaped areas, and additional tree and shrub planting.
- 12.6** The strategy for the new planting will include the following where possible:
- > Promote local ecology through the use of native seed and fruit bearing species;
 - > Attract pollinators such as bees and butterflies through the use of flowering, nectar rich species;
 - > Combine natural and ornamental species to enrich the planting mix and promote local biodiversity; and



- > Create new habitats to attract local fauna.

12.7 Detailed recommendations for enhancing the biodiversity on site are included in the Ecology Report by Aspect Ecology.

13.SUSTAINABLE CONSTRUCTION

13.1 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

13.2 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:

- > Enhancing the appearance;
- > Respecting the community;
- > Protecting the environment;
- > Securing everyone's safety;
- > Caring for the workforce.

13.3 The site will target '*Beyond Best Practice*' certification, achieving a score of at least 35 out of 50, with all of the five sections scoring at least seven points.

Monitoring Construction Site Impacts

- 13.4** 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.
- 13.5** 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.
- 13.6** 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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14. CONCLUSION

- 14.1** The issue of sustainable development has been considered throughout the design of the proposed development at 45 Caversham Road by Elstree Land Ltd. in the Borough of Reading. 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.
- 14.2** The key sustainability features outlined in this Sustainability Statement are listed below:
- > **Energy efficiency:** The development will target a 35% reduction in Regulated CO₂ emissions over the Part L 2013 baseline through energy-efficiency measures and PV panels.
 - > **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.
 - > **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.
 - > **Flood Risk and SUDs:** The proposed development site lies partially in Flood Zone 2 and will benefit from SUDs such as permeable paving.

- > **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:** The new dwellings will be designed to meet Building Regulations Approved Document M4(2) and at least 5% 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 22 cycle storage spaces and 2 electric vehicle charging points.
- > **Biodiversity and ecology:** Enhancements will be implemented through the provision of landscaped areas, amenity space and additional tree and shrub planting across the site.
- > **Sustainable construction:** The site will aim to achieve a 'Beyond Best Practice' score with the Considerate Constructors Scheme and will closely monitor construction site impacts.

15. REFERENCES

- > Ministry of Housing, Communities & Local Government (2019) 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 (2019) *Why we should all be saving water*
- > HR Wallingford (2015) *CCRA2: Updated projections for water availability for the UK*
- > Energy Saving Trust (2013) *At home with water*
- > Department for Environmental Food and Rural Affairs (2018) *Air Pollution in the UK 2017*

APPENDICES

Appendix A

Water Efficiency Calculator

Water Efficiency Calculator 45 Caversham Road				
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.