Sustainability and Energy Statement

Land North of Rounds Gardens, Rugby

January 2024

Turley
Sustainability

Contents

Client

St. Modwen Homes Ltd

Turley Reference

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1. Introduction

This Sustainability and Energy Statement has been prepared to demonstrate the sustainability credentials of the proposed development at Land North of Rounds Gardens.

This Sustainability and Energy Statement has been prepared by Turley Sustainability and ESG, on behalf of St. Modwen Homes Ltd, to support the full planning application to Rugby Borough Council for the proposed development at Land North of Rounds Gardens.

The Statement provides an outline of the proposed sustainable design measures to ensure sustainability performance in accordance with local and national planning policy.

1.1 The Development

1.1.1 Site Context

The site is located Northwest of Rugby Town Centre within walking distance of Caldecott Park and a wide range of town centre amenities, including the train station.

The site is bounded by the Army Reserve Centre and Indian Community Centre to the West, both of which are accessed from Edward Street, with existing residential development beyond, as well as further residential development accessed from York Street to the Southwest, and from Essex Street, Princes Street, King Street and Hill Street to the East. To the North, the site is bound by the remaining General Electric Power Facility; and to the South, it is adjoined by land owned by Rugby Borough Council, which until recently had contained a combination of high- and low-rise apartment blocks that are due to be demolished by the end of 2023.

The land is currently vacant and consists of a pavilion, a former recreation ground and a disused car park that are all historically associated with the employment use to the North. Vehicular access into the development is proposed to be taken from Willians Place (to the West) and Princes Street (to the East).

1.1.2 Proposed Development

The development proposals consist of the demolition of the existing pavilion and all other remaining structures and enclosures; and the erection of 134 new dwelling houses (Use Class C3), accesses, landscaping, car parking and associated works.

Figure 1 shows the illustrative masterplan of the proposed development.

1.2 Document Structure

Chapter 2 of this Statement sets out the local and national sustainability planning objectives.

Chapter 3 provides a review of the various sustainability measures that are proposed during the construction and operation of the proposed development to ensure the delivery of social, economic and environmental benefits.

Chapter 4 summarises the sustainability performance of the proposed development and how this accords with planning policy.

Please note, that the terms ‘carbon’, ‘carbon dioxide (CO_2)’ and ‘greenhouse gas (GHG)’ are used interchangeably in this Statement depending on the terminology of the referenced document.

Figure 1: Site Plan (Source: Roberts Limbrick)

2. Policy Context

This chapter provides an overview of the relevant sustainability planning policy and guidance from a national and local perspective.

2.1 Introduction

This chapter sets out the planning policy context relating to sustainable design and construction at the national and local authority levels.

2.2 National Policy

2.2.1 National Planning Policy Framework

The National Planning Policy Framework[1] (NPPF) provides a framework for the development of locally prepared plans and the government's planning policies for England and how these are expected to be applied.

Paragraph 7 of the NPPF states that: 'the purpose of the planning system is to contribute to the achievement of sustainable development'.

It states clearly that in order to deliver sustainable development, the planning system must perform three distinct objectives, aligned to the three pillars of sustainability, which must not be taken in isolation and should be pursued jointly:

An **economic** objective is 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.

A **social** objective supporting 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 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

An **environmental** objective contributing to protecting and enhancing 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.

These objectives are key to the development of plans and the NPPF sets out a number of key themes for consideration which guide the preparation of local plans and policies, ensuring the delivery of sustainable development.

The NPPF recognises the role planning has to play in support of the UK's pursuit of the United Nations Sustainable Development Goals (UNSDGs) which address social progress, economic well-being and environmental protection[2]. Example UNSDGs are presented in **Figure 2**.

[1] UK Government | NPPF

[2] UN Sustainable Development Goals

Figure 2: Example UN Sustainable Development Goals

2.2.2 Planning Practice Guidance

Planning Practice Guidance (PPG) provides further advice on various planning issues associated with development, including those linked to sustainability and renewable energy and underpins the policies within the NPPF.

PPG is a material consideration in planning decisions and should generally be followed unless there are clear reasons not to. It sets out how local authorities should include policies that protect the local environment and strategies to mitigate and adapt to climate change and supports developments that are functional and adaptable for the future.

2.2.3 National Design Guide

The National Design Guide, published in October 2019, is based on the national planning policy practice guidance and objective for good design as set out in the NPPF. The Guide introduces ten characteristics of well-designed places which work together to create developments in Character and Community, while positively addressing environmental issues affecting climate.

2.2.4 Building Regulations

Part L, Conservation of Fuel and Power - Whilst not planning policy, the Building Regulations (and specifically Approved Document Part L: Conservation of Fuel and Power) set out the requirements for energy and carbon performance in new buildings.

Periodic updates to these national regulations will drive energy efficiency and carbon reduction improvements. The government has stated that developers will continue to have flexibility in how they meet carbon reduction targets; but that the emphasis is on using a 'fabric first' approach.

On 15th June 2022, the Building Regulations were updated as an interim step towards part of the roadmap to the 'full' Future Homes and Buildings Standard, which comes into effect in 2025. The regulations aim to deliver buildings that are of higher quality, with lower energy bills and reduce GHG emissions by around 30% for new homes and 27% for non-domestic buildings.

The consultation on the 2025 Future Homes Standard and Future Buildings Standard began in December 2023, it proposes to shift from gas to electricity as the heat source, and potentially the incorporation of solar panels in the new standards.

In addition, the UK government has announced two new Building Regulations also due to take effect in June 2022, Part S and Part O. As of 15th June 2022, these standards are now in place.

Part S, Infrastructure for Charging Electric Vehicles - New approved document Part S sets out guidance for electric vehicle (EV) charging infrastructure and specifies that EV charge points must be provided for each dwelling (or where the total number of parking spaces is less than each dwelling, all spaces should be provided with an active EV charging point). Any remaining spaces must have cable routes for charge points to be installed. For non-residential car parks with more than 10 spaces, at least one active EV charge point must be provided, with cabling to the remaining 20% of spaces.

Part O, Overheating - Part O sets out new requirements for mitigating overheating, specifying that residential developments must limit unwanted solar gains in the summer and provide means to remove heat. Compliance with Part O can be demonstrated using two methods to demonstrate the risk of overheating from rising summer

temperatures has been mitigated following a simplified prescribed glazing and free area ratio; or, the use of a Dynamic Simulation Modelling.

2.3 Local Policy

2.3.1 Climate Emergency

Rugby Borough Council declared a Climate Emergency in 2019 and has committed to reaching net zero by 2030[3]. The Council have prepared a Climate Change Action Plan[4], creating a framework which details the council's plans to make climate change a cornerstone of all its operations.

2.3.2 Rugby Borough Council Local Plan

The Rugby Borough Council Local Plan[5] was adopted in 2019 and sets out the Council's policies and proposals to support the development of the Borough through to 2031.

There are a number of sustainability-related policies within the plan which are summarised below.

Policy HS5 Traffic Generation and Air Quality, Noise and Vibration - Development should promote sustainable transport modes to minimise the impact on air quality, noise and vibration.

Development of 10 or more dwellings must:

- Meet or exceed air quality standards, or;
- Mitigate poor air quality impacts;
- Where air quality neutral standards are not met, offset air quality shortfalls;
- Tackle noise and vibration impacts on occupants and public areas.

Policy SDC1 Sustainable Design – All development will demonstrate high quality, inclusive and sustainable design and new development will only be supported where the proposals are of a scale, density and design that responds to the character of the areas in which they are situated. Proposals relating to the enhanced energy efficiency of existing buildings will be supported in accordance with the most up-to-date national regulations.

Policy SDC2 Landscaping – A high standard of appropriate hard and soft landscaping will be required. All proposals should ensure that:

- Opportunities for utilising sustainable drainage methods are incorporated;
- New planting comprises native species which are of ecological value appropriate to the area; and
- Detailed arrangements are incorporated for the long-term management and maintenance of landscape features.

Policy SDC4 Sustainable Buildings – All new dwellings shall meet the Building Regulations requirement of 110 litres of water/person/day unless it can be demonstrated that it is financially unviable. Development should be designed in accordance with the following energy hierarchy:

- Reduce energy demand through energy efficiency measures; then
- Supply energy through efficient means (i.e. low carbon technologies); then
- Utilise renewable energy generation.

The reuse and recycling of surface water and domestic wastewater within new development will be encouraged.

Policy SDC5 Sustainable Drainage – Sustainable Drainage Systems (SuDS) are required in all major developments and all developments in Flood Zones 2 and 3. Such facilities should preferably be provided on-site, or, where this is not possible, close to the site, and:

- Be designed and located outside the floodplain and integrate with Green and/or Infrastructure functions;
- Be appropriate for the needs of the site;
- Promote enhanced biodiversity;
- Improve water quality;
- Increase landscape value; and
- Provide good quality open spaces.

Policy D1 Transport – Development will be permitted where sustainable modes of transport

[3] Council sets out strategy to reach 'net zero' by 2030 - Rugby Borough Council

[4] Climate Strategy - Rugby Net Zero - Rugby Borough Council

[5] Local Plan 2011-31 Adoption - Rugby Borough Council

are prioritised, and measures designed to mitigate transport impacts arising from either individual development proposals or cumulative impacts caused by a number of proposals are provided. All large-scale developments which result in the generation of significant traffic movements should be supported by a Transport Assessment and where necessary a Travel Plan, to demonstrate practical and effective measures to be taken to mitigate the adverse impacts of traffic. It must consider:

- The impact of the proposal upon existing infrastructure;
- How the site will connect safely to public transport; and
- Safe and convenient access to pedestrians and cyclists.

Policy D2 Parking Facilities – Planning permission will only be granted for development incorporating adequate and satisfactory parking facilities including provision for motorcycles, cycles and for people with disabilities (or impaired mobility) based on the Borough Council's Standards.

Electric and/or hybrid vehicle charging points are required to be provided as part of development unless it can be demonstrated that it is financially unviable.

Policy NE1 Protecting Designated Biodiversity and Geodiversity Assets – Development will be expected to deliver a net gain in biodiversity and be in accordance with the mitigation hierarchy below. Planning permission will be refused if significant harm resulting from development affecting biodiversity cannot be:

- Avoided, and where this is not possible;
- Mitigated, and if it cannot be fully mitigated, as a last resort;
- Compensated for.

2.3.3 Supplementary Planning Documents (SPD)

Climate Change and Sustainable Design and Construction SPD[6] – This document was adopted in 2023 and summarises the key climate and sustainability considerations which should be incorporated into development proposals. The SPD supports the Council's declaration of a climate emergency and net zero by 2030 ambition.

Air Quality SPD[7] **-** This guidance was adopted in 2021, it provides detail and information on the implementation of policy HS5 and SDC1 of the Local Plan.

2.3.4 Validation Requirements

The Council's Validation Checklist[8] sets a requirement for the provision of an Energy Statement and Sustainability Checklist in accordance with the Local Plan and SPD:

- Energy Statement – The validation checklist states an energy statement should be provided for major developments. They must demonstrate how reductions in carbon emissions will be achieved and quantify the total reduction, and the approach to energy complies with the energy hierarchy set out in the Local Plan.
- Sustainability Checklist – A sustainability checklist is required for the submission setting out the approach to sustainability in the design of the development, including consideration of a wide range of measures associated with the layout and design, sustainable transport, energy efficiency, flood risk, heritage and construction. A completed Sustainability Checklist can be found in **Appendix 1** of this report.

2.4 Policy Summary

Both local and national policy aims to ensure the delivery of sustainable and well-designed homes which reduce carbon emissions and adapt to the impacts of climate change.

Nationally the Government aims to set new standards for energy efficiency through the Future Homes Standard with the current interim FHS requirement updated in 2025 to require homes to achieve a 75% carbon reduction beyond Part L 2013.

[6] Climate Change and Sustainable Design and Construction SPD
[7] Air Quality SPD
[8] Rugby Borough Council Validation Checklist V9-March23

The Local Plan sets out a range of policies to support the delivery of sustainable development, including measures to adapt to climate change, reduce carbon emissions and pollution, support green landscaping and site ecology and deliver sustainable new communities.

Rugby Borough Council have declared a Climate Emergency and developed a Climate Change Action Plan to reach net zero by 2030.

The following sections of this Sustainability and Energy Statement set out the sustainability measures incorporated into the design of the development to ensure the delivery of sustainable development and address the requirements of local policy.

3. Sustainability at Land North of Rounds Gardens

This chapter summarises the proposed sustainability and energy strategy for the development at Land North of Rounds Gardens demonstrating how it responds positively to both national and local planning policy requirements.

The sustainable design measures incorporated into the development proposals are set out under the following headings which reflect the themes of the NPPF, and requirements of the current Local Plan and Climate Change & Sustainable Design and Construction SPD.

3.1 Building a Strong and Competitive Economy

The proposed development will contribute to positive economic growth for the town through construction and occupation, supporting the aims of the NPPF.

3.1.1 Construction

The economic benefits of construction are well known with considerable direct and indirect positive impacts resulting from new residential construction.

A study by the Confederation of British Industries (CBI) in February 2020[9] demonstrates that construction projects have a significant benefit on the local and wider economy. The report concludes that for every £1 of construction expenditure, £2.92 is injected into the economy.

The construction of up to 134 new homes and associated infrastructure will therefore provide opportunities for local employment as well as increased revenue locally for materials, services and goods.

3.1.2 Occupation

Further positive economic impacts of the proposed development resulting from the occupation of new homes and related increase in local population are noted as follows;

- The construction of 134 new homes and associated infrastructure will increase the population resulting in local benefits through the demand for goods and services;

[9] https://www.cbi.org.uk/media/4121/fine-margins-february-2020-cbi.pdf

- The development of new homes will provide an increase in Council Tax revenue helping support local Council services; and
- The increase in local population will also help support local facilities, groups and stores helping promote the vitality of Nailsea and beyond.

Overall, the development of new homes at the north of Rounds Gardens will provide a positive local economic impact.

3.2 Promoting Sustainable Transport

In line with **Policy D1** of the Local Plan, a Transport Assessment (TA) has been prepared by PJA, summarising existing conditions in the vicinity of the site, and the accessibility of the site relative to local facilities and services, and outlines the development proposal for the site.

Local Services and Amenities – The site sits on the northern edge of Rugby Town Centre and has good access to a number of local facilities including numerous schools, convenience stores, food and drink, and leisure venues which are all within walking distance from the site.

A number of local amenities are provided in close proximity to the site, with the closest considered to be:

- Northlands Primary School – 1.2km, 17-minute walk;
- Avon Valley Secondary School – 1.6km, 23-minute walk;
- Asda Supermarket – 1km, 14-minute walk;
- Westside Medical Centre – 0.9km, 12-minute walk;
- Food and Drink Establishments – between 0.5km and 1km, 8-14 minutes walk;
- Rugby Town Centre – between 0.6km and 1.2km, 11-18 minutes walk;
- Public open space and leisure facilities – between 0.7km and 1.9km, 11-26 minutes' walk.

The high level of destinations accessible within a short distance should help to encourage a proportion of shorter trips from the area to be made on foot or by bicycle.

Walking and Cycling – The site is linked to a network of footways and the Public Rights of Way in Rugby. In the surrounding area, there are footpaths on both sides of the local road network, and various crossing facilities, including signalized crossings on the A426.

Near the site, cycling is supported by on-road signed and advisory cycle routes that connect to broader cycling infrastructure within the town.

Additional entry points for pedestrians and cyclists will be established on Essex Street and the existing bridleway to the south of the site, connecting York Street and Hill Street.

A shared footway/cycleway will connect the eastern and western parcels, creating a continuous pedestrian and cycle route throughout the site.

The design of access and internal layout include the following features:

- 2m footways on both sides of the road at each vehicle access point (Willans Place and Princes Street);
- A 2m footway connection onto Essex Street to the north;
- A 2m footway connection onto the bridleway along the southern edge of the site;
- A 3m shared footway/cycleway through the centre of the site, facilitating pedestrian and cycle connections between the two development parcels.

Site Access - Pedestrian and vehicle entry to the western development parcel will be available via an extension of Willans Place, while access to the eastern development parcel will be provided through an extension of Princes Street.

Bus Services – The site is conveniently situated near the public transport network.

The bus stops nearest to the western part of the site are located on Oliver Street, roughly 450 meters to the south. The bus service from this stop continues along Oliver Street and Lawford Road, where additional stops can be found offering services to surrounding urban areas.

The bus stops closest to the eastern portion of the site can be found on the A426 Newbold Road, approximately 250 meters to the east of the site. These bus stops provide frequent services Monday-Saturday between Rugby and its suburbs, Coventry, Magna Park and Leicester.

Rail Services – Rugby train station is conveniently situated within a 20-minute walking distance.

The station offers ample cycle storage options, including two cycle hubs with a total capacity of 200 spaces, on-platform storage and additional cycle parking in the car parks. Additionally, there are 57 car parking spaces available. The station is staffed from Monday to Sunday.

Services are provided by Avanti West Coast and London Northwestern Railway. The station offers frequent and direct connections throughout the week to key destinations including Coventry City Centre, Birmingham City Centre, London, the Northwest, and Scotland.

Electric Vehicle Charging – The development aligns with **Policy D2** of the Local Plan and Part S of the Building Regulations, aiming to incorporate electric vehicle charging facilities in residential developments. A charge point will be provided for each dwelling.

Travel Plan – The site will benefit from initiatives set out in the Travel Plan (TP), such as:

- Encourage walking and cycling by distributing local maps, advertising website links emphasizing the benefits, etc;
- Promote public transport usage by exploring discounts on bus and rail tickets, incorporating route maps and timetable information in marketing materials;
- Encourage car sharing by distributing information on public car sharing websites and featuring events in the marketing regime to alleviate traffic congestion and promote sustainable travel.

In summary, the proposed development at Land North of Rounds Gardens is in a sustainable location and has good access to pedestrian, cycle, bus and rail links to adjacent communities. The need to travel is reduced by the local facilities available within walking and cycling distance of the site, which will be further reduced as part of the initiatives set out in the Travel Plan, as well as cycle parking and the provision of Electric Vehicle charging.

More detailed information on transportation issues is contained in the Transport Assessment and Travel Plan that accompanies the planning application.

3.3 Requiring Good Design

The proposed development includes the construction of 134 residential dwellings, with a mixture of types and sizes. To promote a sense of community and connection with wider development in the area, and align with **Policy SDC1** of the Local Plan, the development proposals include a range of good design measures. The objectives for the site are to create a high-quality, sustainable development, measures to achieve this include:

- The scheme will seamlessly blend with its surroundings by strengthening existing connections and establishing new ones, with a focus on enhancing connectivity across the broader neighbourhood;
- The development will provide a mix of housing types and tenures that suit the local environment and create a cohesive community;
- Both public and private spaces will have clearly defined boundaries, ensuring appropriate access and allowing for effective management to ensure safety and usability;
- Buildings will be strategically designed and positioned with landscaping to enhance streets and communal areas. Corner-turner properties will be included for active frontage and natural surveillance in the public realm.

Additional information on the design concept for the proposed development is set out in the DAS which accompanies the application.

3.4 Promoting Healthy Communities

Creating a high-quality development that promotes health and well-being for residents is a key aim of the scheme. In this context, the proposals have been developed to enhance the health and wellbeing of the occupants as follows:

- Efforts have been made to minimize segregation between different modes of movement, ensuring that movement routes are effectively utilized by various forms of traffic, ranging from pedestrians to motor vehicles;
- Public open spaces have been designed to accommodate a variety of community functions, fostering regular use and community engagement;
- Publicly accessible spaces will benefit from both natural and active surveillance, as surrounding properties and movement routes will have oversight.
- A high-quality public realm will be established to inspire human activity and shape the behaviours of users.

In addition, homes have been designed to:

- Prioritisation of natural ventilation, contributing to good internal air quality;
- Homes which are adaptable for the future; and,
- Utilisation of materials and services that have low emission rates and pollutants.

More information on how the development has incorporated healthy living opportunities is contained within the DAS which accompanies the outline planning application.

3.5 Meeting the Challenge of Climate Change

One of the main challenges facing new development is the need to mitigate and adapt to a changing climate. The Government is committed to tackling climate change and in 2019 set out an ambition to extend the UK Carbon reduction target to reduce carbon emissions by 100% by 2050.

Climate change will cause the UK to become warmer, winters will become wetter, and summers will become drier. Adapting to this changing climate will impact the design, construction, location, cost and operation of all new buildings in the next few decades. One of the NPPF's core planning principles is to encourage development to consider climate change adaptation and mitigation during the planning process.

The Government's FHS sets out the pathway for delivery of net zero ready homes from 2025. The interim FHS requires homes to achieve a c.31% carbon reduction, moving to c.75% from 2025, as well as removing the potential for gas fired systems.

The Local Plan requires that development adhere to high-quality, inclusive, and sustainable design principles.

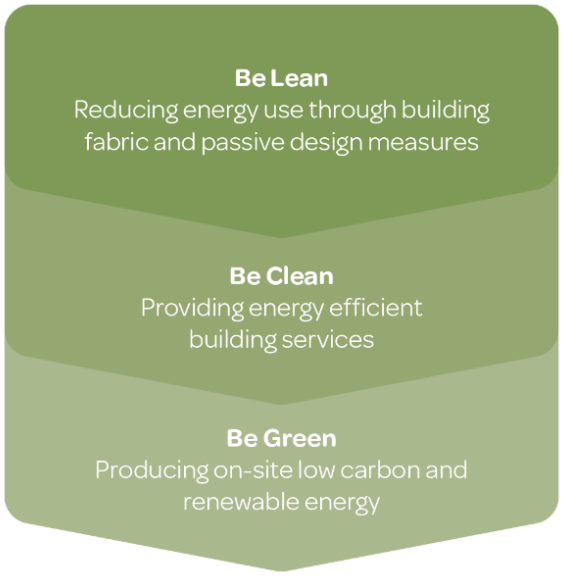
In this context, the following sections outline the key climate change mitigation and adaptation measures considered appropriate for this development based on the latest national guidance.

3.5.1 Mitigating Climate Change – Reducing carbon emissions

Developing energy efficient, low carbon homes and buildings is a key objective of national policy and recent changes to Building Regulations, supporting the reduction of energy demand through efficient building design to reduce carbon emissions.

The proposed dwellings have been designed in accordance with the Energy Hierarchy, as shown in **Figure 3,** which aims to reduce energy demand through passive design measures and a fabric first approach before utilising low carbon energy and the production of on-site renewable energy.

Figure 3: The Energy Hierarchy



The following sections set out the measures proposed to deliver an energy efficient, low carbon development.

Be Lean – Reducing Energy Use

Central to the delivery of low carbon and energy efficient buildings is the 'Fabric First' principle which recognises the most effective way of minimising carbon emissions is to reduce the demand for heat and power through a well-insulated, energy efficient building fabric and services.

Reducing the primary energy demand of a building through the use of an efficient fabric and services is widely regarded as best practice and is therefore the first and most important step to reducing carbon emissions.

This 'fabric first' approach has a number of distinct benefits including:

- Carbon savings delivered are 'locked-in' for the lifetime of the building (60 years or more) rather than the much shorter lifespan (around 25 years) of a renewable energy technology;
- Virtually no maintenance and/or replacement costs to maintain carbon reductions through improved fabric;
- No reliance on an occupier's behaviour to deliver carbon reductions.

Energy Efficiency Measures –

The interim FHS carbon reduction target requires a 31% improvement over the previous Part L 2013 standard, with the full FHS expected to come into force in 2025 requiring homes to achieve a 75% reduction over the 2013 standard delivering Net Zero Ready homes.

As part of the anticipated build out schedule of the development initially approximately one third of the site will be built in accordance with the interim FHS, with the remaining homes built out in accordance with the 2025 FHS.

In line with **Policy SDC4** of the Local Plan and the Climate Change & Sustainable Design and Construction SPD. The detailed design of homes has considered, and will include:

- Design to promote passive solar gains to maximise natural daylight, sunlight and ventilation;
- Homes will be provided with smart meter systems;
- High levels of insulation and air tightness;
- Use of high efficiency heating systems appropriate to the building use to reduce energy consumption; and,
- Specification of high energy efficient equipment that will use less energy and water.

As noted, the new homes will reduce thermal energy demand by targeting improved insulation levels and air leakage and fabric u-values in line with current and future requirements of the Building Regulations as necessary.

Be Clean – Efficient Energy

The next stage of the Energy Hierarchy is the efficient supply of heat and energy. This means connecting to an existing District Heating Network (referred to as 'DHN' hereafter) where possible or providing an on-site communal heat network or individual systems.

District Heating Networks (DHN) comprise a centralised heat generator, typically a gas fired Combined Heat and Power (CHP) engine. CHP systems generate electricity and waste heat which can be fed into a network of insulated pipes which

deliver low carbon heat to buildings to provide heating and hot water via individual heat transfer units.

DHNs are suited to development with high thermal demand, typically provided by sufficient density or a large anchor load, i.e. high-density flats, leisure centres and industrial processes.

The continued decarbonisation of the national electricity network and changes to the Building Regulations mean that the carbon emission benefits of traditional CHP systems will diminish during their life cycle.

CHP and DHN are therefore unlikely to be incorporated, as carbon emissions associated with electricity are expected to continue to reduce as the grid decarbonises, leading to greater savings in carbon emissions over the lifetime of the development.

In this context, given the technical constraints, it is considered that the installation of a heat network is unsuitable for this development.

Be Green – Low Carbon Renewable Energy

The final stage of the energy hierarchy is the generation of on-site low carbon renewable energy. The use of a fabric first approach to design and construction and the provision of energy efficiency measures recognises that the most effective route to delivering long term energy and carbon reductions is through efficient building design.

A review of potential low carbon renewable energy technologies which may be suitable for inclusion in building designs, taking into account changes to the Building Regulations has been completed below.

Solar Photovoltaics (PV)

PV systems generate zero carbon electricity from sunlight and are well suited to dwellings with unobstructed southeast to south-west facing roof space. Excess power is exported to the grid or can be harnessed using battery storage. Maintenance requirements are typically minimal. The Proposed Scheme has been designed to maximise opportunities for Solar PV, by orientating and designing dwellings to maximise on roof space with a good solar orientation, where the physical constraints of the site allow.

Solar Thermal

Solar thermal systems generate zero carbon hot water from sunlight in a similar manner to Solar PV. They require insulated tanks to store the hot water and have greater maintenance demands than solar PV given the need to ensure anti-freeze in the pipework is topped up every few years. They can be a highly cost-effective technology particularly where mains gas supplies are not available, however, in energy efficient new homes, their benefit can be limited.

Heat Pumps

Heat pumps provide low carbon heat sourced either from the ground (Ground Source Heat Pumps) or air (Air Source Heat Pumps). This type of system is suited to thermally efficient buildings. They require main electricity to operate but typically generate around three units of heat for every unit of electricity that is consumed. Because the heat generated is at a lower temperature than that produced by a gas boiler, heat pumps typically require underfloor heating or oversized radiators to ensure the heat is distributed efficiently. Heat pumps do however require ongoing and fairly frequent maintenance. Heat pumps are a key measure for homes to meet the requirements of the 2025 FHS.

Biomass

Biomass provides useable heat from a range of solid fuels including wood and straw. The installation of a biomass boiler, flue and associated fuel store requires significant space and is not considered appropriate for the development.

Homes at land North of Rounds Gardens will include a combination of Solar PV and Air Source Heat Pumps in line with the requirements of the Building Regulations and FHS to provide low carbon heat and Solar PV.

Summary

In summary, the proposed dwellings have been designed in accordance with the principles of the

energy hierarchy utilising a 'Fabric First' principle which recognises the most effective way of minimising carbon emissions is to reduce the demand for heat and power through a well-insulated, energy efficient building fabric and services.

In line with the 'Be Clean' and 'Be Green' energy hierarchy tiers, the development will consider the use of renewables to meet a proportion of energy demand, providing reliable and secure hot water, heating and electricity.

The strategy will ensure the requirements of **Policy SDC4** will be achieved through the use of energy efficient and renewable energy technologies, including Solar PV and ASHP.

Table 1 estimates the carbon emissions[10] of baseline and proposed development, setting out the reduction in carbon emission from the fabric, energy efficiency and low carbon energy measures proposed.

Table 1: Estimated carbon emissions

	Carbon Emissions (tCO_2/year)
Baseline – Part L 2013	196
Proposed Development	77
Reduction	**61%**

Table 2 forecasts the overall energy demand of the development, outlines the contribution of each proposed renewable energy technology and specifies the percentage of the total demand met by renewable energy sources.

Table 2: Estimated renewable technologies contributions

	Energy (MWh/year)
Development Energy Demand	746
Solar PV	92
Air Source Heat Pumps	269
% Energy Demand Provided by Renewable Technologies	**48%**

This final specification of homes will be subject to the final design of homes and build out across the scheme, subject to changes to the Building Regulations and introduction of the 2025 FHS.

3.5.2 Climate Change Adaptation

To ensure the proposed development is resilient to the effects of climate change, it will incorporate a number of key design measures in response to the climate predictions set out in the UKCP18 projections.

The UKCP18 projections demonstrate that over time the UK will experience increased summer and winter temperatures with significantly increased maximum temperatures, reduced summer rainfall, increased winter rainfall and an increase in extreme weather events.

The UK Climate Change Risk Assessment, updated in 2021, identifies key risks associated with the effects of climate change. In relation to the built environment and the proposed development, these include reduce summer water availability, increased winter rainfall and increased summer temperatures.

This section identifies key measures which will be incorporated into the design of new buildings and

[10] Carbon emissions here only include regulated carbon emissions, resulting from space heating, hot water, ventilation, fans, pumps and lighting.

the proposed development to adapt to climate change.

Water Efficiency

Potable water is an increasingly important natural resource and with Rugby falling within an area of 'serious water stress'[11], the conservation of water is becoming a more significant sustainability metric.

The new development will be designed to reduce water consumption through a range of water efficiency measures such as:

- Dual flush WCs;
- Water meters;
- Low flow fittings; and
- Water efficient equipment, including water butts to facilitate the reuse of water for garden irrigation in homes.

Through the use of these measures, new homes will target a water consumption rate of 110 l/p/d, in line with the higher water efficiency rate set through **Policy SDC4** in the Local Plan and the Building Regulations, and significantly below the UK average of 150 l/p/d.

Flood Risk and Drainage

A Flood Risk Assessment (FRA) and Drainage Strategy has been prepared by PJA, which indicates that the site is in Flood Zone 1, which is land assessed as having less than a 1 in 1,000 annual probability of river or sea flooding.

The Flood Risk Map shows a water flow path from the south. Measures include the swale and Flood Storage Area (FSA) are designed to provide sufficient capacity to convey and store surface water flows from the wider catchment for all storm events up to and including the 1 in 100-year +40% climate change storm event, ensuring safety for the proposed development.

In line with **Policy SDC5** of the Local Plan, Sustainable drainage methods, like permeable paving, filter margins, and swales, will be used to manage surface water runoff from the proposed development sustainably. This arrangement of Sustainable Drainage Systems (SuDS) will allow rainfall to be intercepted at its source and slow the flow of water, enabling the treatment of surface water and effective removal of pollutants.

The central FSA has been designed to enhance amenity and biodiversity in the proposed development.

Further information on the site's flood risk and the proposed surface water management system can be viewed in the accompanying FRA and Drainage Strategy.

Overheating

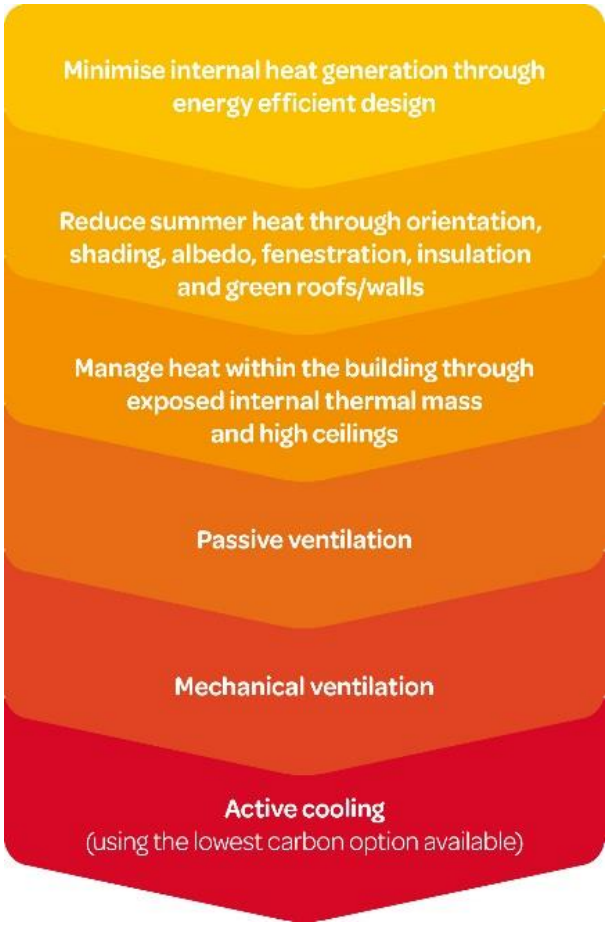
With increasing summer temperatures there is an increasing risk of overheating in buildings which could adversely affect building occupants and users.

All homes have been designed in accordance with the new Building Regulations Part O Overheating that came into force in June 2022. Part O requires development to reduce overheating risk through the incorporation of passive solar design measures.

Where necessary measures to reduce overheating risks have been included in accordance with the cooling hierarchy, as shown in **Figure 4**, which aims to reduce any potential overheating in buildings. Incorporating the cooling hierarchy into the design process means buildings are better equipped to manage their cooling needs and to adapt to and mitigate climate change.

[11] Water stressed areas – 2021 classification - GOV.UK (www.gov.uk)

Figure 4: Cooling Hierarchy



3.6 Conserving and Enhancing the Natural Environment

The proposed development includes measures to conserve the natural environment through the consideration of measures to protect and enhance the existing site ecology and biodiversity, measures to reduce pollution from the site, and the use of sustainable and responsibly sourced materials.

3.6.1 Ecology

A Biodiversity Metric Report has been prepared by E3P to establish the ecological status of the site and the potential ecological implications of the proposed development at Land North of Rounds Gardens.

The proposed scheme demonstrates a positive impact on habitat and hedgerow units, with a total gain of 0.75 habitat units and a gain of 1.75 hedgerow units resulting from the development.

The development includes measures to enhance the site's value for wildlife. This can be achieved through:

- The creation of hibernacula following the guidance outlined in Froglife (2001) for common amphibians;
- Installing hedgehog houses would contribute to enhancing the site for hedgehogs;
- The integration of bat and bird boxes into proposed residential units or on retained mature.

The integration of the above mitigation and enhancement measures will improve site ecology and help habitats and species adapt to climate change in accordance with **Policy NE1** of the Local Plan. More information is available in the Biodiversity Metric Report and associated documents accompanying the application.

3.6.2 Pollution

The proposed development will aim to minimise any negative impacts on the natural environment considering the impacts of water use, materials, noise, and air quality.

Water – Throughout construction water quality will be maintained by the following measures:

- Reduce erosion and run-off by minimising land disturbance and leaving vegetation cover where possible;
- Cover skips and trucks loaded with construction materials and continually damp down with low levels of water;
- Use non-toxic paints, solvents and other hazardous materials wherever possible; and
- Segregate, tightly cover and monitor toxic substances to prevent spills and possible site contamination.

To improve water quality during the occupation of homes, the surface water drainage strategy includes consideration of measures to minimise pollution run-off.

Sustainable Materials – Insulation materials containing substances known to contribute to stratospheric ozone depletion or with the potential

to contribute to global warming will not be used. Natural insulation materials such as mineral wool, rock wool or corkboard will be considered as they are amongst the lowest Global Warming Potential (GWP) ratings.

To further enhance the development a number of additional measures will be considered during the detailed design of new homes to minimise pollution, including:

- The use of key internal finishes and fittings which comply with best practice emissions levels of Volatile Organic Compounds (VOCs) and other substances;
- Where appropriate, the use of low NOx emission boilers, further reducing the impact of the development; and
- Specification of low Global Warming Potential (GWP) and zero Ozone Depleting Potential (ODP) insulation materials.

Additionally, the development will aim to make use of local and sustainability sourced materials, including the use of FSC or equivalent timber.

Noise – A Baseline Noise Assessment has been carried out by Hoare Lea to identify key noise sources near the sites, assess their impact, and specify potential mitigation measures.

This assessment has shown that rail noise is the main concern for the development site, and there's no significant noise impact from nearby industrial premises.

In line with **Policy HS5** of the Local Plan, mitigation measures, including acoustic-rated windows, are recommended to address potential noise from intensified works, and solid fencing is needed to protect gardens from rail and industrial noise.

Air Quality – Hoare Lea conducted a Baseline Air Assessment for the proposed development, concluding that it can be deemed air quality neutral in accordance with **Policy HS5** of the Local Plan and the Air Quality SPD. This determination is contingent upon the successful implementation of various mitigation measures, encompassing a comprehensive travel plan, cycling initiatives, and the promotion of sustainable travel practices.

The assessment underscores the commitment to addressing and minimizing potential air quality impacts associated with the development, aligning with established guidelines and regulatory frameworks.

3.7 Sustainable Waste Management

3.7.1 Construction Waste Management

A Construction Environmental Management Plan (CEMP) has been developed to ensure the use of measures to minimise waste during the construction phases of the development, including the use of a scheme for recycling/disposing of waste arising from demolition and construction works.

The reduction, reuse and recycling of construction waste is to be prioritised through measures such as avoidance of over-ordering, supervision of deliveries, use of secure materials storage facilities and reuse of materials onsite where feasible.

In addition, the development will be registered with the Considerate Constructors Scheme and achieve certification against the Code of Considerate Practice.

3.7.2 Operational Waste Management

In accordance with the principles of the waste hierarchy, the development will make provision for the storage of non-recyclable waste and recyclable waste including dedicated storage for waste in new homes to encourage residents to recycle waste materials.

Full consideration will be given to the Council's waste management infrastructure and services to ensure that the occupiers have the necessary infrastructure to participate in any kerbside recycling services.

4. Conclusion

This Sustainability and Energy Statement has been prepared to demonstrate how the proposed development responds positively to national and local policy requirements.

The proposed development at Land North of Rounds Gardens has been designed to respond positively to national and local policy incorporating measures to deliver social and economic benefits, while also protecting and enhancing the environment where possible. This includes the consideration of measures to mitigate and adapt to the effects of climate change.

The key sustainable design measures incorporated at this stage and to be considered during the detailed design of homes are summarised as follows:

Social and Economic Benefits – The development aims to provide a range of social and economic benefits to both new and existing residents, through:

- Provision of 134 new homes, associated infrastructure and open space, providing opportunities for local people during both construction and operation of the development;
- A development in a sustainable location with a wide range of services and amenities within easy walking distance of the site;
- Incorporation of sustainable transport measures to encourage active travel in line with **Policies D1** and **D2** of the Local Plan, including footway/cycleway provision and EV charging facilities; and
- Homes are designed to create healthy living environments which are flexible and fit for the future.

Environmental Protection and Enhancement – Through a range of design measures the development aims to protect and enhance the local environment, including:

- Measures to manage pollution and minimise the impacts to noise, air, water and materials in accordance with **Policy HS5** of the Local Plan;
- Buildings designed to make use of sustainable materials, minimise waste, and encourage recycling throughout demolition, construction, and operation; and
- Provision of measures following **Policy NE1** of the Local Plan to protect on-site ecology and enhancement measures including the creation of hibernacula and installing hedgehog houses, to increase site biodiversity which also helps reduce the impact of climate change on site habitats.

Mitigating and Adapting to Climate Change – The development will incorporate a range of mitigation measures to reduce carbon emissions, and adaptation measures to ensure the long-term resilience of the development to the effects of climate change. Measures include:

- Buildings designed to reduce carbon emissions, primarily aligning with the emerging full FHS, achieving a 61% reduction in carbon emissions beyond Part L 2013, through the use of energy hierarchy as required by **Policy SDC4** of the Local Plan, using a fabric first approach to design to reduce energy demand, helping mitigate the effects of climate change;

- Provision of on-site low carbon renewable energy generation equivalent to 48 % of the site energy demand;
- Specification of water efficient fittings to reduce water consumption to 110 litres per person per day in line with **Policy SDC4** in the Local Plan and government's higher water efficiency standard;
- Design of a surface water management proposal and SuDS designed to manage a 1 in 100 annual probability plus 40 % climate change storm event following **Policy SDC5** of the Local Plan;
- Homes designed to take into account increasing annual temperatures set out in the UKCP18 climate projections to minimise the risk of overheating.

St. Modwen is committed to the delivery of sustainable homes which include measures which provide economic and social benefits, protect and enhance the environment, as well as mitigating and adapting to the long term effects of climate change.

Appendix 1 – Sustainability Checklist

As set out in the Council's validation checklist below the Sustainability Checklist included in the Climate Change and Sustainable Design and Construction SPD has been completed. Where relevant this references sections in the report above for further detail.

Layout and Design	Yes	No	N/A	Justification
Does the location of the proposed development minimise distances to the main employment centres, shops, recreation and community facilities, and schools?	✓			The site has good access to several local facilities including numerous schools, convenience stores, food and drink, and leisure venues which are all within walking distance from the site. Further information on access to local amenities is set out in Section 3.2 of this report and the Transport Assessment and Travel Plan prepared by PJA.
Has the local context been addressed in the application and does the building arrangement consider the existing streetscape?	✓			The urban form of the development is designed to integrate effectively with the adjacent existing developments and to create high quality spaces within the site. Further information is set out in Section 3.3 of this report and the DAS which accompanies the application.
Has the visual interest of the street layout been considered in the application?	✓			The proposed layout provides a legible and interesting street scene, forming a strong, formal frontage to Edward Street on the West and Princes Street to the East. Section 3.3 of this report and the DAS includes detailed information regarding the design of the street layout.
Have daylight, sunlight and privacy been considered in the application?	✓			The design will promote passive solar gains to maximise natural daylight, sunlight and ventilation. More details are shown in the section 3.5 of this report.
Has outdoor space been considered in the application?	✓			Public outdoor spaces will be designed carefully to accommodate a variety of community functions and foster community engagement.

				Further information is set out in Section 3.4 of this report and the DAS which accompanies the application.
Is there sufficient space for bin storage which protects visual amenity and prevents risk of hazards?	✓			Refer to the DAS, adequate off-street storage space for wheeled bins, including storing recycling, to serve all new residential properties will be provided. Further information is set out in the DAS which accompanies the application.
Does the design conform to the Technical Housing Standards - Nationally Described Space Standard?	✓			Yes, homes are designed to meet and exceed the Nationally Described Space Standards.
Does the design have regard for characteristics of the area?	✓			A design concept has taken into account the constraints of the site, its wider context, opportunities arising and the primary characteristics of the area. More details are shown in the DAS.
Is the overall design in accordance with the principles of Passive Solar Design e.g. natural heating and light through solar gain, passive ventilation?	✓			The design will align with the principles of Passive Solar Design to make the best use of the natural heating and light source and maximise passive ventilation. Further information is set out in Section 3.5 of this report.
Are the materials chosen appropriate for thermal mass, and has appropriate insulation and airtightness been considered in the design of buildings, whilst balancing against the needs to avoid over-heating?	✓			The chosen materials are appropriate for thermal mass, and the design incorporates suitable insulation and airtightness. This has been carefully balanced to address the risk of overheating in the buildings. Section 3.5 of this report includes detailed information.
For larger development schemes – does the layout utilise design to minimise shadowing, and gain heating efficiencies?	✓			The layout has been designed to minimize shadowing and maximize heating efficiencies where the constraints of the site allow. Further information is set out in Section 3.5 of this report.
Will the development make the best use of existing landform, to protect against hotter or wetter weather conditions, and	✓			The development has been designed to make the best use of the existing landform to provide protection against hotter or wetter weather conditions and utilise thermal buffering where feasible.

utilise thermal buffering?				For further information, please refer to Section 3.5 of this report.
Does the proposal deliver measurable improvements for biodiversity by preserving or enhancing habitats?	✓			The proposed scheme demonstrates a positive impact on habitat and hedgerow units, with a total gain of 0.75 habitat units and a gain of 1.75 hedgerow units resulting from the development, and active measures will be taken to improve the biodiversity further. Section 3.6 of this report and the Biodiversity Metric Report prepared by E3P provide more information.
Sustainable Transport	**Yes**	**No**	**N/A**	**Justification**
Do the designs support sustainable transport options?	✓			The proposed development has good access to pedestrian, cycle, bus and rail links to adjacent communities. The need to travel will be reduced by the local facilities available within walking and cycling distance of the site, to support sustainable transport. Further information is set out in Section 3.2 of this report and the Transport Assessment and Travel Plan prepared by PJA.
Does the scheme facilitate active/healthy travel choices and reduce private car dependency?	✓			The walking and cycling network in the scheme has been designed to facilitate active and healthy options for residents, as shown in Section 3.2 of this report and the Transport Assessment and Travel Plan prepared by PJA.
Do pedestrian and cycle routes link comfortably to surrounding areas/facilities, and to other transport networks?	✓			The pedestrian and cycle routes have been designed carefully, integrated with the characteristics of the area, to link comfortably to surrounding areas and facilities, as well as to other transport networks. Further information on access to local amenities is set out in Section 3.2 of this report and the Transport Assessment and Travel Plan prepared by PJA.
Does the proposal provide appropriate levels and standards of car parking (as set out in Appendix 5 of the local plan)?	✓			The parking spaces will be provided in line with the requirements set out in the local plan. Further information on access to local amenities is set out in Section 3.2 of this report and the Transport Assessment and Travel Plan prepared by PJA.
Will the development incorporate electric vehicle charging points?	✓			Electric vehicle charging points will be incorporated for each dwelling.

				Further information on access to local amenities is set out in Section 3.2 of this report and the Transport Assessment and Travel Plan prepared by PJA.
Does the proposal provide appropriate levels of, and secure facilities for, cycle parking/storage?	✓			The proposal will include appropriate levels of cycle parking/storage, and there are secure facilities provided for cyclists. Further information on access to local amenities is set out in Section 3.2 of this report and the Transport Assessment and Travel Plan prepared by PJA.
Will a Travel Statement (for smaller-scale developments) or Travel Plan (for proposals that generate significant traffic) be submitted with the proposal, including measures such as car clubs/Smart travel?	✓			A Travel Plan prepared by PJA will be submitted with the proposal, it has included initiatives to encourage sustainable and smart travel. Further information is set out in Section 3.2 of this report and the Travel Plan.
Energy Efficiency	**Yes**	**No**	**N/A**	**Justification**
Has the development been designed in accordance with the Energy Hierarchy. (Reduce energy demand>Supply energy efficiently>Utilise renewable technology)?	✓			As demonstrated in this Sustainability and Energy Statement, the Energy Hierarchy has been followed, using a fabric first approach to design to reduce energy demand, helping mitigate the effects of climate change. Homes have been designed utilising the energy hierarchy to reduce energy demand through passive and active efficiency measures before incorporating low carbon renewable energy including Solar PV and ASHP. Section 3.5 provides further detail on the energy strategy proposed.
Has an Energy Statement been prepared for the application?	✓			Section 3.5 sets out the energy strategy incorporated into the development.
Does the development utilise energy efficient design techniques such as the passive design concept and high level insulation?	✓			Section 3.5 provides further detail on the energy efficient design of homes which includes passive design measures, such as natural ventilation and passive solar gains, and a good level of insulation to reduce energy demand.

Have efficient means of supplying energy been included in the proposal including efficient mechanical and electric systems, heat pumps, 'smart' appliances and heat recovery systems?	✓			Homes will be provided with energy efficient heating systems. The 2025 Future Homes Standard will require homes to include ASHPs to provide low carbon heating. Further detail on the energy strategy proposed is included in Section 3.5.
For energy generation have renewable technologies been utilised such as solar panels, micro turbines and ground source heat pumps?	✓			Homes will be built to include Solar PV and ASHP with the specific design of individual homes subject to the requirements of the Building Regulations and FHS applicable at the time of construction. Further detail on the energy strategy proposed is included in Section 3.5.
Has the scope for connection of larger developments schemes to an existing District Heat and Cooling System, or CHP system been considered?	✓			The provision of district heating has been considered in Section 3.5 but is not considered suitable due to a number of technical and feasibility constraints.
In terms of water-use efficiency, does the proposal comply with Building Regulations limit of 110 litres per day?	✓			As proposed in this statement, various water efficiency measures will be implemented to reduce water consumption and meet the 110 litres per day target. Further information on access to local amenities is set out in Section 3.5 of this report.
Have measures been included into the scheme to recycle water, for example, water-butts for housing developments, or underground tanks?	✓			Homes will be provided with water butts to facilitate the reuse of water for garden irrigation, as demonstrated in Section 3.5 of this report.
Will the development require water intensive processes for construction and, if so, are there any water-saving measures that can be used to reduce this?	✓			A Construction Environmental Management Plan has been prepared to reduce the environmental impact of construction, this will include measures to minimise water use.

Flood Risk and Drainage	Yes	No	N/A	Justification
Has the development been located away from areas more at risk from flooding (Floods Zone 2 and 3)?	✓			The development is in flood zone 1 as confirmed by the Flood Risk Assessment (FRA) and Drainage Strategy prepared by PJA.
Has the Environment Agency Surface Water Flooding Map been checked to identify localised flooding issues?	✓			The Flood Risk Map has been checked by PJA, and measures have been provided to convey and store surface water flows for storm events. Further detail is included in Section 3.5 of this report and the Flood Risk Assessment (FRA) and Drainage Strategy prepared by PJA.
Have Sustainable Drainage Systems (SuDS) been incorporated into the development proposal? For example, infiltration basins, soakaways, permeable paving?	✓			Sustainable drainage methods, like permeable paving, filter margins, and swales, will be used to manage surface water runoff from the proposed development sustainably. Further detail is included in Section 3.5 of this report and the Flood Risk Assessment (FRA) and Drainage Strategy prepared by PJA.
Have maintenance responsibilities been identified for any proposed SuDS?	✓			Further details on the provision of SuDS and ongoing maintenance are subject to agreement with the Council.
Heritage Assets	**Yes**	**No**	**N/A**	**Justification**
Has the impact of proposals upon heritage assets, such as conservation areas and listed buildings been considered? (Works to listed buildings may also require Listed Building Consent in addition to planning permission. Please check with the planning office).			✓	Not applicable
Where possible, can materials be re-used in the proposal that are in keeping with the heritage asset?			✓	Not applicable - The land is currently vacant and only consists of a pavilion, a former recreation ground and a disused car park, which doesn't include any materials that could be re-used.

Demolition and Construction	Yes	No	N/A	Justification
Has consideration been given to the amount of embodied carbon (the CO_2 used in producing materials), including how it will be reduced in the development and how waste will be reduced and diverted from landfill?	✓			Section 3.6 notes that the development will make use of sustainable materials, this will include the specification of materials which have a reduced embodied carbon where feasible.
Has a Construction Management Plan been prepared for the proposal?	✓			Section 3.7 notes a Construction Environmental Management Plan has been prepared to set out measures to protect the environment through the construction process.
Where site demolition will be necessary, have procedures for the salvage of building part and/or materials been put in place (including any natural materials on site)?	✓			A pre-demolition audit will be carried out prior to demolition to review if any materials can be re-used or recycled. Section 3.7 provides further details on the demolition and construction waste strategy.

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Sustainability