# Shaw Lane

# Sustainability Statement

**Prepared on Behalf of Network Space Lane Limited**
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# 1.0 INTRODUCTION

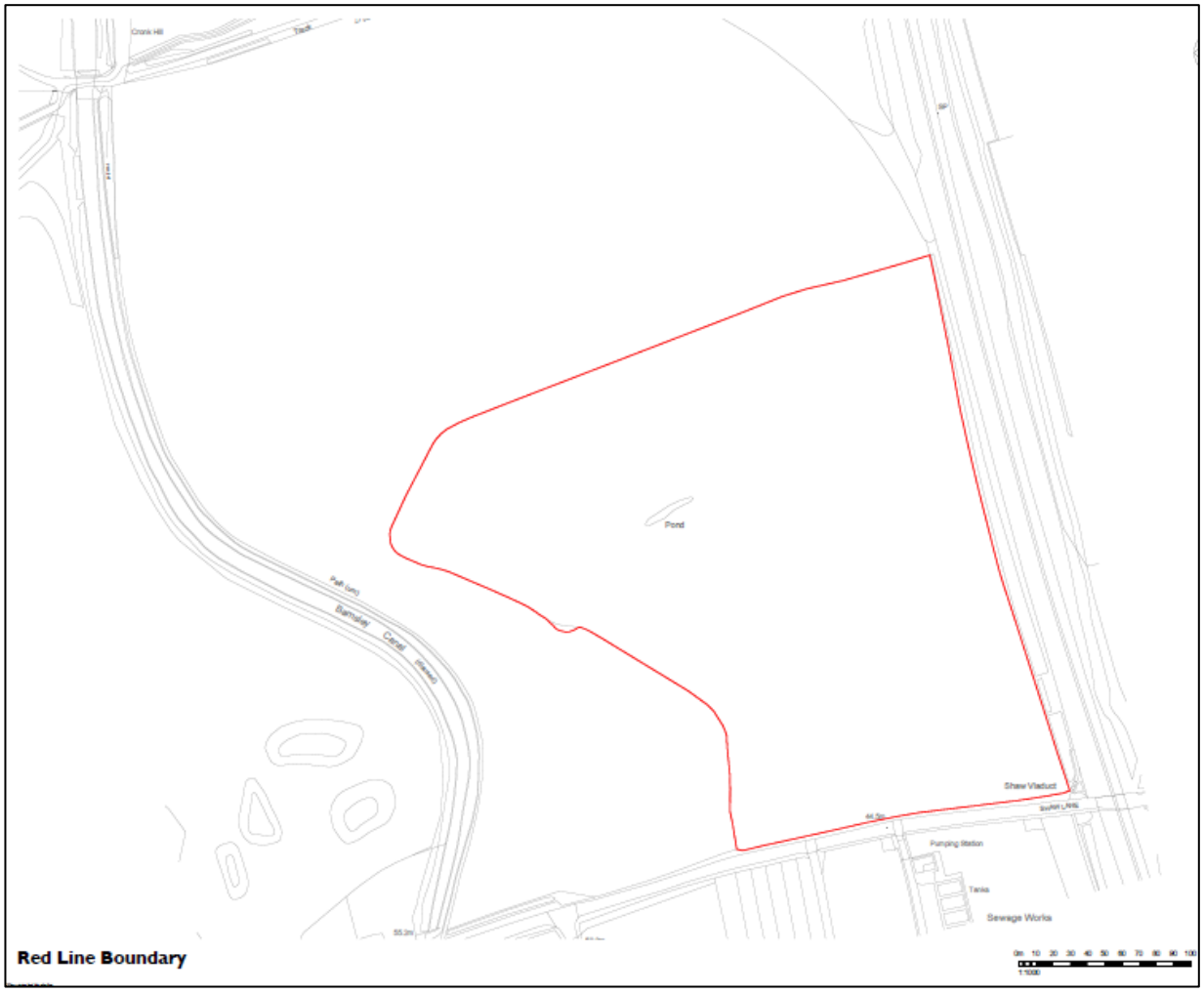
1.1.1 Tetra Tech has been commissioned by Network Space Limited to prepare a Sustainability Statement in support of an outline Planning Application to Barnsley Metropolitan Borough Council (BMBC) for the proposed development of land at Shaw Lane, Carlton.

1.1.2 The Planning Application seeks outline planning permission up to 215 dwellings over a 7.57 ha site area and associated infrastructure including a highway, surface water and foul sewer drainage, carparking and landscaping, a park and SuDS.

1.1.3 This Sustainability Statement details the sustainability credentials of the proposed development in line with the requirements of the BMBC Local Plan (adopted January 2019) and relevant Supplementary Documents.

1.1.4 The site is located within the MU3 site allocation and forms part of the Carlton masterplan area. The Site is bounded to the north by open fields, bounded to the east by a railway line and industrial properties, the south by Shaw Lane and residential properties and to the west by Barnsley Canal and the Trans Pennine Train footpath.

**Figure 1.1 Shaw Lane Redline Boundary**



# 2.0 BACKGROUND AND CONTEXT

## 2.1 INTERNATIONAL AND NATIONAL CONTEXT

2.1.1 The concept of sustainable development was officially defined in The Brundtland Report, 'Our Common Future' in 1987 by the World Commission on the Environment and Development (WCED) as:

*"Development which meets the needs of the present without compromising the ability of future generations to meet their own needs".*

2.1.2 This concept represents the core principle of the planning system and has been adopted worldwide through a variety of national, regional and local initiatives.

2.1.3 At the Earth Summit (the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992) governments around the world committed to sustainable development, and two years later, in 1994, the UK government was the first to produce its national sustainable development strategy. In 2005, Securing the Future was published, updating and improving the 1994 strategy in line with the performance trends shown against some of the indicators. The updated strategy was tailored to the new economic situation, to new policies, and to the new political framework. Securing the Future sets out the national principles that should guide policies towards sustainability objectives:

- Living within environmental limits;
- Ensuring a strong, healthy and just society;
- Achieving a sustainable economy;
- Promoting good governance; and,
- Using sound science responsibly.

2.1.4 In addition, this Sustainable Development Strategy outlined 250 commitments within four main areas:

- Sustainable Consumption and production;
- Climate Change and Energy;
- Natural Resource Protection; and,
- Sustainable Communities.

2.1.5 This set of shared UK principles has been agreed by the UK Government, Scottish Executive, Welsh Assembly, and the Northern Ireland Administration.

## 2.2 CLIMATE CHANGE AND ENERGY

2.2.1 Legislation for guiding sustainable, low carbon development is largely directed by the following:

- **The Climate Change Act (2008)** - creates a new approach to managing and responding to climate change in the UK, by setting ambitious, legally binding targets to reduce GHG emissions by 80% on 1990 baseline levels by 2050, with an interim target of 34% by 2020. It does this through powers to help meet those targets, strengthening the institutional framework and establishing clear and regular accountability to the UK Parliament and to the devolved legislatures.
- **The Planning and Compulsory Purchase Act 2004** - requires a mandatory Sustainability Appraisal (SA) to be carried out for all Local Development Plan Documents as part of the new planning system. The purpose of the SA is to assess the likely social, environmental and economic impacts of implementing the proposed development plans and related programmes.
- In compliance with **European legislation (Directive 2001/42/EC)**, a Strategic Environmental Assessment (SEA) must also be carried out alongside an SA to fully assess the likely effects of all plans and programmes on the environment. Regional SA/SEA objectives and recommendations guide the development of local planning policy.
- **The Energy Act (2008)** implements the legislative aspects of the 2007 Energy white paper and updates energy legislation to reflect the availability of new technologies and emerging renewable technologies, the UK's changing requirements for secure energy supply (such as offshore gas storage) and to protect the UK's environment. The Act is supported by the UK Low Carbon Transition Plan (2009), which sets out the UK's approach to meeting national carbon reduction commitments.
- **UK Carbon Plan (2011)** outlines the UKs strategy for decarbonisation and transitioning to a low carbon economy whilst maintaining energy security and minimising costs. It addresses approaches to the delivery of low carbon, resilient and adaptive buildings, decarbonisation of the National Grid through renewable and nuclear power, and the use of carbon capture and storage (CCS) and low carbon transport solutions with the aim of achieving national carbon reduction targets

2.2.2 Together, the Planning Act, the Climate Change Act, the Energy Act and UK Carbon Plan ensure that legislation adequately underpins the UK's long-term energy and climate change strategy.

**National Planning Policy Framework**

2.2.3 The UK Government's National Planning Policy Framework (NPPF), revised in July 2021, sets out the vision for planning in England and the key policies which will underpin it. NPPF makes it clear that sustainable development is at the heart of the planning system and sets out the key principles that should be applied to ensure that development plans and decisions taken on planning applications contribute to the delivery of sustainability. According to NPPF:

*"The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs."*

2.2.4 There are three dimensions to sustainable development: economic, social and environmental. These dimensions give rise to the need for the planning system to perform a number of roles:

- An economic role – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure
- A social role – 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 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 role – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy

## 2.3 LOCAL CONTEXT

2.3.1 Sustainable development within Barnsley is currently managed through the implementation of the BMBC Adopted Local Plan (2019) which outlines the local planning policy and future development of Barnsley up to the year 2033. The Local Plan includes policies to guide development within Barnsley, to address the key issues and challenges it currently faces, in relation to growth, housing employment, infrastructure, environmental quality and protection.

2.3.2 Key Policies within the Barnsley's Adopted Local Plan 2019 relevant to Sustainable Development include:

- Policy SD1 Presumption in favour of Sustainable Development
- Policy GD1 General Development
- Policy T1 Accessibility Priorities
- Policy T3 New Development and Sustainable Travel
- Policy T5 Reducing the Impact of Road Travel
- Policy LC1 Landscape Character
- Policy D1 High Quality Design
- Policy GI1 Green Infrastructure
- Policy GS1 Green Space
- Policy GS2 Green Ways and Public Rights of Way
- Policy BI01 Biodiversity and Geodiversity
- Policy CC1 Climate Change
- Policy CC2 Sustainable Design and Construction
- Policy CC3 Flood Risk
- Policy CC4 Sustainable Drainage Systems (SuDs)

- Policy CC5 Water Resource Management
- Policy RE1 Low Carbon and Renewable Energy
- Policy Poll1 Pollution Control and Protection

2.3.3 The Local Plan also includes a series of site allocation polices identifying areas of the city where significant change is expected. These policies provide guidance on the development opportunities (or restrictions) available at specific allocated development sites (i.e. type of land use, or mix of uses, infrastructure required).

2.3.4 The Proposed Development Site at Shaw Lane, Carlton is allocated as part of BMBC Local Plan as Site MU3 – Land off Shaw Lane Carlton for:

- 1683 dwellings;
- Retention of areas of woodland;
- Provide access from Far Field Lane roundabout;
- Provide off site highway works;
- Retain higher ecological value habitats;
- Provide robust measures to mitigate ecological impact during construction;
- Provide robust mitigation measures to mitigate against noise, odour and other potential impacts arising from the existing industrial operations at Manor Bakeries and Boulder Bridge;
- Provide small scale convenience retail and community facilities in compliance with Local Plan policy TC5 Small Local Shops; and,
- Avoid locating built development in parts of the site with flood zone 2 and 3.

# 3.0 SUSTAINABILITY STATEMENT

## 3.1 PURPOSE OF THE STATEMENT

3.1.1 This Statement seeks to identify how outline design proposals for the site will look to address key issues of sustainable development. The following section is structured to address those core themes and policies within the Barnsley's Adopted Local Plan 2019 and Barnsley Zero Carbon Sustainable Energy Plan (SEAP) 2020-2025. These are:

- Sustainable Construction (including carbon reduction, environmental assessments, climate change adaptation)
- Water Resource Management (including flood risk, sustainable drainage, water efficiency and resource protection).
- Protection of Natural Resources (including efficient use of land, material optimisation, waste minimisation, green and blue infrastructure).
- Sustainable Neighbourhoods (encompassing health and wellbeing, high quality design, place setting, accessibility, building for life).
- Sustainable Transport (including prioritising walking, cycling and public transport, electric vehicle charging and bicycle parking).

### Sustainable Construction

3.1.2 Resource management and conservation is an increasingly important issue facing new developments and the smart management and conservation of finite natural resources such as land, energy and water, is becoming increasing important as towns, cities and populations continue to grow. The ability to implement design and construction principles which conserves these resources is a fundamental principle underlining sustainable development.

### Carbon Reduction

3.1.3 Taking action on climate change by reducing energy consumption and its associated carbon emissions is the subject of numerous national, regional and local policies. As the UK Government aspires to achieve net zero carbon buildings, a step change in the approach to energy management is required of all new developments with opportunities to implement energy efficiency initiatives realised, where technically and financially viable.

3.1.4 In September 2019 the Barnsley Cabinet declared a climate emergency. Following this the Barnsley Zero Carbon Sustainable Energy Action Plan (SEAP) 2020-2025 was released. Barnsley Council is committed for the borough to become net Zero Carbon by 2045 (Zero45). In addition, the SEAP recommends an ambition to reduce emissions by 65% by 2025. In BMBC Adopted Local Plan 2019 Policy CC2: Sustainable Design and Construction states:

*"Development will be expected to minimise resource and energy consumption through the inclusion of sustainable design and construction features, where this is technically feasible and viable."*

3.1.5 There is an expectation for new residential developments to achieve a reduction in carbon dioxide emissions of least 19% against the Target Emission Rate (TER) of the 2013 revision of the 2010 Building Regulations (Part L). Despite this, no specific carbon reduction targets for new residential developments are outlined in BMBC Adopted Local Development Plan 2019 or supporting SEAP (2020-2025). In line with this and Policy CC2, Sustainable Design and Construction, to enable these carbon reduction targets to be achieved there should be, where possible, the implementation of the energy hierarchy and energy reduction. This includes the following strategies:

- Be Lean (minimise energy use);
- Be Clean (provide energy efficiently); and,
- Be Green (use low and zero carbon energy technologies).

3.1.6 The exact measures that will be used in the proposed development will be outlined during reserved matters of the scheme during which the exact percentage of carbon reductions will be calculated against the most up to date Building Regulations. However, some of the options that will be considered within the energy reduction strategies as listed above are outlined below.

**Minimising Energy Use**

3.1.7 Reducing the energy demand of the individual dwellings is the first stage of the energy hierarchy and requires consideration of both architectural and building fabric measures (passive design) and energy efficient services (active design). The energy strategy for the proposed development will be based upon and not limited to the consideration and adoption of the following principles through the evolving design and construction process:

- The design and construction of an energy efficient building fabric with high levels of insulation low U-values for the building envelope in line with the most up to date Building Regulation Part L requirements.
- Reduced air permeability. The lower a buildings air permeability, the more air-tight it is, with current Building Regulations setting a maximum air permeability of 10m³/hr/m² @ 50Pa. Through considered design and detailed construction processes, the proposed development would aim to achieve an air permeability rate in accordance with the most up to date Building Regulations Part L requirements reducing heat loss through air leakage and heating loads.
- Inclusion of energy efficient lighting technologies. 100% energy efficient LED light fittings should be considered for all dwellings to reduce energy consumption. Where external lighting is provided, this will also include photocells to control for the presence of daylighting and/or PIR presence detection, where appropriate.

3.1.8 Through the implementation of these measures 'Be Lean' passive and active design measures, new dwellings within the scheme could achieve meaningful reductions in CO2 emissions compared to a baseline Building Regulation compliant dwelling.

**Provide Energy Efficiently (Be Clean)**

3.1.9 The heating and hot water strategy for the scheme has yet to be developed, however, as required under Policy CC2: 'Sustainable Design and Construction' paragraph no.19.6, the council encourages sustainable decentralised zero or low carbon energy generation, such as biomass-fuelled district heating or combined heat and power (CHP) schemes. An appraisal of the suitability of incorporating a CHP generation facility into the development will be undertaken as the scheme evolves.

3.1.10 While national electricity generation still relies on the combustion of fossil fuels, the increasing contribution of energy into the National Grid from low carbon sources, such as wind and solar farms is gradually reducing the amount of carbon which is generated to create a unit of electricity. This 'decarbonisation' of the National Grid is predicted to continue as input from low and zero technologies grows, and the contribution of fossil fuels reduces. This progressive decarbonisation of the National Grid is a key process in the movement towards the achievement of carbon reduction targets and the long-term resilience towards the achievement of future local and national net zero carbon aspirations.

3.1.11 As such, it is expected that the emerging design will also review the feasibility of adopting electrical heating and hot water strategies in an effort to achieve the Council's short- and longer-term carbon reduction aspirations.

**Renewable Energy (Be Green)**

3.1.12 As the scheme evolves, an appraisal will be undertaken of potential macro (site-wide) and micro (individual building) Low and Zerp Carbon technologies which may be appropriate for the site. This will encompass the consideration of technologies such a 5th Generation District Heating System, Ground Source Heat Pumps (GSHPs) and Air Source Heat Pumps (ASHPs) as well as roof-mounted photovoltaic solar panels and/or solar water pre-heaters to dwellings with a suitable south-facing roof of appropriate pitch, to assess if these can be incorporated into the scheme to reduce energy consumption.

# 4.0 ENVIRONMENTAL ASSESSMENTS

## 4.1 INTRODUCTION

4.1.1 In the UK, there are a number of standardised tools which can be used to assess the environmental sustainability of developments; the most common of these are BREEAM (Building Research Establishments Environmental Assessment Method), which can be used to assess the performance of non-domestic properties (i.e. shops, schools, commercial premises, healthcare facilities etc.) or the Home Quality Mark (HQM) for domestic properties.

4.1.2 BREEAM, which sets the standard for best practice in sustainable design, has become the key tool for assessing a developments environmental performance and providing a benchmark against which the sustainable performance of similar buildings can be compared. The environmental performance of a development is assessed against a number of core environmental themes (Management, Health and Wellbeing, Energy, Transport, Water, Waste, Materials, Land use and Ecology and Pollution) and a rating achieved dependent on its level of performance (from Unclassified through to Outstanding).

4.1.3 Under Policy CC2: Sustainable Design and Construction, all non-residential development will be expected to achieve a minimum standard of BREEAM 'Very Good'.

4.1.4 With regards to residential dwellings, historically, the environmental performance of these was assessed using the Code for Sustainable Homes (CfSH) methodology. However, this was rescinded in March 2015. In its place, the new Home Quality Mark (HQM) was developed by BRE (Building Research Establishment). Based around the rescinded Code for Sustainable Homes (CfSH) methodology and its forerunner EcoHomes, this tool aims to provide developers with a means to demonstrate the high quality of their product whilst giving home buyers a means by which they can evaluate the environmental credentials of a prospective home. However, unlike CfSH, the HQM is a voluntary standard for new homes.

4.1.5 While it is not yet clear if an assessment using this methodology is currently proposed for the residential development at Shaw Lane, Carlton, it is envisaged that core principles underpinning this environmental assessment tool may be considered within the new-build residential properties where feasible, although formal certification will not be sought. This is to be reviewed further as the detailed design of the individual dwellings emerges.

## 4.2 ADAPTING TO CLIMATE CHANGE

4.2.1 Opportunities for the development to adapt and mitigate the impacts of climate change have been considered within the initial high-level Masterplan and will continue to be reviewed as further details of the scheme emerge.

4.2.2 A Flood Risk Assessment (FRA) has been undertaken to support the outline planning application, evaluating the current and future risk of flooding at the site. This confirms that the entirety of the Site is located in Flood Zone 1, an area at low risk of flooding from all relevant sources. An allowance for climate change of 30% has been used throughout the FRA for the Proposed Development.

4.2.3 The associated drainage strategy incorporates Sustainable Urban Drainage Systems (SuDs) based system. Policy CC4: Sustainable Drainage Systems (SuDs) outlines that all major development will be expected to use SuDS to manage surface water drainage, unless it can be demonstrated that all types of SuDs are inappropriate. Policy CC5: Water Resource Management, links to this stating the

dispose of surface water appropriately and impact water quality through the incorporation of SuDs. The inclusion of SuDS features will allow for surface water run-off to be managed, consequently decreasing the potential for surface water flood risk during major rainfall events associated with climatic change.

4.2.4 As the scheme emerges, it is envisaged that the building envelope of new residential dwellings will be designed with the aim of selecting materials which are resilient to the impacts of climate change, while respecting the local character of the area, minimising replacement and maintenance intervals and also reducing energy consumption through enhanced air tightness and thermal performance.

4.2.5 To reduce the potential risks associated with water shortage during the drier summer months, it is expected that the development will seek to incorporate water efficient sanitaryware within all residential premises, along with water metering in order to conserve potable water resources. Opportunities will also be explored to optimise the potential of the proposed open space features to provide evaporative cooling effects and shading across the development site, by providing appropriate green infrastructure and landscape allowing natural cooling during hotter summer months.

4.2.6 Cool, light coloured building materials will be considered, where appropriate, to optimise the reflection of light and minimise heat absorption while avoiding glare, addressing potential urban heat island effects. Example materials include the use of lighter coloured bricks / roofing tiles and stone for the new dwellings, as well as concrete and stone hard landscaping materials etc. In addition, the specification of other materials, finishes and fastenings will be informed based on their suitability to cope with potential climate change impacts, such as increased temperatures, wind velocities and rainfall.

### Summary

4.2.7 The feasibility of onsite low and zero carbon technologies (LZC), will be considered and it is envisaged that meaningful reductions in carbon emissions could be realised, mitigating the impacts of climate change and providing a step-change towards achieving a net zero carbon society. This would enable compliance with Policy CC2 Climate Change and Policy CC2: Sustainable Design and Construction.

4.2.8 SuDs will be incorporated into the proposed development to decrease the potential for surface water flood risk in like with policy CC4: Sustainable drainage system sand CC5: Water Resource Management. Appropriate infrastructure and landscaping will be chosen to allow natural cooling, in line with Policy CC2: Sustainable Design and Construction.

## 4.3 WATER RESOURCE MANAGEMENT

4.3.1 Flooding can have major personal, social, financial and environmental impacts on a local, regional and national level. Minimising the risk of severe water resourcing events (drought or flooding) through new development design is becoming increasingly important. In addition, increases in population, economic expansion and climate change are all factors which are placing greater demands on fresh water, which has serious implications for the long-term sustainability of this resource. Given this, the consideration of flood risk, sustainable drainage and water resource conservation are important aspects of ensuring the long-term sustainability of developments.

## Flood Risk

4.3.2 A Flood Risk and Drainage Assessment was produced to support this Planning Application. This identifies that the site is in Flood Zone 1 with regards to fluvial (river) flooding and that the site is at low risk of flooding from other relevant sources, including, groundwater, reservoirs and sewers. The Site is at low to medium of surface water flooding.

4.3.3 To ensure that the development does not increase the risk of flooding on or off site, the emerging drainage strategy has been developed to ensure that surface water run-off rates are no greater post development. To ensure that the development is resilient to the potential impacts of climate change. Guidance issued by the Environment Agency (2019) provides rainfall intensity allowances to be considered throughout a flood risk assessment. An allowance of 30% for climate change has been incorporated throughout the assessment.

## Sustainable Drainage

4.3.4 The development site is greenfield site which is understood to outfall ditches and ponds, and soakaway to ground. The site currently comprises arable farming land. An area of new green space, will be created from the proposal, resulting in an increase in permeable surfaces and reduced surface water run-off compared to the baseline position.

4.3.5 The drainage strategy for managing surface water run-off has been developed based on the requirements of local and national planning policy, including the NPPF and the relevant chapters of the Planning Practice Guidance (PPG). BMBC has incorporated sustainable drainage into its Local Plan under the policies CC4: Sustainable drainage system sand CC5: Water Resource Management.

4.3.6 Reference to geological mapping in the Flood Risk Assessment report identifies that the site is underlain by Glacial Till, and on the western tip of the Site Glaciofluvial Deposits are potentially present. The Site is underlain by the Pennine Middle Coal Measures Formation, with a fault transecting the north of the site, with a downthrow to the south east. These are both permeable layers capable of supporting water supplies at a local level.

4.3.7 However, in line with the surface water management hierarchy, the proposed drainage strategy will seek to manage surface water run-off through the provision of waterbutts, filter drains swales, ponds, wetlands, ponds and basins in accordance with the SuDS incorporated.

4.3.8 SuDs will be integrated following the principles of the surface water management hierarchy, with the outline scheme seeking to manage surface water through a combination of attenuation basins, swales and geo-cellular storage, combined with flow control devices to control surface water run-off from the site.

4.3.9 Proposals include the addition of a pond, this will mitigate surface water on the site and be included in a detailed surface water drainage system, which will include storage within the piped drainage system, together with SuDs as mentioned above, swales, detention basin and pond.

## Water Efficiency and Provision

4.3.10 Small changes in water use made every day add up to make a big difference in water consumption over a year. While the specification of sanitaryware should seek to reduce potable water use, it must not compromise water quality or safety.

4.3.11 Barnsley, which is located in the north of England, sits in the region which is supplied by River Deane and is classified by the Environment Agency as operating in an area of low water stress. While no water consumption targets are specified under Policy CC5: Water Resource Management, however, for all residential properties, water consumption benchmarks of 110 litres per person per day is anticipated to be targeted, in line with the 2013 Building Regulations (or equivalent future legislation) Part G2, through the considered specification of sanitaryware. As the detailed design of the development emerges, it is anticipated that sanitaryware specifications will be developed which will enable the required water efficiencies to be realised.

4.3.12 There are several sanitaryware fittings available which use significantly less water than the standard ones, thereby reducing daily water consumption and consideration of these will be made where feasible and appropriate. These include, but are not limited to:

- WCs with an effective flush volume of not more than 4.5 litres (4.5litres single flush or 4/2.6 litre dual flush),
- Wash hand basin taps with restricted water flow rates (i.e. 6 litres/min); and,
- Lower flow rate showers, with a maximum flow rate of 8 litres/min;

4.3.13 Where baths are provided, a capacity to overfill of not more than 170 litres would be considered, along with the specification of water efficient white goods (dishwashers and washing machines)

4.3.14 To ensure that residents appreciate the financial implications of their water consumption habits and effect a behavioural change in the way water is perceived and managed, it is anticipated that water meters will be provided to each dwelling and non-residential units with remote monitoring capability.

4.3.15 Opportunities will be investigated in the metering design to extend water metering provisions to cover external areas of the site to facilitate water leak detection on customer supply pipes.

4.3.16 In a holistic approach to water resource management, consideration as to the potential to include water recycling systems within the scheme will be explored. Not only does this have the potential to reduce potable water consumption but can also provide an important source-control system for surface water management.

4.3.17 It is anticipated that limited water consumption for the local shop will be required, however, it is envisaged that an appropriate percentage of reduction in water consumption will be targeted to achieve the relevant BREEAM accreditation.

4.3.18 Rainwater harvesting systems can capture and utilise rainwater to meet either WC flushing or irrigation purposes, while treated greywater harvesting systems, which collect wastewater from baths and showers, can be utilised for non-potable applications, such as WC flushing.

4.3.19 As the scheme emerges the exact measures that will be incorporated into the Proposed Development will be identified.

## Summary

4.3.20 The development site is not located in an area at risk of flooding as confirmed in the Flood Risk Assessment supporting this planning application, demonstrating adherence to Policies CC2: Sustainable Design and Construction, Policy CC4: Sustainable Drainage Systems (SuDS) and Policy CC5 : Water Resource Management. The drainage strategy will be developed which will seek to reduce surface water run-off to greenfield rate using implementing infiltration SuDs, where underlaying ground conditions permit and following the principles of the surface water management hierarchy. This will be designed and sized to include an allowance for climate change, reducing the risk or on and off-site flooding in line with Policy CC1 Climate Change.

## 4.4 PROTECTION OF NATURAL RESOURCES

4.4.1 The built environment and the construction of new buildings and infrastructure puts pressure on the earth's natural resources, whether it be through changes in land use, loss of habitats and biodiversity or the potential to generate pollution to air, water or land. Sustainable development practices seek to minimise habitat loss, utilise land previously developed, optimise the use of materials and reduce waste and pollution to air, land and water in order to protect these natural resources.

### Efficient Use of Land

4.4.2 The proposed development is on greenfield land currently used for agricultural purposes. The Site is located on Grade 3 Agricultural Land Grade.

4.4.3 The site and its surroundings are however allocated within Barnsley Local Plan as Site MU3 – Land off Shaw Lane Carlton. The whole allocated space is envisaged to provide approximately 1683 houses, community garden and informal play space, open space provide transport links around the development including walking and cycle routes.

4.4.4 Although, the proposals are not utilising the existing brownfield sites within Barnsley Metropolitan Borough, given that the site forms a small parcel of a wider allocation and proposes to provide a housing community in a location assessed for its feasibility as part of local plan preparation, the proposals are considered sustainable in the location proposed.

### Optimising Material Use in Construction

4.4.5 New buildings require the use of resources; the extraction, processing, manufacture and transport of materials and components to be used in the fabric, servicing and fit-out of the asset, either at the time of construction or during its lifetime through subsequent refurbishments. Many of these resources are finite and therefore new buildings are increasingly seeking ways to make the most efficient use of materials over their life cycle.

4.4.6 Key concepts in optimising material efficiency include:

- Using fewer materials (i.e. polished concrete floors in place of floor finishes, exposed ceilings negating the need for ceiling tiles, for example).
- Reusing existing demolition/strip-out materials.
- Procuring materials with higher levels of recycled content.
- Alternative design/construction solutions result in lower materials usage and lower wastage levels including offsite manufacture, prefabricated cladding panels, pre-assembled bathroom pods etc.
- Designing for durability, identifying activities within the development which may result in accidental damage to the building fabric and specifying appropriate measures to mitigate this, such as heavy duty, easy to clean flooring in public areas, trolley rails / corner protection where customer trolleys will be used, bollards, raised kerbs and Armco barrier in vehicles manoeuvring, carparking and servicing areas.

4.4.7 The potential to embrace the concepts of material efficiency will evolve as the detailed design of the scheme emerges and may include the following:

- Off-site construction in a factory-controlled environment produces less waste compared with site-based building methods, thereby contributing towards the objective of waste prevention and reduction.
- Opportunities to integrate pre-fabricated components into the scheme may include components such roof structures, windows and door frames, rainwater disposal systems and facias.
- Structural repetition and standardisation of dimensions will also be included within the design, where possible, which will reduce cutting to size on site and/or creation of bespoke components and the generation of off-cuts.

4.4.8 Construction materials for the major building elements will be selected with due consideration of the place setting and visual amenity of the surrounding area and neighbouring developments, balancing multiple functional, aesthetic and environmental requirements, including local sourcing potential, low environmental impacts and responsible sourcing criteria.

4.4.9 Ensuring that the true fiscal and environmental costs of a building are considered over its lifetime should be a key driver for delivering sustainable buildings. The BRE's Green Guide to Specification is one classification system which considers the overall embodied environmental impact of a specification's lifecycle. Encompassing cradle to grave impacts, this system rates building constructions from the lowest to the highest environmental impacts, considering a range of environmental themes such as global warming potential, natural resource use, pollution and toxicity. Those products which are A+ or A rated have an overall lower life cycle impact than alternative specifications which meet similar performance requirements.

4.4.10 As the design emerges, the project team will seek opportunities to maximise the use of A and A+ rated specifications, where performance, local place-setting and planning requirements allow. The project team will also avoid the specification of E and D-rated specifications, where possible, to minimise the environmental impact associated with the specification of new construction materials.

4.4.11 As design specifications are developed, opportunities to specify and procure materials which are responsibly and sustainably sourced in accordance with recognised national and international standards will be encouraged. Two of the most common certification schemes in the UK are:

- ISO 14001; and
- BES 6001.

4.4.12 ISO 14001 is an internationally agreed standard that sets out the requirements for an environmental management system (EMS). It is intended to help organisations improve their environmental performance through the efficient use of resources and reduction of waste and pollution and demonstrate their credentials to customers and stakeholders.

4.4.13 An alternative standard is the BES 6001 scheme operated by the BRE. This scheme, which is a more holistic approach to responsible sourcing, considers organisational and supply chain management aspects as well as environmental and social issues.

4.4.14 With regards to timber, it will be ensured that all timber and wood products will be legally harvested and traded. This means that all timber and wood products will be accompanied by relevant certification demonstrating the full Chain of Custody (CoC) certification and procured in accordance with the UK Government's Timber Procurement Policy.

4.4.15 Specifying and procuring materials which can be sourced locally is also an important aspect to responsible procurement. Not only does this support local business and employment markets, but it also reduces the embodied carbon of these materials as the distances the materials travel is shorter, generating lower transport emissions.

## Minimising Construction Waste

4.4.16 In order to reduce the amount of waste going to landfill, principles of the waste hierarchy (reduce, reuse recycle) will be adopted by the scheme from design stages, starting by reviewing how waste generation can be reduced through the design process. This includes measures such as reducing the need for finishing components (i.e. polished concrete floor, rather than floor tiling, or avoiding the need for suspended ceilings) as well as optimising the use of pre-fabricated / modular building components, such as composite cladding system and standardised product dimensions to reduce the need for on-site cutting.

4.4.17 Further opportunities to reduce waste through procurement process will also be encouraged and it is expected that the principal contractor to the project will develop and implement a Site Waste Management Plan (SWMP), identifying opportunities for the appointed contractor to minimise waste on-site through the implementation of smart procurements processes. This includes:

- Selecting products and materials with reduced levels of packaging, reusable rather than single-use products and specifying durable and long-life construction materials;
- Implementation of 'just in time' deliveries which minimises the potential for damage to stockpiled materials from adverse weather or physical damage from mobile plant etc.
- Monitoring 'over-supply' of materials particularly where this results in wastage. Reviews of 'over-supply' should inform future procurement decisions; and
- Use of supplier take-back schemes, particularly with respect to packaging waste (e.g. crates, pallets). Where possible, outer and inner packaging and timber pallets will be returned to a supplier by prior arrangement. This may require stockpiling and bulking the pallets until sufficient numbers are available to make collection economical.

4.4.18 Through the implementation of waste minimisation procedures, good site housekeeping and smart procurement, the quantity of waste sent to landfill will be reduced and opportunities to maximise the reuse, recycling and the recovery of waste in favour of disposal to landfill optimised.

4.4.19 The setting of non-hazardous waste generation benchmarks and key performance indicators (KPIs) may also assist in driving efficiencies in material use and waste minimisation, and the setting of these by the appointed contractor should be encouraged.

## Managing Household Waste

4.4.20 Household waste collections in Barnsley are currently based on following segregated waste streams:

- General, non-recyclable waste;
- Mixed Recyclables – Tins, glass and plastic
- Paper Recyclables
- Garden waste (takes place from March to November only).

4.4.21 The arrangements for the storage and segregation of household waste within the proposed development will align with these collection arrangements and all new dwellings will have sufficient internal and external space to enable householders to segregate their household waste in accordance with the Council's requirements. External waste storage areas will be designed for ease-of-access avoiding the use of steep gradients, changes in levels or steps between individual dwellings and kerbside waste collection points.

### Green and Blue Infrastructure

4.4.22 The Site consists of arable fields, the western and northern boundaries contains are demarcated byhedgerows with farmland and Barnsley Canal beyond. The Masterplan proposals will seek to retain as much of these existing green infrastructure features as possible, and opportunities sought to enhance these with new trees and planting using native species.

4.4.23 The proposal creates a network of green spaces throughout the site which will connect with the strategic wildlife corridors and green links proposed within the masterplan. These connect the western edge of the site, close to the canal, with the railway embankment to the east and link through the proposed public open spaces

4.4.24 Some trees are likely to be removed to facilitate the access from Shaw Lane but this will be mitigated through plating of native species elsewhere on site

### Summary

4.4.25 The site is allocated for residential development contributing towards BMBC housing supply requirements.

4.4.26 During the construction phase of the development, the appointed contractor is expected to maintain best practices across the site with the aim of keeping the construction process sustainable. It is anticipated that the Principal Contractor will use ISO14001 and BES6001 suppliers and manufacturers during construction of the development. Materials chosen will be robust, low maintenance and long lasting to suit the location and intended use. The building elements will also incorporate appropriate design and specification measures to limit material degradation due to environmental factors. The contractor will endeavour to ensure materials are sustainably procured and utilise locally sourced and produced materials in an effort to reduce transport energy use. This would demonstrate compliance with Policy CC2: Sustainable Design and Construction, and the Barnsley Zero Carbon Sustainable Energy Action Plan (SEAP).

4.4.27 The appointed principal contractor will be encouraged to develop and implement a site waste management plan (SWMP) to identify opportunities to minimise waste, optimise reuse and recycling and reduce waste to landfill, however this will be developed at reserved matters stage of the development. This would demonstrate compliance with Policy CC2: Sustainable Design and Construction, and the Barnsley Zero Carbon Sustainable Energy Action Plan (SEAP).

## 4.5 SUSTAINABLE DESIGN AND ENVIRONMENT

### High Quality Design

4.5.1 A mix of housing sizes and types is proposed which will enable some variation and expression of individuality across the development while the solid to void ratio of individual dwellings will be balanced against the issues of maximising daylighting and over shadowing avoidance whilst affording suitable privacy provisions.

4.5.2 The majority of the proposal is for housing with private gardens, which will help contribute to the amount of green space over the site and allow variation, with increased biodiversity over the development.

4.5.3 Key vehicle access routes through the site are clearly defined in a hierarchy approach while the site layout has been designed to minimise car travel and promote and prioritise walking and cycling both

within and outside of the site by providing pedestrian and cycle routes accessible to all. This will help to promote healthy living and facilitate a high level of community interaction.

4.5.4 Key materials selected for the construction of the building envelope and hard landscaping shall be selected with due consideration of the local environment to ensure they are in keeping with the local built character and sympathetic to the rural landscape. The design of the individual dwellings will balance function and aesthetics and the choice of materials will also take into consideration local environmental degradation factors to ensure that materials resilient and robust to the local environment are selected which will result in a development which is of a high quality and durable.

## Air Quality

4.5.5 In line with Planning Policy T5: Reducing the Impact of Road Travel, as the development proposals would see the construction of 180 new dwellings, an Air Quality Assessment has been produced to support the planning application for the scheme, considering the impact of the proposals not only in terms of construction-related air emissions, but also operational air pollution.

4.5.6 An evaluation of existing background air quality identifies that traffic movements are the most significant local source of pollutants affecting the operation of the site and its surroundings and this is not expected to change upon development of the site.

4.5.7 The principal traffic derived pollutants likely to impact local receptors are NO2, PM10 and PM2.5.

4.5.8 Construction activities, including excavation activities and the transport of materials and waste to and from the site have the potential to generate short-term increases in localised air pollutants, including dust. The Air Quality Assessment supporting the planning application includes site-specific mitigation measures based on Section 8.2 of the IAQM Guidance on the Assessment of Dust from Demolition, Earthworks and Construction. A Construction Environmental Management Plan (CEMP) will be implemented to reduce the risk of adverse effects due to dust emissions from the construction phase.

4.5.9 At the operational phase, the impacts of associated transport-generated emissions on existing and new receptors, human as well as sensitive habitats, including Dearne Valley Wetlands SSSI has been completed. This concluded that with regards to the principal traffic derived pollutants (NO2, PM10 and PM2.5) the impacts of the development proposals will be ‘negligible’ on these receptors. Therefore there will no significant effects on air quality from the development.

4.5.10 The layout of the development also includes shared pedestrian and cyclist routes, connecting to the public highway, encouraging the use of sustainable modes of transport and providing the opportunity to reduce commuting private vehicles from the development on local roads and thereby vehicle-related emissions during the operational phase of the development, which complies with BMBC Policy T5: Reducing the Impact of Road Travel.

## Protection of Biodiversity

4.5.11 The application site is a greenfield site and is currently comprised of open fields. There are no designated sites within the site boundaries. Carton March Local Nature Reserve is to the south of the Site and Dearne Valley Wetlands SSSI lies 0.3km to the east of the site, extending to the south east and north east.

4.5.12 While the proposals would not directly impact on the habitats outlined, there is the potential for development works to result in indirect impacts associated with the construction process (i.e. noise,

dust, night-time light) as well as occupation, via increased recreational use of the Local Nature Reserve and SSSI.

4.5.13 To mitigate these impacts during construction, the appointed contractor would be required to develop and implement a CEMP, detailing procedures and practices which will be implemented to minimise the risk of pollution to air (dust, emissions, noise, light), water and land. If any work to the woodland or hedgerows needs to be carried out within the bird nesting season (which is generally March to August), then a nesting bird survey will be required immediately prior to work commencing.

4.5.14 During the operational phase, a lighting strategy will need to be produced which minimises outward light spill to parkland to the south and surrounding woodland belts to reduce impacts on foraging bats / birds as well as light trespass into neighbouring properties. The provision of new, quality greenspace within the development, would provide opportunities for residents to access recreational spaces with further green connections to the wider masterplan, reducing the number of additional visitors Carlton March Local Nature reserve and Dearne Valley Wetlands SSSI.

4.5.15 An Extended Phase 1 Habitat Survey was undertaken in 2021 by Rachel Hacking Ecology. The habitats present on the site are common throughout the UK with limited ecological value. No nationally rare or locally rare plant species were located during the Extended Phase 1 Habitat Survey.

4.5.16 To inform the evolving design, the following measures could be implemented to enhance the biodiversity value of the site:

- Where planting is proposed, this should include the provision of native and non-native flowering perennial, annual and shrub species, to provide a pollen and nectar source for invertebrates.
- Bird boxes and/or bat boxes could be erected where possible.
- Trees planting – where practical, native tree species should be planted.

4.5.17 While the scheme design is in its early stages of development, The scheme will seek to deliver a Biodiversity Net Gain across the site to contribute to the improvement in habitat across the masterplan area.

## Health and Wellbeing

4.5.18 The health and wellbeing of the population has come to the forefront in recent years with levels of happiness and mental health issues being more openly discussed. With increasing research, we are learning what we need to be happy and healthy, and the relationship between our built and natural environments and mental and physical wellbeing has become clearer.

4.5.19 Providing dwellings and buildings that are of good quality design, long lasting, efficient and of a pleasant and logical layout helps to create an enjoyable and calm environment. Outside spaces or facilities that can be used for physical activity and recreation also help individuals to maintain a healthy and active lifestyle.

4.5.20 Regular physical exercise contributes to good health and wellbeing with physical health benefits for individuals but also social benefits. It is therefore important for good quality open spaces and recreation grounds are available.

4.5.21 The outline masterplan identifies the presence of open space within the development, and it is envisaged that these areas could be designed to provide formal and informal recreational spaces, including a Local Area of Equipped Play (LEAP). Safe, well defined pedestrian routes would also

allow residents to walk / cycle to local amenities, education and employment sites within the development or the surrounding area. This will encourage exercise around the proposed development, helping to increase health and wellbeing of residents during the operational phase.

## Place and Setting

4.5.22 The design of the individual dwelling types across the development aim to establish a distinct character, enhancing local richness, whilst respecting a traditional proportioned housing form and materiality, informed by the local build and the heritage of the site. Using a limited palette of materials, the development seeks to accentuate street characters and landmark elements, provide local distinctiveness and legibility, creating active frontages and providing a welcoming environment and sense of belonging.

4.5.23 As the design emerges a palette of materials will be proposed which provides cohesion across the building forms and housing types, selected with due regard to the local environment as well as respecting the industrial heritage of the site. It is also envisaged that the form and construction of the new buildings will take into consideration local environmental degradation factors to ensure that materials resilient and robust to the local environment, resulting in a resilient, high-quality development.

## Security

4.5.24 Conveying a feeling of security and safety is an essential element of the scheme and the emerging design will be to create an accessible and safe environment, based on the principles of Secured by Design.

4.5.25 Care will be taken to ensure that pedestrian routes across the site are open and visible in order to provide a sense of security to pedestrians and supporting street scene lighting will be designed in accordance with national guidance to ensure that all pedestrian routes are adequately lit to reduce the potential for crime and antisocial behaviour.

4.5.26 Opportunities to optimise natural surveillance within the scheme will be considered, with the Masterplan identifying a hierarchy of roads and transportation routes across the scheme which seeks to ensure that the main access to each dwelling fronts the public highway and public highways are overlooked by windows and dwellings. Private areas, such as rear gardens for dwellings will be clearly defined through appropriate boundary treatment and where relevant, controlled access points provided to avoid intentional and unintentional access and trespass. Where the rear and sides of properties unavoidably address the public realm, suitable planting and boundary protection measures will be included, with windows positioned so as to prevent easy access by the public.

4.5.27 While evolving, it is envisaged that parking will generally be located to the side of individual dwellings, with parking for apartment buildings provided within discrete car parking areas, adjacent to or in view of these buildings.

## Building for Life

4.5.28 As the UK population ages, there is an increasing need for developments to include design principles which allow for the changing accessibility and mobility requirements associated with getting older. Through considered layout and design, new developments which promote inclusivity and accessibility for all, enable residents to stay in their homes longer, facilitate independence and

positively enhance fitness and wellbeing, reducing the costs to health, social care and other public services.

4.5.29 As details of the development proposals emerge, the following key design features will be considered and integrated, as appropriate:

- Level building thresholds and access routes are designed to minimise the need for steps, with ramped provision provided where necessary, facilitating inclusive access for those in wheelchairs and pedestrians with pushchairs.
- Clearly defined disabled car parking provision
- A clear, definable highway infrastructure, with drop kerbs and tactile paving at crossing points and wayfinding signage, where required.
- Where appropriate, colour contrasting materials will be considered to differentiate road / pedestrian zones to facilitate navigation by the visually impaired.
- Provision of colour-contrasting street furniture to facilitate use / identification by the visually impaired.
- A highly-developed pedestrian network providing connectivity across the site to public and private spaces and to the existing surrounding public highway infrastructure. This will promote alternatives to the use of the private car, physical and social connectivity and enable residents to engage in physical activity, promoting physical and mental health and well-being.
- New external lighting which complies to national lighting standards, promoting the visibility and security of outdoor spaces.
- A range of affordable housing choices based on inclusive design principles will be included within the scheme to meet residents' changing lifetime needs.

### Summary

4.5.30 As the Masterplan emerges opportunities to create safe and healthy environment to live and work will be developed, considering safety and inclusive access and providing outdoor space which enables residents to engage in physical activity, promoting social cohesion. Core principles underpinning 'building for life / lifetime neighbourhoods will be considered within the emerging proposals, addressing changing accessibility and mobility requirements of residents over time.

4.5.31 By creating a development which respects the local built character whilst celebrating to cultural heritage of the site the proposals would aim to meet the objectives outlined in Policy SD1 Presumption in favour of Sustainable Development and Policy CC2 Sustainable Design and Construction.

4.5.32 Through the retention and protection of key ecological features, enhancement of existing boundary measures, creation of new ecological valuable habitats and a considered external lighting strategy, the development proposals have the potential to provide a net gain in biodiversity.

## 4.6 CONNECTIVITY

4.6.1 The promotion and adoption of sustainable transport solutions are a key component of new developments ensuring their connectivity to local amenities, education and healthcare facilities, transport hubs and places of work. By maximising the connectivity of new developments to the surrounding environment and promoting sustainable transport solutions, new developments have the potential to reduce congestion on local roads, improve air quality and promote the adoption of healthier lifestyles.

## Current Environment

4.6.2 The site is bounded by Shaw Lane to the south, with six residential properties on the opposite side of the road. To the west the Site is Barnsley Canal , and the residential area of Carlton beyond. The Trans Pennine Trail runs to the west of the site following the canal, and south of the Site. PRoW lies to the west of the site alongside the Barnsley Canal, and to the north of the Site along Low Cronkhill Lane.

4.6.3 Bus stops are present within 200m of the site along Fish Dam/Shaw Lane, providing bus services into Barnsley Centre. In addition, Barnsley railway station lies 4.5km to the south west of the Site.

4.6.4 There are a range of existing local amenities within 1,000m of the site, including a primary school, hairdressers, restaurants and amenity stores.

## Sustainable Transport Networks

4.6.5 The site is ideally located to maximise use of the existing sustainable transport network around the site (including pedestrian and cycle routes as well as bus and rail services) and provides good access to a range of local amenities within walking distance of the site via safe access routes.

4.6.6 The internal layout will include a series of safe, well-lit pedestrian routes across the site, providing linkages within the site between residential and commercial areas, as well as green and recreational spaces.

4.6.7 Tactile paving and dropped kerbs will facilitate inclusive access across the site, whilst new street lighting will be provided, designed in accordance with national guidance, ensuring that all pedestrian routes are adequately lit to promote safety and reduce the fear of crime. As the development design emerges, an external lighting scheme will be developed to ensure that required maintained lux levels are delivered in accordance with CIBSE Guidance, whilst reducing upward and outward light spill away from ecological habitats and neighbouring properties.

4.6.8 The proposal will provide active travel routes to link existing cycling and walking routes through the site, including the incorporation of a Green Movement Network. An active travel route will link the existing bridleway in the south-east to the proposed new route and part of the route to the Barnsley Canal. The existing footpath and bridleway network which surrounds the masterplan will be connected through the site with new green routes. These serve to create habitat routes and attractive routes to encourage pedestrians and cyclists. The green network will connect to the proposed public open space bringing the scheme together at these focal points.

4.6.9 Pedestrian and cyclist connectivity to the public highway will be achieved on the northern, southern and western sides of the site to allow access along key desire lines to existing communities, green spaces, local amenities and public transport facilities with cycle storage provision provided in outbuildings within the curtilage of individual dwellings.

## Accessibility

4.6.10 Inclusive access across the site will also be considered within the emerging design. This will include level pavements and step free access to buildings, with properties capable of enabling wheelchair access, dropped kerbs provided at vehicle crossing points and gently inclined slopes to reconcile any difference in levels and which are accessible by all including wheelchair users and residents with push-chairs.

4.6.11 Opportunities to provide a clearly defined public realm space will be incorporated, considering the use of colour contrasting street furniture and different coloured hard landscaping materials to distinguish pedestrian, motorised vehicle and cyclist routes as well as street hierarchy to assist navigation around the site for the visually impaired.

## Digital Communications

4.6.12 New developments provide the opportunity to use good design to allow residents to travel less. Home working and flexible working patterns have become increasingly common and post-COVID, this pattern is expected to continue. As such, the ability to provide an adequate home-working environment is essential to delivering the flexible working arrangement which many homeowners are now looking for. This not only requires the ability to connect to a fast, digital network, but also space to enable residents to create a quality, home working environment, which has access to good levels of natural daylight and ventilation.

4.6.13 It is expected that as the design of the development and the individual dwellings evolve, opportunities will be explored to provide a fast, future-proofed digital infrastructure, which will meet the existing and future communication needs of both residents and commercial enterprises on site, along with the design and creation of space within individual dwellings which will facilitate home-working.

## Summary

4.6.14 The proposed development site is ideally located to take advantage of existing sustainable transport networks to reduce car journeys by residents. Existing vehicle access points into the site will be retained and enhanced, providing safe vehicle access into the site and connecting the site to the existing surrounding highway network. As the internal highway design evolves, it is expected that this will include a hierarchy of streets to guide and encourage the flow of traffic around the site, with new pedestrian and cycle routes provided to encourage walking and cycling to on and off-site amenities and greenspaces. This would enable the requirements of Policy T1: Accessibility Priorities and Policy T3 New Development and Sustainable Transport.

# 5.0 SUMMARY

5.1.1 This Sustainability Statement outlines how the current masterplan for the proposed scheme seeks to address many aspects of key policies outlined in the BMBC Local Plan adopted 2019.

5.1.2 The site is ideally located to optimise the use of the existing surrounding pedestrian and cycling networks for access to public transport hubs including the canal. New pedestrian and cyclist infrastructure will be provided within the site, enhancing permeability and connectivity, promoting sustainable transport solutions.

5.1.3 The proposals seek to create a development which protects key green infrastructure and ecological features, with the inclusion of open space in the Proposed Development, providing opportunities to enhance the existing habitats on site and create new habitats which will provide formal and information recreational space and features for climate change adaptation.

5.1.4 Opportunities to achieve high levels of energy efficiency will be identified at the reserved matters stages, with the development able to integrate passive and active design solutions to reduce heat loss and heating loads, utilising energy efficient services such as 100% LED lighting. The feasibility of incorporating low and zero carbon technologies and centralised district heating solutions will also be explored.

5.1.5 The development at Shaw Lane will reinvigorate this previously undeveloped area, providing new quality housing in accordance with local policy requirements and an opportunity to advance local and national sustainable development objectives.