Blythe Business Park

SCENTAREA LTD

Energy and Sustainability Statement

Final

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Project manager:	Daniel Watson
Author:	Lucy Chesterfield & Rob Banes
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Sinclair Knight Merz (Europe) Ltd (Jacobs)

New City Court 20 St Thomas Street London T +44 (0)20 7939 6100 F +44 (0)20 7939 6103 www.jacobs.com

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1. Introduction

This Energy & Sustainability Statement is submitted on behalf of Scentarea Ltd in support of an outline planning application, for residential, employment and other ancillary uses on Blythe Business Park, Cresswell.

The Statement is supported by the following documents, which identify the parameters of sustainable design and environmental mitigation to be introduced at the site.

- Design and Access Statement
- Planning Statement
- Drawings masterplan and parameter plans
- Environmental Impact Assessment

This Statement outlines the energy and sustainability credentials of the Proposed Development and addresses Staffordshire Moorlands District Council's policy requirements for sustainable development.

1.1. Site Context

The Site is located in Cresswell approximately 1.5 kilometres south east of Blythe Bridge and approximately 12 kilometres south east of Stoke-on-Trent town centre. The Site lies adjacent to Blythe Business Park ("BBP"), which accommodates a range of office, industrial and distribution premises. BBP comprises around 36,500 sq metres of existing employment space accommodating in excess of 50 companies and employing circa 300 people. The Site is also adjacent to residential properties within Cresswell. The Site is approximately one kilometre from Uttoxeter Road which connects to the A50 (and M6 motorway) and is circa 2.5 kilometres from Blythe Bridge railway station which is on the Derby to Crewe line.

1.2 Site Description

The Site is approximately 14.6 hectares and comprises two main parcels of land, located to the east and west of the existing Blythe Business Park in Cresswell. The western land parcel consists of unused agricultural land; the eastern land parcel is partly previously developed land, and partly agricultural land.

The Site has a relatively flat topography. The area to the east of BBP is relatively flat, gently sloping upwards to the south. The area to the west is also of a relatively flat gradient.

The River Blithe forms the north-western boundary of the Site and a small tributary also flows between the two land parcels comprising the Site.

1.3 Description of proposals

The Proposed Development at the Site will comprise a mixed use development, to include:

- Up to 168 residential units.
- Up to 33,480 sq metres of commercial floorspace, comprising B1, B2 and B8 use class floorspace.
- A small shop unit of up to 250 sq metres in size.
- A new community hall.



1.4 National Policy Guidance

The National Planning Policy Framework (2012) sets out planning policies for England and how they are expected to be applied. It provides guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications. The framework sets out detailed guidance on principles that contribute to delivering sustainable development, including:

Building a strong, competitive economy	Promoting healthy communities			
Ensuring the vitality of town centres	Protecting Green Belt land			
Supporting a prosperous rural economy	 Meeting the challenge of climate change, flooding and coastal change 			
Promoting sustainable transportSupporting high quality communications	 Conserving and enhancing the natural environment 			
 Delivering a wide choice of high quality homeon 	 Conserving and enhancing the historic environment. 			
Requiring good design	Facilitating the sustainable use of minerals			

The framework requires local planning authorities to promote sustainable development through, amongst other things:

- Setting local requirements that are consistent with nationally described standards;
- Expecting new development to comply with local plan policies; and
- Taking account of landform, layout, orientation and landscaping in decisions.

1.5 Local Planning Policy

As the Site is situated within Staffordshire Moorlands District Council, this document considers the proposals within the context of the policies set out within the Staffordshire Moorland Core Strategy Development Plan Document (March 2014).

The main policies associated with Sustainable Development are:

Policy SD1 - Sustainable Use of Resources

The Council will require all development to make sustainable use of resources, and adapt to climate change.

Policy SD2 - Renewable/Low-Carbon Energy

The District will strive to meet part of its future energy demand through renewable or low-carbon energy sources (which could be through a variety of technologies, for example wind power, solar energy, biomass etc), in line with current evidence which identifies the feasibility of these forms of energy across the District. This will be achieved by supporting small- and large- scale stand-alone renewable or low-carbon energy schemes.

Policy SD3 - Carbon-saving Measures in Development

The Council will promote further carbon-saving measures in both new and existing developments (where this is consistent with other Core Strategy Policies).



Policy SD4 - Pollution and Flood Risk

The Council will ensure that the effects of pollution (air, land, noise, water, light) are avoided or mitigated by refusing schemes which are deemed to be (individually or cumulatively) environmentally unacceptable and by avoiding unacceptable amenity impacts by refusing schemes which are pollution-sensitive adjacent to polluting developments, or polluting schemes adjacent to pollution sensitive areas, in accordance with national guidance.

Development proposed within the floodplain will be guided to first make use of areas at no or low risk of flooding before areas at higher risk, where this is viable or possible and compatible with other polices aimed at achieving a sustainable pattern of development

1.6 Energy and Sustainability Statement Structure

Policy SD1 requires a Sustainability/Energy Statement to be developed for all major-scale planning applications. This should address energy efficiency, water conservation, sourcing of construction materials, and site orientation aspects of the scheme, and where possible the feasibility of integrating micro-renewables.

As such, this document is structured around the following sections:

- Environmental Assessment Methodology
- Energy and CO₂ emissions
- Water
- Flood Risk
- Materials
- Waste
- Pollution
- Health and Well-being
- Construction Management
- Land Use
- Ecology and
- Transport

The key energy and sustainability performance commitments for the design are outlined in the Figure 1 below and detail surrounding these commitments is explained in Section 2 of the Statement.

Figure 1 – Key Sustainability Commitments

- The design principles behind the Buildings Research Establishment Environmental Assessment Method (BREEAM) will be followed to ensure a standard consistent with a BREEAM 'Very Good' rating is achieved.
- The residential units of the Proposed Development will be assessed under Code for Sustainable Homes and a minimum target rating of Level 3 will be achieved.
- Buildings will meet the Carbon Reduction targets of Part L of the Buildings Regulations and will seek to reduce CO₂ emissions beyond building regulations.



- High levels of energy efficiency will also be promoted to further reduce energy demand.
- Community or district heating will be considered as part of detailed design. The potential to develop energy receptors and exporters within the industrial and residential users of the site will be considered alongside the broader opportunity of district heating.
- It is anticipated that renewable technologies will be integrated to the design in order to meet Part L of the Building Regulations (2013). At the detailed design stage a comprehensive assessment of renewable and low carbon technologies will be undertaken to assess the potential to maximise the carbon savings from these technologies.
- The development will incorporate climate change resilience, including the management of surface water run-off and water efficiency and conservation measures.
- The Proposed Development will be designed to ensure that the materials are procured in accordance with sustainability principles.
- The Proposed Development will promote waste minimisation and optimise re-use and recycling of materials.
- The Proposed Development will be designed to minimise environmental pollution, including controlling noise and vibration, protecting air, water, and land quality.
- The Proposed Development will promote health and wellbeing within the community.
- Recommendations for protection and enhancement of the site ecology will be explored.
- The Proposed Development will contribute to improved public transport provision.



2. Energy & Sustainability Strategy

2.1. Environmental Assessment Methodology

Buildings Research Establishment Environmental Assessment Method (BREEAM) and Code for Sustainable Homes (CfSH) aim to reduce the environmental impact of the built environment throughout design, construction and operation. It provides a framework by which the key environmental impacts can be assessed, prioritised, with appropriate mitigations put in place, against the following priority areas:

- Minimising operational energy and carbon dioxide
- Health and wellbeing of building users (optimising lighting, noise control and air quality)
- Effective policy, building commissioning, construction site management and procurement management to reduce environmental impact
- Minimising construction and operational waste, ensuring any waste generated is managed in the most environmentally appropriate manner
- Transport management to reduce carbon emissions and reduce congestion
- Reducing water consumption in use
- Selecting construction materials with sustainability in mind
- Ensuring that construction and operation minimises pollution to air and water
- Considering type of land used and building footprint
- Understanding the ecological value of the site, undertaking conservation and enhancement where required

The design principles behind BREEAM will be followed to ensure a standard consistent with a BREEAM 'Very Good' rating is achieved.

The residential units of the Proposed Development will be assessed under Code for Sustainable Homes (CfSH) and a minimum target rating of Level 3 will be achieved.

This approach will evidence that robust environmental practises have been incorporated into the development process, going beyond regulatory requirements, help reduce running costs for occupants, whilst optimising living and working environments. It will provide the overarching mechanism by which the development's environmental strategy is developed, managed and tracked; helping to deliver against policies set out within the Staffordshire Moorland Core Strategy Development Plan Document.

2.2. Energy and Carbon Emissions Policy

Policy SD 3 of the Staffordshire Moorlands Core Strategy relates to carbon saving measures in development. The key elements of this policy are outlined below:

1. Supporting developers who propose exceeding the thermal efficiency standards required by law for new buildings or extensions, at the time of the application. In the case of larger developments such as housing estates the Council will support measures such as 'communal' micro-renewables, or District Heating installations.



- 2. The Council will support measures by landowners/developers designed to contribute to existing or emerging District Heating networks (for example by connecting 'exporters', with receptors, of heat).
- 3. The Council will support measures designed to improve the sustainability of existing buildings (such as improved thermal insulation, water conservation, or the installation of micro-renewables).

Within the Core Strategy the Council acknowledges that within a fluid regulatory landscape of regular tightening of Part L of the Building Regulations and updates to Environmental Assessment Methodologies it is not feasible to set on-site carbon reduction requirements and renewable energy targets in new developments as it may risk the viability of the development.

There is a commitment to achieve high levels of fabric and plant efficiency within the design of the proposed development with the aim of exceeding the recently updated Part L of the Building Regulations. An overview of likely measures and opportunities to achieve this improvement is outlined in the sections below.

2.2.1. Baseline Energy Use

Energy modelling of the proposed buildings on site will be undertaken at detailed design stage to confirm regulatory compliance and provide a detailed breakdown energy consumption and carbon baseline. This baseline will be used to demonstrate the benefit of any further energy efficiency measures, and community or district heating and the integration of renewable technologies over and above those required to achieve the minimum regulatory requirements.

At this outline planning stage total annual energy use for the proposed development, based on 168 residential units and 33,480m² of commercial floor space, comprising B1, B2 and B8 use classes has been estimated (based on standard benchmark data from CIBSE and Energy Savings Trust) to be approximately 7,000 MWh of gas and 1,600 MWh of electricity.

The associated annual baseline carbon emissions are estimated to be in the region of 2,400 tCO₂. This figure provides an estimate of the minimum regulatory requirements. This figure will be confirmed with energy modelling of the buildings once detailed designs are finalised. As a result this figure is subject to some variation based on the specification and equipment selected during the detailed design stage.

2.2.2. Energy Efficiency

The buildings will meet carbon reduction targets in line with Part L, of the Building Regulations and meet the relevant requirements of the Code for Sustainable Homes and BREEAM.

At the detailed design stage for both the residential and industrial aspects of the Proposed Development passive design methods of building design will be considered as a first step to make improvements on regulatory compliance and will help reduce energy consumption and associated carbon emissions. These measures could include:

- Improvements to air tightness;
- Use of natural ventilation;
- High levels of insulation;
- Use of thermal mass and night cooling; and
- Maximising the use of daylight to reduce artificial lighting.

Mechanical energy efficiency measures will be considered to further reduce energy consumption and carbon emissions. These measures will include:



- Efficient heating, ventilation and air conditioning plant such high efficiency condensing boilers, and fans with low specific fan power;
- Energy efficient lighting including, infra-red sensor, dimmable controls and daylight zoning;
- Low energy fans and pumps;
- High level of controls specification, and metering.

Energy efficiency in the operational use of the buildings will also be promoted to further reduce energy demand. This will include:

- The specification of A-rated appliances for residential buildings;
- Building Management System for the non-domestic buildings, including sub metering to monitor different energy stream including heating, cooling and ventilation.

2.2.3. Community or District Heating

Heat networks, often referred to as district heating schemes, supply heat from a central source directly to homes and businesses through a network of pipes which carry hot water. This means that individual homes and businesses do not need to generate their own heat on site. District heating can improve the efficiency of energy use (especially where heat production involves exploiting heat and power (CHP) or waste heat from existing power stations) and has the flexibility to utilise heat from a variety of energy sources including biomass energy.

The Staffordshire County-wide Low Carbon / Renewable Energy Study undertaken by Camco (2010), outlines potential locations where district heating could be exploited in the region. However, there is currently no existing or proposed district heating system within the vicinity of the development. On-going consultations will take place with the Council to review the feasibility of connecting into a future district heating scheme.

We do not consider that community heating across the site to be a currently viable option. The residential properties will not provide a sufficient or suitably diverse load profile to be viable on their own. An option may exist to combine residential and industrial heating loads but this will require specific information on the likely industrial energy demands, which are not currently available and will only be known once tenants for the proposed buildings have been identified. The consideration of community heating is therefore subject to the end-use activity of the industrial buildings.

2.2.4. Renewable and low carbon energy

In recognition of the tightening of the Building Regulations related to carbon reduction in new developments Core Policy SD3 does not set specific carbon reduction and renewable energy requirements.

However, in accordance with the principles set out by BREEAM and commensurate with Building Regulations, a comprehensive renewable energy feasibility study will be undertaken at the detailed design stage to determine the feasibility of different technology options for the site as a whole and specific buildings.

This section outlines the types of renewable technologies which could be feasible in this development, explores their benefits and constraints and considers the feasibility against the different activities in the proposed development.

Wind

Wind energy is a well-established renewable technology and costs of turbines have come down significantly in recent years. Also Government financial incentives, or feed-in-tariffs, can be obtained for every unit of energy they produce. However, obtaining planning permission for wind turbines has been difficult since they have a



significant visual impact and noise is sometimes an issue and so there is usually resistance from the local public to their installation. Wind energy of a significant scale is not appropriate to the site due to the topography of the area. Smaller scale roof mounted turbines are not considered suitable due to the poor performance in all but the most exposed of locations, alongside their potential visual impact. However, medium-scale turbines could be considered in a feasibility study if wind speeds in the area are sufficient.

Biomass

Biomass heating is a renewable technology that is becomingly increasingly utilised. As with wind technology there are Government financial incentives through the Renewable Heat Incentive (RHI) for both domestic and non-domestic customers. Small scale wood-burning stoves for each residential property are a possibility, though would increase the cost with the flue infrastructure needed. They may be financially viable with the RHI payments.

Heat Pumps

Heat pumps can be either air source, water source or ground source and benefit to different extents from the RHI. Heat pumps are most suited to new buildings as they produce low grade heat, which is better for wellinsulated dwellings. However, they have higher capital costs. Heat pumps may also be viable for industrial properties, particularly if there is both a heating and cooling demand.

Solar technologies

Solar PV technology is also potentially feasible as this can be easily integrated onto the roofs of the dwellings or business park units. There are no moving parts and very little maintenance is needed with Solar PV panels. There is, however, a visual impact and the relatively high capital cost will have to be considered, though prices have reduced substantially over the last few years and there are financial incentives for installing renewables (feed-in-tariffs). PV panels do need to be orientated to between the East and West (ideally South-facing) in order to maximise the incident irradiance from the sun. Solar PV is a real possibility for the rooftops of the residential and non-residential properties.

Solar thermal technology produces low grade hot water and needs top-up heat provided by a boiler or other heat source. This technology would be more suited to the residential units. Since the activity of the industrial units is yet to be finalised the benefit of solar hot water will have to be determined on a case by case basis.

A comprehensive renewable energy feasibility study will be undertaken at the detailed design stage to determine the feasibility of these different technology options for the site as a whole and for specific buildings.



2.3. Water

On average each person in the UK currently uses 150 litres of water every day and much of this is wasted. In addition, around 30% of the average household gas bill is spent on heating water. Introducing water efficiency measures can have a number of benefits; it can facilitate building users in reducing their water supply costs, wastewater disposal charges, heating costs and associated carbon emissions. More broadly it can contribute to reduced demand on water treatment and delivery network.

The Proposed Development will be designed to incorporate measures for the conservation of water resources.

A detailed assessment of potential methods of improving water efficiency during design will be carried out to reduce demand and incorporate rainwater harvesting where appropriate to contribute to the remaining demand. This will include an evaluation of the anticipated annual rainwater that could potentially be harvested from relevant buildings.

The feasibility of incorporating the following water efficiency measures will be investigated during the design of each building. The table below illustrates those measures that would be considered for the residential elements of the design and the non-domestic:

	Residential	Non-Domestic
Dual flush WCs	✓	✓
Aerated/spray taps	1	1
Passive Infra-Red (PIR) sensors for urinals		✓
Low volume showers	1	1
Rainwater harvesting systems for WC flushing		\checkmark
Water meters with pulsed output to enable connection to a Building Management System (BMS) for the monitoring of water consumption		1
Leak detection system capable of detecting major water leaks, installed on the mains water supply		1
The selection of drought tolerant plant species in planting schemes and	✓	✓
Water Butts	✓	



2.4. Flood risk

Policy SD 4 of the Staffordshire Moorlands Core Strategy relates to Flood Risk. It requires that development proposed within the floodplain will be guided to first make use of areas at no or low risk of flooding before areas at higher risk, where this is viable. Development deemed acceptable within areas at risk of flooding due to national or other policies or other material considerations, must be subject to a flood risk assessment. Additionally, approved schemes must be designed and controlled to mitigate the effects of flooding on the site and the potential impact of the development on flooding elsewhere in the floodplain.

A Flood Risk Assessment has been undertaken for the Proposed Development and can be found appended to the Environmental Statement (ES), which is submitted in support if the accompanying planning application. A number of previous modelling studies have been undertaken assessing the extent of possible flooding. The layout of the proposed development has been guided by this work with:

- All proposed residential units have been located in Flood Zone 1 (Low Probability of flooding) to ensure that they are subject to a low probability of flooding should a major flood occur along the River Blithe.
- The industrial / commercial units in the eastern development plot have been arranged to ensure that all units are predominantly outside of Flood Zone 3 although it is acknowledged that small sections do extend into the flood zone.
- Two buildings on the western development plot will be sited within Flood Zone 3 (High Probability of flooding). These are a security hut (on the access route into industrial area) and a community centre.

Flooding of some of the proposed employment use buildings and a community centre is however still possible during a severe flood event particularly when potential changes in flood severity associated with climate change are considered. The likely frequency of occurrence and the sensitivity of these buildings means that level of risk posed is however considered to be acceptable. At this stage the layout plan is illustrative only, and therefore once the nature of the occupiers is known, appropriate measures can be put into place to ensure that the risk of flooding is mitigated.

To mitigate the risk of flooding, the Proposed Development will ensure:

- Finished floor levels for the residential units will be set clear above likely flood levels.
- Finished floor levels for the industrial and commercial units on the eastern development plot will be set such that under design flood conditions flood depth are no greater than 0.3m, although it should be noted that the majority of units will be flood free.
- That all units that could feasibly be flooded during an extreme event will use flood resilience techniques to minimise the damage caused by flood water and thereby limit the time and cost associated with clearing up.

To mitigate the impact of the Development Proposals on flooding the scheme will ensure:

• Wherever reasonably, possible impermeable surfaces will be minimised and runoff from the remainder of the hard surfaces in the site will be directed to a system of sustainable drainage features. In the residential area surface water will be attenuated to the river with storage provided on site, primarily within surface water features. Within the eastern development plot British Geologic Survey mapping indicates that the shallow geology is likely to be permeable and as such it is envisaged that storm water will be discharged to the ground; however if conditions are ultimately found to preclude such a solution runoff would be charged to the river at greenfield rates and sufficient space exists within the indicative layout to provide attenuation storage to achieve this.



• Where development is proposed within areas vulnerable to flooding, checks will be made to ensure that flood storage volumes are preserved or increased when assessed on a level for level basis. This will ensure that flood waters are not displaced by the proposals and will help ensure that the proposals do not exacerbate flooding in areas adjacent and downstream of the site.

Following this assessment, undertaken in line with the requirements of the National Planning Policy Framework it is concluded that given the layout presented and the additional mitigation committed to, the flood risk posed to these development proposals is acceptably low and that the development of the site will not exacerbate flood risk offsite.

2.5. Materials

Building materials have varied and complex environmental impacts associated with them, and it is important to select materials with lower environmental impacts over their whole lifecycle and to specify responsibly sourced materials. This requires a balance to be made between issues relating to material extraction and manufacture, against those benefits whilst in use, such as energy efficiency gains.

The Proposed Development will be designed to ensure that key materials are procured in accordance with sustainability principles:

- All timber used on the project will be procured in accordance with the UK Government's Timber Procurement Policy.
- Recycled and/or secondary aggregate will be specified where feasible.
- Construction materials will be procured locally where feasible.

In addition, the BREEAM and CfSH process will evaluate the viability of further opportunities to use materials with low environmental impact (including embodied carbon) and responsibly sourced materials for key building elements. This will promote conservation of resources, reduction in waste generation and minimising the environmental impact of materials used.

2.6. Waste

The construction process has the potential to generate a significant amount of waste. It has been estimated that the UK construction industry generates ~80 million tonnes of construction, demolition and excavation waste per annum in England and Wales¹. A core principle within the design and construction process will be minimising this impact, with good practice targets set at the detailed design stage for the amount of non-hazardous construction and demolition waste generated and the percentage diverted from landfill.

The Proposed Development will promote waste minimisation and optimise re-use and recycling of materials, which will be detailed in a Site Waste Management Plan for the design and construction phases. The preparation of this plan is expected to be subject of a condition attached to any grant of planning permission.

The government's Waste and Resources Action Programme (WRAP) Construction Good Practice Guidance will also be consulted to inform the design and construction process and help improve material resource efficiency during the development. This will focus on opportunities to adopt design approaches that focus on materials resource efficiency so that less material is used in the design, and/or less waste is produced in the construction process, without compromising the design concept.

Where feasible, pre-fabrication methods will be considered for the development. For example, pre-fabrication of bathroom pods for the residential units of the development may be feasible. This can provide many

¹ Defra - Construction, Demolition and Excavation waste generation estimate: England, 2008 to 2010



environmental, commercial and social benefits. For example, it will help to reduce waste, reduce construction related transport movements, improve quality and also reduce construction timescales.

To ensure good management and recycling of occupant waste, the proposals will include designated, ample and flexible space within the development for the segregation, storage and collection of waste and recyclables. The feasibility of including the provision of composting facilities for disposing garden waste and some kitchen waste will also be investigated at the detailed design stage.

These proposals will ensure that waste generated both during construction and operation is properly considered, and that appropriate mechanisms are in place to reduce its generation and manage any waste generated in an environmentally sound manner.

2.7. Pollution

Policy SD 4 of the Staffordshire Moorlands Core Strategy relates to the effects of pollution. The Proposed Development will be designed to minimise environmental pollution, including controlling noise, protecting air water and land quality. The construction site will also be managed in an environmentally sound manner.

2.7.1. Controlling Noise

The potential noise effects due to the construction and operation of the proposed development have been assessed, and summarised as follows:

- As part of the noise assessment, the overall impact on noise levels as a result of increased traffic associated with the redevelopment in both its construction and ongoing operation, on all local roads, is classified as negligible.
- Potential operational noise effects associated with fixed plant on the proposed residential developments are readily mitigated through careful design. Detailed design stage noise impact predictions will enable identification of any necessary noise mitigation measures to reduce the impact of industrial noise levels within proposed dwellings.
- The impact of construction operations has been assessed. Best practicable means to prevent noise from the site as defined in British Standard BS 5228-1: 2009 will be employed during the construction of the project to mitigate the noise impact.

2.7.2. Air Quality

The potential impacts on air quality due to the construction and operation of the proposed development have been assessed, and summarised as follows:

- The appraisal of the potential dust levels associated with construction shows that dust is likely to be generated from site activities and the site would be classed as a "Medium risk site" for some construction related activities with regard to dust soiling and a "Low risk site" with regard to potential human health impacts. Measures to control dust emissions and monitor the effectiveness of the mitigation would be agreed formally with Staffordshire Moorlands District Council as part of an appropriate management plan to be implemented during the construction phase. With the mitigation measures in place and appropriately managed, it is concluded that the proposed development is not likely to generate unacceptable dust impacts to adjacent receptors during the construction stage and the significance of the impact would be described as minor/negligible.
- The emissions from the additional road traffic generated during the operational phase have been assessed, and the significance of the impact would be described as negligible.
- An assessment of nearby sources of air pollution was undertaken to determine the suitability of the site for the proposed development with regard to the introduction of new residential properties. This



included emissions from a nearby industrial facility operated by Johnson Matthey plc and the nearby railway line. Based on the assessment, the significance of the impact on air quality at the site would be described as negligible. On this basis the air quality at the proposed development site is concluded to be suitable for the proposed uses.

2.7.3. Land Quality

A Tier 1 contaminated land risk assessment (desk study and walkover) has been undertaken to identify baseline conditions and determine a preliminary worst case conceptual site model (CSM). The purpose of this assessment is to ensure that the development incorporates appropriate mitigation such that it is compliant with the requirements of Part 2A of the Environmental Protection Act (EPA) 1990 and the UK planning regime. In order to achieve this, the development must be undertaken in such a manner that potential impacts on human health (e.g. via soil contamination, ground gas) and the wider environment (e.g. rivers, aquifers etc.) are adequately assessed and mitigated; at both the construction and operational stages of the development.

Based on this, an assessment of the worst case potential impacts has been undertaken for both the construction and operational phases. Potential mitigation options have been considered that would reduce the identified potential impacts to acceptable (i.e. negligible) levels.

During detailed design a comprehensive intrusive ground investigation will be undertaken, in order to develop a detailed remediation (mitigation) strategy. Following the implementation of the detailed remediation strategy, residual impacts would be expected to be negligible or minor-negligible during the construction phase and negligible during the operational phase.

The above measures will ensure that any historic pollution is properly considered and that appropriate mechanisms are in place to mitigate its impact.

2.7.4. Water Quality

In addition to mobilisation of historic pollution the construction and operation of the proposed development could potentially result in pollution of the water environment (i.e. River Blithe) from sediments and other pollutants such as oils.

During construction this will be managed by the implementation of good construction practices including monitoring of the river and pollution response measures, and the development of a construction drainage strategy. This will all be set out by the lead contractor in a Construction Environmental Management Plan that will be submitted to and approved by the Environment Agency and the Staffordshire Moorlands District Council prior to works commencing.

During operations the use of sustainable drainage systems, discussed further in section 2.4, will minimise contamination discharging from the site via the storm water drainage systems.

Further details on: Noise, Air Quality, Contaminated Land and Drainage can be found in the relevant ES chapters and the flood risk assessment.

2.8. Health and Well-being

The Proposed Development will promote health and wellbeing within the community and will include:

- Compliance with the 16 criteria of the lifetime homes standards (which is a model for building accessibility and adaptable homes).
- Creating open spaces that provide an attractive setting for residents and others to meet informally. This is to include: play pitches, children's play areas, major open space and incidental open space.
- The provision of new local facilities including a new village shop.



• A new community hall.

This will ensure that in addition to the wide range of environmental features that will be captured within the development, good practice will also be applied to ensure that further steps are taken to improve the quality of life of those wishing to live and working in the local area.

2.9. Construction Management

During construction of the Proposed Development measures will be put in place to ensure environmental and social impacts are minimised.

A Construction Environmental Management Plan will be developed for the construction site before starting work. This will set out the intended methods of effectively managing potential environmental impacts arising from the construction and will include details of noise, dust control and hours of construction.

Further details on Construction Management can be found in the Construction Methodology Statement in Chapter 6 of the ES. This will ensure all practicable steps shall be taken to minimise the environmental effects of construction works including:

- Clear roles and responsibilities are defined.
- Environmental aspects have been identified.
- Site activities are conducted in accordance with relevant legislation, local environmental procedures and good practice guidelines, with appropriate licenses, permits and consents and other statutory requirements in place and complied with.
- Training and awareness raising of site specific environmental impacts and the mitigation measures to be applied, are conducted through inductions, briefings and tool box talks.
- Regular review of the environmental requirements of the project and operational control measures, with corrective action taken where required.

2.10. Land Use

The Proposed Development is sited on non-allocated Greenfield land. Alternative locations in and around Cresswell, have been considered however have been discounted based on the reasons set out below.

The Site forms an extension to existing areas of built development, namely the existing village of Cresswell and the existing Blythe Business Park. The elevated railway line forms a strong barrier to the northern edge of the existing Business Park. Locating development to the north of the railway would mean a physical separation between any new development and the existing Business Park and Village. Sites elsewhere in the general area of Cresswell would also likely lead to a greater dispersal of built development in comparison to the proposed Site.

It is understood that the existing Blythe Business Park is very well occupied and that there is good demand for additional space, including from existing occupiers who want to stay in this location, which cannot be accommodated within the existing Business Park. This supports the identification of any new employment land which is well related and physically linked to the existing Business Park. Further development of employment to expand the Business Park is also promoted in the emerging Core Strategy.

In terms of the proposed juxtaposition of uses as part of the Development, the inclusion of residential (rather than new employment) on land between the existing Creswell Village and the existing Blythe Business Park has been selected as the preferred option as this helps to provide a 'buffer' between existing residents and employment.



Overall, this proposal will extend the business park to meet demand. The supporting blend of residential, retail and community facilities will help to ensure there this site is developed in a sustainable manner. The residential development will also assist the authority in meeting its 5 year housing land supply.

2.11. Ecology

An Extended Phase 1 Habitat Survey was carried out by ecological surveyors to assess the baseline ecological information of the Site. This survey was completed on 8th May 2012 and the survey was updated in 2013.

None of the habitats recorded within the central site are considered to be of a high conservation value. The field interiors primarily consist of improved grassland and the boundary features generally lack diversity. The exception to this is the hedgerow along Sandon Road (Hedge 1), which is relatively species-rich. However, this does not appear to support significant concentrations of species with conservation value.

The most significant ecological feature on the site is the River Blithe, which runs through the existing business park and along the northern boundary of the two proposed development sites. The river provides a foraging and commuting route for a minimum of three species of bat, including pipistrelles and noctule, which are both Staffordshire priority species. Otter has also been recorded along this stretch of river. The tributary to this river also provides connectivity to the wider countryside for a range of wildlife.

The survey identified that the main ecological considerations for the site were as follows:

- Protection of the River Blithe and its tributary to ensure continued ecological function;
- Potential loss of a 2 hole badger sett;
- Loss of pipistrelle bat roost that has been identified within the dance studio building requiring a licence before demolition;
- Seasonal constraints for removal of breeding bird habitat; and
- Loss of a Hedge 1 (H1), which runs along the west boundary of the site alongside Sandon Road.

A number of measures are proposed to avoid, reduce or compensate for potentially significant impacts on important ecological receptors, to ensure compliance with the relevant legislation and, in certain cases, to provide ecological enhancements. These measures are outline below:

- The landscape design will aim to enhance the biodiversity value of the site and where possible, UK Biodiversity Action Plan (BAP) priority habitats will be specified.
- The H1 will be replanted along the new road when completed.
- The lighting along the river will be designed to minimise disturbance to this habitat, plus there will be a minimum 8m buffer to the edge of the river bank.
- The installation of bird, bat and invertebrate boxes will be carried out, where appropriate, to enhance the value of the site for these species groups.

Further information will be provided post-consent within a detailed Landscaping Plan, Construction Environmental Management Plan (CEMP) and Ecological Management Plan.

2.12. Transport

Cars represent ~55% of UK domestic transport greenhouse gas emissions. Sustainable travel initiatives aim at encouraging car users to change their behaviours and minimise carbon emissions and address issues such as congestion, by choosing greener modes of transport.



The Proposed Development will support sustainable transport modes, helping reduce the demand for private car use, as follows:

- A network of on-site footway, footpaths and cycleways will be provided to emphasise pedestrian and cyclist movement around and through the site. The proposed routes reflect desire lines through the site and connect with the existing pedestrian and cycle networks. This will include a new footway opposite the Izaak Walton Public House to address the fact that this location does not currently benefit from any pedestrian facilities.
- There are a range of destinations within reasonable cycling distance of the site, including several schools and employment areas for the future residents (i.e. Blythe Bridge, Cheadle and the Whittle Road Industrial area of Stoke-on-Trent) and residential areas from where potential employees will be drawn (i.e. Blythe Bridge, Cheadle, south east of Stoke-on-Trent and the villages/hamlets that surround Cresswell). As such it is considered that these areas are sufficiently close to the site for future residents of the proposed houses and employees of the proposed commercial uses to consider making trips by cycle. Cycle parking will therefore be provided in accordance with the adopted standards. With respect to the residential uses, these will be provided as individual cycle storage boxes or sheds in rear gardens of those dwellings. Cycle parking for residents of the flats will be accommodated in secure cycle stores. The commercial uses will also benefit from secure cycle stores that will be evenly distributed across the site in locations that are subject to good natural surveillance and within a short walk of main entrances.
- A financial contribution from the Applicant towards enhancing the existing bus services that operate in Cresswell.

In the long-term, the residual effects of the increased number of person trips associated with the development have all been found by the Transport Assessment to be either negligible, or moderate-beneficial in terms of their significance of effect. This conclusion has been made when considering the likely changes together with the commitments that the Applicant has made with respect to enhancing the connectivity of the site from a sustainable transport perspective.

Further details on the Proposed Development and Sustainable Transport can be found in the Transport Chapter of the ES.



3. Summary

This Energy and Sustainability Statement has set out, and justified where necessary, the sustainability measures, that will be incorporated within the development to ensure high levels of performance and long-term viability. These include:

- Following BREEAM and CfSH principles to ensure that robust environmental practices have been incorporated into the development process, going beyond regulatory requirements. This will provide the overarching mechanism by which the development's environmental strategy is developed, managed and tracked.
- The buildings will meet carbon reduction targets in line with Part L, of the Building Regulations and meet the relevant requirements of the CfSH and BREEAM, with passive design, mechanical energy efficiency, and energy efficiency in operation measures considered to make improvements on regulatory compliance and help reduce energy consumption and associated carbon emissions. A comprehensive renewable energy feasibility study will be undertaken at the detailed design stage to determine the feasibility of different technology options for the site as a whole, and specific buildings.
- Incorporating measures for the conservation of water resources. A detailed assessment of potential methods of improving water efficiency during design will be undertaken to reduce demand and incorporate rainwater harvesting where appropriate to contribute to the remaining demand.
- A layout and additional mitigation which ensure that the flood risk posed to these development proposals is acceptably low and that the development of the site will not exacerbate flood risk offsite.
- Evaluating construction material selection in accordance with sustainability principles.
- An approach to ensure that waste generated both during construction and operation is properly considered, and that appropriate mechanisms are in place to reduce its generation and manage any waste generated in an environmentally sound manner.
- A range of measures to ensure that the noise, air, water and land pollution risk are properly considered and that appropriate mechanisms are in place to mitigate identified impacts.
- A Construction Environmental Management Plan to effectively managing potential environmental impacts arising from the construction.
- A landscape design that will aim to enhance the biodiversity value of the site and where possible specify UK Biodiversity Action Plan (BAP) priority habitats. Further information will be provided post-consent within a detailed Landscaping Plan, Construction Environmental Management Plan (CEMP) and Ecological Management Plan.
- Provision of a network of on-site footway, footpaths and cycleways to emphasise pedestrian and cyclist movement around and through the site; with cycle storage facilities provided to promote the use of cycles; and a financial contribution from the Applicant towards enhancing the existing bus services.
- Compliance with the criteria of the lifetime homes standards, provision of open spaces and local facilities to improve the quality of life of those wishing to live and working in the local area.
- A proposal to extend the business park to meet demand for this infrastructure. The supporting blend of
 residential, retail and community facilities will help to ensure there this site is developed in a sustainable
 manner. With the residential development also assisting the authority in meeting its 5 year housing land
 supply.

This demonstrates clearly the commitment of the Applicant to the principles of sustainable development and enables Staffordshire Moorlands District Council to make an informed judgement based on the basis of the proposed developments sustainability credentials.