

North Oxfordshire
Consortium Ltd.

Heyford Park

Sustainability Statement

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Consortium

Heyford Park

Sustainability Statement

September 2007

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Contents

1. Introduction.....	13
1.1 Site Description.....	3
2. Methodology and Scope.....	4
3. Sustainability Statement.....	6
3. Social.....	6
4. Environment.....	8
5. Natural Resources.....	13
6. Economic	14
7. Further Investigation.....	15
5. Bibliography	20

1 Introduction

1.1 Background

This Sustainability Statement has been prepared by Ove Arup and Partners Ltd (Arup) for the North Oxfordshire Consortium Ltd. (NOC).

Heyford Park is the proposed development of the former RAF Upper Heyford Base in Oxfordshire. The development is being proposed by the NOC. Cherwell District Council has produced a comprehensive planning brief for the site which was adopted as a Supplementary Planning Document (SPD) in March 2007. The brief outlines the requirements of the mixed-use development of the site including the specification of approximately 1,000 residential dwellings, primary school, supporting community facilities and provision of over 1,300 jobs.

This Sustainability Statement describes the commitments made by the NOC towards creating a sustainable mixed-use development. The Statement accompanies an outline planning application for the development of the whole former airbase.

1.2 Site Description

The proposed site covers the area of the former Upper Heyford RAF Base within the Cherwell District of Oxfordshire. The site lies to the north-west of Bicester, close to the village of Upper Heyford. The 505 hectare site currently supports 300 residential dwellings, community facilities and business premises employing around 1,000 people. In light of the site's significance as a Cold War air force base, the base has been designated Conservation Area Status and a number of buildings are now listed or scheduled. A County Wildlife Site lies within the site boundary on the eastern extent and is designated for its species rich grassland.

1.3 Overview of Proposed Development

The proposed Heyford Park development provides a comprehensive scheme that considers the whole of the site including the core development area and the wider airfield. The proposed development includes the construction of new buildings and the refurbishment of existing buildings on the site. When complete, the development will support up to 1,075 residential dwellings, a primary school, and business and employment areas creating over 1,400 jobs. Local community facilities will include:

- Local retail areas and Public House;
- Chapel;
- Community hall;
- Hotel/Conference Centre;
- Museum/Visitor Centre;
- Nursery/crèche;
- Playing pitches and courts, sports pavilion plus incidental open space;
- Appropriate infrastructure and car parking;
- Appropriate landscape alterations.

The development will enable the ongoing preservation and management of the Upper Heyford Air force base conservation area including scheduled and listed buildings and will also include the enhancement of the existing County Wildlife Site.

The Heyford Park development is described in greater detail in the scheme's Design and Access Statement which accompanies the planning application.

2 Methodology and Scope

2.1 Methodology

This Sustainability Statement outlines the commitments made by NOC towards delivering a sustainable mixed-use development. The review undertaken in preparing this statement considered:

- Cherwell District Council Former RAF Upper Heyford SPD;
- Cherwell District Council Former RAF Upper Heyford SPD Sustainability Appraisal;
- Oxfordshire County Council Oxfordshire County Structure Plan 2016;
- Arup (August 2007), Heyford Park Flood Risk Assessment;
- Cherwell District Council (March 2007) Former RAF Upper Heyford SPD Sustainability Appraisal;
- Heyford Park Masterplan for the Scheme;
- Heyford Park Design and Access Statement;
- Heyford Park Draft Environmental Statement;
- Heyford Park Flood Risk Assessment;
- Heyford Park Transport Assessment.

The review was conducted to identify the sustainability credentials of the development proposals at the point of the submission of outline planning, from information gathered from the above documentation, the client team and assessed by independent specialists.

In addition to this, areas of opportunity have also been identified in order to achieve the optimum sustainability for the development. These are noted as aspirational statements in section 8.

2.2 Scope

The Statement covers four key topic areas of sustainability namely the environmental, economic, social and natural resource implications of the development.

2.2.1 Social

Social sustainability involves improving quality of life through an understanding of the following issues:

- Facilitating social inclusion;
- Enhancing amenity value;
- Improving accessibility;
- Optimising form and space;
- Maximising user comfort/ satisfaction;
- Considering health and welfare.

2.2.2 Environment

Environmental sustainability is about maintaining the quality of the environment through a clear understanding of environmental effects, sensitivities and alternative solutions, keeping environmental impact below the level required to allow the systems affected to recover and continue to evolve:

Within the scope of environmental sustainability, consideration is given to:

- Maintaining and protecting air quality;
- Ensuring sustainable land use;
- Maintaining and protecting water quality;
- Protecting and enhancing ecology and cultural heritage;
- Ensuring sustainable design and operations;
- Promoting sustainable transport options.

2.2.3 Natural Resources

Sustainable development involves using non-renewable resources more efficiently, increasing their productivity to ensure sustainable economic and societal growth without depleting stocks for future generations. Concurrently there must be a drive to develop alternatives that will replace their use. Sustainable resource use considers:

- Materials;
- Water;
- Energy;
- Waste Hierarchy.

2.2.4 Economic

Economic sustainability addresses the issue of financial viability and wealth creation and its distribution within and among communities. Within the scope of economic sustainability, consideration is given to:

- Securing financial viability;
- Maximising competition effects;
- Increasing employment/ skills base;
- Promoting public transport systems;
- Optimising social benefits.

3 Social

3.1 Amenity

The development at Heyford Park will be focused around a neighbourhood centre containing the local shops, pub/restaurants, primary school, church and community hall. All facilities are within a five to ten minute walk from the outermost areas of the housing development. Formal and informal recreation spaces will be integrated throughout the development.

The development will incorporate the required areas for:

- Local areas for play (LAP)
- Local Equipped areas for play (LEAP)
- Neighbourhood Equipped areas for Play (NEAP)

Sporting facilities by way of playing fields will, subject to S106 agreement, also be provided as part of the development.

Play facilities and public open spaces will be adopted by Cherwell District Council or an approved management company. Allotments, Orchards and pony paddocks on the edge of the settlement will be owned and managed by a Residents Association.

Business and employment areas will be located to the north of the core development area. Most business activity will remain in existing buildings however some new accommodation will also be provided.

The landscape design will be appropriate to the overall design, e.g. new tree planting is proposed to soften the edges between the development and its surroundings. Planting will be low maintenance and indigenous. The site will provide some access to quality green space, although not all of this will be publicly accessible. The retention and extension of existing footpaths and bridleways along the northern periphery and Eastern airfield will enhance recreational enjoyment of the area.

3.2 Accessibility and Inclusion

The proposed development will provide mixed-use facilities as outlined in Section 2.3. Local residents will have easy access (5 to 10 minute walk) to key facilities.

The development will provide 1,075 residential homes of a variety of sizes and tenures. A total of 30% of the dwellings will be developed as 'Affordable Homes', including a mix of full rental and shared ownership. Within the market housing, dwelling types will range from one bedroom flats to five bedroom houses. Homes will be designed to allow greater flexibility including live/work homes.

Key facilities in the neighbourhood centre will be fully accessible to people with disabilities. Where possible, existing neighbourhood facilities will be retained until new ones are provided.

A primary school will be provided in accordance with County Council requirements (2.22 hectares).

Funding will be provided under a S106 agreement for a Community Development professional to assist in the establishment of the neighbourhood. Contributions will be made towards existing Library facilities in the local area. Measures to improve local bus services have been investigated and shall be adopted subject to agreement with Oxfordshire County Council (OCC). Opportunities to encourage and facilitate more sustainable modes of transport for the development will be outlined in a Travel Plan and requirements will be subject to confirmation with OCC.

The development includes a range of housing types, size and tenures to encourage a broad social mix. Overall 30% of dwellings will be affordable homes. A Local Lettings Policy has been approved by the Council to give priority for new affordable housing to existing tenants.

3.3 Form and Space

The detailed designs will be further developed following the principles of 'Secured by Design' and will be fully accessible for people with disabilities.

Communal recreational space will be provided in residential areas, to provide circulation areas for social interaction, with the aim of enhancing community cohesion.

There is a potential for public art to be incorporated into the neighbourhood design, particularly in the neighbourhood centre and a contribution towards the integration of public art will be included via a S106 agreement.

The proposed layout diverts commercial traffic from entering residential areas by a new HGV road and gates will represent the entrance to the residential areas. As a result priority is given to residential vehicles, cycle and pedestrian routes, which links parts of the development.

The masterplan design minimises the effect of overshadowing on gardens and principal living areas.

3.4 Health and Wellbeing

The layout of the development encourages walking and cycling as there is easy access to key facilities and the development is interspersed with areas of multi-use public open space. Improvement of links to the local footpath and bridleway network will encourage people to access the countryside.

The primary school will have its own open play areas and areas of sports fields are included within the development. The development also makes provision for crèche facilities as well as sport, community and children's play areas.

4 Environment

4.1 Natural Environment

4.1.1 Air Quality

An Air Quality Assessment has been undertaken by Arup as part of the Transport Assessment report. Results from this study suggest that prevailing air quality is unlikely to be affected by the development. Management of the construction phase by a code of practice / management plan should ensure that minimal dust and particulate matter is produced. No ozone depleting substances will be used across the development during construction and NOC will use their purchasing policy to promote the use of clean fuels during construction.

4.1.2 Land Use

Heyford Park is a mixed-use development to be built on 100% previously developed land, providing 1,075 residential dwellings and key community facilities including business and employment areas. The development plan aims to integrate positively with the existing development, with the existing trees retained wherever possible and residential boundaries integrating with the character of the existing landscape.

One of the principles underlying Policy H2 of the Oxfordshire County Structure 2016¹ is to aid environmental improvement and conservation of heritage features on the former RAF site. The development will enable conservation and preservation of sites of historic significance including the RAF Upper Heyford Conservation Area, Scheduled Ancient Monuments and a CWS.

The existing dwellings have a development density of 20 dwellings per hectare (dph), low by current standards. The proposed development will increase dwelling density to just over 30 dph, satisfying the range indicated in PPS3.

The site is within a low flood risk area (flood zone 1). Mitigation measures are proposed in the Flood Risk Assessment to accommodate surface water drainage issues.

4.1.3 Water Quality and Discharge

The site lies within a low flood risk area (flood zone 1). Potential sources of flood risk to the development site or adjacent areas include:

- Groundwater;
- Overland flow of surface water;
- Capacity exceedance of artificial drainage systems.

While the majority of the site's catchment will remain unchanged, development of the Heyford Park neighbourhood will result in changes to the surface water run-off characteristics. A surface water management strategy will be developed to facilitate the implementation of sustainable drainage system (SUDS) and best management practices (BMPs). Three key components will be developed as part of an integrated surface water management strategy:

- Maximise natural runoff losses through infiltration techniques;
- Maximise surface water runoff quality improvements through natural BMP techniques such as bioremediation;
- Attempt to reduce the total volume of surface water runoff discharged.

A sustainable approach to water management will be employed across the site which includes minimising hard surfaces and the use of innovative drainage systems including

¹ Oxfordshire County Council (October 2005), Oxfordshire County Structure Plan 2016

permeable conveyance systems, filter drains, balance and storage ponds and swales (where appropriate). The FRA determines that, provided suggested mitigation measures are in place, the proposed development will not adversely affect onsite, neighbouring or downstream developments and their flood risk. As a further measure to reinforce the site's natural water cycles, most houses will be provided with water butts for rainwater storage. NOC will commit to provide every house with rain water storage.

Further detail is provided in the Heyford Park Flood Risk Assessment accompanying the planning application².

Cherwell has experienced a decrease in river quality since 2000³. There is currently a risk that existing contamination sources on the site could enter the surrounding river system. The proposed development will involve remediation of existing sources of contamination and will seek to ensure that pollution at the airbase does not enter local ground and surface water features. A Code of Construction Practice will be in place to minimise the risk of the spread of existing contamination during construction activities.

Further detail is provided in the Environmental Statement, Geology, Soils and Contamination chapter which accompanies the planning application.⁴

4.1.4 Biodiversity

The former airbase contains a County Wildlife Site (designated for its species rich grassland) and protected species (badgers, bats and great crested newts) have been noted across the site. The grassland habitats also support bird assemblages of County value.

The existing County Wildlife Site will be enhanced through the development of the scheme. Works will include the scarification of a major part of the taxiway and removal of the east and west nibs of the runway. Important areas of the County Wildlife Site will be fenced off and public access will be controlled to protect the habitat for ground nesting birds. The whole airbase site will be under ongoing management and a formal Base Management Plan including long term monitoring shall be established to maintain favourable conservation status and ensure continued habitat for protected species. The core development area also includes a network of green spaces to promote local biodiversity.

Existing trees and mature vegetation will be retained throughout development as far as possible; however inappropriate coniferous planting in the airfield will be replaced with selected locally indigenous species. Natural assets include mature trees (many are of a substantial grade), ecological habitats that are currently preserved as a result of limited public access. There is also extensive tree cover within and along the site. Landscape and visual objectives for the proposals are to use carefully selected locally indigenous plants. Dying, diseased and non indigenous planting will be removed and replaced with new indigenous plants.

4.1.5 Soil

As a consequence of previous site activities, there is a potential for encountering contaminants in some areas of site. Main contaminant sources are likely to be the Petrol, Oil and Lubrication fuel storage tanks and their associated pipework along with other airbase facilities. Hydrocarbons are considered to be the main contaminants arising from these sources. Further ground investigations will be undertaken prior to the construction phase. A Code of Construction Practice will be in place to manage impacts arising from the discovery of contaminated material during construction. The development of the site and any associated ground remediation that takes place will reduce the risk of contaminants spreading beyond the site.

² Arup (August 2007), Heyford Park Flood Risk Assessment

³ Cherwell District Council (March 2007) Former RAF Upper Heyford SPD Sustainability Appraisal

⁴ North Oxfordshire Consortium (August 2007) Heyford Park Outline Planning Application - Environmental Statement

4.2 Cultural Heritage

English Heritage has declared the former airbase at Upper Heyford as the possibly the best preserved Cold War air base in the country. Several buildings across the site are listed and/or scheduled and whole of former airbase is designated as conservation area. In order to preserve this important heritage assets, approval for the Heyford Park development will include agreements to enable the ongoing management of these buildings. The area containing the airfield, which includes listed buildings, shall be fenced off with public access restricted. Public access to the airfield will only be available by means of organised tours. The prime benefit of restricting public access will be ecological.

The site has the potential to contain archaeological deposits from the Iron Age and Roman period. However, the bulk of the proposed development lies in an area that is likely to have been heavily disturbed by previous activity and as a result it is thought that the proposed development will have no further adverse effects on below ground archaeology in these areas. In other areas across the airbase, survival of archaeological features is thought to be better. Geophysical surveys and trial trenching have been undertaken in areas of potentially ground disturbing activities (e.g. tree planting) where a potential for archaeological remains exists.

4.3 Design and Operation

The Heyford Park Masterplan includes the development of 1,075 residential properties in addition to other components of a mixed-use development including:

- Business and Employment premises;
- Local retail areas and Public House;
- Chapel;
- Community Hall;
- Hotel/Conference Centre;
- Heritage Centre;
- Primary School
- Crèche;
- Playing pitches and courts, sports pavilion plus incidental open space;
- Appropriate infrastructure, car parking and landscaping;

The proposed residential development involves a mix of new build properties and refurbishment of existing properties. In some areas (Carswell Circle and North of Camp Road) these residential properties will be retained and incorporated within Masterplan Design. Properties will also be developed in a variety of sizes and tenures.

Other use types will be achieved through a mixture of refurbishment and new build. Existing facilities on the site will be retained and refurbished where they compliment the design principles and layout of the Masterplan. Existing buildings that will be retained include those currently being used as a Community Hall and Church.

Landscaping designs and practices will include:

- Planting of indigenous and low maintenance species;
- Removal of non-indigenous planting and replacing with indigenous;
- Appropriate landscape management to protect Cold War airfield landscape and restore existing copses and hedgerows;

- Mulches and soils to be created using recycled material from removed and composted vegetation

Appropriate street planting will be incorporated into the design to control wind impacts around development. The landscaping design will ensure trees do not create adverse overshadowing effects and maximise internal daylight and sunlight penetration.

Noise nuisance between attached dwellings and between internal rooms will be minimised by design.

Building designs will be developed that are efficient built forms that minimise material and energy use during construction. Dwellings will be able to be adapted to occupants changing circumstances.

In addition findings from the Arup SPeAR[®] assessment shall be used to actively improve the sustainability of the development and a number of opportunities identified from the SPeAR[®] report shall be considered for implementation by NOC.

4.4 Transport

4.4.1 Pedestrian and Cycle Transport

Pedestrian and cycle movements are encouraged through the design of the proposed development and pedestrian linkages and rights of way across the wider site will be restored. In addition, off-site footpaths which currently do not connect to the site will be reinstated. The neighbourhood layout offers an acceptable walking time to key facilities of five to ten minutes. The flat nature of site means that walking and cycling around the core development area is easy however, journeys beyond the site will be more strenuous given the distances involved and the topography of the surrounding area.

4.4.2 Bus Transport

There are three existing bus stops located within the Heyford Park settlement; all on Camp Road. The site is currently serviced by a single bus route (25/25A/25B) between Oxford and Bicester, via local villages. The current daytime frequency is approximately one service per hour in each direction with an additional service during the peak morning period. Measures to improve the local bus services have been discussed with Oxfordshire County Council and will be supported by the NOC subject to final agreement. These include improvements to the existing 25/25A/25B service as follows:

- A service every 30 minutes to Bicester town centre throughout the day;
- An hourly service to Oxford during the AM and PM peaks;
- Some services to connect to Bicester North Station throughout the day; and
- Existing Friday and Saturday evening services extended to rest of the week.

4.4.3 Rail Transport

The site is 4km from the local Lower Heyford train station and 8km from Bicester North train station. While it is unlikely that the development could influence train journeys through either of these stations, it is considered that the improvements to local bus services outlined above will enhance access to local stations and offer increased opportunity to utilise rail transport. Further discussions have been held with Chiltern Railways related to investigation of a shuttle mini-bus service to serve Bicester North station from Heyford Park.

4.4.4 Road Transport

Streets (other than main access roads) will be designed so as to restrict vehicle movement to 20mph and measures will be employed on Camp Road, through the settlement, to calm traffic. The site is currently occupied by a number of businesses that are served by Heavy Goods Vehicles (HGV's). A new route for HGV access to the commercial area is proposed to divert traffic from residential areas and improve pedestrian priority within the residential

area. Raised tables and entrance gateways are also proposed as a further deterrent to commercial vehicles entering residential areas.

4.4.5 Travel Plan

A Travel Plan will be developed as the design of the scheme progresses. To facilitate the delivery of the Travel Plan NOC will:

- Manage progress of the Travel Plan and guide its strategic development as Heyford Park expands;
- Manage and support a Travel Plan Coordinator;
- Integrate the travel plan with other aspects of the site's operations and management;
- Confirm targets and monitoring arrangements for the Travel Plan.

The Travel Plan will be managed by NOC for 7 years from occupation of first dwelling. Following this responsibility will then go to Cherwell District Council and Oxfordshire County Council

Further detail on the proposed improvements to public transport and the Travel Plan framework can be found in the Heyford Park Transport Assessment accompanying the planning application⁵.

⁵ Arup (August 2007), Heyford Park Transport Assessment

5 Natural Resources

5.1 Materials

Designs will seek to be efficient built forms that use fewer materials during construction. Materials to be used across the development will be chosen to minimise environmental cost. Material will be generated through the demolition of existing buildings on the site. Where appropriate this material will be re-used.

5.2 Water Use

Following research by Arup into water efficient appliances, NOC have agreed for these to be installed. Water meter will also be installed to meet current building requirements.

Construction water source is anticipated to be 100% municipal supply, but this will not compete with the local communities water resources. It is unlikely that the groundwater will be utilised for water supply in the future.

5.3 Energy

The pattern of existing development at Heyford Park lies close to the optimum east-west axis to benefit from solar energy, and the design of new areas in the street network intentionally retains and exploits this attribute. Buildings will be designed for low energy loss and to maximise the efficiency of heating. Opportunity for solar gain will be maximised by orientation, dwelling type and internal layout and the use of solar water heating will be considered during design. In addition, Energy use during construction will be minimised.

New members of the community will be informed of the energy efficient measures in their buildings and encouraged to continue to operate their dwelling in the most energy efficient manner.

5.4 Waste Hierarchy

There is an aspiration to use waste hierarchy (reduce, reuse, recycling) during construction. Activities associated with construction of various components of the Heyford Park development would be expected to result in significant quantities of waste. Mitigation opportunities are currently being explored including the reuse of demolition materials wherever possible onsite (e.g. construction of new roads).

As yet no demolition protocol or contractor has been appointed. NOC will commit to a Site Waste Management Plan. It will ensure waste is minimised and monitored against predetermined targets. Until such time it is currently not possible to quantify the amount of waste materials available for reuse/ recycling. There may be scope to reclaim and recycle waste wood, ferrous metals, concrete and non-concrete masonry from demolished buildings.

The retention of many existing buildings (which are not monumentalised or listed buildings) is an attempt to minimise demolition material and waste. Some buildings are to be refurbished and used as additional or existing amenities for the community within the development.

Hazardous waste is likely to occur following remediation of land contamination with hydrocarbons in addition to asbestos from several buildings that are to be demolished.

During operation, the development will generate residential waste and residents will differ in their awareness of the need to minimise waste to landfill. To minimise this, the new development will have to comply with Cherwell District Council's recycling requirements. Each apartment is to have two wheelie bins; homes are to have three wheelie bins and hard-standing areas are also provided for six metal recycling bins.

6 Economic

6.1 Viability

The existing county wildlife site will be enhanced and the wider development will enable the ongoing preservation of the airbase which is regarded as a nationally important site. The development will also increase the availability of 'Affordable Housing' in the local area.

6.2 Competition

The proposal will redevelop a site of industrial and military use to one that is full of vitality and bring the site into greater productive use. Offices and industrial building will offer the greatest support to existing activities. In addition, the development will offer a range of opportunities for the new local businesses in the form of offices, retail, educational and hospitality services. The development will help to provide improvement to other economic infrastructure in the wider Upper Heyford area.

This has shown that the development will reinforce the growth and the emergence of the area as a residential and commercial location. The development will support other major developments planned or under construction within Oxfordshire.

6.3 Employment and Skills

Currently the RAF Upper Heyford Revised Comprehensive Planning Brief 2007 states that currently the site provides approximately 1,000 jobs. Approximately 20% of the existing residents already work at Heyford Park and NOC hope to retain existing businesses at Heyford Park. The proposed development will have a positive impact on the employment and economy of the immediate area and beyond by providing a variety of jobs with multiple skills and abilities

The proposed development would create a significant amount of employment (approximately 370 full time equivalent (FTE) roles) during the construction phase. This includes employment generated through indirect and induced means.

The mix of uses contained within the proposed development will create and sustain additional jobs relative to current employment levels within the area and is likely to lead to an increase in the range of job opportunities offered on the site. Cherwell District Council proposes that 1,300 jobs will be created however NOC propose that 1,450 jobs will be created. Opportunities will include: office, retail, childcare, education, industrial, hospitality and leisure. New positions are expected to be better suited to the nature of the site and possess more long-term security than current posts operating under temporary planning permissions. There will be the opportunity to live and work within the development.

Further information is provided in the Socio-Economic Assessment completed as part of the Environmental Statement for the scheme.

6.4 Transport

The proposed mixed-use development will provide residents of the new neighbourhood with a range of key facilities within easy walking distance, potentially reducing the need to travel for these local amenities. An increase in the frequency of bus services to the site will encourage the use of this public transport mode. In addition, the development of a Transport Plan for the site may be focused on achieving a more wide spread shift away from reliance on car based transport and supporting the up-take of alternative modes of public transport.

7 Further Investigation

The sustainability of the existing masterplan and development proposals were appraised using the Sustainable Project Appraisal Routine (SPeAR[®]) framework developed by Arup. SPeAR[®] allows the sustainability of a plan, project or product to be appraised and illustrated graphically. The assessment allows optimisation of the key elements of sustainability; environmental, social, economic and natural resource use. The SPeAR[®] framework is an accepted format for producing sustainable assessments for local planning applications in the UK.

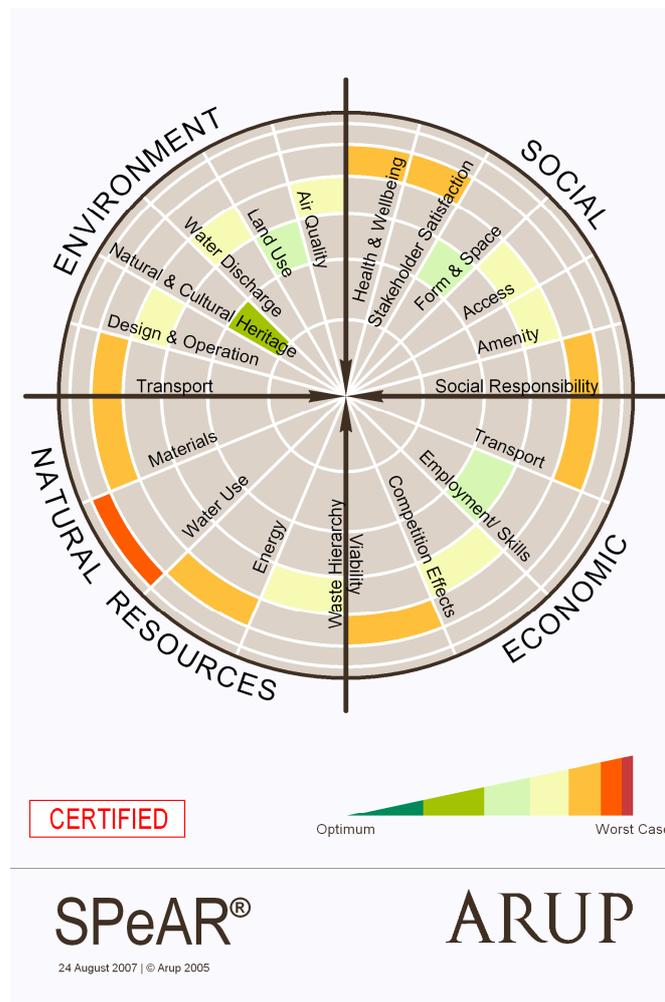
The SPeAR[®] diagram is ‘read’ like a dartboard; the closer an indicator segment is to the centre the better. Red and orange segments suggest weaknesses in terms of sustainable performance while the greens reflect strengths in performance. As a guide, the central white ring is neutral and can be thought of as complying with best practice.

The sustainability of the development proposals was carried out to assess the sustainability of the design, construction and operational phases of the development. It was undertaken using all of the headline indicators for environmental, social, economic and natural resources.

The sustainability appraisal was based on the information available at the planning application stage in September 2007. In preparing the appraisal Arup relied upon the accuracy and completeness of information supplied by NOC.

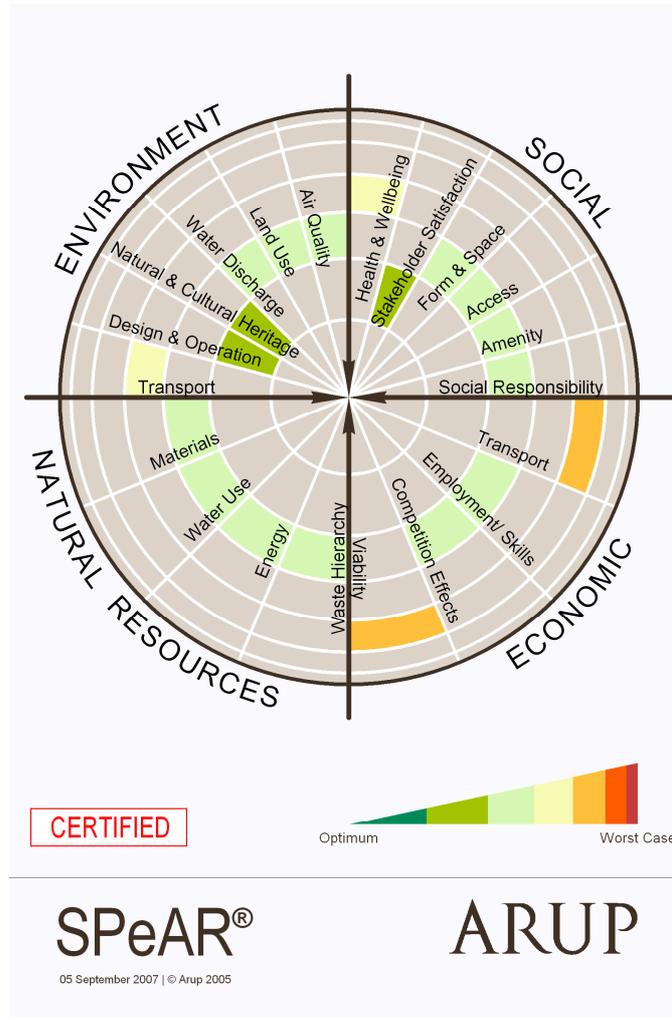
The results of the appraisal showing the performance of the development is shown in Figure 1 below.

Figure 1: SPeAR[®] Diagram of Development Proposals



An aspirational SPeAR[®] assessment was undertaken based on the assumption that all of the opportunities and recommendations identified to improve sustainability performance were implemented. This scenario is unlikely to be realised in its entirety due to time and cost constraints and the likelihood of potential trade-offs between opportunities. The results of the aspirational appraisal are shown in Figure 2 below.

Figure 2: Aspirational SPeAR[®] Diagram of Development



The aspirational diagram illustrates a marked improvement on the overall sustainability of the development and NOC intend to use this as a target to monitor against during the further detailed development of the project.

Recommendations for achieving the aspirational diagram are shown in the SPeAR[®] Appraisal Report, which is to be submitted as part of the planning application. Recommendations being considered by NOC include;

Social

Social Responsibility

A firm integration between the principles of CDC Community Plans and the development will need to be demonstrated, to ensure that the existing community centre is at the core of the development. An example of this is that the current community facilities could be improved significantly and further developed to offer additional social care for the community.

Consultation exercises have been conducted with the community and will need to be continued at all stages of the development. A true partnership will be established when community feedback and community concerns have been fully considered and implemented in the development.

Support for the community and voluntary organisations could be improved by NOC was to creating and securing a formalised 'community fund'. This would guarantee funding allocation to the community within Heyford Park.

Implementation of Ethical Purchasing Guidelines by NOC would show a firm commitment to ensure the quality of life for workers in the global supply chain are raised.

Accessibility and Inclusion

A Green Travel Plan is proposed to be developed as part of the development. Its implementation, with full consideration of the Arup Transport Assessment recommendations, would result in improvements to public transport as additional services would be provided. A recommendation that has been made is for a shuttle service to the local train station in Upper Heyford, which would assist commuters or those required to travel further by train. To further assist accessibility, an opportunity to employ a Travel Plan co-ordinator would support a number of initiatives and developments to improve transport choices.

As the development is to require the appointment of 2 General Practitioners, NOC could support the local healthcare by making adequate contributions to support health care provisions in the local area. In addition, pressures for future secondary placements are likely to be diminished as NOC have intentions to make contributions to the provision to a secondary school in the area. This will help ensure that no additional pressure is placed on the existing services as a result of the development.

Environmental

7.1 Water quality and discharge

The implementation of an effective surface water management strategy has been suggested as this would reinforce natural water cycles of the site. Measures include the use of water butts and some grey/ rain water storage systems provided for every dwelling. This will be further supported by upgrading the drainage systems and sewage treatment works in accordance to meeting the recommendations set out Arup.

NOC are to consider a Risk Management programme. Its implementation would establish challenging water quality targets ensure water pollution is avoided.

7.2 Design and operation

NOC have intentions to use the Arup 'sustainable project appraisal routine model', SPeAR[®]. To assist in informing design, the use of sustainable technologies, construction, operations

and the management process of the development. The implementation of all the recommendation will improve the sustainability of the development and ensure that the 'aspirational' aims for the development can be fulfilled.

Natural ventilation, hybrid systems, and maximisation of natural lighting have been recommended for consideration in the design of buildings to ensure that natural energy is maximised. This will assist in mitigating the likely impacts of climate change and future energy shortages.

Life cycle environmental impact assessments should be considered. These should be implemented and used as a driver for operations. In addition, suggested design alternatives to offer maximum opportunity for future re-use and recyclability of all building components should be considered by NOC.

Base management plans have been developed. The implementations of the recommendations will ensure that all base and conservation issues have been considered and will be managed throughout construction and operation of the development. It should outline long term proposals and define management responsibility.

7.3 Transport

A Green Transport Plan is proposed and should be implemented in accordance with recommendations made by the Arup Transport Assessment. The implementations of the recommendations would, as an example, see the appointment of a Transport Co-ordinator. The role would include the promotion of the use of public transport, car-sharing cycling and walking as well as monitoring the effectiveness of the travel plan in meeting the needs of residents, employers and employees on the site and also encourage the use of public transport for trips to other major centres in the region.

Minimising car-use on site would provide a safe area for pedestrians and cyclists in addition to reducing emissions. Encouraging cycling could be implemented by offering safe, versatile and well designed cycle racks which could be placed outside all building and areas used by the public, with a substantial number being provided in the grounds of the local primary school. Businesses and residential apartments could be allocated sheltered, lockable and well lit bike sheds. Residential homes should benefit from adequate storage in garages and/or easy side access to the back of their homes. By ensuring that security is provided in the form of lockable side gates, this would minimise the risk from crime.

Natural Resources

7.4 Energy

Significant energy improvements have been recognised as an area of great opportunity to improve the sustainability of the development. NOC could consider the use of current best practice technologies to inform building design.

To further improve on the energy efficiency of buildings NOC will explore measures to achieve energy performance above part L of regulations as well as ensuring that all buildings within the development will be designed with specifications to exceed national average SAP ratings. Different massing of buildings including thicker concrete flooring slabs for energy efficiency is to be explored. NOC are also considering the implementation energy efficient appliances recommended by the Arup energy efficient report.

A Sustainability Options report by Arup has been undertaken to inform NOC on a number of sustainability options including alternative energy supply. NOC will prepare a renewable energy strategy and investigate viability of renewable energy as the scheme develops. These include CHP, biomass fuels, PV cells and wind turbines. It is recommended that this

is developed and implemented to source more than 10% of the developments energy from renewables.

In addition, NOC will draft a policy for renewable energy to encourage the take up of available grants and offer renewable energy sources as an optional extra to buildings if not as standard.

7.5 Water

NOC aim to use solar water heating and water efficient appliances, within the development.

Rain water harvesting is to be investigated by Arup as a means of assisting the surface water drainage system. The outcome of the report and implementation of suggested improvements will assist the water use and sustainability of the development. NOC are already considering installing grey water harvesting and water collection systems for gardens and buildings on some buildings to improve the water efficiency of the development. If implemented this would greatly improve the current dependency of the municipal supply.

Water monitoring should be implemented in both construction and operational levels of the development. This will be complemented by agreed and monitored water saving targets. NOC are considering opportunities for achieving water saving targets to reduce water saving targets to reduce water consumption to 20 litres per person per day (offices) and 120 litres of below per person per day (residential).

Measures to be considered by NOC include the use of water butts and rain water storage systems provided for every dwelling. The use of drought resistant or low water planting in the landscaping would assist in the operational water efficiency of the development.

7.6 Materials

Material use is a key factor of the development so measure could be implemented to ensure the reduction of material use and maximise the reuse, recyclability of components and use of local and renewable resources.

NOC will minimise packaging waste, encourage re-use and recyclability and will ensure that good practice materials handling techniques are used in the construction phase. Further recommendation made in the Arup Construction Waste report will need to be implemented.

Local materials within the region will need to be maximised. This will be strengthened by creating a procurement policy requiring a % of items to be purchased from local companies/sources as well as a purchasing policy to require suppliers to demonstrate their approach to sustainability. This will minimise the dependency on foreign and possibly unsustainable materials and reduce emissions produced through transportation of material.

NOC will commit to a high percentage of certified timber (not necessarily FCS) and will require supply chains to provide chain of custody.

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