

6. NATURAL RESOURCES IMPACT ANALYSIS QUESTIONS

Below is a list of questions which form the framework of the NRIA SPD.

Primary Questions	Detailed Questions	Comment
Energy efficiency		
How will the design and layout ensure that energy is used efficiently in the scheme?	Has an energy strategy been prepared?	Yes, an energy strategy has been prepared and is submitted in support of this application.
	How is the development designed to maximise beneficial solar gain? (through orientation, spatial layout and systems design)	It is anticipated that buildings will be orientated to benefit from solar gain where possible. However, it will not be possible for every building as other constraints, such as the SSE site, must be taken into account.
	How will the design of the building make efficient use of energy? (linked buildings, buffer zones, thermal mass etc)	Energy efficiency measures including materials used have been considered within the Proposed Development. For further details, please see the Energy Statement submitted in support of this application.
How will the construction of the buildings ensure efficient use of energy and reduce overall energy use?	What insulation standard will the development be built to?	Energy efficiency measures including materials used have been considered within the Proposed Development. For further details, please see the Energy Statement submitted in support of this application.
	How is the development designed to minimise unwanted air infiltration?	
	What glazing standard will the development be built to?	
How will the mechanical and electrical systems of the buildings ensure efficient use of energy and reduce overall energy use?	What efficiency standard will boilers be specified to?	Full details on mechanical and electrical specification will be provided at the detailed design stage. All homes and commercial spaces will provide real time metering and BEMS for non-domestic, energy guide and workshops to inform occupiers of their functions.
	Will the development be linked to a combined heat and power plant or to a district heating system?	
	How has the development been designed to maximise controlled natural ventilation?	

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	Will any mechanical ventilation to be incorporated be of high efficiency?	
	How has the development been designed to maximise natural daylight?	
	How will the development incorporate high-efficiency lighting?	
	How will the development incorporate high-efficiency appliances (where installed)?	
	How will the heating, lighting and ventilation systems be controlled?	
Renewable energy		
How will the design incorporate the use of energy from renewable sources on-site?	Will the development incorporate the use of biomass as a fuel?	<p>The Energy Strategy prepared for the Proposed Development determined that for the residential dwellings a conventional high efficiency gas condensing boiler and solar photovoltaic (PV) based solution was the preferred approach for a standalone solution, for the following reasons:</p> <ul style="list-style-type: none"> ■ The 20% renewable target can be met based on the use of PV panels alone. ■ A standalone high efficiency gas boiler for space and domestic hot water heating is a familiar, easily operable and easily maintainable solution for prospective homeowners. ■ On the basis of current energy prices and feed in tariff (FIT) payments, a high efficiency gas condensing boiler and PV panel solution will yield the lowest energy bills to the customer. <p>The capital cost of the solution is lower than the Solar Thermal Hot Water (STHW)/PV or STHW/ Air A=Source Heat Pump solutions, particularly as the house builders will be able to buy PV in bulk to further reduce capital costs.</p> <p>For the non-residential aspect of the</p>
	Will the development incorporate the use of heat pumps?	
	Will the development incorporate active solar water-heating systems?	
	Will the development incorporate solar electricity generation?	
	Will the development incorporate wind-energy electricity generation?	
	Will the development incorporate a micro-hydro scheme?	

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		<p>proposed development, it is proposed that the commercial areas in Phase 1 of the development may be served by a central CHP led heating system with high efficiency natural gas fired boilers for backup operated under a private landlord system. Based on the proposed development mix in this area, it is expected that an appropriately sized CHP system with sufficient thermal storage could provide up to around 50% of the annual space and domestic hot water heating load from CHP. Paragraph 43 of Oxford's NRIA SPD confirms that CHP is an allowable technology for meeting the 20% renewables requirement; and on that basis such a solution would allow Oxford's 20% regulated renewable energy requirement to be easily met. The system may also be extended to serve the apartment buildings at the south west corner of the site. Rather than being operated via an ESCO, it is envisaged that the system would be owned, operated and maintained by the management organisation for the site.</p> <p>It is proposed that the primary school (located at the north-east side of the development and so too far from the Phase 1 commercial areas to be served by the central CHP led heating system in that area) may be heated by a standalone biomass boiler with high efficiency natural gas boilers for backup. As a qualifying renewable energy technology, the biomass boilers would allow the 20% regulated renewable energy requirement to be readily met.</p>
Choice of materials and embodied energy		
How will the materials specified minimise embodied energy, energy in use and environmental impact?	How will the materials be specified to ensure a low level of embodied energy?	Materials will be specified to achieve the Fabric Energy Efficiency Standards (FEES) under Building Regulations part L1A.
	How will the materials be specified to prioritise those with minimal environmental impact?	The Proposed Development will utilise a mix of materials from renewable and non-renewable sources. All natural materials fully certified - e.g. FSC/PEFC.
	Will the materials be sourced locally?	Local materials will be preferred where available and suitable for proposed use.
	How will the materials	Materials and systems will be specified at

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	and systems be specified to ensure a good quality internal environment?	the detailed design stage.
	How will the timber be specified to ensure it is from the most sustainable sources?	All timber will be FSC certified.
	Will contractors and suppliers be chosen with regard to their environmental management record?	The environmental management record of individual contractors and plots developers will form part of the selection criteria.
Recycled materials		
How will the buildings be re-used and/or demolition waste be responsibly dealt with?	How will the development make efficient use of all material resources on site (for example existing buildings, services, infrastructure and topsoil)?	No demolition required on site, materials such as soil we be reused on site where possible. However, please note that a new pavilion will be provided on site and the existing pavilion will be relocated off site.
	Has a strategy for the minimisation and handling of waste been prepared?	Yes, a Waste Management Strategy has been prepared in support of this outline planning application.
	How will waste be minimised and the materials and construction methods used in the development make best use of recycling?	A Waste Management Strategy has been prepared that outlines measures to ensure that the system of waste minimisation, reuse and recycling is effective.
	How will the development make maximum use of recycled materials?	Recycled materials will be used where possible. How they are used can only be identified at the detailed design stage.
	How will the development make maximum use of construction and demolition waste arisings?	
	How is the development designed to incorporate materials / elements that will be simple to	

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	reuse/recycle at the end of the building's life?	
How will domestic/commercial waste generated in the development be dealt with?	How will provision be made for the storage/collection of waste generated in the development?	Storage will be provided in accordance with Code for Sustainable Homes requirements.
	How will the development provide opportunities and facilities for home/community composting?	Residential units with gardens shall have an area reserved for the potential location of a home composting container. The allotment may also provide an opportunity for either individual or community composting.
Water resources		
How will water resources be conserved and recycled?	How will the development incorporate the use of water-saving devices?	The Proposed Development will include water efficient devices to ensure that the water efficiency requirement of Code for Sustainable Homes Level 4 (105 litres per person per day) will be met. Opportunities to implement water conservation measures across the development to conserve water resources will be assessed at the detailed design stage and may include measures such as water metering, low flush toilets and the provision of rain water harvesting in the form of water butts.
	How will the landscaping be designed to minimise water consumption?	Native planting will be used to minimise water consumption.
	How will the development incorporate the harvesting and re-use of rainwater?	The potential for harvesting and reuse of rain water will be identified at the detailed design stage.
	How will the development incorporate the collection, treatment and recycling of grey water?	The potential for harvesting and reuse of rain water will be identified at the detailed design stage.