CONTENTS

14.1 INTRODUCTION

14.1.1 This Chapter of the ES has been prepared by Wardell Armstrong LLP and comprises a waste and utilities assessment of the Proposed Development at the Site known as Land at Wykham Park Farm.

14.1.2 The Site is centred on National Grid Reference SP 44869 38722.

14.1.3 This chapter should be read in conjunction with Section 2 of this ES which gives details of the Site location and development works to be undertaken at the Site.

14.1.4 The application is for outline planning permission for a proposed mixed use development comprising up to 1000 dwellings, a local centre, primary school, infrastructure and public open space.

14.2 ASSESSMENT METHODOLOGY

Scope

14.2.1 This section of the ES considers the potential impacts of the waste likely to arise during construction and from the completed development. This section of the ES also considers the provision of public utility services for the development, as this has the potential to cause adverse environmental effects.

14.2.2 The scope of work for the assessment of waste associated with the Proposed Development includes:

- Establishing the baseline situation: existing waste sources, location of facilities and capacities to handle construction and household waste;
- The types and volumes of waste to be generated during construction phase and once the development is complete;
- How waste will be utilised within the Proposed Development;
- Consideration of mitigation measures and waste reduction measures to be employed to reduce the volume of waste requiring final disposal including the potential to recycle;
- The final destination of the residual waste and potential effects on the capacity of existing waste management facilities.
- Cumulative impacts of other Proposed Developments in the area.

14.2.3 The scope of work for the provision of public utility services for the development includes:

- Establishing the baseline situation: location of facilities and existing infrastructure;
- Consideration of potential environmental effects associated with the provision of utilities to serve the proposed new development.

Data sources

14.2.4 In preparation of this ES chapter and researching baseline information, reference has been made to the following information sources:

- Waste Management Plan for England 2013;
- Revised Waste Framework Directive 2008;

- Waste (England and Wales) (Amendment) Regulations 2012;
- Waste Data Flow[1];
- Government Review of Waste Policy in England, June 2011;
- SMARTWaste Data Report July 2013 – Waste Performance indicators by construction phase[2];
- Planning Policy Statement 10 'Planning for Sustainable Waste Management' (revised March 2011);
- Oxfordshire Minerals and waste Plan (1996);
- Oxfordshire Emerging Minerals and Waste core strategy;
- Oxfordshire Waste Partnership Joint Municipal Waste Management Strategy (MWMS), January 2013;
- Cherwell District Local Plan (1996);
- Non-Statutory Cherwell District Local Plan (2004);
- Draft District Cherwell Local Plan (2014);
- Oxfordshire Minerals and waste annual monitoring report 2013 (Feb 2014);
- Oxfordshire Minerals and Waste Development Framework – Waste Assessment Needs (May 2012);
- Environment Agency – Data from Permitted Waste Management Facilities 2011;
- Site Waste Management Plan Regulations 2008;
- BS 5906: 2005 Waste Management in Buildings, Code of Practice;
- Commercial and Industrial Waste in England – Statement of Aims and Actions 2009.
- Groundsure Wykham Park Farm Utilities Report – SP14488 (2014) (Appendix 14.1)

[1] http://www.wastedataflow.org/

[2] http://wwwsmartwaste.co.uk/page.jsp?id=37

Assessment approach

Waste

14.2.5 The assessment of waste arising during the site clearance and construction works is based on available data for construction wastes, and considers the following:

- Generation of materials during site clearance activities which require disposal;
- Creation of waste materials during construction activities which may require off-site disposal. Some of the waste streams likely to be generated during the construction phase include concrete rubble, wood, glass, metals, waste packaging (including cardboard and pallets) and residual general site waste;
- Decrease in local landfill capacity if construction materials are not segregated for reuse or recycling; and
- Increase in the use of virgin aggregate materials if no recycled or reclaimed materials are used in the construction process.

14.2.6 The approach taken to inform the assessment of construction phase effects has involved the identification and use of suitable benchmark data for the prediction of waste arisings during the construction activities. Opportunities for waste minimisation re-use and recycling has been identified based on best practice construction site management.

14.2.7 There are no existing buildings which require demolition. Construction works will largely comprise the site preparation and construction works, during which the majority of the waste produced will be generated.

14.2.8 Demolition and construction waste is defined by the Office for the Deputy Prime Minister (ODPM) in the Survey of Arisings and Use of Demolition and Construction Waste as "*waste materials, which arise from the construction or demolition of buildings and/or civil engineering infrastructure, including hard construction and demolition waste and excavation waste, whether segregated or mixed*".

Construction Waste

14.2.9 There is no standard methodology for estimating construction waste arisings; however a suitable approach has been developed for use in this assessment using various published data. Estimates have been made of likely construction waste volumes and the likely proportions of constituent materials as identified below.

Consideration should be given to the fact that different contractors use varying construction methods and materials which will generate varying amounts of waste.

Volume of Construction Waste

14.2.10 For the purpose of this assessment data from the Building Research Establishment's (BRE) SMART Waste system was used.

14.2.11 The estimated construction waste arisings from the Proposed Development have been calculated by (separately) multiplying the total floor area of the proposed land uses of the Proposed Development by the relevant benchmark (i.e. residential).

Operational Waste

14.2.12 The assessment of waste effects during the operation phase has been undertaken through predictions of waste arising from the Proposed Development based on latest waste arising data.

Utilities

14.2.13 The utilities report is a compilation of Utility Company record plans. These are obtained via application to the Utility Companies following the geographic search to determine which companies are in a given area. This data is reviewed and assessed to determine baseline conditions regarding existing services within the study area.

14.2.14 In order to establish the baseline conditions regarding existing services, details of local utilities have been obtained from GroundSure and are described within this section. The presence of existing services across the Site are shown within Appendix 14.1

Significance criteria

14.2.15 No standard criteria exist for assessing the significance of the potential effects that may arise from waste generated from the Proposed Development. Therefore, criteria have been derived for this assessment based on the guidelines in PPS 10 and local planning policy relating to waste management.

14.2.16 The assessment criteria are based on several factors, including:

- The "treatability" of the waste; whether the waste can be easily treated with minimal residual waste, such as recycled waste, or whether the waste requires a specialised treatment with potentially toxic residual waste;
- Management of waste in the context of the waste hierarchy - whether generation of the waste can be minimised, the waste can be recycled, landfilled etc.; and
- Potential environmental effects or human health risks associated with the waste e.g. hazardous waste.

14.2.17 The significance of effects associated with solid waste management from the Proposed Development has been assessed according to the following criteria:

Table 14.1: Significance Criteria

Magnitude	Criteria
Major adverse	Large increase in the quantity of waste generated compared to existing levels, the quantity of waste generated does not assist in the achievement of local and regional recycling and composting targets and significantly increases annual waste generation figures for Cherwell, waste is hazardous and requires incineration or landfilling resulting in permanent environmental effects, waste cannot be disposed of within Cherwell or adjacent counties
Moderate adverse	Moderate increase in the quantity of waste generated compared to existing levels, quantity of waste generated does not prevent achievement of local and regional recycling and composting targets, waste is hazardous but can be recovered with pre-treatment resulting in temporary environmental effects, waste can be disposed of within Cherwell or adjacent counties
Minor adverse	Small increase in the quantity of waste generated, waste is non-hazardous or inert and can be recycled or composted within Cherwell
Negligible	No significant change in the quantity of waste generated
Minor benefit	Small decrease in the quantity of waste generated,

	waste is non-hazardous or inert and can be recycled or composted within Cherwell
Moderate benefit	Moderate decrease in the quantity of waste generated compared to existing levels, the decrease in the quantity of waste contributes to the achievement of local and regional recycling and composting targets and waste can be disposed of within Cherwell
Major benefit	Large decrease in the quantity of waste generated compared to existing levels, significant decrease in annual waste generation figures for Cherwell and reduction in the need for incineration or landfilling which reduces permanent environmental effects, and the waste can be disposed of within Cherwell

Uncertainties and limitations

14.2.18 The assessment of waste is based on available information published by various bodies. The waste arisings and waste capacities stated within the referenced documents are partially based on estimations, therefore the findings within this chapter are also partially based on estimations

14.2.19 The Utilities Report is intended to be for project planning and feasibility only. It is not suitable to be used for construction or excavation purposes. The existence of utilities on the plans does not imply that they are suitable size, capacity, type or location for the project purpose.

14.2.20 Each Utility Company has its own disclaimer statement in respect of the information they provide. They do not guarantee or provide a warranty for the data. The Utility Company disclaimers should be referred to when considering the accuracy and completeness of the data. Generally the plans provided in the report are for guidance only and are not guaranteed to be up to date or to be a complete record of the Utility Company plant in any given area.

14.2.21 Some Utility Companies only show main utilities. Therefore service pipes or cables may not be shown on the plans but they may be present on the Site. The utilities may deviate from the route and position shown on plans.

14.2.22 Whilst every effort is made to locate all Utility Companies in a given area, due to the sensitive or restrictive nature of certain sites, the existence of redundant utilities, the

emergence of new companies and the combining of, takeover or sale of existing Companies, details on all utilities cannot be guaranteed.

14.2.23 Due to the Utility Companies plans being regularly changed and updated, the Utility Report is only valid at the time of production.

14.2.24 For reasons discussed in this section Wardell Armstrong cannot accept any liability for or offer any guarantees for the Utilities Report or its content. No representation is made by Wardell Armstrong as to the accuracy, completeness, and sufficiency or otherwise of this report.

14.3 RELEVANT POLICY

National Planning Policy Guidance

National Planning Policy Framework (March 2012)

14.3.1 The NPPF was published in March 2012 and does not contain any specific waste policies. Planning Policy Statement 10 'Planning for Sustainable Waste Management' (revised March 2011) will remain in place until a National Waste Management Plan is published.

Government Review of Waste Policy in England (2011)

14.3.2 A national waste policy review was undertaken by the Coalition Government in late 2010/early 2011. European legislation will continue to be a driving force in English waste policy, and the Government will implement the revised Waste Framework Directive (rWFD)3 . The Government's aim is to work towards a 'zero waste economy'.

Planning Policy Statement 10 'Planning for Sustainable Waste Management' (revised March 2011)

14.3.3 Planning Policy Statement 10 (PPS10) (Revised March 2011) encourages sustainable waste management. Key objectives include encouraging waste to be disposed of as a last resort and managed and disposed of as near as possible to its place of origin, and to ensure that through planning strategies the design and layout of new developments support sustainable waste management.

14.3.4 Furthermore, PPS 10 states that proposed new development should include preparation of a site waste management plan, with reference to guidance produced by the Department of Trade and Industry (DTI).

The 'Waste Management Plan for England' (published in December 2013)

14.3.5 Extract "The key aim of the waste management plan for England is to set out our work towards a zero waste economy as part of the transition to a sustainable economy. In particular, this means using the "waste hierarchy" (waste prevention, re-use, recycling, recovery and finally disposal as a last option) as a guide to sustainable waste management."

[3] Defra – June 2011 – Government Review of Waste Policy in England 2011

14.3.6 This document indicates that the rate of recycling for waste from households is increasing towards the EU target of recycling 50% of household waste by 2020. The 70% target for recovering construction and demolition waste is already exceeded. It is estimated that England and the UK are already achieving a 93% recovery rate of construction and demolition waste. The commercial and industrial waste recycling rate reached in 2010 was 52%. This document provides the latest data on national waste arising's by sector and latest recycling rates and rates of waste to landfill.

Construction Waste Targets

14.3.7 Under the revised Waste Framework Directive (November 2008) 70% of all construction and demolition waste must be recycled or recovered by 2023.[4]

14.3.8 The 70% target for recovering construction and demolition waste is already exceeded.

Commercial and Industrial Waste in England – Statement of Aims and Actions 2009

14.3.9 Defra's aims for commercial and industrial waste are as follows:

- To reduce the amount of waste arising by more sustainable design, production, purchasing and use as well as reuse of products and materials in the economy;
- To increase the proportion of waste that does arise which is productively re-used, recycled or recovered;
- To reduce significantly the amount of waste that is sent to landfill or incinerated without recovering energy;
- Manage any remaining residual waste responsibly; and
- Maximise the investment opportunities for business from commercial and industrial waste.

Local Planning Policy Guidance

Oxfordshire Minerals and Waste Plan (OMWP) 1996

14.3.10 The OMWP covers the periods up to 2006 and will be replaced by the new Minerals and Waste Plan that is currently in development. The OMWP presents a core strategy and related policies which will enable waste and recycling targets to be met.

[4] DEFRA: Waste Data Overview, June 2011

Oxfordshire Emerging Minerals and Waste Core Strategy

14.3.11 The plan outlines the need to make provision for waste management facilities to meet the needs of Oxfordshire over the next 20 years. The plan states that waste is increasingly being diverted from landfill by recycling and treatment.

Oxfordshire Waste Partnership Joint Municipal Waste Management Strategy (MWMS), January 2013

14.3.12 The MWMS for Oxfordshire 2013 sets out plans for dealing with Oxfordshire's Municipal waste through to 2030. Oxfordshire has already met and exceeded its target of recycling and composting 55% of waste by 2020 and seeks to continually increase that figure.

14.3.13 The MWMS states *"We will work in partnership to reduce waste and to maximise resuse, recycling and composting. We will treat residual waste before disposal to recover further value and to minimise the environmental impact of managing our waste streams".*

Cherwell District Local Plan (1996)

14.3.14 The Cherwell District Local Plan states that *'whilst the County Council is the waste disposal authority, this council has some responsibilities with reference to recycling. A Recycling Plan has been prepared which sets out the authority's targets, including the promotion and expansion of community based recycling centres'*.

The Non-Statutory Cherwell District Local Plan (2004)

14.3.15 The plan seeks to encourage recycling by providing adequate space in new developments for multiple bin storage. Policy D9 states *'In assessing development proposals the council will seek to ensure that energy efficiency design principals are incorporated by means of:…. (vi) Providing adequate accommodation for waste separation and recycling facilities'*

Draft Cherwell Local Plan (2014)

14.3.16 The draft local plan states that although waste management and disposal is the responsibility of Oxfordshire County Council, the district council will continue to consider the emerging Minerals and waste development framework in the

preparation of the local plan. The plan highlights minimising waste and maximising recycling as one of its key challenges to ensure sustainable development.

14.4 BASELINE CONDITIONS

Waste arisings

Construction and Demolition Waste Arisings

14.4.1 Under the revised Waste Framework Directive (November 2008) 70% of all construction and demolition waste must be recycled or recovered by 2023[5].

14.4.2 The Waste Management Plan for England, published in December 2013 indicates that the rate of recovery is at a 93%.

14.4.3 It is recognised that the majority of development in Cherwell is upon greenfield land which will not generate recycled material to be used as aggregate. However greenfield sites may produce surplus soils which require off-site disposal and these can be used as restorative materials at landfills and quarries.

14.4.4 Construction and Demolition waste accounted for 54% of the total waste managed during 2012 in Oxfordshire.

14.4.5 The Oxfordshire Minerals and Waste Annual Monitoring Report 2013 (OMWAMR) states that in 2012, 1,360,000 tonnes of construction, demolition and excavation waste was managed in Oxfordshire. The 1,360,000 tonnes was managed as follows:

Landfill	22%
Recycled	54%
Recovered	24%

Municipal and Household Waste Arisings

14.4.6 The OMWAMR states that an estimated 2.5 million tonnes of waste was managed in Oxfordshire in 2012, of which 12% was municipal waste. Figures for the financial year 2012/2013 show that 299,580 tonnes of municipal waste was managed in Oxfordshire. Of the 299,580 tonnes of municipal waste 279,207 tonnes was household waste.

14.4.7 The 299,580 tonnes of municipal waste was managed as follows:

[5] DEFRA: Waste Data Overview, June 2011

Landfill	42%
Energy from waste	5%
Resue/Recycled	33%
Composted	20%

14.4.8 In 2012/2013 58% of municipal waste was diverted from Landfill in Oxfordshire. In 2012/2013 60% of household was diverted from landfill in Oxfordshire These figures exceed both the Oxfordshire's 2020 target of 55% and the national target of 45% by 2015.

14.4.9 The population of Oxfordshire is estimated at 653,800 with 258,900 households. This equates to average household waste produced per person and per household per year in Oxfordshire as follows:

Average household waste generated in kg/person/year = 427kg (2012/2013) (of which 256kg was diverted from landfill)
Average household waste generated in kg/household/year = 1,078kg (2012/2013) (of which 647kg was diverted from landfill)

14.4.10 In 2012/2013 the following National Waste Performance Indicator figures relate to Oxfordshire:

NI 191 = 410kg of residual household waste per household
NI 192 = 60% of household waste sent for reuse, recycling or compositing
NI 193 = 42% of municipal waste sent to landfill

Commercial and Industrial Waste (C&I) Arisings

14.4.11 The survey of C&I waste arising's in 2010 (published by DEFRA in June 2011) indicates that approximately 47 million tonnes of C&I waste was produced in England during 2009, a reduction of 29% since the last survey conducted in 2002/2003. 52% of C&I waste was recycled and 24% landfilled in 2009.

14.4.12 The OMWAMR has made estimates based on information from the Environment Agency that total amount of C&I waste arising's in 2012 were 844,665. 30% of this was sent to landfill, 69% recycled or composted and 1% sent for other treatment.

Hazardous Waste Arisings

14.4.13 Hazardous wastes include substances such as pesticides, asbestos, mobile phone batteries, used engine oils,redundant refrigerators and scrap cars (End of Life Vehicles) and some waste electrical equipment.

14.4.14 According to the OMWAMR, the total amount of hazardous waste arising in Oxfordshire in 2012 was approximately 52,000 tonnes. The OMWAMR states that just over 10,500 tonnes of Oxfordshire's Hazardous waste was dealt with within Oxfordshire and a further 20,500 tonnes of hazardous waste was imported into Oxfordshire to be managed.

Current Waste Disposal Arrangements

14.4.15 According to Cherwell District council website, household waste is collected as follows on alternate weeks:

- Blue recycling bin/box (dry recyclables including paper, plastic, tins & cardboard)
- Brown bin – Food and garden waste (Including cooked and uncooked food waste, garden prunings, pet straw, grass cuttings and leaves)
- Green bin – Residual waste (Including disposable nappies, plastic bags, polystyrene)

Waste Management Facilities

14.4.16 The use of the completed development will generate 'controlled waste' which will need disposal off-site.

14.4.17 Oxfordshire has 7 non-hazardous landfill sites. One of the non-hazardous landfill sites Alkerton, which is in the vicinity of Banbury, isn't currently accepting non-hazardous waste as it has come to the end of its consent. The void at Alkerton is 0.85 million cubic metres. It's hoped to re-open, however for the purposes of this report it will not be considered as available landfill. It is recognised that waste management is continually changing and focussing on implementing the model of the waste hierarchy, where disposal at landfill should be viewed as a last resort.

14.4.18 There are also two inert waste recycling facilities, one Household waste recycling centre and one commercial and industrial waste recycling centre in the area surrounding Wykham Park Farm. The recycling centre strategy includes provision of

a new Anerobic Digestion facility to serve Banbury and the surrounding part of the county, which received planning permission in December 2013.

14.4.19 The total waste management capacity in Oxfordshire at May 2012 up to 2028 was:

- 17.2 million tonnes /14.6 million cubic metres of landfill;
- 2.3 million tonnes per annum of recycling and compost;
- 0.4 million tonnes per annum of recovery treatment.

Main Utilities

Electricity

14.4.20 Western Power Distribution (WPD) records show a significant amount of 11kV overhead and underground cables, pole mounted transformers and low voltage (400V) overhead and underground cables within and around the site boundary.

14.4.21 The majority of the 11kV high voltage cable is identified traversing the northern section of Site (west to east) and along the western boundary (north to south). There is also a trunk which connects to Wykham Farm's low voltage supply at the eastern section of the Site.

14.4.22 This infrastructure within the Site may need to be diverted to allow development.

14.4.23 The Site is situated at the boundary of the East Midlands and West Midlands regions, both regions are managed by WPD. Where grid supply points are located near a regional border, they may supply electricity on both sides of the boundary, therefore reducing the actual capacity at this location. Subsequently, it is believed the infrastructure within the area may not be capable of providing the capacity required to source a 1000 unit domestic development. Upstream re-enforcement is likely to be required and will need to be confirmed with WPD at the detailed design stage.

14.4.24 It is anticipated that the off-site work required to reinforce the electricity supply network will have no significant environmental impact.

Gas

14.4.25 Scotia Gas Networks (SGN) records do not show any infrastructure within the Site boundary. There are low and medium pressure mains in the surrounding area. There

are medium pressure mains identified adjacent to the western Site boundary.

14.4.26 The size of the medium and low pressure mains in the surrounding area would suggest that there is sufficient capacity to supply the proposed 1000 unit domestic development. This will need to be confirmed with SGN at the detailed design stage.

14.4.27 It is anticipated that the off-site work required to reinforce the gas supply network will have no significant environmental impact.

Thames Water

14.4.28 Thames Water records show an 8" distribution main, which is likely a domestic connection, running along a section of the western boundary (near Crouch Cottages).

14.4.29 A 610mm diameter trunk main is identified along a section of the northern boundary, running west to east (south west of Lansdown Close).

14.4.30 A surface water sewer main is identified running along the western boundary in a north to south direction. There is also another surface water sewer main running along the north-eastern corner of Site in a west to east direction.

Potable Water

14.4.31 Thames Water records show two trunk mains which run through the Site. A trunk main is detailed as a main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also identified as a main transferring water in bulk to smaller water mains used for supplying individual customers.

14.4.32 The two trunk mains identified on Site are as detailed below:

- A 700mm diameter cast main which may have an easement of 3m either side of the main, running through the eastern section of Site (north to south).
- A 600mm diameter main which may have an easement of 3m either side of the main, running through the eastern section of Site (north to south) and along a section of the southern boundary (near Wykham Farm Cottage).

14.4.33 There are several other mains of a variety of diameters which surround the Site.

14.4.34 The existing 600mm diameter water main is located within an area proposed for SuDs and within an area proposed for built development. The depth of the proposed drainage basin is up to 900mm in this area and the existing water pipe should be located at a minimum depth of 1100mm. If this infrastructure was required to be diverted this may be expensive due to the size and importance of these mains. There could also be a restriction on when the infrastructure can be diverted if possible at all.

14.4.35 It is anticipated that the off-site work required to reinforce the water supply network will have no significant environmental impact.

Other Utilities

Telecoms

14.4.36 BSkyB, Cable and Wireless, CityFibre, Colt, Fibrespan Ltd, Global Crossing (UK) Ltd, Global Crossing PEC Fibernet, GTC, Interoute, KCOM Group, KPN, Level 3 Communications, TATA, Telent, Trafficmaster, Verizon, Vodafone: Fixed, and Vtesse do not have any infrastructure in the area.

Virgin Media

14.4.37 Virgin Media (VM) records show none of their infrastructure within the Site boundary however there is plant and apparatus within the surrounding area.

14.4.38 Virgin Media should have the capacity to provide telecoms for the proposed 1000 unit domestic development. It is not known at this stage how precisely VM would serve the development. This information will need to be confirmed with VM at the detailed design stage as necessary.

14.4.39 It is anticipated that the off-site work required to expand the VM supply network will have no significant environmental impact.

BT

14.4.40 BT records show none of their infrastructure within the Site boundary however there is significant plant and apparatus within the surrounding area.

14.4.41 BT should have the capacity to provide telecoms for the proposed 1000 unit domestic development. It is not known at this stage how precisely BT would serve the development. This information will need to be confirmed with BT at the detailed design stage as necessary.

14.4.42 It is anticipated that the off-site work required to expand the BT supply network will have no significant environmental impact.

Utilities Summary

14.4.43 Investigations with public utility service providers have determined that it is anticipated that suitable levels of provision to the proposed Wykham Park Farm Site can be achieved for all key services apart from potable water supply (refer to Chapter 12).

14.4.44 However it is anticipated that Thames Water have strategically planned for future growth of Banbury and as such will have improved the local water supply and storage infrastructure in addition to using alternative water sources, such as catchment transfer, to ensure that the future supply/demand balance for potable water is sustainably met.

14.4.45 Assessment should be undertaken to determine the most suitable arrangement to achieve connection to the Site. It has been identified that there is electrical and water infrastructure within the Site which may need to be diverted to allow development. Upstream-expansion is likely to be required for the electrical infrastructure and should be confirmed with WPD at the detailed design stage. In most instances connections to services require only short extensions to the existing network.

14.4.46 It is anticipated that the off-site work required to reinforce the key public utility service networks will have no significant residual environmental impacts.

The projected future baseline

14.4.47 Without the Proposed Development, the Site is expected to remain in intensive use for the production of arable crops and produce little to no waste. The same minimal amount of current utilities is likely to be identified if the Proposed Development does not occur.

14.5 POTENTIAL EFFECTS

Construction stage

Waste

14.5.1 During the construction phase, the potential impacts likely to arise are:

- Construction excavation waste;
- New build construction waste.

Construction – excavation waste

14.5.2 The greenfield Site will not generate recycled material to be used as aggregate, although construction operations associated with the Proposed Development have the potential to affect the aggregate market by temporarily increasing local demand for aggregate materials.

14.5.3 Excavated materials will arise during the Site preparation works associated with the Proposed Development. This will include basement excavation materials and foundation excavation materials. The amount of material cannot be identified at this stage.

14.5.4 The developer will seek to reuse any surplus of soil material generated thus minimising the amount which will require transportation off-site. It is anticipated that soils will be reused on Site wherever possible for new gardens and areas of open space.

New build construction

14.5.5 Construction operations will generate waste materials as a result of general handling losses and surpluses. These materials are likely to be disposed of off-site as wastes and therefore have the potential to affect waste management capacity. The materials are likely to include:

- Concrete;
- asphalt;
- brick;
- glass;
- timber.

14.5.6 There will also be packaging materials such as plastics and paper. Any unused paints, timber treatments etc. may also require off-site disposal as hazardous materials.

14.5.7 Building Research Establishment (BRE) has produced benchmark data that provides an indication of the average quantity of construction waste that is produced for new builds for each project type (i.e. residential, commercial) in each region of England. Table 14.2 summarises the floorspace of each land use type of the Proposed Development and the estimated waste generated during construction.

14.5.8 For the purposes of estimating the likely construction waste arisings, a total floorspace of 110,000m^2 has been assumed for the residential floorspace (1000 units). This figure is based on an estimate that the average GEA for the average dwelling is 110m^2.

Table 14.2 Predicted Construction Waste by Class Use

Land Use/Class Use	Estimated maximum area of floorspace proposed within the development (m^2)	Benchmark waste value (data up to July 2013)	Predicted Waste Generation (m^3)
Residential	**110,000**	**22.9m^3/100m^2**	**25,190 m^3**
Education	**22,200**	**16.2m^3/100m^2**	**3,596 m^3**
Public Buildings	**5900**	**36.2m^3/100m^2**	**2,136 m^3**
		Total	**30,922m^3**

14.5.9 As Table 14.2 indicates, up to approximately 30,922m^3 construction waste is anticipated to be generated as a result of the Proposed Development. It is likely that a significant proportion of this could be recycled or re-used. If based on current Oxfordshire recycling rates for demolition and construction waste that 78% was recycled/recovered and 22% landfilled, the development would therefore generate up to 6,803m^3 of waste to landfill and this would equate to <1% of the remaining annual landfill capacity, resulting in a negligible adverse impact.

14.5.10 From review of the Oxfordshire Minerals and Waste Development Framework Annual Monitoring Report it is considered that there is sufficient waste management

recovery/recycling capacity to deal with the estimated generated construction materials of 24,119 m^3 which could be recycled or reused.

Utilities

14.5.11 There is potential for construction works to give rise to environmental impacts if appropriate mitigation measures are not employed during the installation works to provide new utility service; e.g. fuel spillages and increased noise emissions from plant and machinery. As such works will be undertaken in accordance with latest pollution prevention guidance and Construction Management Plans the potential for adverse environmental impacts will be negligible.

Post-completion stage

14.5.12 The users of the completed development will produce wastes which will require disposal and which by virtue of the volumes which will arise are likely to give rise in the long term to a more significant impact upon the waste management capacity within Oxfordshire.

Household Waste

14.5.13 The Site will generate household and commercial wastes which will require disposal and in an appropriate way in accordance with the Waste Management Hierarchy.

14.5.14 The waste arising from the Site, when completed, will comprise predominantly domestic waste. Waste materials arising from the Proposed Development will have an impact on waste management facilities and any residual waste upon the landfill capacity. A significant proportion of the waste materials generated from the proposed residential and commercial premises will be classified as household and municipal wastes.

14.5.15 The Proposed Development will include up to 1000 new dwellings.

14.5.16 The average household waste generated in kg/household/year in Oxfordshire is 1,078kg. This equates to up to approximately 1,078,000kg or 1,078 tonnes of household waste being generated annually by the Proposed Development. The development would therefore give rise to an increase of less than 0.5% of household waste in Oxfordshire per year.

14.5.17 If the 60% landfill diversion rate is maintained, then 431 of the 1078 tonnes of household waste generated each year by the development will require landfilling. There is approximately 17.2 million tonnes of available landfill capacity and therefore this equates to a <0.1% impact on the available landfill capacity.

Commercial waste

14.5.18 The Proposed Development will generate commercial wastes from the use of the Local Centre and Primary School which will require disposal and in an appropriate way in accordance with the Waste Management Hierarchy.

14.5.19 As part of the requirements under The Waste (England and Wales) (Amendment) Regulations 2012, businesses will have to confirm that they have applied the waste hierarchy when transferring waste. The regulations also require the separate collection of waste paper, metal, plastic and glass from 1st January 2015. With the continuous drive to encourage businesses to recycle and with the implementation of the Waste (England and Wales) Regulations 2011, businesses' recycling rates will improve and the proportion of commercial waste sent to landfill should reduce.

14.6 MITIGATION MEASURES

Construction stage

Waste

14.6.1 The volume of waste generated during the construction works will be minimised through adherence by the Site contractor to the Code of Practice on Site Waste Management Plans (SWMP). The Code of Practice endorses the waste hierarchy, promotes legal compliance and provides guidance on best practice, monitoring and reporting.

14.6.2 The Construction Environmental Management Plan (CEMP) provides a mechanism for the implementation of recommended mitigation measures at the Site from the start of the Site clearance and enabling works, through to the completion of construction. The finalised CEMP (which should be prepared in discussion with the appointed contractor) will be agreed with OCC and other authorities as appropriate prior to commencement of works at the Site. The Site contractor(s) will be required to comply with the requirements of the CEMP and the SWMP.

14.6.3 The likely measures that will be included within the SWMP to reduce the impact of waste arisings during the construction works will include the following:

- Efficient planning of material deliveries to the Site by contractors and sub-contractors to avoid damage to the materials and the unnecessary generation of waste;
- Effective co-ordination between contractors and suppliers to avoid the excessive purchase of raw materials and to prevent the risk of materials being lost, stolen or damaged; and
- Effective handling and storage of delivered materials to prevent loss or damage through exposure to the weather, mud and on-site vehicles.

14.6.4 Where possible, the general site waste will be re-used/recycled. The generation, storage and disposal/recycling of this waste will be controlled and monitored through the SWMP and implemented via the CEMP.

Utilities

14.6.5 Further enquiries and investigations should be undertaken to satisfy the developer as to the adequacy of the plans and position of the utilities. The exact position of the

utilities should be verified by the use of suitable detecting devices and safe digging practices in accordance with HS(G)47.

14.5.20 The installation works to provide new utility service will be subject to appropriate construction management plans and pollution prevention guidance to minimise any environmental impacts during the temporary construction phase.

Post-completion stage

Waste

14.6.6 Detailed design of the Site will take into account relevant guidance when considering waste management.

14.6.7 As the planning application is for outline planning permission, detailed layouts are not available for the individual development areas but this chapter of the ES considers the likely generation of waste through the construction phase and the proposed land uses of the development.

14.6.8 An extract of the BS5906: 2005 Waste Management in Buildings Code of Practice states that:

> *"The developer or his agent should reach agreement with all appropriate authorities, particularly upon the following points:*
>
> *a) The methods of storage, segregation, on-site treatment and collection of waste, including recyclable material, to be used for the form of layout and building density adopted.*
>
> *b) A designated location for waste including recyclable material storage, segregation and treatment areas to be provided and means of access to them for waste collection staff and vehicles.*
>
> *c) The storage capacity to be provided with allowance for the frequency of collection specified by the collection authority, the volume and nature of waste including recyclable material expected and the size and type of containers to be used.*
>
> *d) The responsibility for cleansing and maintenance of storage facilities.*
>
> *e) Environmental aspects, e.g. air pollution, indoor air quality, noise control, and litter abatement.*
>
> *f) The discharge of waste into sewers (e.g. food waste disposers).*
>
> *g) Means of escape and fire-fighting arrangements in waste and recyclable material storage and collection areas.*

h) Appropriate arrangements for older persons and persons with disabilities."

14.6.9 These aspects will be taken into account in the detailed design of the Wykham Park Farm development site.

14.6.10 Many issues outlined above can be mitigated through appropriate design and location of waste storage and collection facilities.

14.6.11 The production of waste materials from the completed development can be mitigated by encouraging waste minimisation and commercial recycling schemes.

14.6.12 At the detailed design stage consideration will also be given to the following:

- Prominence of skips/waste bins within the development;
- Adequate storage space for skips/bins to avoid obstructing the pavements;
- Providing convenient locations/ease of access for producers of waste and for collection;
- Adequate surfacing of waste storage/collection points to avoid damage from refuse collection vehicles;
- Separation of waste and recycling;
- Careful design to avoid pollution issues (i.e. odours, vermin);
- Fire safety issues of waste storage areas and impact upon public health.

14.6.13 It is recognised that many issues can be mitigated through appropriate design and location of waste storage and collection facilities.

14.6.14 The production of waste materials from the completed development can be mitigated by encouraging household compositing and waste minimisation, and household/commercial recycling schemes.

14.7 RESIDUAL EFFECTS

Waste

Construction stage

14.7.1 The estimated levels of waste generation during the construction for the development that are likely to requiring disposal to landfill can be readily accommodated in landfill sites in the Oxfordshire Plan Area. The total volume requiring disposal during each year of the construction of the Proposed Development is likely to represent a small percentage of the annual tonnage landfilled in the region. Where possible recycling facilities for construction wastes will be utilised to minimise the waste produced.

Post-completion stage

14.7.2 Residual waste materials from the completed development which cannot be re-used, recycled or recovered are likely to be disposed of to landfill within the Minerals and Waste Local Plan area. The residual impact is therefore likely to have effect at a local and district level and to be relatively minor in nature.

14.7.3 The use of landfill capacity for non-recyclable wastes from the completed development is not reversible and therefore will have a long term impact on the overall availability of landfill capacity. However, if the Site were not to be developed in order to meet housing requirements, it is likely that an equivalent floorspace of residential units would be constructed in the Oxfordshire area and the predicted impact upon landfill capacity from new build and construction would still occur.

14.7.4 There is sufficient capacity in waste management facilities in the area to handle the recyclable and recoverable wastes that are estimated to be generated from the Proposed Development.

Utilities

Construction stage

14.5.21 The installation works to provide new utility service will be subject to appropriate construction management plans and pollution prevention guidance to minimise any environmental impacts during the temporary construction phase. Residual impacts will be negligible.

Post-completion stage

14.5.22 No significant adverse residual environmental impacts are expected from the operational phase of the utility services provided they are operated in accordance with appropriate health and safety guidance and maintenance procedures.

Summary of effects

14.7.5 There will be a small adverse impact on the availability of landfill capacity, as a result of the disposal of non-recyclable wastes from the development. This impact will include a reduction in the total landfill space available for other wastes. Wastes materials from the development are likely to be disposed of to landfills in the local area with any residual hazardous materials taken further afield to adjoining counties. The impact is therefore likely to have an effect at local or district scale rather than a regional level. As a result of the mitigation measures which will be applied, the impacts on local landfill availability are likely to be relatively minor overall. The use of landfill capacity for non-recyclable wastes from the development is not reversible and therefore will have a long-term impact on the overall availability of landfill capacity in the area.

14.7.6 With the planned projects in place it is anticipated that the impact of the Proposed Development on the County's ability to handle the recyclable and recoverable wastes generated by the Proposed Development will be negligible.

Table 14.3: Summary of effects

Potential effect	Significance (pre-mitigation)	Mitigation measure	Significance of residual effect
Construction stage			
Disposal of waste	**Minor negative**	• A Site Waste Management (SWMP) will be produced as required/ in accordance with the Site Waste Management Plan Regulations 2008. • The developer/agent will liaise with the appropriate authorities on design, location of waste storage	**Negligible**

		and collection facilities during the construction phase of the development. • All waste produced during construction operations at the Site will be stored in designated areas and isolated from the surface water drainage system. • Skips will be covered to prevent wind blown debris and replaced when full by conventional waste collection contractors. Recyclable wastes and specialist packaging will be collected on site and sent for recycling and utilised on site, where practicable. • Excavation spoil will be utilised wherever possible within the Proposed Development scheme for a beneficial use. If this is not possible, every effort will be made to recycle or reuse it elsewhere within Oxfordshire or disposed of at a licensed landfill site as a last resort.	
Post-completion stage			
Disposal of waste	**Minor negative**	• The developer/agent will liaise with the appropriate authorities on design, location of waste storage and collection facilities as part of the detailed site layout, taking into account relevant guidance when considering waste management. • Businesses will have to arrange a contract with the Council or other commercial waste contractor to suit their needs and to identify the waste streams they produce and establish possibilities for waste minimisation and identify recycling	**Negligible**

		opportunities. NB New businesses will have to confirm as part of the Waste (England and Wales)(Amendment) Regulations 2012 that they have applied the waste hierarchy when transferring waste and require separate collection of waste paper, metal, plastic and glass from 1st January 2015.	