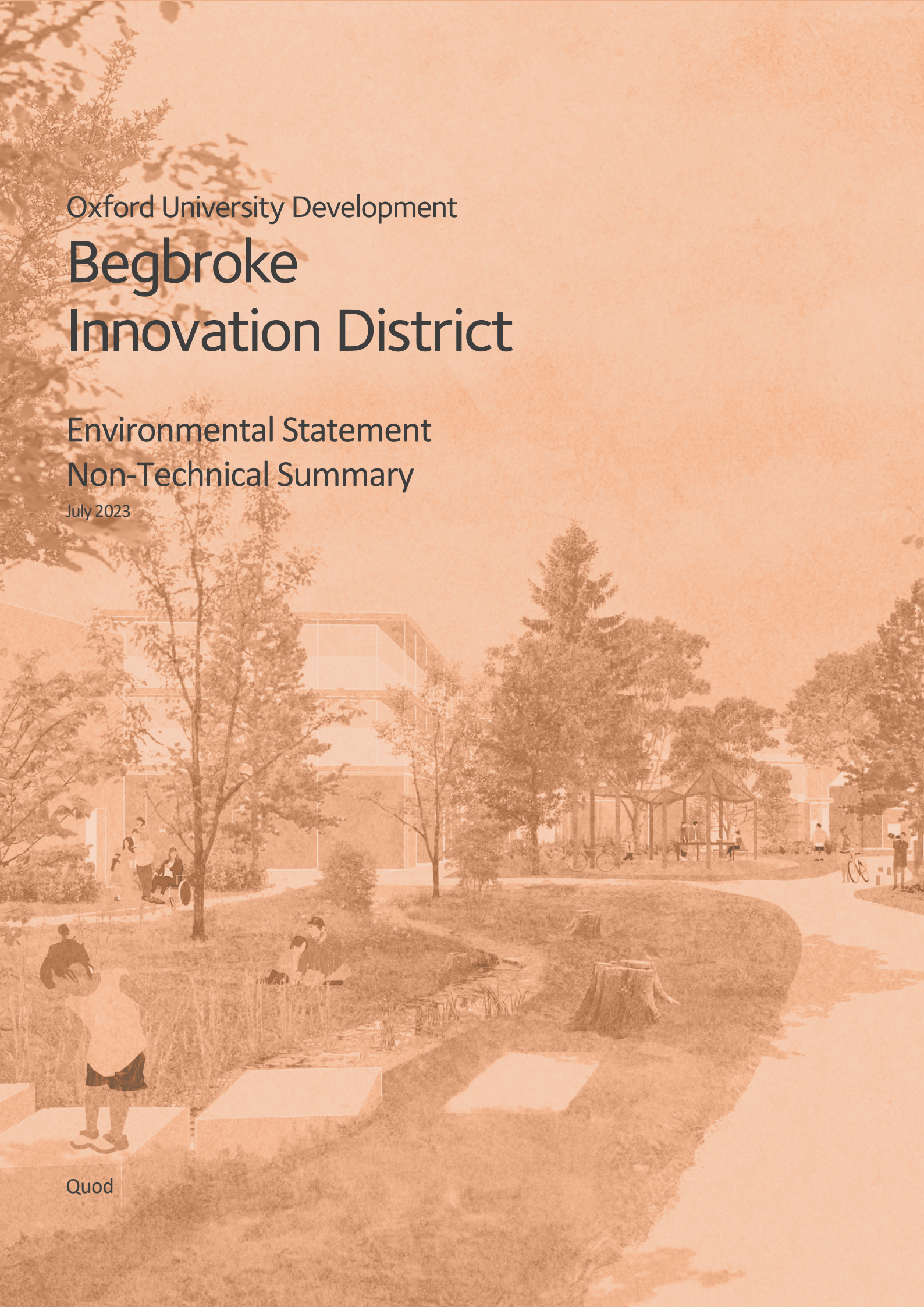


Oxford University Development

Begbroke Innovation District

Environmental Statement
Non-Technical Summary

July 2023



Quod

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1 Introduction

Background

- 1.1 This Non-Technical Summary ('NTS') presents a summary of the findings of an Environmental Statement ('ES') that was prepared on behalf of Oxford University Development Ltd (the 'Applicant'). The Applicant is a joint venture partnership between Oxford University and Legal & General.
- 1.2 This NTS accompanies an outline planning application for a mixed-use development of Begbroke Science Park and surrounding land known as the 'Begbroke Innovation District). An outline planning application means that the details of the proposals will be agreed in the future with the planning authority (Cherwell District Council, 'CDC').
- 1.3 The site of the proposed development comprises approximately 170 hectares of land to the east of the villages of Yarnton and Begbroke, north of Oxford and is subsequently referred to as the 'Site'. Figure 1.1 shows the location of the Site.
- 1.4 The Site forms part of a wider allocated area for development in the Cherwell Local Plan 2011-2031 (Part 1) Partial Review¹ (the 'Local Plan') -which was adopted in September 2020. Specifically, it the Site forms part of '*Policy PR8: Land east of A44 at Begbroke/Yarnton*' and is one of six strategic site allocations identified to meet housing demand.
- 1.5 The proposed development would provide up to 215,000 square metres (sqm) gross external area (GEA) of residential floorspace. This would be capable of delivering approximately 1,800 new homes (including affordable homes and houses of multiple occupation); up to 155,000 sqm of flexible employment space associated with the expansion of Begbroke Science Park; and supporting retail, leisure, education and community/amenity uses. The proposals are subsequently referred to as the 'Proposed Development'. The Proposed Development will also include highway works, new cycle and pedestrian paths, safeguarded land for a rail halt and areas of landscape and public realm. A more detailed description of the Proposed Development is provided in Section 5 of this NTS.

What is an EIA and ES?

- 1.6 Environmental Impact Assessment (EIA) is a process which is required by UK legislation for certain development projects which are likely to have significant impacts on the environment. The purpose of EIA is to ensure that decision makers and the public understand environmental effects of a development before deciding whether to grant planning permission. The findings of the EIA process are reported in an ES which is submitted with the planning application.
- 1.7 The Proposed Development was subject to an EIA and the findings are reported in an ES which accompanies the planning application. The EIA process has been used to inform the Proposed Development and has identified measures to mitigate likely significant environmental effects and maximise opportunities for environmental enhancement. The ES

accompanies the planning application to inform decision making. This document provides a non-technical summary of the ES.

1.8 The EIA process was co-ordinated by Quod and a team of competent experts and used as an iterative design tool to inform the Proposed Development. The ES was prepared by competent experts in line with current UK legal requirements¹² and good practice. The ES identifies the likely significant environmental effects.

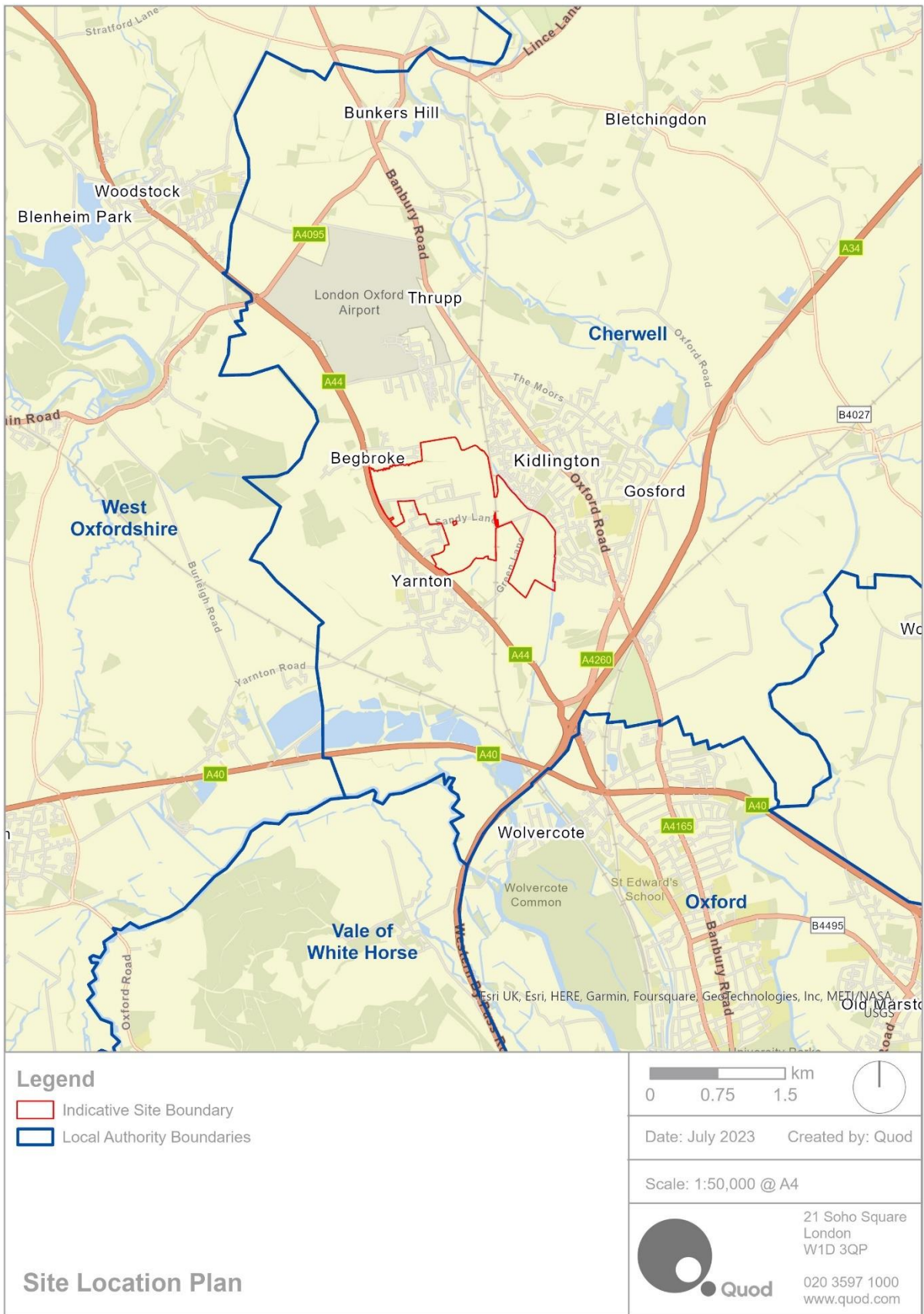
1.9 The ES comprises:

- **Non-Technical Summary** (this document)
- **Volume I:** Main Text
- **Volume II:** Landscape and Visual Impact Assessment
- **Volume III:** Appendices

Commenting on the Planning Application

1.10 The above documents and all other planning application documentation are available to view online at <https://planningregister.cherwell.gov.uk/>. Hard copies of the ES will be available at the CDC Council Offices and within Begbroke Science Park. Additional copies of the ES can also be purchased from Quod. Please email reception@quod.com quoting Reference No. Q210810 for further details or contact 020 3597 1000.

Figure 1.1: Site Location Plan



2 Site and Setting

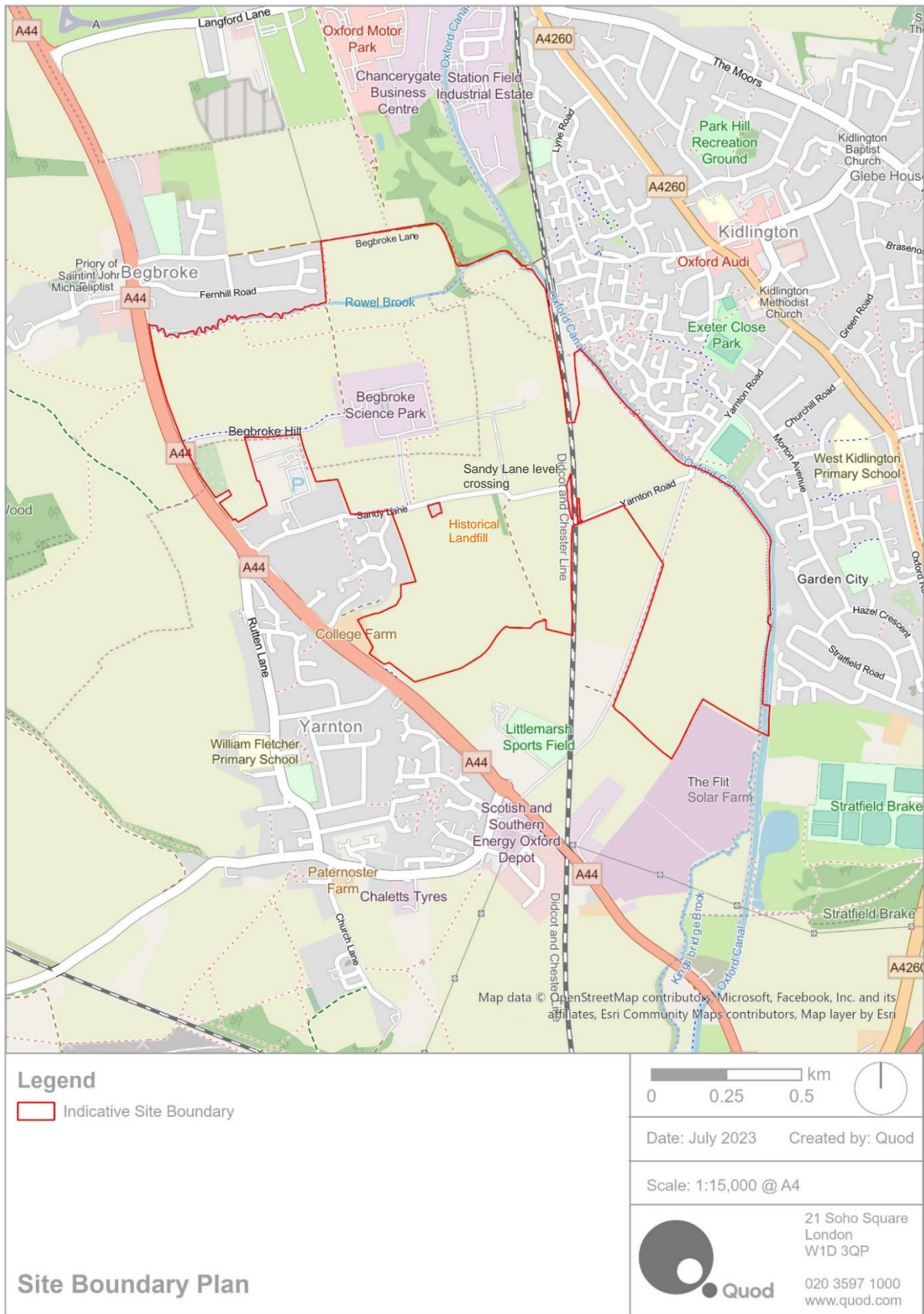
Where is the Site?

- 2.1 The Site is located within Oxfordshire, within the administrative boundary of CDC. It lies approximately 6.7km north west of Oxford City centre, 625m west of the village of Kidlington and close to the villages of Yarnton and Begbroke.
- 2.2 The Site's surrounding area is a mix of residential, commercial and industrial land uses. The Site is bound by Rowel Brook to the north and north east, by Oxford Canal to the east, by Flit Solar Farm and agricultural land to the south, and by the A44 (Woodstock Road), residential and commercial properties, including Yarnton Garden Centre, Yarnton village and allotments to the west.
- 2.3 The indicative Site boundary is shown on Figure 2.1.

What are the land uses within the Site?

- 2.4 The Site is approximately 170 hectares (ha) of predominantly agricultural land and includes a small number of farm buildings and poultry farm. Begbroke Science Park, owned by the University of Oxford, is located within the central northern part of the Site. Begbroke Science Park comprises a number of one and two storey buildings which include research facilities, laboratories, engineering facilities and administrative buildings and also includes a Grade II listed building, Begbroke Hill Farmhouse. Begbroke Science Park also includes areas of surface car parking, service yards and bicycle storage.
- 2.5 The Cherwell Valley railway line passes through the Site on an approximate north-south alignment with an existing level crossing on Sandy Lane. Sandy Lane crosses the Site on an approximate west-east alignment, joining the A44 to the west of the Site and Yarnton Road to the east of the Site.
- 2.6 A historic landfill site, known as Sandy Lane East, is located south of Sandy Lane in the centre of the Site, approximately 250m south of Begbroke Science Park. The historic landfill site is approximately 5.2ha in area.
- 2.7 Existing allotments (approximately 1ha) are located within the Site, adjacent to the A44 and Begbroke Hill.

Figure 2.1: Site Boundary Plan



How is the Site accessed?

- 2.8 The surrounding road network includes the A44 (Woodstock Road) to the west, A34 and the A4260 to the south. The Oxford Canal bounds the Site to the east, with access from the towpath.
- 2.9 Vehicular and pedestrian access to the Site is gained via Begbroke Hill, Sandy Lane and Kidlington Lane. The closest bus stop to the Site is on Sandy Lane approximately 180m west and approximately a two minute walk from the Site boundary. Oxford Parkway Railway Station is approximately 1km south east of the Site boundary (approximately 30-minute walking distance). A number of Public Rights of Way (PRoWs) cross the Site, as shown on Figure 9.1 later in the report.

What are the surrounding land uses?

- 2.10 The village of Begbroke is located to the north and north west of the Site beyond Rowel Brook. Beyond the village of Begbroke to the north are three business parks that include a range of commercial and industrial uses: Station Field Industrial Estate (approximately 300m north of the Site), Chancery Gate Business Centre (approximately 740m north of the Site) and Oxford Motor Park (approximately 680m north of the Site). Oxford Airport is located to the north of the business parks, approximately 750m north of the Site boundary. Oxford Airport provides private and business aviation services and is home to a number of flight schools.
- 2.11 A fuel station, operated by Shell, is located adjacent to the western boundary of the Site. Beyond the A44, to the west is a large expanse of agricultural land which is allocated for residential development under Policy PR9 of the Local Plan.
- 2.12 Residential areas associated with the village of Kidlington are located adjacent to the Oxford Canal which forms the eastern boundary of the majority of the Site. Kidlington village centre is located approximately 530m west of the Site boundary and the closest residential properties to the Site are approximately 30m west of the Site boundary, beyond the Oxford Canal.
- 2.13 Residential areas associated with the village of Yarnton are located to the south and west of the Site. Yarnton village centre is located approximately 660m south west of the Site and the closest residential properties to the Site are adjacent to the western boundary of the Site. The urban fringes of the City of Oxford, including residential uses, are approximately 2.7km to the south of the Site, beyond the A34.
- 2.14 Areas to the north, west and south of the Site comprise agricultural land and are designated as Green Belt land in the Local Plan.

What is the environmental context of the Site?

- 2.15 Figures 2.3 and 2.4 show the key environmental sensitivities within and in close proximity to the Site.

- 2.16 The Site does not include any sites which are designated for nature conservation, geology or landscape value.
- 2.17 The Grade II listed Begbroke Hill Farmhouse is within Begbroke Science Park and is the only designated heritage asset within the Site. There are no Scheduled Monuments, Registered Parks and Gardens (RPGs) or Registered Battlefields on or within close proximity to the Site. The Oxford Canal Conservation Area is located adjacent to the eastern Site boundary, with Begbroke Conservation Area located 140m to the north-west. Two Grade II listed bridges and Kidlington Green Lock, associated with Oxford Canal, are located adjacent to the eastern Site boundary. The Grade II listed Tudor Cottage is adjacent to the western Site boundary on the A44. The Grade I listed Church of St Mary in Kidlington is located around 1.6km north-east of the Site and the Grade II* listed Church of St Michael is located in the Begbroke Conservation Area. Blenheim Palace World Heritage Site (WHS) is located 3km north west of the Site and there are three Scheduled Monuments are located within 2km of the Site.
- 2.18 Rushy Meadows Site of Special Scientific Interest (SSSI)ⁱ is adjacent to the north east of the Site and there are a number of other SSSIs within 10km of the Site. Oxford Meadows Special Area of Conservation (SAC)ⁱⁱ and Pixey and Yarnton Meads SSSI is approximately 1.8km south of the Site. There is one non-statutory designated site within the Site, the Lower Cherwell Valley Conservation Target Area (CTA)ⁱⁱⁱ, which extends into the north-eastern corner of the Site. Begbroke Wood and Blandon Heath ancient woodlands are within 1km of the Site.
- 2.19 Rowel Brook forms the majority of the northern boundary of the Site, and the Oxford Canal, extends partly along the eastern Site boundary.
- 2.20 The majority of the western part of the Site is within Flood Zone 1^{iv} with a low risk of flooding from rivers, lakes or streams. The northern edge of the Site adjacent to Rowel Brook, and the majority of the Site east of the Cherwell Valley railway line, are within Flood Zone 2 or 3, indicating a medium or high risk of flooding.

ⁱ A SSSI is nationally designated site for ecology and conservation, usually, due to particular scientific interest in a rare species of fauna or flora.

ⁱⁱ A SAC protects one or more special habitats and/or species – terrestrial or marine – listed in the EU Habitats Directive.

ⁱⁱⁱ CTAs are regional sites, defined by Oxfordshire County Council, as the most important areas for wildlife where targeted conservation action would have the maximum benefit.

^{iv} There are 3 flood zones as defined by the Environment Agency; Flood Zone 1, 2 and 3. These are based on the likelihood of an area flooding, with Flood Zone 1 areas least likely to flood and Flood Zone 3 areas more likely to flood.

Figure 2.3: Nature Conservation Designations and Flood Risk

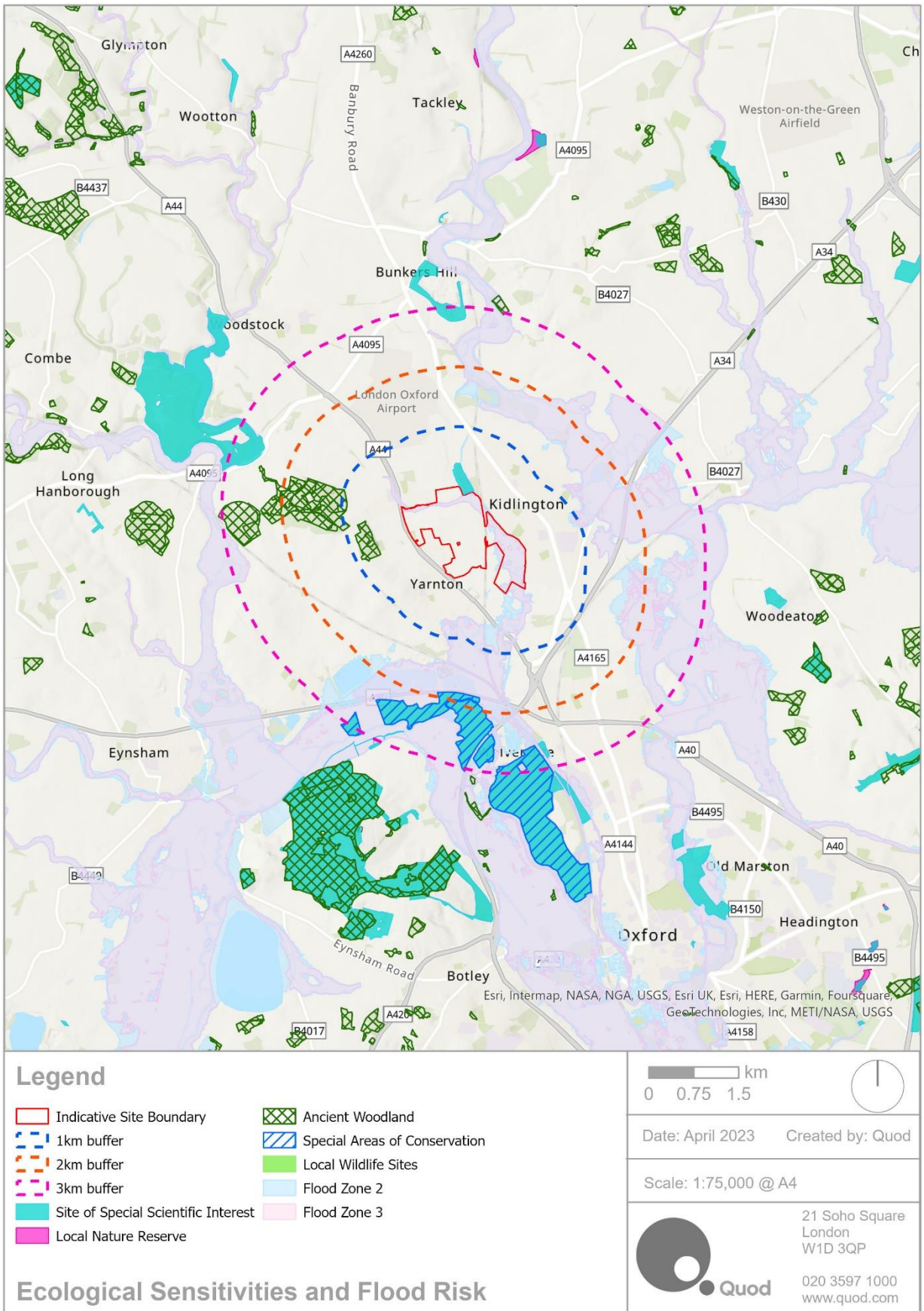
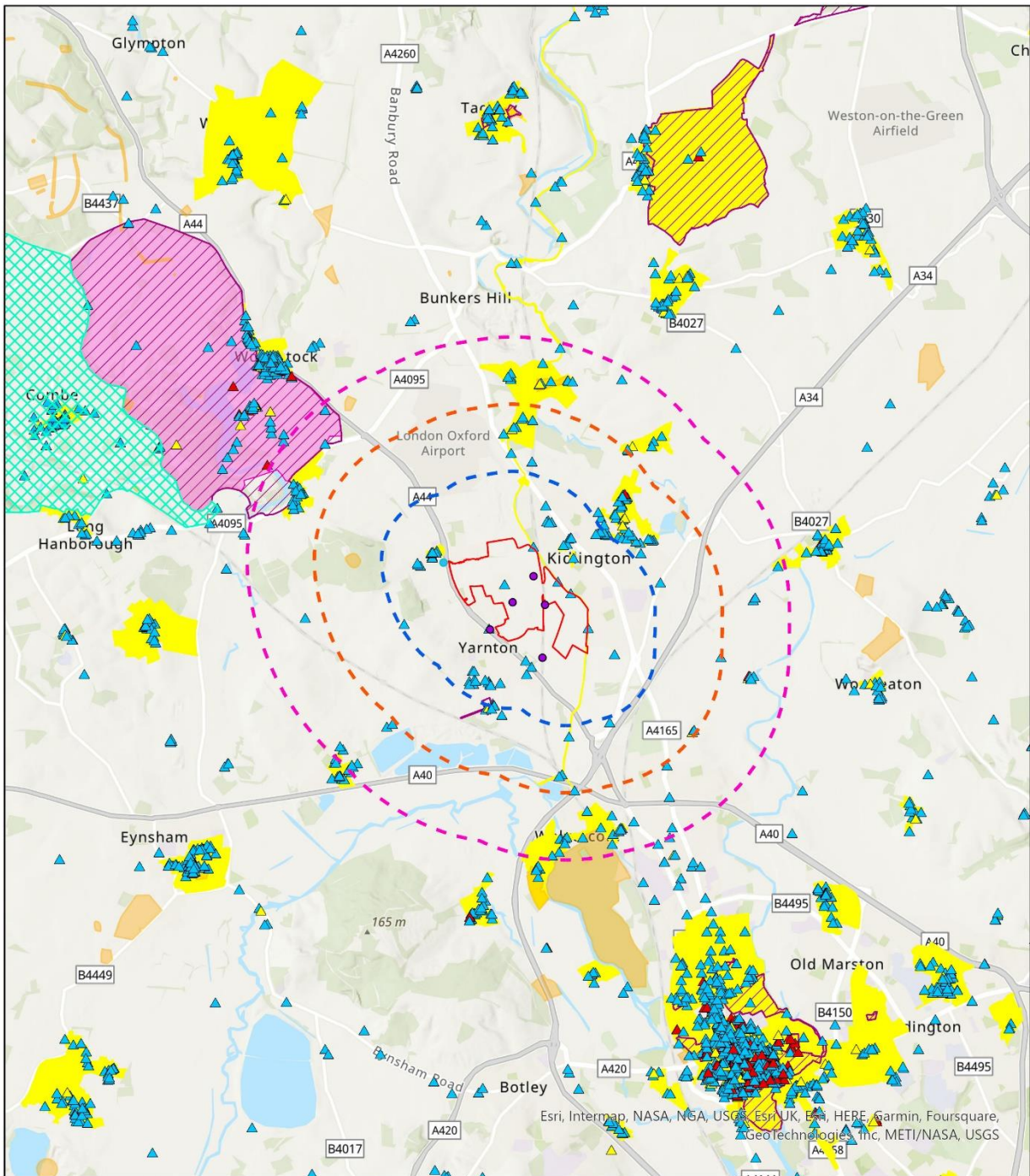


Figure 2.6: Heritage and Visual Sensitivities



Legend		0 0.75 1.5 km		Date: April 2023 Created by: Quod	
Indicative Site Boundary	Conservation Area	Scale: 1:75,000 @ A4			
1km buffer	Scheduled Monument	21 Soho Square London W1D 3QP 020 3597 1000 www.quod.com			
2km buffer	Non-Designated Heritage Assets				
3km buffer	Listed Buildings				
Areas of Outstanding Natural Beauty	Grade I				
Registered Parks and Garden	Grade II				
World Heritage Sites	Grade II*				
Heritage and Visual Sensitivities					

What future development is planned for the Site and surrounding area?

- 2.21 Begbroke Science Park within the Site already has planning for some expansion of the Science Park and a new car park^v. Construction of these projects has already started and they are expected to be complete and operational by 2025 for the purposes of the EIA.
- 2.22 Network Rail are developing proposals to close the Sandy Lane level crossing and provide a new pedestrian/cycle bridge. These proposals are not part of the Proposed Development and will be subject to a separate Transport and Works Act Order to be submitted in 2023 by Network Rail.
- 2.23 Other developments are also coming forward in the area, including allocated sites in the Local Plan and other sites to the east and south of the Site and at Oxford Airport to the north. These sites are shown on Figure 3.1.

^v CDC planning application ref: 18/00803/OUT (as amended); and ref: 21/03195/F.

3 EIA Methodology

- 3.1 An EIA was commissioned voluntarily by the Applicant as under the EIA Regulations^{vi}, as the Proposed Development is of a type and scale of development that requires an EIA.
- 3.2 The EIA considers likely significant effects during the construction and operation of the Proposed Development. The construction phase assessment addresses the temporary activities involved in building the Proposed Development. The operational assessment considers the situation when the Proposed Development is fully complete and being used.

How was the scope of the EIA determined?

- 3.3 An EIA scoping study was undertaken to establish the ‘scope’ or focus of the EIA and identify which environmental topics should be included in the ES for detailed assessment. The scoping study considered the emerging proposals, the existing environmental baseline conditions and the potential for likely significant environmental effects.
- 3.4 The scope of the EIA was agreed with CDC through an EIA Scoping Opinion which was received on 27th January 2023. CDC’s Scoping Opinion was provided in response to a scoping opinion request by the Applicant, which was accompanied by an EIA Scoping Report, and responses from consultation bodies. The ES has been prepared to the requirements of the EIA Scoping Opinion.
- 3.5 The Scoping Opinion confirmed that CDC were in agreement with the scope and methodology proposed in the Scoping Report. CDC agreed that the scope of the ES should include the topics set out in Table 3.1. They also agreed that other topics, including Light Pollution; Wind Microclimate; Waste and Materials; Vulnerability to Major Accidents and Disasters; Human Health; Energy and Sustainability; Utilities; Daylight, Sunlight and Overshadowing; Telecommunications; Aviation; and Electromagnetic Fields could be scoped out of the ES.

Table 3.1 Technical Topics Scoped into the ES

Environmental Statement Topics

Socio Economics	Ecology
Cultural Heritage (including archaeology & built heritage)	Agricultural Land and Soil Resources
Transport and Access	Ground Conditions and Contamination
Noise and Vibration	Water Resources and Flood Risk
Air Quality	Landscape and Visual
Climate Change and Greenhouse Gases	

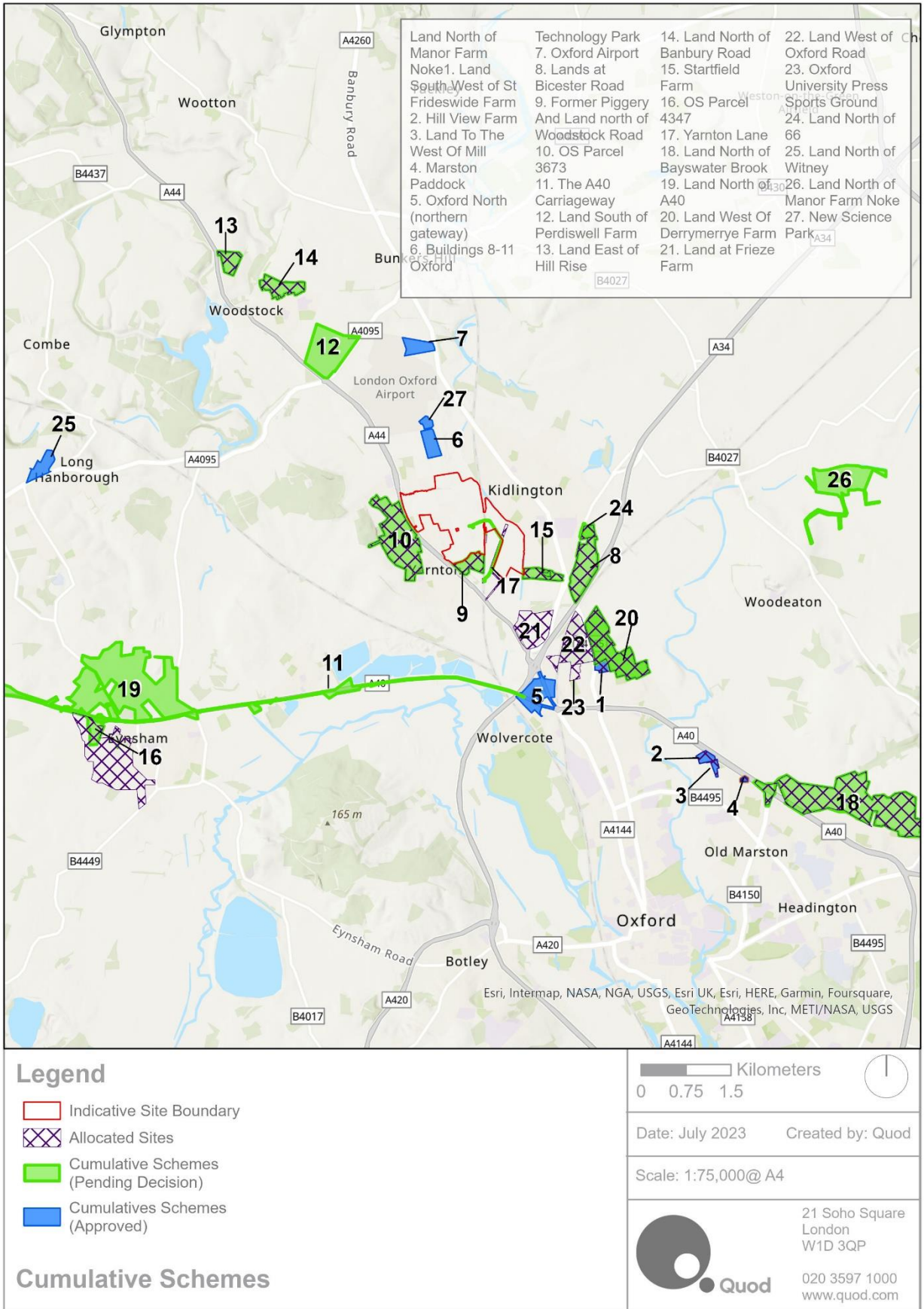
^{vi} The Town and Country (Environmental Impact Assessment) Regulations 2017, as amended 2018

How were environmental effects identified and assessed?

- 3.6 The EIA has assessed the likely significant environmental effects of the Proposed Development against baseline conditions (i.e. existing state of the Site). Baseline conditions have been established using a range of different methods including desk-based research, site surveys and modelling.
- 3.7 The ES provides a description of the existing baseline conditions, and a description of how the environment may change in the future without the Proposed Development (the ‘future baseline’). Each assessment identifies receptors which could be sensitive to impacts of the Proposed Development such as local residents, designated sites, heritage assets, habitats and species, and the local economy.
- 3.8 The ES predicts the likely significant environmental effects of demolition and construction activities. Given the outline nature of the planning application, there is some uncertainty over how the construction works will be carried out. The assessment is therefore based on available information and reasoned judgements and assumptions to enable the likely significant environmental effects to be identified. Construction of the Proposed Development is expected to commence in 2025 with completion in 2033 (see Section 6 for further). In determining the significance of construction stage effects, it is assumed that mitigation measures identified within a Framework Construction Environmental Management Plan (CEMP) – which outline the environmental mitigation measures to be adopted during the construction phase – are fully implemented. Detailed CEMPs will be secured by a suitable planning condition.
- 3.9 Due to the outline nature of the planning application, details of the uses and buildings are not fixed and these details will be determined at a later stage in the planning process, known as the reserved matters stage. To ensure a robust assessment of likely significant effects, the EIA adopts reasonable worst case assumptions which are derived from Parameter Plans and a Development Specification document (that sets out the core planning principles of the Proposed Development) which, alongside the Strategic Design Guide (that sets out core design principles), form some of the control documents that are the basis of the planning application. For example, the maximum building height and extent of the Proposed Development has been assessed.
- 3.10 Environmental effects were identified and assessed using a variety of methods, including computer modelling and calculations. Effects were then assessed as being significant or not significant. Each assessment attaches a level of ‘significance’ to the effects that were identified, i.e. either major, moderate, minor or negligible.
- 3.11 The significance of effects was determined using best practice and published standards. The two key criteria for determining the significance of the effect are the scale of change taking place compared to the baseline (magnitude of the impact) and the sensitivity or value of the resource or receptor being affected. Environmental effects are described as being either adverse (negative), negligible or beneficial (positive) and whether they are temporary or permanent.

- 3.12 The EIA was undertaken in parallel with the design process and, where possible, measures to minimise environmental effects were built into the Proposed Development and planning application, known as ‘embedded mitigation measures’. However, where significant negative effects are identified, appropriate ‘additional’ mitigation and monitoring measures are proposed. ‘Residual effects’ are those that remain after mitigation measures have been implemented.
- 3.13 Each topic chapter of the ES includes a section which provides an assessment of the likely significant cumulative effects of the Proposed Development and other existing or approved development schemes in the vicinity of the Site. The list of schemes considered within the EIA was agreed with CDC as part of the EIA Scoping Opinion and regularly reviewed leading up to finalisation of the environmental assessments. Figure 3.1 shows the location of other development schemes considered in the ES. These include approved developments which have planning permission and may be partly built. Planning applications that have been submitted but not yet determined are also considered where there is potential for significant cumulative effects. Additionally, other developments that could come forward on the same timescale as the Proposed Development and are allocated in the Local Plan have been considered where they could lead to likely significant cumulative effects.
- 3.14 The ES also considers the potential for ‘effect-interactions’ which can arise from individual effects of the Proposed Development interacting to give rise to a significant effect, such as noise and air quality on the same receptor. This is provided in Section 17.

Figure 3.1: Cumulative Schemes



4 Alternatives

Introduction

- 4.1 The EIA Regulations require an ES to include a description of the reasonable alternatives to the Proposed Development that were considered by the Applicant, indicating the main reasons for the choices made, including a comparison of the environmental effects. No alternative sites were considered by the Applicant as the Site is within an area allocated in the Local Plan and is within the control of the Applicant.

Is No Development a reasonable alternative?

- 4.2 Conditions in the absence of the Proposed Development would remain described by the baseline conditions section of topic chapters of the ES. The majority of the Site is likely to remain in agricultural use with associated agricultural-led management of habitats. It is reasonable to assume that there could be some future growth at Begbroke Science Park in the absence of the Proposed Development although this is likely to be limited.
- 4.3 The Site forms part of a wider area allocated under Policy PR8 for growth in the Local Plan to provide 1,950 new homes, an expansion to Begbroke Science Park, new education and amenity facilities and provide new open space and nature reserves. The Local Plan seeks to meet the unmet housing need identified in Oxford.
- 4.4 The Proposed Development has been designed to respond to the identified need for housing and other uses identified by CDC. The 'no-development' alternative is therefore not considered to be a reasonable alternative by the Applicant as it does not accord with policy and would not help to meet the unmet housing and employment needs of the area. The Proposed Development will also deliver education and open space uses, sustainable travel measures, and significant green infrastructure and biodiversity net gain benefits.

What alternative forms of development have been considered?

- 4.5 The project has evolved over several iterations since early 2022 through consultation with various stakeholders. The Applicant team maintained close engagement with CDC and other key statutory consultees (e.g. Oxford County Council and Historic England) through the design process. The Applicant held public engagement events during 2022 and 2023 and engaged with local community groups to obtain feedback on the design and focus areas for further mitigation. The Proposed Development proposals were finalised as a result of a lengthy design process to produce a solution which maximises the potential of the Site and meets the needs of the Applicant and surrounding stakeholders.
- 4.6 The following environmental constraints were identified as key areas of focus and underpinned the masterplanning strategy, with details set out below as to how they have informed alternative design components of the scheme and potential environmental effects:
- Transport and Traffic: use of the numerous public transport modes and infrastructure near and within the Site with a focus on creating a sustainable development, with low

car parking provision that maximises internal trips and minimises off-site vehicle trips onto the highway network;

- Biodiversity: landscape-led masterplan designed to contribute to positive biodiversity net gain through consideration of existing and proposed ecological sites, hydrology, and location and extent of new green and open space;
- Contamination: identification of historical landfill site and creation of appropriate remediation strategy to enable suitable use as a public park;
- Landscape and Visual: studies that have helped ensure the development enhances the local landscape character and visual impacts of the Site, complementing local architecture, townscape and views. Initial testing informed maximum heights of development;
- Heritage: initial assessment that identified areas of potential archaeological interest to ensure appropriate design principles were put in place, including to protect and enhance the setting of the Grade II listed farmhouse within the Site;
- Agriculture: soil and nutrient testing which informed the siting of the retained agricultural land and the allotment relocation;
- Noise: modelling that informed the siting of the schools, setbacks of residential development from the A44 and railway line, and acoustic mitigation design principles to minimise negative noise effects on future occupants; and
- Hydrology: drainage studies and modelling that informed the drainage strategy and measures to ensure that the development avoids flood risk.

5 Description of the Development

Overview

- 5.1 The Applicant aims to deliver a new Innovation District in Oxfordshire that combines best in class places of work and learning with an exceptional residential neighbourhood. The proposed development will provide a mix of new homes to ease pressure on Oxford's housing, anchored by new infrastructure, amenity and community uses for the existing and new communities, including high quality open and green space.
- 5.2 The Applicant is seeking outline planning permission for up to 215,000 square metres (sqm) gross external area (GEA) of residential floorspace (including affordable homes) that will deliver circa 1,800 new homes; up to 155,000 sqm of flexible employment and associated uses associated with expansion of Begbroke Science Park; and supporting retail, leisure, education and community/amenity uses. The Proposed Development will also provide significant areas of green infrastructure. All remaining matters will be reserved for detailed design at a later stage through reserved matter applications.

Quantum and layout of development

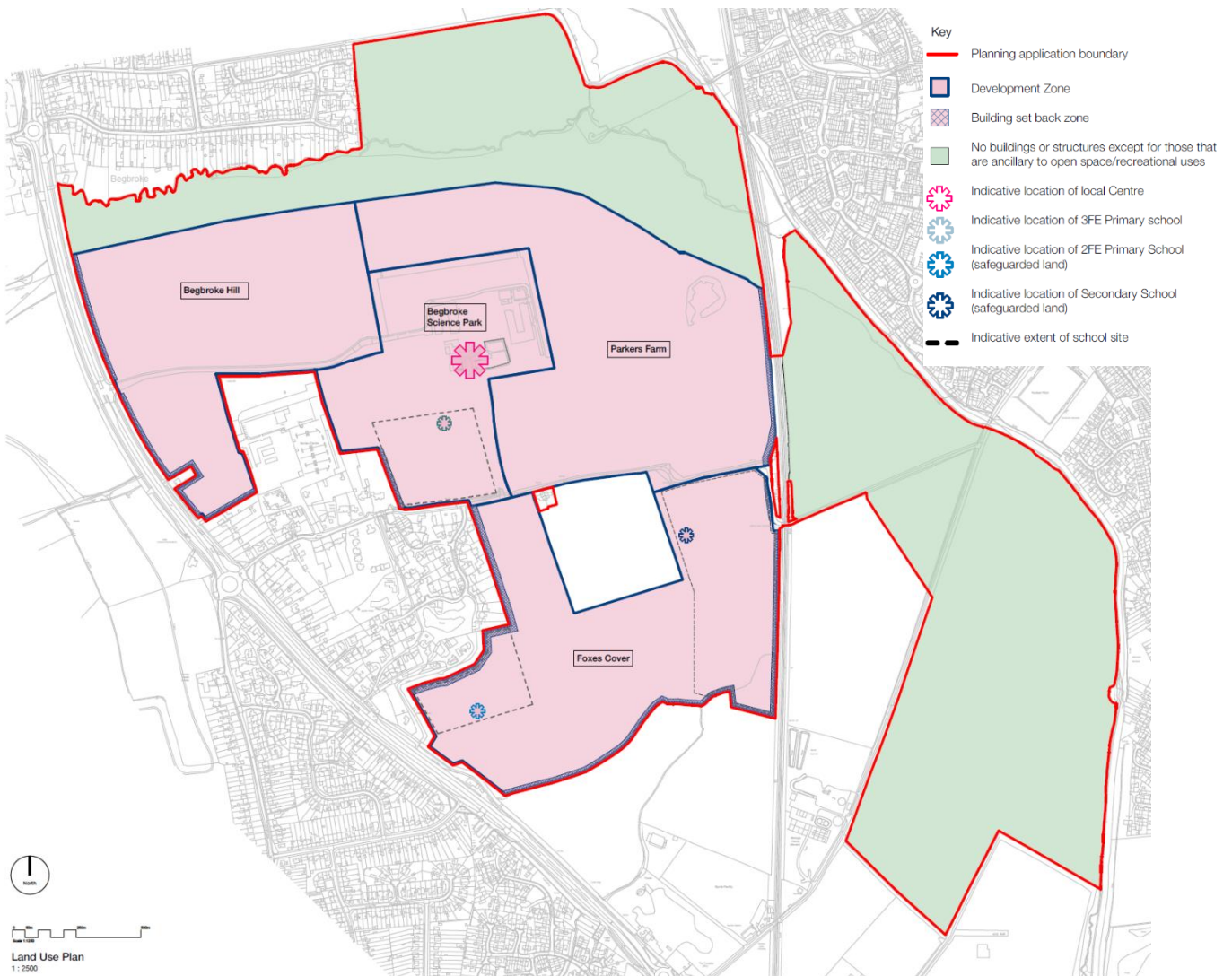
- 5.3 The scale and extent of proposed land uses for the Site are shown on the Parameter Plans which are provided at the end of Section 5.
- 5.4 Table 5.1 provides a summary of the land uses proposed to be delivered by the Proposed Development. These uses will be delivered in four 'Development Zones', as defined by the Parameter Plan: Development Areas and Land Use, shown on Figure 5.1.

Table 5.1: Proposed Development by Use Class

Land Use Type	Maximum Units / Floor Area (Gross External Area (GEA))
Expansion of Begbroke Science Park (Use Classes B2, B8, E(g) and F1(a))	155,000 sqm
Residential (Use Class C3)	215,000 sqm
Education facilities (Use Class F1(a))	19,800 sqm
Ancillary / Supporting Uses:	21,000 sqm
- Retail (Including the sale of food and drink) (Use Class E(a), (b) and (c))	3,500 sqm
- Hotel (Use Class C1)	10,000 sqm
- Non-residential and leisure institutions, including nursery, medical or health services, indoor sport or fitness facilities, and creches and/or nurseries (Use Class E(d), (e), and (f))	5,600 sqm
- Halls and Meeting Places	1,200 sqm

Land Use Type	Maximum Units / Floor Area (Gross External Area (GEA))
- Sui generis uses including (but not limited to) public houses, wine bars or drinking establishments (Use Class Sui Generis)	700 sqm

Figure 5.1: Parameter Plan: Development Areas and Land Use



5.5 The Development Zones and their main uses are:

- **Development Zone 01: Begbroke Hill** – area designated for residential units and green infrastructure;
- **Development Zone 02: Begbroke Science Park** – area designated for the retention and expansion of the existing Begbroke Science Park uses, commercial units and a primary school. The Development Zone will contain the Local Centre of the Proposed Development. The Strategic Design Guide identifies this Local Centre as the ‘Farmstead’.

- **Development Zone 03: Parkers Farm** – area designated for residential units, commercial units and green infrastructure. A 0.5ha area of land safeguarded for a rail halt is within this Development Zone; and
- **Development Zone 04: Foxes Cover** – area designated for commercial units, residential units, a primary school, a secondary school and green infrastructure.

Housing

- 5.6 The planning application proposes up to 215,000 sqm of residential floorspace within use classes C3, C4 and Sui Generis. These use classes allow for the provision of houses in multiple occupation that are proposed to be delivered as university-linked accommodation.
- 5.7 The residential floorspace would be delivered in accordance with the site-wide ranges of unit mix set out in **Table 5.2**. 50% of the residential units are expected to be affordable homes.

Table 5.2: Housing Unit Mix Ranges

Unit type	Studio/1 bedroom	2 bedroom	3 bedroom	4+ bedroom
Range	20-40%	30-40%	15-30%	5-20%

Expansion of Begbroke Science Park

- 5.8 The existing Begbroke Science Park currently provides faculty space for Oxford University that supports inter-disciplinary research including materials, energy, nano-technology, biomedical engineering and aerospace. The Proposed Development seeks permission to deliver up to 155,000sqm GEA of floorspace in association with the expansion of the Begbroke Science Park. This floorspace would be delivered across 14.7ha of land. Both the faculty and commercial components of the Science Park would be expanded to ensure that the successful combination of academic research and commercial application continues.

Supporting Non-residential Uses

- 5.9 A mix of supporting uses is proposed that includes amenity and cultural offerings, education provision, sport and recreation to support the new community and offer benefits to existing communities. These include:
- up to 10,000sqm of hotel floorspace which would be delivered at a new Local Centre and the expanded Science Park;
 - up to 3,500sqm of floorspace for retail use to serve the day to day needs of people using the Proposed Development and people living close to the Site;
 - Up to 5,600sqm of 'non-residential and leisure institutions', for example nurseries, gyms, other indoor sports facilities and medical or health centres;
 - 1,200 sqm of halls and meeting places that can be used for community-based events; and shared with the Science Park.
- 5.10 Retail and amenity uses will mainly be clustered in a local centre which will be sensitively delivered around the Grade II listed Begbroke Hill Farmhouse.

Education

- 5.11 Land has been safeguarded within the Site for the provision of three schools:
- A 1,100 place secondary school on 8.02ha of land;
 - A 3 Form Entry primary school on 3.2ha of land; and
 - A 2 Form Entry primary school on 2.2ha of land.
- 5.12 The secondary school is intended to meet the needs arising from all 'PR' allocated sites. The primary schools are intended to meet the needs arising from PR8 only. The 3FE primary school, which would be delivered first, is located between Sandy Lane and the southwestern boundary of the existing Science Park. The 2FE primary school would be located in the southern portion of the Site on the location of the existing poultry and deer farm, south of Gravel Pits Lane.

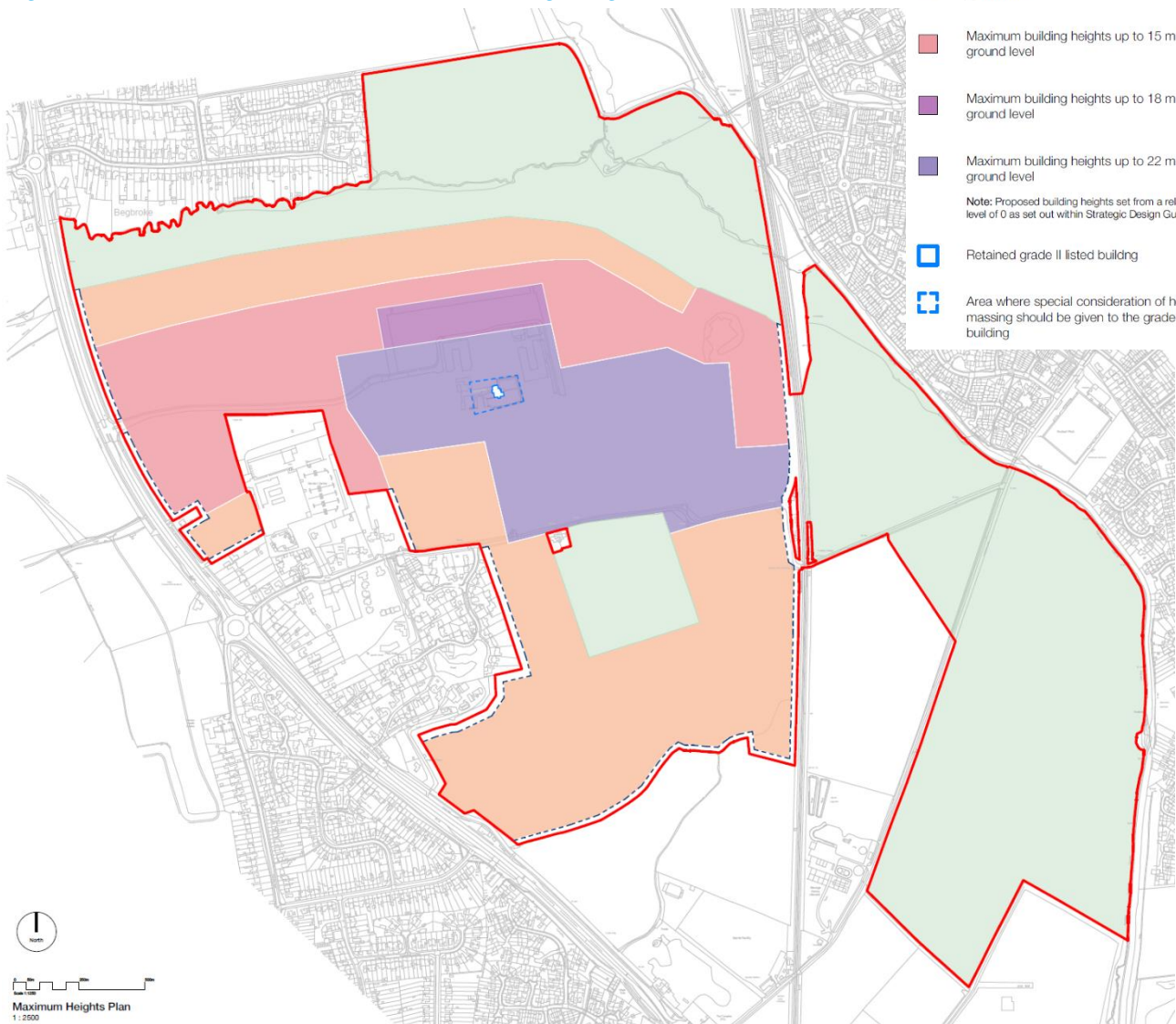
Building Heights

- 5.13 Building heights have been designed to respond to the wider landscape setting of the Site and the surrounding area and has been informed by visual analysis. Building heights would range across the Site with the tallest buildings to be located immediately north of the existing Begbroke Science Park. Generally, building heights scale down from the Science Park and expanded Science Park to the Site boundaries.
- 5.14 Maximum building heights are controlled by the Maximum Height Parameter Plan (Figure 5.2). This establishes five maximum building height envelopes for the 'Development Zones' within the Site:
- **Buildings up to 13.5m from ground level:** This applies to all development within the south of the Site, along the northern Site boundary, and bordering Yarnton;
 - **Buildings up to 15m from ground level:** This applies to the majority of development in the north western and north eastern extents of the Site;
 - **Buildings up to 18m from ground level:** This applies to the majority of development within and to the east of Begbroke Science Park; and
 - **Buildings up to 22m from ground level:** This applies to a small area in the north of Begbroke Science Park only.
- 5.15 Given the existing site levels, ground levels may change in parts of the Site to accommodate the Proposed Development as detailed designs are brought forward. These would be confirmed during the detailed design process.

Key

-  Planning application boundary
-  No buildings or structures save for those that are ancillary to open space/recreational uses
-  Building set back zone
-  Maximum building heights up to 13.5 m from ground level
-  Maximum building heights up to 15 m from ground level
-  Maximum building heights up to 18 m from ground level
-  Maximum building heights up to 22 m from ground level
- Note: Proposed building heights set from a relative ground level of 0 as set out within Strategic Design Guidelines
-  Retained grade II listed building
-  Area where special consideration of heights and massing should be given to the grade II listed building

Figure 5.2: Parameter Plan: Maximum Building Heights



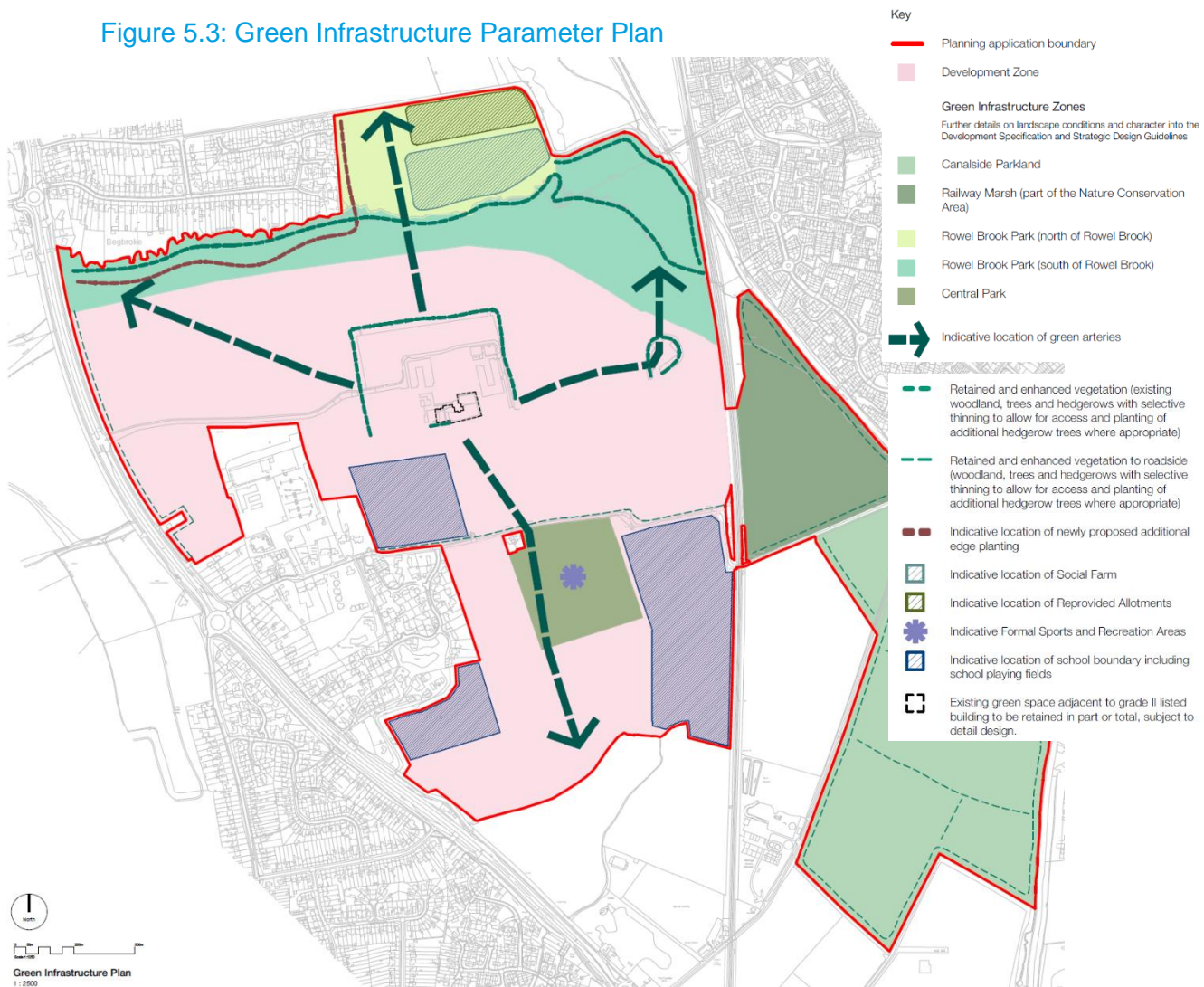
Landscape, Green Infrastructure and Open Space

5.16 Almost 80ha of open space will be provided as Rowel Brook Park, the Canalside Parkland and the new Central Park. Further open space will be delivered within the developable area in the form of green ‘arteries’, which will constitute linear parks that connect the centre of the development to the larger open areas on its peripheries. 12ha of land will be retained within an agricultural-related use, 7ha of which would be used as a social farm enterprise that provides opportunities for collective farming.

- 5.17 Provision has been made for allotments, open space and play space to at least meet the standards set by CDC^{vii}.
- 5.18 The Green Infrastructure Parameter Plan, illustrated in Figure 5.3, identifies the strategic open spaces which include:
- **Canalside Parkland** - semi-natural open grassland and meadows in the eastern extent of the Site, to the east of the railway line and adjacent to the Oxford Canal. This area includes a formal sports and recreation area of approximately 3.5 ha, and walking and cycling routes, a new Local Nature Reserve and retained agricultural land.
 - **Railway Marshes** – this will be a nature conservation area of around 12.2ha primarily for habitat and biodiversity enhancement with limited public access in the eastern extent of the Site, to the east of the railway line.
 - **Central Park** – a multi-use park located on the historical landfill site in the centre of the Site, which will be remediated to an appropriate standard. The park will include formal sports and recreational areas.
 - **Rowel Brook Park** - areas to the north and south of Rowel Brook in the north of the Site and west of the railway line. The southern area of Rowel Brook Park would provide public open space with high quality walking and cycle routes, and new habitats and enhanced biodiversity. The northern area would be used for allotments, community gardens, farms and orchards. This is the indicative location for a proposed social farm and re-provided allotments.
 - **Green arteries** – these will be wide car-free corridors of green infrastructure that would also provide to deliver non-vehicular routes, play areas, surface water drainage including SuDS, biodiversity, ‘pocket parks’ and food growing areas.

^{vii} <https://www.cherwell.gov.uk/downloads/file/4468/planning-obligations-draft-spd-july-2011>

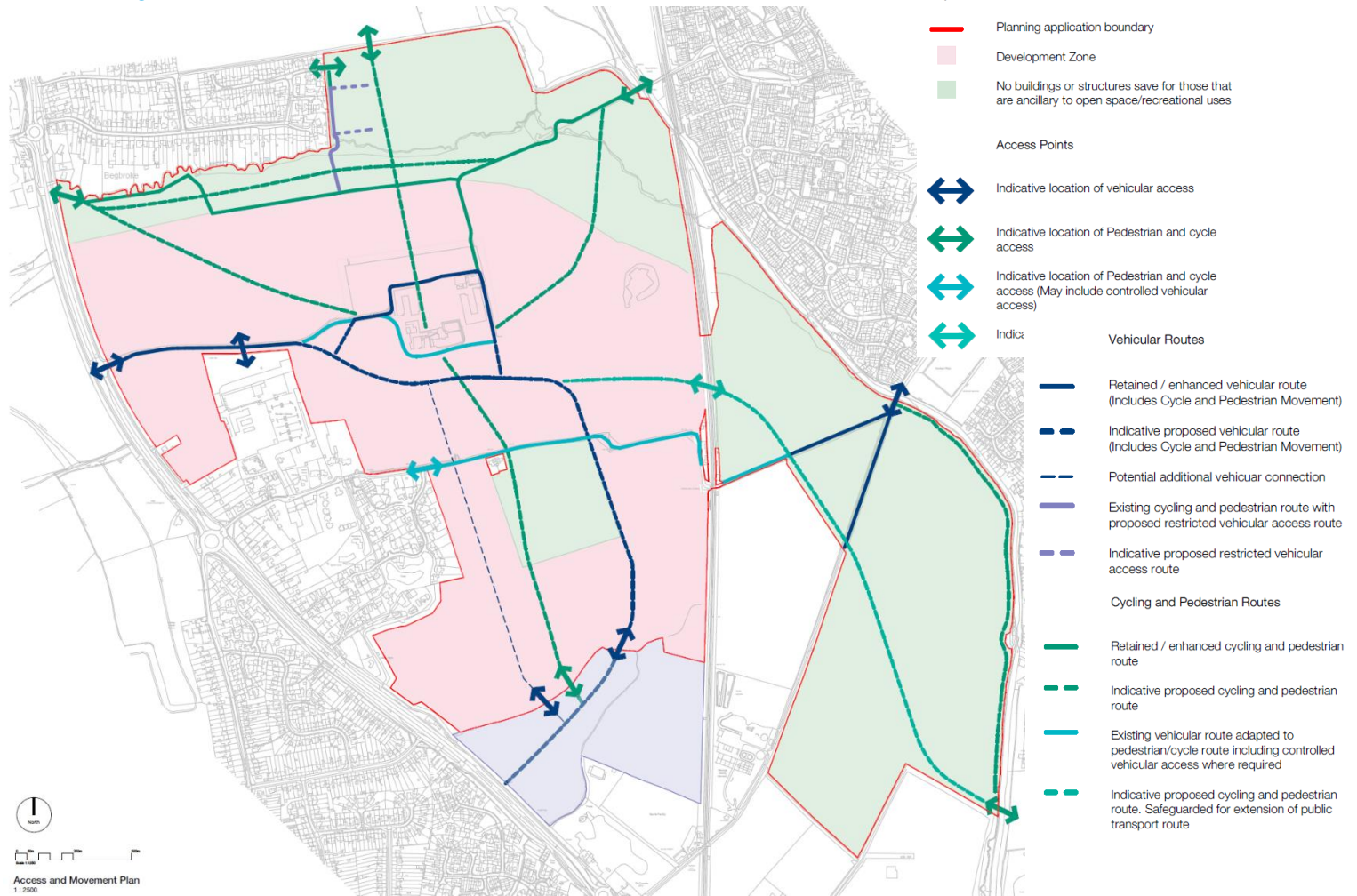
Figure 5.3: Green Infrastructure Parameter Plan



Transport and Access

- 5.19 The Access and Movement Parameter Plan, illustrated in Figure 5.4, shows the key vehicular and non-vehicular access points and routes to be provided for vehicles, public transport, pedestrians and cyclists. This network would be supported by a finer grain of streets, paths, roads and routes that will ensure the Site is highly permeable.
- 5.20 An internal spine road will be delivered that links to the existing Begbroke Hill road (which connects to the A44) and continues down through the Site, east of the historical landfill to connect to the third-party land to the South, and onwards to a new junction on the A44. The spine road will be a through route for public transport vehicles, pedestrians and cyclists only.

Figure 5.4: Access and Movement Parameter Plan



5.21 Car parking spaces used in association with the expanded Begbroke Science Park and Local Centre would be predominately in multi-storey car parks. Residential parking will be provided in a mixture of on-plot and off-plot in shared parking areas, with provision of accessible parking spaces and electric vehicle charging spaces. Cycle parking will be distributed across the Site to encourage the uptake of cycling.

5.22 Public transport will be accessible throughout the Proposed Development with bus stops to be strategically located within the Site to increase accessibility to public transport, where possible. A mobility hub will be located with close to the Local Centre optimising opportunities for modal interchange.

5.23 Network Rail are intending to close the level crossing at Sandy Lane, subject to the granting of the necessary consents. It is proposed that Sandy Lane will be access-only for vehicles, and will become primarily a green pedestrian and cyclist movement corridor. The Applicant has been working closely with Network Rail to explore the potential for delivering a bridge over the railway that would replace the level crossing, and provide connectivity for cyclists, pedestrians and public transport vehicles. This work with Network Rail is ongoing, is subject to agreement being reached with Network Rail on design, funding and land take requirements, and does not form part of this application. Land has been safeguarded to ensure that such a bridge could be delivered in the future.

- 5.24 Land has also been safeguarded in the southeast of the Site to provide for a future canal bridge that would connect to land at Stratfield Farm (allocated by Policy PR7b). The Proposed Development also includes land which is safeguarded for the potential delivery of a rail halt or station in the future.
- 5.25 Neither the Sandy Lane bridge, canal bridge or rail halt/station proposals form part of this outline planning application.

Flood Protection and Drainage

- 5.26 No built development is proposed in areas of the Site with a high (Flood Zone 3) or medium (Flood Zone 2) flood risk. The Proposed Development would incorporate sustainable urban drainage to manage surface water sustainably and be resilient to the impacts of climate change.
- 5.27 The outline drainage strategy seeks to utilise swales rather than buried pipes, where feasible, that will convey water to basins where water can be infiltrated and/or drain to a discharge point. This approach has the benefit of more effectively removing sediment and other pollutants before the water is discharged. The Site borders the Rushy Meadows SSSI. Drainage from the Site flows into channels (Rowel Brook or Thrupp Ditch) and is drained south and away from the SSSI.
- 5.28 Measures have been included in the Strategic Design Guidelines to mitigate river and surface water flood risk. These include permeable paving and roadside swales. Details of the flood mitigation measures are to be further developed and agreed in detail with CDC, OCC and the Environment Agency.

Water Management

- 5.29 A potable water strategy for the Proposed Development has been developed in consultation with Thames Water to keep water use to a minimum. Key principles of this strategy include low flow fittings, rainwater harvesting, and minimising demand in commercial buildings.
- 5.30 Opportunities have been considered for green / blue roofs on appropriate typologies, as well as grey water capture, cleaning and reuse. These will be refined during detailed design.
- 5.31 The landscape strategy has been designed to reduce the need for irrigation, though rainwater harvesting is proposed to be used as a water source for this purpose.

Landfill Remediation

- 5.32 A historical landfill site is located in the centre of the Site, south of Sandy Lane. The landfill historically received inert and industrial waste and is understood to be predominantly comprised of ash and other man-made materials. Land within the historical landfill and within circa 3m of its extent will be remediated. A Remediation Strategy has been prepared and includes measures to allow for the safe use of this as an area of public open space. The Remediation Strategy includes compaction of the historical landfill and covering the landfill area with clean material. A detailed Remediation Strategy will be submitted for approval by CDC and the Environment Agency once a contractor has been appointed.

Lighting and Security

- 5.33 Lighting design will be sensitive to the surrounding area and its users and will be developed to minimise light spill and glare, to minimise impact on local sensitive receptors (including residents, local road users and ecological receptors).
- 5.34 Detailed lighting design will come forward in line with the principles defined in the Development Specification.
- 5.35 A Framework Lighting Strategy has been submitted as part of the planning application and outlines commitments which ensure that light spill and light pollution are minimised and avoided. Adherence to this lighting strategy will be secured by planning condition.

Noise Mitigation

- 5.36 Noise-reducing fencing and / or bunding will be provided adjacent to the A44 and railway line to reduce the noise impact of the A44 and railway line on the Proposed Development.
- 5.37 Noise generating uses of the Proposed Development (where such noise cannot be sufficiently reduced) or uses which generate a higher degree of servicing or vehicular traffic, will be located away from uses that are considered sensitive, such as residential dwellings or social infrastructure users.

Energy and Sustainability

- 5.38 The Applicant has made a commitment to the Proposed Development operating at net zero, achieved through following the energy hierarchy that prioritises options of being Lean, Clean, Green as set out below:
- Lean - a combination of design measures and a 'fabric-first' approach that improves the performance of the buildings and reduces the need for heating and cooling. Further improvements in energy efficiency would be achieved through building services interventions such as waste water heat recovery systems and energy efficient lighting.
 - Clean - decentralised all-electric heating and cooling system is proposed as part of the 'Clean' stage of the strategy for all residential and non-residential buildings. Air source heat pumps are the favoured heating infrastructure as they are more efficient in both energy transfer and spatial terms than other options (such as ground and water source heat pumps or electric boilers). Gas boilers will not be permitted within the Proposed Development.
 - Green - on-site renewable energy from roof-mounted solar panels and the national grid, which itself is de-carbonising.
- 5.39 All non-residential buildings within the Site will be capable of meeting 'Very Good' standard using an assessment method known as BREEAM.
- 5.40 The Proposed Development includes other strategies and frameworks for delivering a sustainable new development including:

- Reducing waste production in accordance with measures set out in an Operational Waste Management Plan;
- Delivering at least a 20% gain in overall biodiversity within the Site;
- Reducing the number of private vehicle trips through a combination of investment in high quality sustainable alternatives (namely active travel and public transport) and delivering a masterplan that makes the car a guest;
- Reducing the need to travel by car to places of work or retail by placing these uses close to new homes;
- Provision of electric vehicle charging points to encourage the shift away from combustion engine vehicles, with positive effects on noise and air quality impacts;
- Delivering a network of sustainable drainage systems that account for extreme events and climate change scenarios; and
- Reducing on-site water demand through a combination of low flow fittings, and rainwater and grey water harvesting, cleaning and reuse.

Utilities

- 5.41 Connection points for utility infrastructure for the Development were identified and consultation with the respective service providers has been conducted to ensure that the local networks have adequate provision through existing services or proposed upgrades to service the Development for electricity, heating, potable water, foul water, and telecommunications.

6 Construction

How long will construction of the Development take?

6.1 It is anticipated that the construction of the Development will be undertaken over a period of approximately eight years as follows:

- Work commencing on Site in 2025;
- First occupations of housing in 2026;
- Estimated peak of construction activity in 2028; and
- Completion by 2033.

What works will be undertaken during construction?

6.2 Due to the outline nature of the planning application which concerns the principle of the Proposed Development, specific details of the constructions activities and methods are not available at this stage and will be considered and determined at the detailed reserved matters stage, details of construction activities and methods are not available.

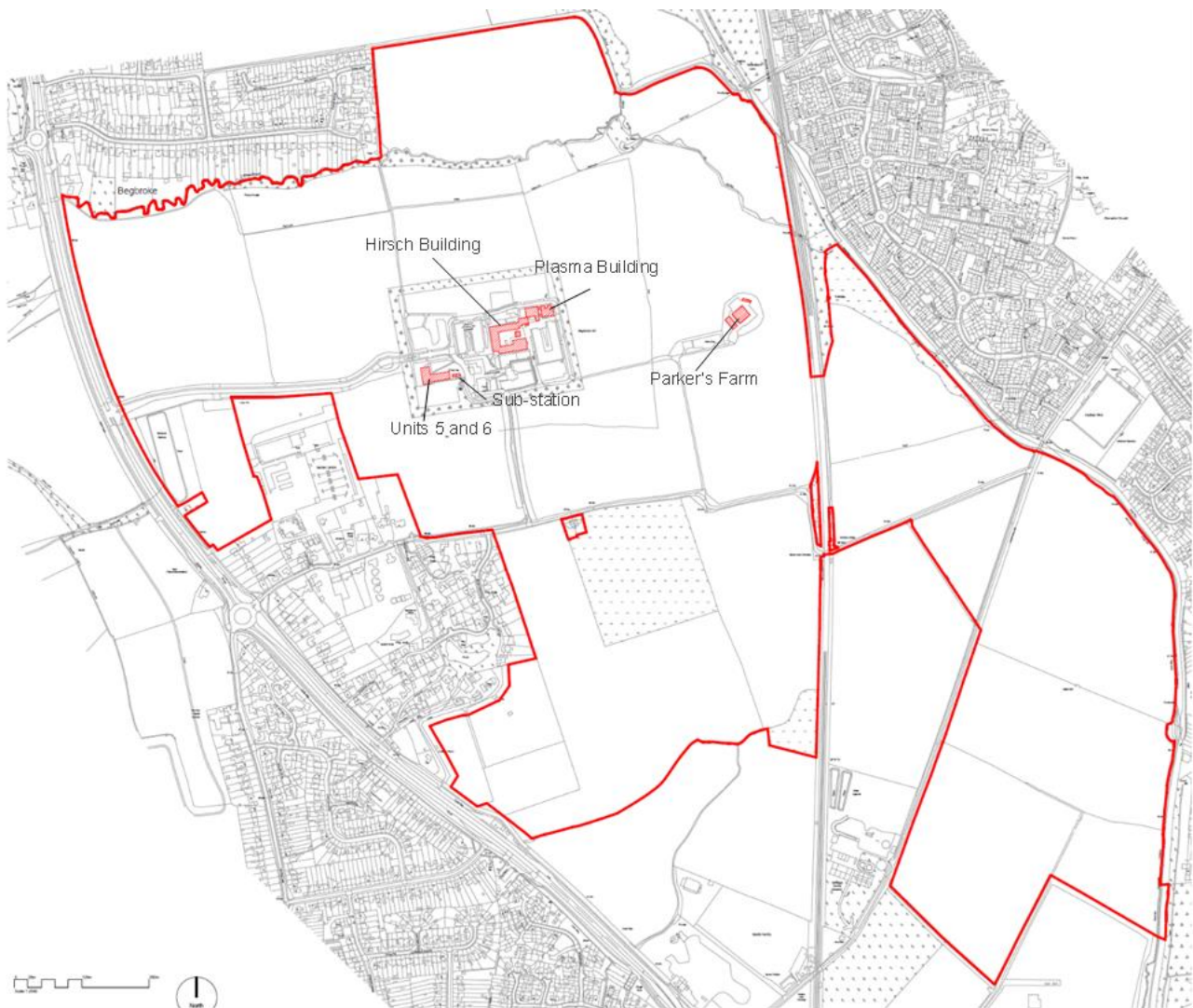
6.3 Prior to construction, the following enabling works are likely to be undertaken:

- Archaeological / ground investigation, as required;
- Diversion of Public Rights of Way/permissive paths^{viii};
- Construction of site access and haul roads;
- Demolition of some existing buildings on the Site;
- Establishment of construction compounds, welfare areas and hoarding/safety fencing;
- Vegetation clearance and establishment of protective measures (e.g. root protection zones, watercourse buffers, utility easements);
- Translocation of protected species, if required, and ecological protection measures;
- Earth works and soil preparation including excavation, grading and preparation of surfaces as well as the placement/compaction of fill; and
- Utility diversions, upgrades and connections.

6.4 A small number of buildings within the Site may potentially be demolished as part of the Proposed Development, as defined by the Indicative Demolition Plan and shown on Figure 6.1 overleaf. These include three farm buildings in the north east of the Site, known as 'Parkers Farm' and up to four buildings with Begbroke Science Park, comprising the Hirsch Building, Plasma Building, Units 5 and 6, and an electricity sub-station.

^{viii} A path (which could be for walkers, riders, cyclists, or a combination) whose use is allowed by the landowner.

Figure 6.1: Indicative Demolition Plan



6.5 Construction works would begin with the foundations followed by construction of the sub-structure of the buildings. Once the façades of the buildings have been constructed, fit-out will commence. External works and landscaping would then be completed. In addition to buildings, construction works will include infrastructure such as bridges, access points, internal access routes, and the formation of open space areas, such as formal sports pitches, open space, drainage and nature conservation areas.

What environmental management and mitigation measures will be in place?

6.6 Environmental effects associated with construction activities for the Proposed Development would be minimised and controlled through detailed Construction Environmental Management Plans (CEMP). The Outline CEMP details procedures and plans to avoid, minimise and mitigate potential environmental impacts as a result of the construction phase of works. This would be secured by planning condition. The Outline CEMP provides a framework for the production of detailed CEMP, as detailed design and commencement of construction works progresses on the Site. The Outline CEMP includes measures relevant

to ecology, air quality, heritage, energy and water consumption, pollution prevention, soil and geology, lighting and noise and vibration.

How will material be managed and reused?

- 6.7 It is not possible to accurately quantify the amount of materials arising from the demolition, excavation and groundwork activities for the Proposed Development at this outline stage. However, it is anticipated that approximately 75,900 tonnes of waste could result from construction works. A Site Waste Management Plan (SWMP) has been prepared to accompany the planning application that would be secured by planning condition. This sets out a framework for the production of future, detailed SWMPs that would be prepared by contractors. It includes ambitions to source resources sustainably, with 20% of materials from circular sourcing. Waste going to landfill will be avoided, and the Applicant will aim to reuse 80% of construction materials. Together these measures would help reduce construction waste by almost 4,000 tonnes.
- 6.8 The Framework Energy and Sustainability Strategy states that the Applicant will:
- Ensure zero waste in construction;
 - Set up a material reuse and exchange hub for construction materials;
 - Responsibly source 100% of key construction materials; and
 - Aspire for 30% of construction materials to be sourced from reused or recycled sources.

What measures will be in place to manage construction works and traffic?

- 6.9 The hours of construction work would be agreed with CDC although it is anticipated that they will be:
- 08:00 – 18:00 hours weekdays;
 - 08:00 – 13:00 hours Saturday; and
 - No planned working on Sundays or Bank Holidays.
- 6.10 Contractor(s) will have a period of 30 minutes before and at the end of the working shift (outside the times stated above) to start up and close-down the works activities. All works will be undertaken within the agreed hours stated, unless in the event of unforeseen or exceptional circumstances arising. If in exceptional circumstances there is a need to work outside these hours, the duration of works will be approved by CDC and OCC Highways.
- 6.11 A Framework Construction Traffic Management Plan (CTMP) accompanies the ES setting a structure for traffic management, travel planning for construction workers, and will be secured by planning condition. One of the main objectives of the CTMP is to reduce overall trips with the construction activities, especially in peak periods, reduce inconvenience to local communities and the existing Begbroke Science Park users, and minimise emissions. This document will inform the preparation of detailed CTMP(s) that will be prepared prior to construction works commencing once a contractor has been appointed.
- 6.12 The Framework CTMP sets out that all HGVs would be required to access the Site from the A44, either into Begbroke Hill or a temporary construction access in the south of the Site.

There will be no construction access from the east via Kidlington or via Sandy Lane. Routing of the construction traffic will be agreed with CDC to outline the most appropriate routes for the Site traffic with the aim of minimising disruption.

7 Socio Economics

- 7.1 The Socio-Economics Chapter assesses the impact of the Proposed Development on the local demographics and economy, such as changes to the labour market, housing, population and social infrastructure need associated with the new population that would occupy the Site.

How were the environmental effects identified?

- 7.2 There is no standard methodology for the socio-economic assessment. Professional judgement and experience have therefore been drawn upon to assess the scale and significance of the socio-economic effects of the Proposed Development. A full methodology is provided including details of how receptor sensitivity and magnitude of effects interact to inform a judgement on scale and significance of effects.

What is the baseline?

- 7.3 There is a notable housing need in the area, primarily linked to the unmet demand in Oxford. The employment rate in the local area is high with low unemployment rates. The area in which the Proposed Development is located is among some of the least deprived neighbourhoods in England. There are nine primary schools within two miles of the Site with a notable surplus capacity. Within a three mile radius, there are three secondary schools, at or below capacity. In terms of healthcare, there are two surgeries within 1km of the Site both with capacity for new intake. 18 playspace facilities, four allotments, one public park, eight playing fields and four sports facilities are located in close proximity to the Site.

What are the potential effects during construction?

- 7.4 Jobs at the existing Begbroke Science Park will not be affected by the Proposed Development. The remainder of the Site is used predominantly for agricultural uses, supports around four employees. The construction of the Proposed Development would support an average of 1,600 full time equivalent jobs over the expected 8 year construction programme. The effect would be beneficial, but not significant at a County (Outer Economic Area) level.
- 7.5 The assessment has not identified any negative effects during construction therefore no mitigation is necessary.

What are the potential effects of the Completed Development?

- 7.6 The provision of approximately 1,800 new homes would meet the policy target for PR8, deliver 41% of the housing target for Cherwell and increase the housing supply within the Oxford and Cherwell Districts by 1.5% and in Oxfordshire County by 0.6%. This is assessed as a permanent, major beneficial effect.
- 7.7 The new population would require additional social infrastructure. There would be an estimated 365 primary age children on-site with a short term peak of up to 565. Currently however there is surplus capacity at local schools. The Proposed Development includes land

for two primary schools comprising a 2 Form Entry and 3 Form Entry school. There would be an estimated 265 secondary school age children on-site with a short term peak of up to 315. The Proposed Development includes land for a 6 – 8 Form Entry secondary school. The Proposed Development would therefore more than meet the need it generates and would have capacity to meet the needs of neighbouring allocated sites. The effect on Primary and Secondary level education would be a major beneficial (significant) effect at the Site and Local level.

- 7.8 The likely resident population of the Proposed Development would be approximately 4,200 people which could generate demand for up to 2 full-time equivalent GPs. This effect would be negligible.
- 7.9 Based on CDC policy requirements, the open space requirements of the new population would be 20.91ha. The Proposed Development would provide a total of 83.95ha of open space which delivers all of the open space required by planning policy PR8. The provision allows for flexibility of types of open space, play space and sports facilities delivered on Site, the details of which will be decided at detailed design stages. The provision of open space and play space is assessed as a moderate beneficial effect at Site and Local level.
- 7.10 The Proposed Development includes 14.7ha of land for the expansion of Begbroke Science Park which will deliver 155,000 sqm of floorspace. In total the Proposed Development could deliver up to 176,000 sqm of commercial / non-residential (employment generating) floorspace. The new primary and secondary schools would also support jobs. The Proposed Development could therefore support between a likely minimum of 6,260 and a likely maximum of 6,310 full time equivalent jobs^{ix}.
- 7.11 The proposed scale of the Science Park expansion, in line with the policy PR8, presents a unique opportunity to contribute to an already existing concentration of research and development hub across Oxfordshire, while under the leadership and support of Oxford University. Within the County, effects will be major beneficial. Given the standing of Oxford University research, the Proposed Development has the potential to generate significant social and economic benefits, although these are not quantified.
- 7.12 People living in the new homes are expected to generate approximately £27million in spending per year. Employees at the Proposed Development could also around £19million per year. This spending would be beneficial to the local economy and is assessed as minor beneficial.

What would be the cumulative effects with other developments?

- 7.13 The Proposed Development, together with the cumulative schemes, would be expected to generate employment opportunities during the construction phase. These have not been quantified but would be beneficial.
- 7.14 The Proposed Development, together with the cumulative schemes and the other allocated 'PR' sites could deliver a total of 10,660 homes. This cumulative effect is considered to be a

^{ix} Calculated by applying the standard job density ratios from the HCA Employment Density Guide (2015) and the Oxfordshire Housing and Economic Needs Assessment/

major beneficial effect in the Oxford and Cherwell District area. The new housing is estimated to accommodate approximately 17,880 residents across the cumulative schemes. The new population would generate demand for community facilities such as education and primary healthcare facilities. It is expected that these would be provided either on-site or through financial contributions secured in the section 106 agreements entered into in connections with the other PR site developments. As such, the effects of demand on social infrastructure is assessed as negligible.

- 7.15 The Proposed Development, together with the cumulative schemes, could create between 12,710 and 14,060 jobs in the local economy. This would generate approximately £39.6m - £43.9m per year in additional spending from the employees. Should the identified cumulative schemes come It is estimated that approximately £160.7m per year in household spending could be generated from the new homes.
- 7.16 No mitigation is considered necessary for cumulative effects.

8 Cultural Heritage

- 8.1 The cultural heritage chapter of the ES considers the effects of construction and operation of the Proposed Development on heritage assets, including archaeological sites and known areas of archaeological potential, historic buildings and structures, and historic landscape character.

How were the environmental effects identified?

- 8.2 A desk-based heritage assessment was produced which was informed by a site walkover and historic records searches. A geophysical survey was undertaken at the Site to identify areas of potential archaeological interest and in consultation with OCC Archaeological Officer, a phase of archaeological evaluation was completed at the Site which focused on the proposed areas of built development. An additional phase of archaeological evaluation is about to commence in August 2023 in the remaining areas of the Site where green and open space is proposed.
- 8.3 Some heritage assets within the 2km study area were scoped out after assessing the degree of visibility and historical connection with the Site. After the identifying the value of significance for each asset (based on the relevant legal and policy framework and professional judgement), potential effects of the construction and operation of the Proposed Development have been identified and the relative degree of change has been assessed. A worst-case assessment has been undertaken for this evaluation using maximum building heights and other information.

What is the baseline?

- 8.4 The majority of the Site consists of rural, agricultural fields and Begbroke Science. There are six Scheduled Monuments within 3km of the Site and over 200 listed buildings within 3km of the Site, primarily located in Kidlington, Thrupp, Yarnton and Begbroke. There are several listed buildings on and near to the Site. The Grade II listed Begbroke Hill Farmhouse is within the Begbroke Science Park and dates from circa 1604. The Oxford Canal Conservation Area is adjacent to the Site's eastern boundary and Begbroke Conservation Area is 140m to the north west of the Site which includes the Grade II* listed St Michael's Church. Blenheim Palace WHS and RPG is 3km north west of the Site. The Grade II Yarnton Manor RPG is also 900m south of the Site.
- 8.5 In its rural form, the Site is mostly considered as a low positive contribution to the significance and the settings of the heritage assets from which the Site is visible. Geophysical survey and archaeological evaluation (trial trenching) suggested the presence of buried archaeological remains. The study of historical maps and the presence of some hedgerows along parish boundaries suggest the existence of historically important hedgerows associated with reorganised enclosed fields dating from the 19th century. A small number of non-designated built heritage assets have been identified within the Site.

What are the potential effects during construction?

- 8.6 It is likely that construction activities, notably groundworks, may lead to the removal of some buried archaeological assets dating from the Bronze Age, Anglo-Saxon and Iron Age periods. This would have a moderate negative effect, however an agreed programme (to be secured by planning condition) would be in place to record these remains prior to disturbance to reduce the potential effects to an acceptable level.
- 8.7 In the case of historically important hedgerows, a photographic survey, excavation, and investigation of the boundary together with a sampling strategy aimed to identify and mitigate the potential effects.
- 8.8 The Grade II listed Begbroke Hill Farmhouse will be impacted by site clearance, loss of agricultural land and hedgerows and new development and occupation. However, the setting of this building has already been effected by the presence of Science Park and the introduction of green corridors and the retainment of green spaces around the heritage asset will result in a loss of the rural character of the farmhouse but will not change it entirely, given its current setting.
- 8.9 Temporary slight negative effects will occur on the setting of other built heritage assets within and in close proximity to the Site from development, including Tudor Cottage, Ivy House, Crossing Cottage, the semi-detached 19th-century dwellings on Sandy Lane and the Grade II listed buildings along Oxford Canal. Site clearance works activities, including changes in noise and lighting levels, would lead to temporary slight negative effects on the setting of these assets. However, the short duration of the construction works and the mitigation provided by the Outline CEMP will mitigate these effects.

What are the potential effects of the Completed Development?

- 8.10 Begbroke Conservation Area and its associated Grade II and II* listed buildings will be subject to indirect slight negative impacts on their setting with the introduction of new development into a previously more agricultural area, including increased traffic and lighting. The erosion of the rural setting of Begbroke Hill Farmhouse will be a slight negative effect as it has been already affected by the presence of the Science Park. The mitigation strategies suggested includes the introduction of hedgerows and green corridors which will shield, and preserve the historical setting, and the introduction of a sympathetic design of the Proposed Development. The removal of the historical setting of the semi-detached 19th-century dwellings (not listed buildings) on Sandy Lane and of Crossing Cottage, and the change of the historical landscape types consist of permanent, slight negative effects.

What would be the cumulative effects with other developments?

- 8.11 During construction, works associated with the Yarnton and Sandy Lane crossing development will increase the degree of visibility and noise of construction works, and will have a cumulative temporary slight negative effect over the non-designated building of Crossing Cottage. No additional mitigation is proposed.

8.12 Once operational, cumulative effects of other nearby cumulative schemes will introduce additional street and road lighting onto the south edge of Begbroke and the north edge of Yarnton that would impact the setting of built heritage assets, albeit not significantly.

9 Transport and Access

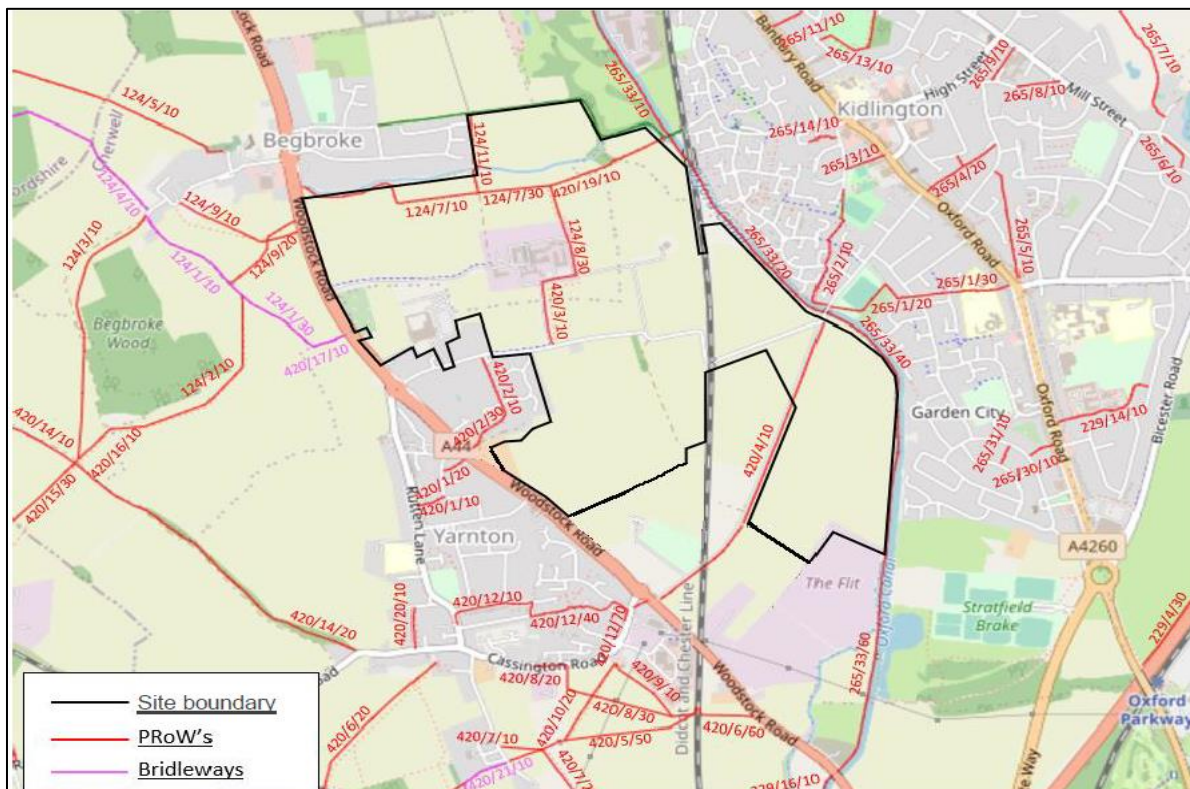
9.1 The effect of the Proposed Development on transport and access has been assessed with other development in the area. The assessment is informed by a Transport Assessment, Framework CTMP, Framework Site-wide Travel Plan, and Framework Delivery and Servicing Plan (DSP) which accompany the ES.

What is the baseline?

9.2 There are a number of A roads (A44, A43, A4260 and A40) and a motorway (M40) within the vicinity of the Site. Sandy Lane, a single carriageway, passes through the Site and connects to the A44 to the west of the Site and Yarnton Road to the east of the Site. Begbroke Hill, a single lane carriageway, is also within the Site and connects Begbroke Science Park with the A44 to the west. The existing Begbroke Science Park generates vehicle movements, including from employees, visitors, and delivers / servicing.

9.3 Key footway connections link the Site with existing amenities and services provided locally. A number of Public Rights of Way (PRoWs) are located within the Site, as shown on Figure 9.1.

Figure 9.1: Existing Public Rights of Way Network



9.4 There is an established cycle network in the vicinity of the Site, as illustrated in Figure 9.2.

Figure 9.2: Existing Cycle Network



9.5 In regard to public transport, the nearest bus service to the Site is the S3, which routes along the A44 between Chipping Norton and Oxford, via Yarnton village. The Peartree Park and Ride facility is located at the Peartree Interchange (A44 / A34 junction) approx. 2.3km south of the Site and Oxford Parkway railway station is located just over 6km to the south east of the Site.

How were environmental effects identified?

9.6 The ES includes a study of the effects of the Proposed Development on traffic flows and traffic conditions on the highway network. In particular, the assessment considers the effects of the change in traffic levels on severance (i.e. the change in ease of movement/accessibility caused by physical barriers); pedestrian and driver delay (including public transport); amenity, fear and intimidation; accidents and safety.

9.7 Network Rail is proposing to close the Sandy Lane level crossing to vehicular traffic and provide a ramped footbridge, subject to receiving the necessary consents. The ES has also considered the potential effects of this closure as it is a requirement of the PR8 policy.

What are the potential effects of the closure of Sandy Lane?

9.8 The closure of Sandy Lane is not expected to have a significant effect on the surrounding road network. Understandably, there would be significant reductions in traffic on Sandy Land

and Yarnton Road at the Oxford Canal, with traffic redistributed via other routes. Yarnton Road is forecast to have a 36% increase in total traffic as a result of the closure of Sandy Lane level crossing and an 11% reduction in HGVs. Five Mile Drive would experience a 138% increase in HGVs. In reality, this is an increase of 16 HGVs per day (up from a base of 12 HGVs) per day which equals less than one additional HGV per hour, hence this effect is not significant.

What are the potential effects during construction?

- 9.9 Construction traffic from the Proposed Development is not expected to have a significant effect on severance, pedestrian delay, amenity, fear or intimidation, driver delay, or road safety. This takes into consideration that construction vehicles will adhere to the best practice principles set out in the Framework CTMP. As no significant effects have been identified, no additional mitigation or monitoring is necessary.

What are the potential effects of the Completed Development?

- 9.10 Traffic from the completed Proposed Development is not expected to have a significant effect on severance, pedestrian delay, amenity, or fear or intimidation.
- 9.11 It is expected that drivers on the A44 will have an increased journey times of up to circa 4 minutes during AM peak times (08:00-09:00). The effect on driver delay in this period is considered to be a significant negative effect. There would be no significant negative effects on bus journey times due to the presence of bus priority. It is not expected that there would be a significant effect on driver delay during the PM peak (17:00-18:00).
- 9.12 The Proposed Development is expected to have significant beneficial effects on road safety due to improvements to walk and cycle infrastructure, new signal-controlled pedestrian crossings over the A44 and improvements to bus services.
- 9.13 The Proposed Development is committed to monitoring trips into and out of the Site over a number of years through a Monitoring and Evaluation Plan, secured through the Framework Site Wide Travel Plan which includes a Sustainable Transport Innovation Fund that will contribute to new infrastructure. This document will be secured by planning condition and will ensure public infrastructure is maintained or upgraded to meet demand.

Are there cumulative effects with other developments?

- 9.14 The assessment of transport and access has considered the cumulative effect of the Proposed Development with other committed developments and allocated 'PR' sites in the Local Plan. It has been concluded that cumulative effects on pedestrian delay, amenity, and fear and intimidation would be not significant. There would be a significant positive cumulative effect for severance in relation to a reduction in HGV numbers on Yarnton Road. For all other receptors, the effect of severance would be not significant. The cumulative effects on driver delay would not be significant with the exception of the A44 southbound between PR9 access and Loop Farm roundabout, which is forecast to experience an increase in journey time of circa 13 minutes, which would be significant. However, a package of off-site sustainable transport measures is proposed to be jointly funded by the PR sites, which will include improvements to walk and cycle infrastructure, new signal controlled pedestrian crossings

over the A44 and improvements to bus services and contribution towards a mobility hub at Oxford Airport. These improvements are intended to promote a shift towards sustainable modes but they will also have road safety benefits by making it safer for vulnerable road users, which is a significant beneficial effect.

10 Noise and Vibration

10.1 The potential effects of noise and vibration during the construction and operation phases of the Proposed Development have been assessed. The temporary construction effects arise from construction works within the Site boundary, construction traffic travelling along the surrounding road network and, where applicable, construction vibration. The permanent effects associated with the Proposed Development are primarily from road traffic noise and the impact of the proposed school playgrounds and sports pitches at the surrounding receptors. There is also potential for noise from mechanical services plant servicing the development and commercial sources (including deliveries and servicing) to affect nearby receptors.

How were the environmental effects identified?

10.2 The effects associated with each source of noise and vibration have been determined by predicting the level of noise or vibration that is likely to occur based on recognised methods set out in British and International Standards and relevant guidance. This has been based on information provided by the project team relating to construction, road traffic and the indicative location and size of the proposed schools. The baseline conditions at the Site were determined from a baseline noise survey at various locations within the Site, along the Site boundary and in the local area undertaken between 20th and 22nd September 2022. Baseline vibration measurements were also taken close to the railway line in February 2023.

10.3 The assessment was informed by a computer-generated acoustic noise model which was produced using monitoring data and traffic data to assess the likely effects of the Proposed Development. Information was also obtained about flight movements from Oxford Airport to understand how these might affect the Proposed Development now and in the future.

10.4 To align with policy as far as practicable for each of the assessments, it has been identified whether the resulting impact would be:

- below the level at which a negative effect would be expected to occur,
- between the level at which a negative effect may occur and a significant negative effect may occur, or
- above the level at which a significant negative effect may occur.

What is the baseline?

10.5 The baseline noise environment at the Site and the surrounding receptors is mainly affected by road traffic noise from the A44 and Sandy Lane, railway noise from the Cherwell Valley Rail Line (passenger and freight), aircraft noise associated with the use of Oxford Airport. There is also some plant noise from the existing buildings on the Begbroke Science Park. The railway generates low levels of vibration.

10.6 Existing and future receptors were identified within and adjacent to the Site, including existing and future residential properties, residents of houseboats on Oxford Canal, Littlemarch

Playing Fields and Begbroke Science Park. Worst case assumptions have been applied to the use of Oxford Airport and the railway.

What are the potential effects during construction?

- 10.7 Construction noise has the potential to cause negative effects at existing noise sensitive receptors, such as residential properties, as people living and working within the Proposed Development where work is ongoing. Noise from construction activities would be minimised and managed in line with standard good practice through a CEMP, for example the use of hoarding and working hours. Construction traffic, which would generate some noise would also be controlled through the CTMP.
- 10.8 As a worst case and during the peak of construction activities, construction traffic on the surrounding road network is anticipated to result in negligible effects at all receptors and therefore no significant effects would arise. The maximum increase in noise would be 0.8 decibels (dB) which would not be noticeable.
- 10.9 In terms of noise from construction activities, once works are around 220m away from a receptor, no negative effects would be expected. However, there will be periods where works will be concentrated in very close proximity to some receptors and on these occasions some significant negative effects are anticipated. These will be managed to reduce the level of noise to acceptable levels, including temporary noise barriers (fencing). No negative noise effects are expected from piling works assuming they are at least 15m from the receptors but there is potential for significant negative effects from vibratory ground compaction if these works are less than 30m from a receptor. However, this process will be managed through reduction of vibration levels of the drums if necessary. Monitoring is also recommended where works are within 30m of receptors to determine whether any additional precautions should be undertaken.

What are the potential effects of the completed Development?

- 10.10 A screening exercise identified that the road traffic noise impacts of the Proposed Development are likely to be negligible and no negative effects are expected. With regard to mechanical plant and commercial noise sources, target rating levels have been identified to avoid negative noise effects. Should planning permission be granted, it is recommended that a planning condition is imposed that requires an assessment of the noise impacts and a mitigation scheme designed to protect the amenity of existing and future residents.
- 10.11 Indicative noise predictions from the school playgrounds and pitches have been undertaken. For the secondary school it is generally considered that there would be no noise negative effect at the nearest existing receptors. Noise from playgrounds of the proposed primary schools have the potential to generate negative effects at the surrounding receptors, notably in relation to noise from playgrounds and sports pitches. However, this would be avoided or minimised by good design and would only be temporary. The final form of these barriers would be confirmed as the detailed design progresses and the final layout of the school sites, location and use of pitches and playgrounds is confirmed.
- 10.12 An outline site suitability assessment has been undertaken to review the potential noise impacts on future residential receptors and identified that, while ambient noise thresholds are

exceeded across areas of the Proposed Development, it is suitable for residential development. However, it is recommended that careful consideration is given to the building layouts and acoustic mitigation requirements during the detailed design of future development, informed by additional noise monitoring, at the reserved matters stage.

What would be the cumulative effects with other developments?

- 10.13 During the construction phase there is potential for cumulative negative effects should construction works associated with neighbouring developments occur at the same time as works at the Site. Generally, it is expected that this may generate higher cumulative levels of construction noise, including noise from in-combination construction traffic. Good site practices (using the most up-to-date and effective methods) will be used to help minimise these effects on all construction sites and there should be appropriate liaison and scheduling of works between the contractors to minimise the occasions where this will occur. With appropriate mitigation and management it is anticipated that significant negative effects would be avoided.
- 10.14 During the operational phase, it is not anticipated that there would be any significant cumulative effects with other schemes from building operation or road traffic noise.

11 Air Quality

- 11.1 The impact of the Proposed Development on air quality during both construction and operation has been assessed. This includes assessment of dust and particulate matter emissions due to on-site construction activities. The impact of increases in traffic on air quality has also been assessed during both construction and operation stages of the Proposed Development, combined with other development projects. In addition, the energy, heating and hot water strategy has also been considered.

How were the environmental effects identified?

- 11.2 The effect of dust and particulate matter (solid particles and liquid droplets in the air) emissions due to on-site construction activities has been assessed qualitatively. This considers demolition, earthworks, construction and tracking of dust onto the road network. The impact of construction and operational phase vehicle traffic on air quality has been assessed quantitatively using specialist computer modelling. An air quality model has been developed and checked against local air quality monitoring and worst-case assumptions have been used throughout. Changes in air pollutant concentrations due to the Proposed Development have been determined at existing human and ecological receptors such as ancient woodland and designated nature conservation sites. The exposure of future site users was also assessed.
- 11.3 The assessment has been undertaken in accordance with guidance from Institute of Air Quality Assessment and Management (IAQM)^x.

What is the baseline?

- 11.4 Baseline air quality concentrations have been obtained from local authority monitoring and a 6-month monitoring survey at the Site. Monitoring indicates that baseline air pollutant concentrations are in compliance with UK air quality objectives on and surrounding the Site. There are two Air Quality Management Areas (AQMA), which are areas where exceedances of air quality objectives have been identified, in the vicinity of the Site. One AQMA covers the city of Oxford and the other is along Bicester Road in Kidlington.

What are the potential effects during construction?

- 11.5 For the assessment of construction dust, the study area is defined as up to 350m from the Site boundary. There is a high risk of impact on amenity due to dust deposition during construction and earthworks. There is a medium risk of impact on amenity due to trackout of dust on the wider road network by construction vehicles. There is also a low risk of ecological damage at Rushy Meadows SSSI during construction and earthworks. Appropriate mitigation measures, that are proportionate to the level of risk, have been identified which form part of the Outline CEMP. With implementation of these measures, effects will not be significant.

^x <https://iaqm.co.uk/guidance/>

- 11.6 The impact of pollution arising from construction traffic on surrounding human receptors will be negligible and effects not significant.

What are the potential effects of the completed Development?

- 11.7 The potential effects of pollution arising from traffic generated by the operation of the Proposed Development on surrounding human receptors will be negligible and not significant due to relatively low volumes of vehicle trop emissions associated with the scheme. Additionally, provision of electric vehicle charging and new public transport links will minimise the need for new vehicle trips. The are negligible impacts on all AQMAs.
- 11.8 The energy strategy will not lead to any on-site air pollutant emissions and will therefore not have an effect on surrounding air quality.
- 11.9 Future site users introduced by the Proposed Development will not be exposed to air pollutant concentrations above UK air quality objectives. Therefore the impact of introducing new exposure to air pollution will be not significant and the Site will therefore be acceptable for future residents to live there.
- 11.10 The impact of increased traffic on Oxford Meadows SAC, Wytham Wood SSSI, nearby Ancient Woodland, and Meadows West of Oxford Canal Local Wildlife Site has been assessed, and changes in concentrations of key pollutants and deposition rates have been calculated across these sites. The significance of these impacts are discussed in Section 13 of this NTS.

What would be the cumulative effects with other developments?

- 11.11 It is reasonable to assumed that other construcion sites would implement good practice site management measures such that significant air quality effects would not be expected during the construction phase.
- 11.12 Traffic generated by surrounding committed cumulative developments on human health have been considered qualitatively and are considered not to lead to significant effects on human and ecological receptors.

12 Climate Change and Greenhouse Gases

- 12.1 The ES includes an assessment of greenhouse gas emissions from the Proposed Development (Part A) and also considers the how resilient the project is to the effects of climate change in the future (Part B).

How were the environmental effects identified?

- 12.2 The assessment approach draws on guidance published by the Institute for Environmental Management and Assessment (IEMA).

Greenhouse gas emissions assessment

- 12.3 The greenhouse gas emissions assessment considers the global atmosphere as the sensitive receptor. GHG emissions from the construction and operation of the Proposed Development contribute to an increase in atmospheric GHG emissions, triggering subsequent effects on the global climate system. The assessment quantifies the likely emissions of greenhouse gases (GHGs) (typically measured in carbon dioxide equivalent (CO₂e)) during construction and operation of the Proposed Development and the associated effects, and what measures can be undertaken to mitigate these impacts.

Climate change resilience

- 12.4 The impacts of climate change on the Proposed Development were identified using an adaptation version of guidance published by C40 Cities², which covers a range of environmental impacts including flooding, extreme hot and cold conditions, and disease.

What is the baseline?

Greenhouse gas emissions

- 12.5 The baseline consists of GHG emissions associated with the current Site use. The Site is currently occupied by Begbroke Science Park, a restored historical landfill site, and agricultural land. GHG emissions of Begbroke Science Park were estimated based on Display Energy Certificates for each building on Site. For the portion of the Site made up of agricultural land, an appropriate benchmark was used to estimate annual GHG emissions.

Climate change resilience

- 12.6 UK Climate Projections in 2018 (UKPC18) were used to establish evolving baseline conditions and risks for the Proposed Development up to 2099. The Proposed Development is expected to experience warmer, drier summers and milder, wetter winters, together with an increased frequency of extreme weather events such droughts or heatwaves.

What are the potential effects of the construction of the Development?

- 12.7 The assessment has demonstrated that construction of the proposed Development would result in moderate negative effects on the global atmosphere. This effect will be mitigated through supplementary mitigation measures which would take place prior to construction such as undertaking a whole life carbon assessment, review opportunities to reduce energy usage during construction and exploring the possibility of using cement replacement to reduce embodied carbon.

What are the potential effects of the Completed Development?

- 12.8 Embodied carbon associated with the in use (maintenance) stage has been estimated to be approximately 300,000 tonnes (carbon dioxide equivalent) over the 60-year lifecycle of the Proposed Development. Implementation of circular economy measures, e.g. local sourcing of materials and disposal of waste, would reduce this to a residual effect of minor negative significance.
- 12.9 It is predicted that cumulative greenhouse gas emissions associated with operational energy will be between 18,330 and 29,480 tonnes (carbon dioxide equivalent) over the lifecycle of the Proposed Development. Mitigation measures for operational energy include buildings being net zero in operation, and the maximisation of renewable energy generation. Therefore, the residual effects of operational energy associated with the Proposed Development are of negligible significance. Effects of operational water consumption are also considered of negligible significance.
- 12.10 Operational transport is estimated to lead to approximately 557,360 tonnes (carbon dioxide equivalent) of greenhouse gas emissions over the lifetime of the Proposed Development, considered a moderate negative residual effect. Proposed mitigation to reduce these emissions include a focus on active travel, and implementation of the principles in the Framework Travel Plan including provision of a car club using electric cars and a car sharing scheme.
- 12.11 The estimated greenhouse gas emissions at the decommissioning stage of the Proposed Development are approximately 1,400 tonnes (carbon dioxide equivalent), which is a minor negative residual effect.
- 12.12 Overall, the total greenhouse gas emissions for these sources over the design life of the Proposed Development are between approximately 1,206,440 and 1,295,440 tonnes (carbon dioxide equivalent). This represents approximately 0.15% of Cherwell's emissions at the peak of operational emissions in 2031, and approximately 0.01% during operation post 2050.
- 12.13 In conclusion, the results of this assessment have indicated that the potential environmental effects resulting from GHG emissions to the global atmosphere resulting from the construction and operation of the Proposed Development are predicted to be minor to moderate negative, and long term, with mitigation. This is in line with best practice advice that states that emissions from any development have the potential to make significant contributions to GHG emissions in the global atmosphere and contribute to climate change.

Climate Vulnerability

- 12.14 The design of the Proposed Development embeds several mitigation measures to increase its resilience to climate change including surface water drainage solutions, large areas of open and green space and landscaping. The potential effects of climate change on the Proposed Development were assessed, and appropriate mitigation measures are suggested to mitigate these effects and increase climate resilience of the Proposed Development. The greatest risks were identified in relation to heat waves, flash and surface water flooding.

What would be the cumulative effects with other developments?

- 12.15 Effects from greenhouse gas emissions are not localised but contribute to the global atmospheric concentration of greenhouse gasses and consequently contribute to the global climate change effect. Therefore, we do not assess emissions from the Proposed Development in terms of combined effects with other nearby developments. The Proposed Development should be viewed, rather, in the context of developments and construction projects globally as it contributes to a global climatic effect. As there are greenhouse gas emissions associated with almost all new developments globally and that we are approaching a global climate tipping point, it is considered that cumulative effects are significant.

13 Ecology

How were the environmental effects identified?

- 13.1 The current ecological status of the Site has been assessed through baseline survey work and a desk study. All baseline survey work was undertaken between 2021 and 2023, with the exception of a crayfish survey which was undertaken in October 2017. The desk study was undertaken in March 2023.
- 13.2 Assessment has been undertaken with reference to Chartered Institute of Ecology and Environmental Management (CIEEM)^{xi} guidance.

What is the baseline?

- 13.3 There are no statutory sites designated for nature conservation within the Site. There are sixteen statutory designated sites within 5km of the Site boundary: these comprise Oxford Meadows Special Area of Conservation (SAC) and fifteen Sites of Special Scientific Interest (SSSI).
- 13.4 Rushy Meadows SSSI is adjacent to the northern boundary of the Site, separated from it by a stream, bridleway and double hedgerow. The next closest SSSI is Pixey and Yarnton Meads SSSI, 1.8km to the south of the Site.
- 13.5 The Site contains one non-statutory designated site: Lower Cherwell Valley Conservation Target Area (CTA), part of which occupies an arable field and a pasture field in the north-east of the Site either side of the railway line and an adjacent tributary of the Rowel Brook. This CTA also extends along the Oxford Canal adjacent to the eastern boundary of the Site. The grassland field to the east of the railway line supports semi-improved neutral grassland known to support reptiles, and adjacent hedgerows.
- 13.6 The Site contains no Ancient Woodland; the closest is part of Begbroke Wood, ca. 0.6km west of the Site.
- 13.7 There are 12 Local Wildlife Sites (LWSs) and two Proposed LWSs within 2km of the Site. The closest of these to the Site are Meadows West of Oxford Canal (0.35km to the west), Begbroke Wood (c. 0.45km west), Langford Meadow (c. 0.85km west) and Bladon Heath (0.85km east). All other LWSs are more than 1km from the Site.
- 13.8 There are three non-statutory sites within 2km of the Site: a Woodland Trust Reserve at Stratfield Brake (c. 80 metres east of the Site, beyond the Oxford Canal), a Wildlife Trust Reserve at Oxey Mead (part of Pixey and Yarnton Meads SSSI, c. 1.8km south), and Lakeside Link (c. 1.9km south-east).

^{xi} Chartered Institute of Ecology and Environmental Management

- 13.9 The main habitats present at the Site are arable land, poor semi-improved grassland, semi-improved woodland, hedgerows, streams, and ditches. Six ponds are present within the Site, as are numerous mature trees, and there are small areas of good semi-improved grassland, scrub, tall ruderal vegetation, amenity grassland, plantation woodland, and hardstanding. Buildings are present at Begbroke Science Park in the centre-north of the Site and at Parker's Farm in the north-east of the Site.
- 13.10 A stream, the Rowel Brook passes east to west through the north of the Site and joins the Oxford Canal which forms part of the Site's eastern boundary. The A44 forms part of the western boundary of the Site, and is likely to present a significant barrier to many species (such as great crested newt and reptiles).

What are the potential effects during construction?

- 13.11 Whilst there is potential for some negative effects on ecological receptors during construction works, including the Oxford Meadows SAC, other non-statutory sites, hedgerows and ditches, some trees, some arable plants and brown hare, these negative effects are not expected to be significant following appropriate mitigation such as implementation of a Construction Environmental Management Plan and a Landscape Ecological Management Plan.

What are the potential effects of the completed Development?

- 13.12 Beneficial effects are expected from the completed Proposed Development due to the creation of new open space and habitat. This is notably in relation to Rushy Meadows SSSI, Lower Cherwell Valley CTA, grassland, woodland, Rowel Brook, ponds, bats, water voles, otters, hedgehogs, breeding birds, great crested newts, common toads, brown hairstreak butterfly, reptiles and biodiversity net gain levels. However, these effects are not expected to be significant.

What would be the cumulative effects with other developments?

- 13.13 A proposed development is located across the A44^{xii}, to the west of the Site. This would provide green corridors and grassland habitats, but the ecological linkage is limited by the presence of the A44 Woodstock Road between the two sites.
- 13.14 Cumulative effects of committed developments and the 'PR sites' on the Oxford Meadows SAC have been assessed and are not considered to lead to give rise to likely significant effects. Cumulative effects of changes in air quality on SSSIs and on Ancient Woodland sites have been considered and are considered to have negligible negative effects and minor negative effects respectively, from recreational pressure and/or air quality changes.

^{xii} LPA ref: 21/03522/OUT

14 Agricultural Land and Soils

- 14.1 The potential effects of the Proposed Development on agricultural land and soil during the construction phase have been assessed in the ES, as scoped in with the agreement of CDC. There would be no negative effects on agricultural land and soil once the Proposed Development is constructed as there would be no potential for potential significant effects on agriculture and soils, and as such this is not assessed in detail.

How were the environmental effects identified?

- 14.2 The quality of agricultural land and soil affected by the Proposed Development, i.e., land within the Site boundary, has been determined by a desk-based assessment of climate, topography (gradient), flood-risk, geology and soil. A soil survey was also undertaken to establish the agricultural quality of the soil using standard Agricultural Land Classification (ALC) methods and published guidance. The ALC system assesses the quality of farmland to enable informed decisions about the use of agricultural land.

What is the baseline?

- 14.3 British Geological Survey information indicates the Site is underlain by bedrock predominantly by mudstone, with some limestone, and sandstone/siltstone in the north. The bedrock at the Site is covered by deposits of clay, silt, sand and gravel in the south and east. The bedrock in the central and northern parts of the Site is covered by sand and gravel.
- 14.4 The detailed ALC survey determined the presence of approximately 34.0ha of Grade 2 (Very Good Quality) agricultural land (or 19.8% of the Site) and approximately 93.9ha of Subgrade 3a (Good Quality) agricultural land (or 54.6% of the Site). Grade 2 and Grade 3a is considered to be Best and Most Versatile (BMV) land. Approximately 24.1ha of the Site comprises Subgrade 3b (Moderate Quality) (or 14.0% of the Site) and approximately 20.0ha of land within the Site is classified as non-agricultural, including roads, hard-standing, buildings, woodland and watercourses (i.e. not BMV land).

What are the potential effects during construction?

- 14.5 Construction of built development on agricultural land is assessed as being a permanent, irreversible change of land-use, i.e., from agricultural production to built development (e.g., roads and buildings). The significance of the residual, permanent, negative effect of the Proposed Development on c.19.2ha of Grade 2 and c. 55.2ha of Subgrade 3a (BMV) agricultural land is assessed as being large negative, which is significant.
- 14.6 The change of use within the Site from agricultural land to green infrastructure (e.g. public open space, nature conservation areas) is assessed as being potentially reversible, as these areas could be returned to agricultural productivity by future generations using standard agricultural farming techniques, such as ploughing, if required. The significance of the residual, negative, reversible effect of the Proposed Development on Grade 2 and Subgrade 3a (BMV) agricultural land is assessed as being moderate, which is significant, whilst the

significance of the residual negative, reversible effects on Subgrade 3b agricultural land is assessed as being slight negative, which is not significant.

- 14.7 The construction of the Proposed Development has the potential to negatively affect the quality and quantity of soil resources (topsoil and subsoil) which should be available for reuse on Site in residential gardens, landscaping schemes, etc. The main threat is damage to soil structure (compaction), especially when the soil is worked/handled when it is too wet. The quality and quantity of soil resources would be identified and safeguarded on site as part of a Soil Management Plan which follows good practice guidance, and will be secured by planning condition. By protecting soil resources in this way, the significance of the residual effect of the Proposed Development on soil resources would be slight negative, which is not significant.
- 14.8 Given the small scale of the agricultural employment provided on-site in context of the wider agricultural land availability, the effect of the Proposed Development on the existing jobs and the agricultural economy is considered to be negligible.

What are the potential effects of the Completed Development?

- 14.9 There are no further significant negative effects of the Proposed Development on agricultural land and soil once it has been constructed.

What would be the cumulative effects with other developments?

- 14.10 The combined impact of the Proposed Development in combination with other committed developments identified in the area on agricultural land would be major negative. As there is no mitigation for the change of use from agriculture to built development, the permanent, negative cumulative effect on Grade 2 and Subgrade 3a (BMV) agricultural land is assessed as being very large negative (significant).

15 Ground Conditions and Contamination

- 15.1 The potential ground conditions and contamination related effects during the construction and operational phases of the Proposed Development have been assessed in the ES. An assessment of spillages, soil erosion, generation of suspended solids during the construction phase and localised spillages of fuel, which may be carried to surface watercourses and underlying groundwater through surface run-off and leaching through the soil profile during the operational phase were scoped out of the ES with agreement of CDC.

How were the environmental effects identified?

- 15.2 The assessment was informed by a desk based study of records, maps, previous site investigations and other information. A ground investigation was also undertaken at the Site in 2022 in accordance with standard land contamination risk assessment guidance and included the historical landfill. These baseline studies helped to identify the ground conditions at the Site, groundwater conditions, surface water bodies, historical and current potentially contaminating activities. For a risk to exist, there needs to be one or more 'source-pathway-receptor' linkages. The source (hazard) is the contaminant or gas, the pathway is the route by which contamination can generate exposure or migrate, and the receptor is the entity that is vulnerable to the negative effects of the hazard (e.g. waterbody or human health). A Ground Model (expected below ground conditions) and contaminant linkages were combined to form a Conceptual Site Model (combination of all interpreted information for a site relevant to contamination sources, the receptors that may be affected, and the pathways that link the sources and receptors).
- 15.3 Findings of the desk-based studies have been reviewed to identify the environmental effects, during the construction and operational phases of the Proposed Development.

What is the baseline?

- 15.4 The Site is currently in agricultural use, with a historical landfill (filled with inert/industrial waste) in the central-south of the Site. Other potentially contaminative uses include chemical and hazardous waste storage within Begbroke Science Park, off-site historical backfilled gravel pits and a petrol station adjacent to the south-west corner of the Site.
- 15.5 The potential for encountering contamination/gas at the Site is classified depending on the level of risk. Limited contamination has been identified at the Site, with elevated concentration of metals and (polycyclic aromatic) hydrocarbons in soils being assessed as low risk and therefore insignificant. The presence of asbestos containing materials on the ground surface and within soils has been assessed as moderate risk.
- 15.6 Concentrations of metals, ammoniacal nitrogen and sulphate have been identified above the assessment criteria within groundwater beneath the Site. The risk level for groundwater is considered to be moderate risk and therefore effects are considered significant for this assessment. The risk level for surface waters are considered to be low and therefore effects are considered insignificant for this assessment.

What are the potential effects during construction?

- 15.7 Potential effects and required mitigation measures during construction are summarised as:
- Exposure of construction workers to contamination and elevated ground gas/radon will be mitigated through safe working practices;
 - Exposure of off-site users of adjacent areas to contamination (dust and asbestos fibres) will be mitigated through safe working practices and adherence to the Outline CEMP, which details measures and monitoring required to limit the migration of dust off-site; and
 - Effects on groundwater and surface waters will be mitigated through adherence to the Outline CEMP, which details measures required to prevent pollution of water.
- 15.8 The risks to identified receptors during the construction phase have been assessed to be negligible. Overall, it is considered that potential effects from the construction phase of the Proposed Development will not be significant following the implementation of mitigation measures.

What are the potential effects of the Completed Development?

- 15.9 Potential effects and required mitigation measures for the completed Proposed Development are summarised as:
- Exposure of future on and off-site users to contamination will be mitigated through the presence of an engineered cover system in required areas (i.e. the historical landfill site), to be detailed within a Remediation Strategy.
 - Exposure of future site users to elevated ground gas/radon will be mitigated through installation of ground gas/radon protection measures in identified properties, to be detailed within a Remediation Strategy.
 - Effects on groundwater and surface waters will be negligible, with the presence of increased hardstanding areas (roads, pavements, buildings) reducing widespread infiltration of rainwater and associated spread of contaminants.
 - Effects on building materials such as concrete and plastic pipes will be mitigated through the selection of appropriate materials at the detailed design stage.
- 15.10 The risk to identified receptors during the operational phase is considered to be negligible to moderate beneficial. Overall, it is considered that potential effects from the operational phase of the Proposed Development will not be significant following the implementation of appropriate mitigation measures.

What would be the cumulative effects with other developments?

- 15.11 Cumulative effects have not been considered with regards to ground conditions and contamination as any effects are likely to be localised to the Site, with cumulative effects across multiple sites unlikely due to the nature of contamination and mitigation strategies implemented across all development sites.

16 Water Resources and Flood Risk

16.1 The assessment of water resources and flood risk includes effects of flooding and pollution to waterbodies as a consequence of the Proposed Development. The assessment considers how the operation of the Proposed Development will influence flood risk, within the Site and beyond its boundary. A Flood Risk Assessment and Drainage Strategy have been prepared and form part of the ES. These provide details on how surface water will be managed to ensure that water quality, flood risk and surface water drainage infrastructure capacity are not compromised.

How were the environmental effects identified?

16.2 A site walkover and information from a variety of sources was used to understand the baseline water environment at the Site, including maps, published Strategic Flood Risk Assessments, data from CDC, Environment Agency and OCC and other data relevant. Information on site levels and computer modelling was also undertaken to identify areas of flood risk from surface water within the Site which could affect the Proposed Development. The assessment used professional judgement to evaluate the significance of effects for the construction and operational phases.

What is the baseline?

16.3 The majority of the Site is currently in agricultural use for arable farming and includes Begbroke Science Park, access roads and a small number of farm buildings. The topography of the Site is relatively level, although it rises within central areas, around the northern edge of Yarnton.

16.4 The Site lies within the Ock Operational Catchment which is within the Thames River Basin District. There are a number of surface water bodies within and surrounding the Site which comprise the surrounding surface water environment including:

- Oxford Canal;
- Rushy Meadows SSSI including Thrupp Ditch;
- Rowel Brook;
- Pond in Yarnton;
- Eastern Drainage Ditches; and
- Southern Drainage Ditch.

16.5 Other receptors identified are:

- Water infrastructure – supply and foul;
- Site users (construction workers and site users).

What are the potential effects during construction?

- 16.6 The potential risks to the water environment during construction include:
- Increased sediment loads;
 - Accidental release of hydrocarbons;
 - Accidental leaks of hazardous materials;
 - Leaks from temporary sewerage system;
 - Dust and debris (risk of being blown into brook);
 - Dewatering of excavations;
 - Increased water demand during construction;
 - Increased sediment loads;
 - Dust and debris (risk of being blown into drainage lines and sewer network);
 - Dewatering of excavations (removing groundwater from the construction Site); and
 - Flood risks to site workers (groundwater, surface water and fluvial from Rowel Brook and Oxford Canal).
- 16.7 For the purpose of assessment and the identification of the potential construction effects, the assumption has been made that the measures set out in the Outline CEMP as embedded mitigation will be implemented and developed further in detailed CEMPs, to be secured by planning condition.
- 16.8 The residual construction effects to the water environment are considered to be no greater than minor negative, and temporary, during the construction period. No specific monitoring is recommended for the Proposed Development, given that effects are likely to be insignificant.

What are the potential effects of the Completed Development?

- 16.9 The following effects have been considered with respect the completed Proposed Development are:
- Pollutants contained in surface water;
 - Flood risk - Change to runoff rates;
 - Increased foul water drainage demand;
 - Increased potable water demand; and
 - Flood risk to site users.
- 16.10 The commitments made through the FRA and the Drainage Strategy for the planning application, are considered to form 'designed-in' mitigation, including provision of permeable paving, roadside swales and ponds to store rainwater.

16.11 The residual effect is no greater than minor negative for all receptors during the operation of the Proposed Development.

What would be the cumulative effects with other developments?

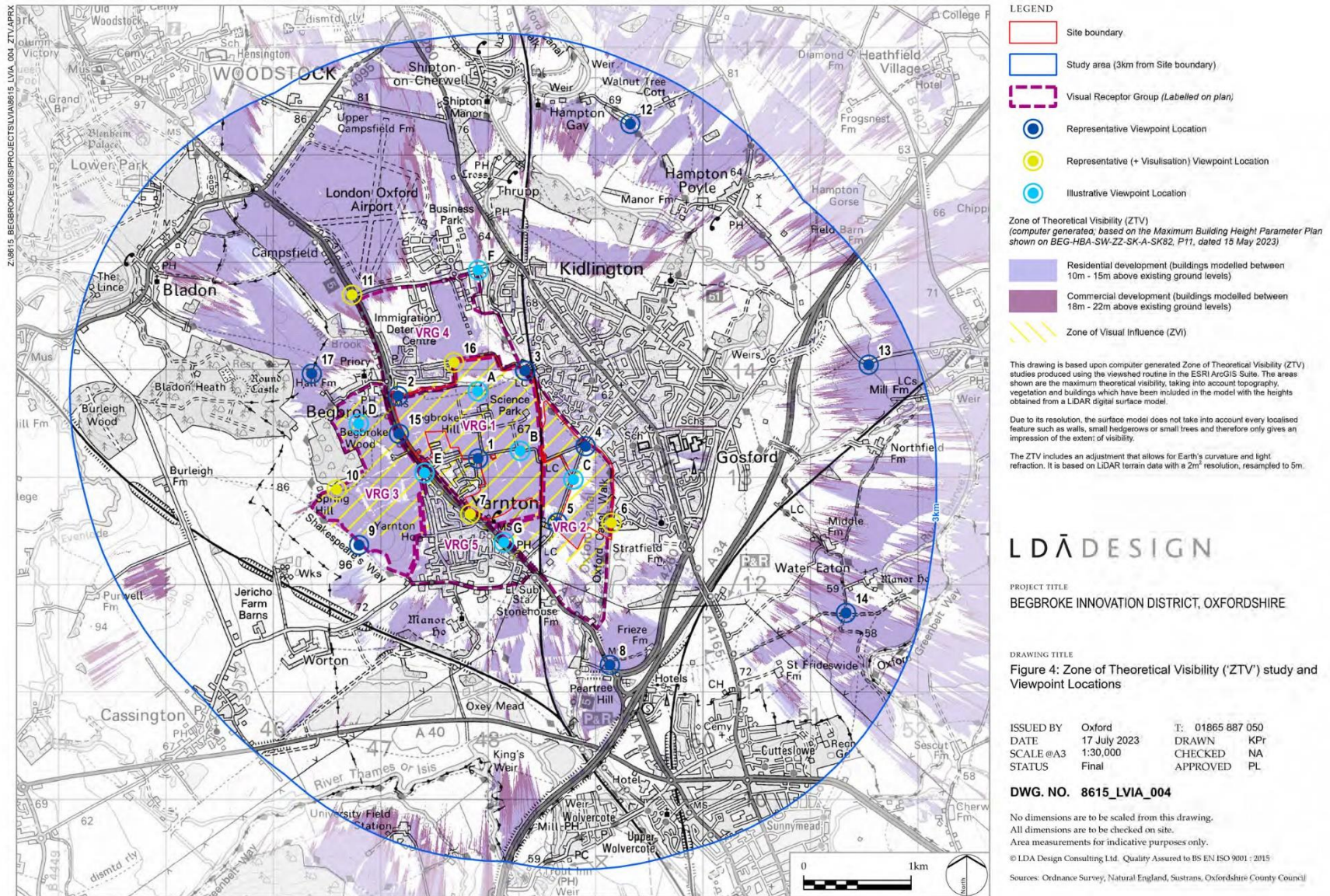
16.12 The completion and operation of the cumulative schemes will see drainage implemented in line with the requirements of the NPPF, the Environment Agency and any requirements that Thames Water requests. So long as continued early engagement with Thames Water on the water needs for proposed cumulative developments is implemented, the residual cumulative effects would be no greater than minor negative.

17 Landscape and Visual Impact Assessment

Introduction

- 17.1 A Landscape and Visual Impact Assessment (LVIA) has been undertaken. The LVIA defines the existing landscape and visual baseline environments; assesses their sensitivity to change; describes the key landscape and visual related aspects of the Proposed Development; describes the nature of the anticipated change upon both the landscape and visual environments; assesses the effects following completion prior to the maturing of mitigation planting (short- to medium-term) and once the mitigation planting is mature (long-term) (the 'operational phase').
- 17.2 No designated landscapes have been identified within the Site or within its study area. The Cotswold Area of Outstanding Natural Beauty (AONB) is located approximately 3.5km north west of the Site and Blenheim Palace WHS and RPG; and the Yarnton Manor RPG, all of which lie within the outer edges of the LVIA's study area.
- 17.3 A Zone of Theoretical Visibility ('ZTV') study was undertaken to establish the extent of visibility arising from the Proposed Development. Fieldwork has shown that features within the surrounding areas would reduce to visibility of the Proposed Development shown in the ZTV and therefore a Zone of Visual Influence ('ZVI') has also been identified. It has been judged that effects on landscape and visual receptors outside the ZVI would be negligible and not significant in EIA terms and therefore have not been assessed further.
- 17.4 Figure 17.1 shows the ZTV and the ZVI.

Figure 17.1: Zone of Theoretical Visibility



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What are the potential effects during construction?

- 17.5 Landscape and visual effects that would occur during the construction of the Proposed Development would include visibility of earth-moving equipment, cranes, lorries and other vehicles; the erection, use and dismantling of scaffolding, use of small cranes / platforms and the creation of stockpiles of materials and construction compounds. This visual effect would be of a temporary nature. Other components typical of construction activities, such as workers' facilities, stockpiles of materials, lighting of specific areas (such as construction or storage compounds) will also result in temporary landscape and visual effects. These would gradually increase in magnitude to the potential effects identified for the completed Proposed Development.

What are the potential effects of the completed Proposed Development?

- 17.6 The LVIA has shown that would be little to no theoretical visibility between the Site and the Costwolds AONB; Blenheim Palace WHS or its RPG; and Yarnton Manor RPG. Vegetation, landform and buildings would combine in the intervening landscape to reduce potential intervisibility, meaning that the Proposed Development would either be screened from view or indiscernible in views from these designated landscapes.

Landscape Effects

- 17.7 Large-scale effect would occur within the Site and its immediate context, where there would be a visible change from the series of irregularly shaped arable fields with boundaries that are mostly well-vegetated boundaries, to a new area of built development and associated infrastructure and landscaping.
- 17.8 Effects on landscape character would be at their greatest within the Site being, at most, a negative effect of major significance due to the change from an area of arable farmland to a new area of built development. However, as the Site is allocated for development to provide new housing in Local Plan, the introduction of a newly built form within the Site is acceptable in planning policy terms.
- 17.9 Beyond the Site and its immediate context, effects on landscape character would reduce with distance due to the limited visibility of the Proposed Development from the wider landscape. Fieldwork has shown that within the wider context of the Site, a strong network of established vegetation, in addition to the existing built-up area and a generally undulating landform, would combine to limit intervisibility between the Site and the wider landscape. As such, outside of the Site's local context, effects on the landscape character would reduce to be of a neutral effect.

Visual Effects

- 17.10 Effects on visual receptors would be at their greatest on users using publicly accessible routes and areas within the Site and its immediate context. From such locations, visual effects would be of major negative significance. Effects would be negative due to the visible change from an agricultural landscape to a new area of development.
- 17.11 Beyond the Site boundaries, visual effects would gradually reduce with distance. Effects would be, at most, of moderate negative significance, and experienced by users of the local

roads, national cycle networks, and the PRow network. There would remain a visible change from agricultural landscape to a new area of built development, albeit the Proposed Development would follow the existing pattern of development within the surrounding suburban context. The Site would remain well-vegetated both with retained existing and proposed vegetation and views across the landscape to elevated land would remain broadly intact.

- 17.12 From further afield of the Site's immediate context, visual effects would rapidly reduce as a result of intervening vegetation, buildings and landform screening views to the Proposed Development. Effects at most would be neutral and or minimal significance.

What would the cumulative effects be with other developments?

Landscape Effects

- 17.13 The cumulative effects on landscape character would be no greater than the effects of the Proposed Development in isolation for the majority of receptors.
- 17.14 Where the combination of the Proposed Development and another cumulative schemes would result in greater effects, it has been judged that major negative cumulative effects would occur on two aspects of landscape character.
- 17.15 Residential and commercial buildings are not uncommon presently, and the visibility of such built infrastructure forms part of the prevailing overall character of the landscape. A combination of all the development would be perceived ultimately as part of a growing settled landscape and any potential cumulative effects would not extend beyond the immediate contexts of these schemes due to surrounding topography and vegetation.

Visual Effects

- 17.16 The cumulative effects on visual receptors would be no greater than the effects of the Proposed Development in isolation for the majority of receptors. For people viewing the Proposed Development from Shakespeare's Way, Begbroke Wood and Spring Hill would have major negative cumulative visual effects with the nearby cumulative scheme west of the A44. However, it is acknowledged that each development would be similar in nature to what is already experienced / visible as part of the existing environment and already affect each different landscape character area to varying degrees.

18 Effect Interactions

- 18.1 This section summarises the likely significant effect interactions of the Proposed Development. The assessment of effect interactions assesses the potential for interaction between individual effects of the Proposed Development upon the same receptors (i.e. local residents, properties, animals and habitats, road users etc.).

What are the potential interactive 'intra-project' effects?

- 18.2 The Proposed Development is likely to lead to effect interactions on future users of the Site who will experience beneficial effects due to socio-economic improvements, specifically improvements in delivery of housing, educational and sports/amenity facilities, open space, and employment opportunities. There would also be localised beneficial effects to existing residential receptors in the vicinity of the historical landfill site due to a reduction in exposure to ground gas associated with the remediation of this land for use as public open space. Future users of the Proposed Development are also likely to experience beneficial effects on transport and access due to improvements in the surrounding transport network and internal connections.
- 18.3 Users of the surrounding road network and recreational users of the surrounding area may potentially experience some negative effect interactions due to adverse impacts on views from specified viewpoints and driver delay.

19 Mitigation and Monitoring

19.1 The section summarises the key mitigation and monitoring measures that will be implemented to minimise potential significant adverse effects during construction and operational phases of the Proposed Development.

Construction

19.2 The demolition and construction works will adhere to a range of good practice site procedures and protocols to minimise environmental effects, such as noise, dust and light pollution. These include:

- Adherence to provisions of Outline CEMP, including the erection of construction hoarding, site lighting control, emissions management plans; and
- Adherence to the contents of the Framework CTMP.

Completed Development

Embedded design and mitigation measures will include:

- Design approach to maximise landscape, visual and access benefits;
- Fabric-First approach to design to increase energy efficiency, and minimise carbon and climate change impacts;
- Energy and Sustainability Strategy;
- BREEAM “Very Good’ target - to avoid / minimise natural resource use;
- Framework Travel Plan;
- Framework Delivery and Servicing Management Plan;
- A site-specific drainage strategy incorporating sustainable drainage systems (SuDS); and
- Landscaping strategy and scheme management, including adherence to an Outline Landscape and Ecological Management Plan (LEMP).

References

¹ Cherwell District Council, 2020. Cherwell Local Plan 2011 – 2031 (Part 1) Partial Review. September 2020.

² C40 Cities (2017) Climate Change Risk Assessment Guidance

Contact

Tom Clarke

Hello@oud.co.uk

Oxford University Development Ltd, Suite B,
6 Worcester Street, Oxford OX1 2BX

+44 (0) 1865 346995



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