

WEST CAMBRIDGE

OUTLINE PLANNING APPLICATION

ENVIRONMENTAL STATEMENT ADDENDUM _ VOLUME 1

NON TECHNICAL SUMMARY

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Document history

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EIA Quality Mark

This Environmental Statement and the Environmental Impact Assessment (EIA) carried out to identify the significant environmental effects of the proposed development have been undertaken in line with our commitments as members of the EIA Quality Mark.

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1. Introduction

1.1 Background

- 1.1.1 The University of Cambridge is seeking to secure outline planning permission for the development of the West Cambridge site (the Site) for academic and commercial use and associated facilities.
- 1.1.2 An existing masterplan, which was approved in 1999 (planning application reference C/97/0961/OP) and reviewed in 2004, forms the basis of the current development on the Site. Together with the pre-existing development on the Site, the 1999 masterplan envisages just under 275,000m² of development, approximately 47% of which will be academic, 15% research institute and 22% commercial research. The remaining 16% will consist of shared facilities, sports facilities and residential uses.
- 1.1.3 The academic and residential components have been delivered to the anticipated levels but the extent of commercial research and shared facilities is well below that envisaged in the 1999 masterplan. Policy 18 of the Draft Submission Local Plan supports the densification of the development through a revised masterplan subject to a number of conditions. To inform the Local Plan Examination, the University of Cambridge and Cambridge City Council have agreed a Statement of Common Ground and Addendum, setting out proposed changes to Policy 18, which it is intended would be incorporated in the adopted Local Plan. It is within this context that the University of Cambridge has produced a new masterplan for the Site which will significantly increase the amount of development to approximately 500,000m² which includes proposed and existing development on the Site. This masterplan sets out the Proposed Development which was the subject of a planning application submitted to Cambridge City Council in the summer of 2016. Following responses from Cambridge City Council and other stakeholders which expressed concern about the impact of the Proposed Development on the landscape, visual receptors and the setting of listed buildings and conservation areas, the masterplan was amended and a revised planning application was submitted.
- 1.1.4 The Proposed Development is classed as Environmental Impact Assessment (EIA) development, which means that there is a potential for significant environmental effects to arise as a result of the construction or operation of the development. A planning application for EIA development is required to be accompanied by an Environmental Statement (ES) which reports on the predicted significant environmental effects. An ES was submitted with the original planning application in Summer 2016 and an Addendum to the ES has been submitted with the revised planning application. This ES comprises three volumes which relate to each other as shown in the left hand column of Figure 1.1. To support the amended planning application the ES has been updated and three new volumes produced as shown in the right hand column of Figure 1.1. This document constitutes the revised Volume 1 of the ES, the Non Technical Summary (NTS), and reflects the changes made to the Proposed Development to address the concerns of the initial planning application. This provides a summary of all of the ES documents and replaces the NTS submitted in 2016. The Volume 2 and 3 Addenda are supplementary to the submitted ES and should be read in conjunction with the submitted Volume 2 and 3.

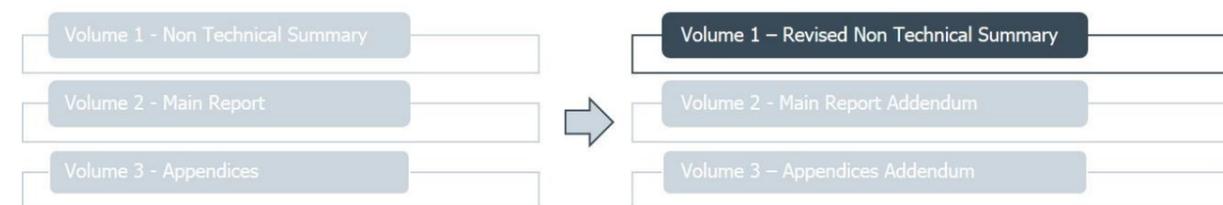


Figure 1.1 Volumes comprising the ES

1.2 Environmental Impact Assessment process

- 1.2.1 The process for EIA is set out in The Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended 2015) (the EIA Regulations) and is summarised in Figure 1.2. New EIA Regulations (The Town and County Planning (Environmental Impact Assessment) Regulations 2017) have subsequently been enacted since the submission of the planning application. Because a Scoping Opinion was obtained under the 2011 Regulations, these are still the determining legislation for the amended planning application.

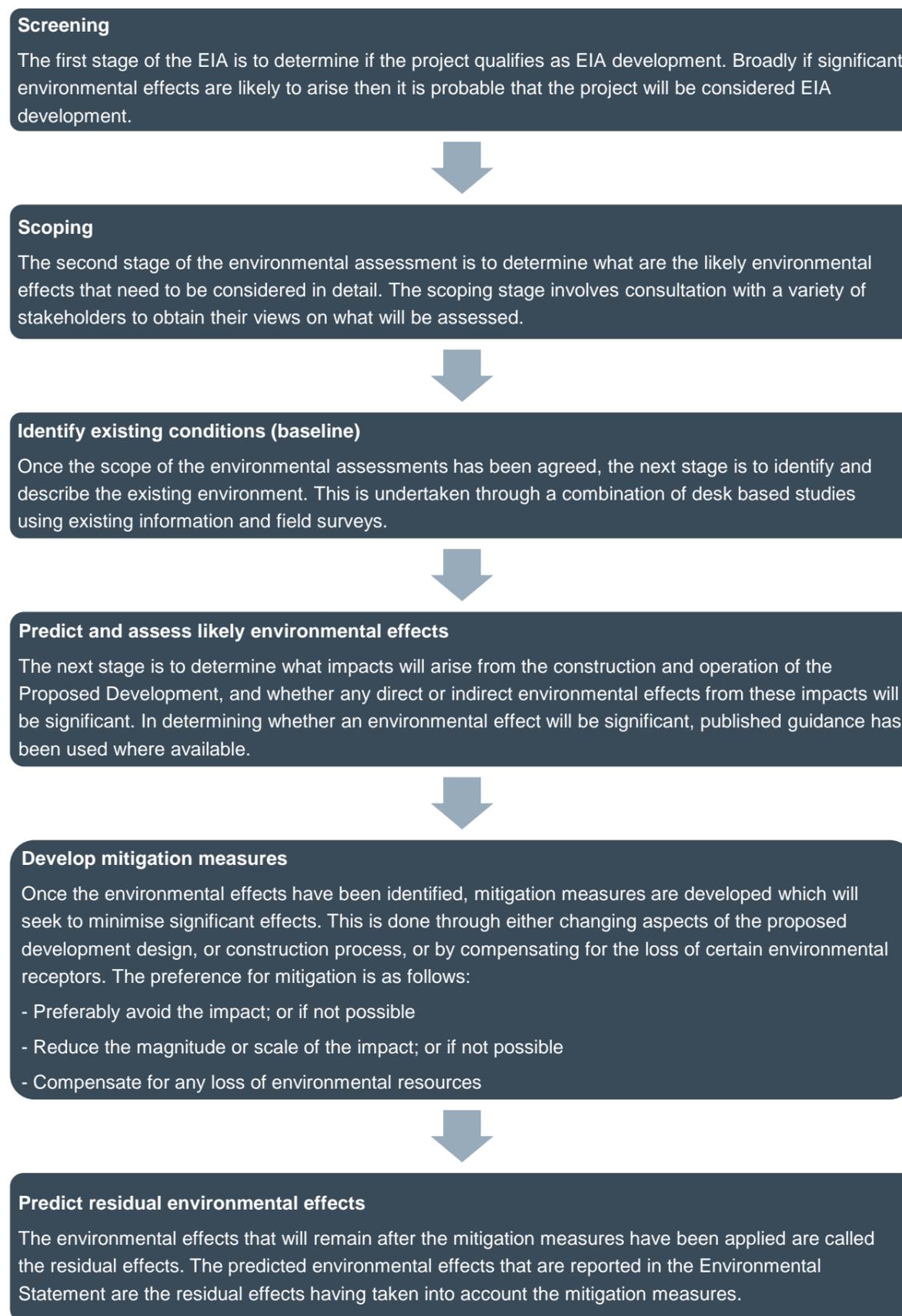


Figure 1.2 Key stages of the EIA process

1.3 Report authors

- 1.3.1 Atkins Ltd was commissioned by the University of Cambridge to coordinate the Environmental Impact Assessment for the West Cambridge outline planning application. Atkins Ltd was also responsible for the environmental assessments relating to ecology, landscape and visual impacts, built heritage, and socio-economics. Peter Brett Associates carried out the environmental assessments for traffic and transport, air quality, noise and vibration, ground conditions, and the water environment and Cambridge Archaeology Unit carried out the archaeology assessment.

2. Proposed Development

2.1 The Site and surrounding environment

2.1.1 The Site is located on the western outskirts of Cambridge as shown on Figure 2.1.

2.1.2 It is located to the south of the Madingley Road, one of the main radial routes linking the M11 with Cambridge city centre, and is bounded by residential properties to the east and a Park and Ride car park, residential properties and open land to the north. The M11 forms the western boundary to the Site, beyond which lies agricultural land. Agricultural land bounds the Site to the south.

Description of the Site

2.1.3 The planning application area is 69.4ha whilst the West Cambridge Site is 66ha in area and comprises a mix of land uses including academic, commercial, sports, and residential. The majority of the Site is open land featuring roads and footpaths, car parks, unmanaged plots awaiting development, formal landscaped public realm areas, and large paddocks associated with the veterinary school. There are a number of avenues and individual trees of varying ages across the Site which, combined with the built development, limit cross Site visibility particularly from the eastern side of the Site. There is better visibility across the Site at the western end where views are more open.

2.1.4 Views into the Site along the northern and western boundaries are extremely limited due to thick and dense bands of screening vegetation except where the Site access roads join the A1303 Madingley Road along the northern boundary. Views into the Site from the east are also extremely limited due to a dense band of screening vegetation, but views to the south from the surrounding countryside are slightly more open, though some screening vegetation is still present along the southern boundary.

2.1.5 The Site is divided up and accessed by roads which form a rough grid pattern. There are three main roads crossing the Site in a north-south direction: JJ Thompson Avenue, High Cross Road and Western Access Road. JJ Thompson Avenue and High Cross Site Road both provide access to the Site from the A1303 Madingley Road. A single main road, Charles Babbage Road, crosses the Site in an east-west direction between JJ Thompson Avenue and Western Access Road / Ada Lovelace Road. In addition there are several smaller access roads which service individual buildings and plots.

2.1.6 There are three main clusters of buildings on the Site. The largest cluster of buildings occupies the eastern area of the Site and comprises older buildings constructed in the early 1970s along with contemporary buildings constructed in line with the extant masterplan over the last 15 years. The 1970s buildings include the Cavendish Laboratory complex in the south eastern corner of the Site and the Whittle Laboratory in the north east part of the Site. The modern buildings constructed under the extant masterplan include the Roger Needham Building, William Gates Building, Centre for Advance Photonics and Electronics, Physics of Medicine, Broers Building and Forster Court. This cluster also includes the West Cambridge Nursery, and halls of residence at Franklin Court.

2.1.7 The second cluster of buildings is located centrally on the Site and comprises the Department of Veterinary Medicine. These buildings were mainly constructed in the 1950s and are surrounded by paddocks used by the department. To the south of the Department of Veterinary Medicine and separated by the Charles Babbage Road is the contemporary Alan Reece Building and Department of Materials Science and Metallurgy.

2.1.8 The third cluster of buildings is located in the north western corner of the Site and is used by commercial and research tenants. There are three main buildings built in the late 1970s and early 1980s, each occupied by a different tenant; British Antarctic Survey, Schlumberger, and Aveva. In the south western corner of the Site is the newly constructed University Data Centre.

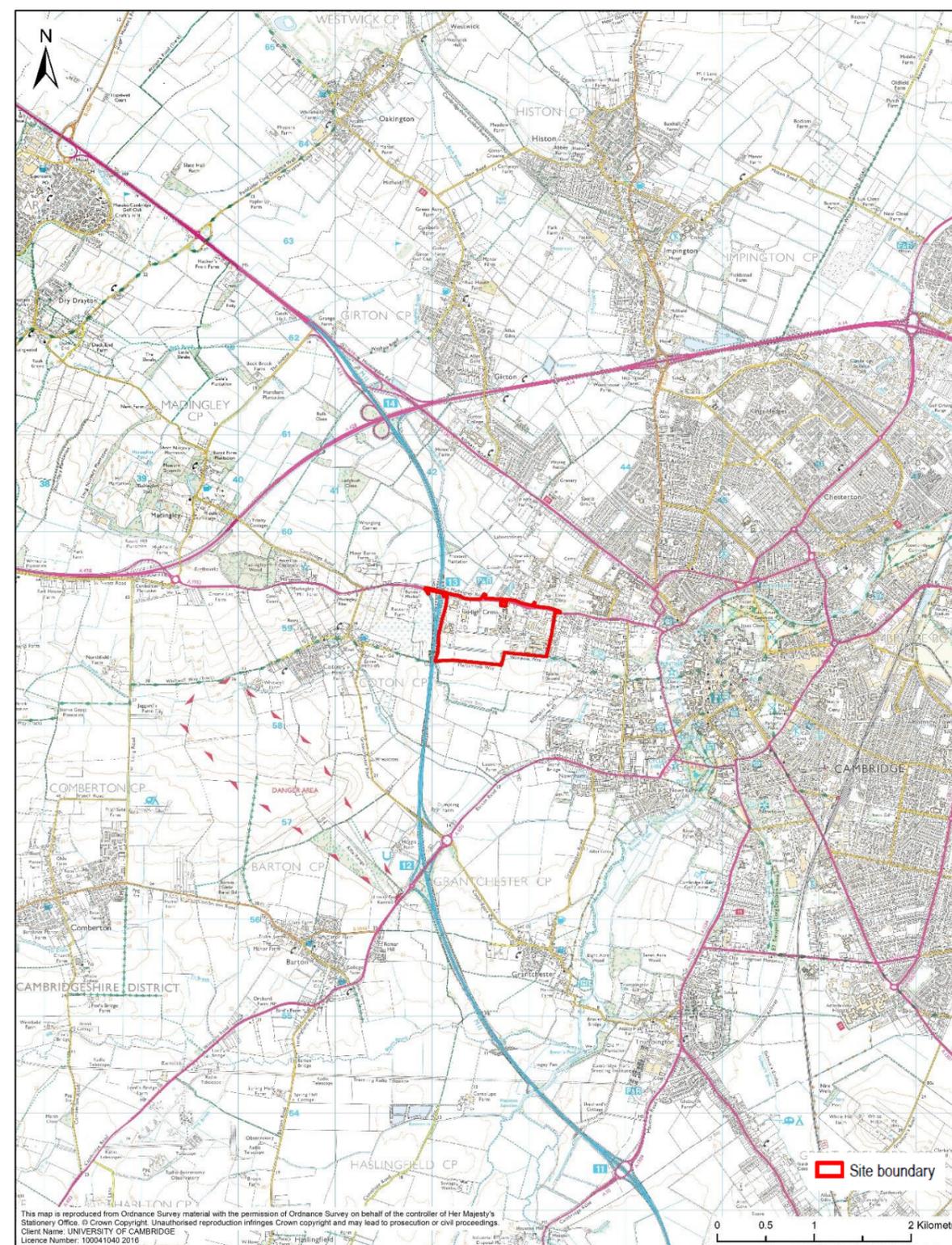


Figure 2.1 Site location

Surrounding environment

- 2.1.9 The Site is located on the western edge of Cambridge, bounded to the west by the M11 motorway, to the north by the A1303 Madingley Road, to the east by Clerk Maxwell Road and to the south by open countryside.
- 2.1.10 Residential properties are located close by at The Lawns and Perry Court off Clerk Maxwell Road to the east and Conduit Head Road and Lansdowne Road off the A1303 Madingley Road to the north.
- 2.1.11 The Madingley Road Park and Ride is located just north of the Site and beyond this are open fields extending to Huntingdon Road which radiates in a north-west direction from the city centre to Huntingdon. These open fields were previously used for agriculture but are now under construction for the implementation of the North West Cambridge development.
- 2.1.12 Orchards and fields used for agriculture and grazing are located to the west of the M11 and further west of these is the village of Coton. The fields and orchards between Coton and the Site are relatively small and are bound by hedgerows and trees. Fields beyond Coton and to the south are larger and more open. Many are still lined by hedgerows but there are far fewer trees than closer to the Site. This field pattern of large open fields is also present to the south, between the Site and Barton Road, which radiates in a south-westerly direction from the city centre to the village of Barton.
- 2.1.13 To the east of the Site and beyond the residential properties at The Lawns and Perry Court are the Emmanuel College Recreation Grounds and University Sports Grounds. Beyond these, the western suburbs of Cambridge comprise a mix of residential properties, sports pitches and university buildings.
- 2.1.14 A long distance recreational route, the Harcamlow Way, passes along a public footpath adjacent to the southern boundary of the Site. Another public footpath branches off the Harcamlow Way further south of the Site. Further south still is another public footpath between Coton and Barton Road.
- 2.1.15 The Site is located within the impact zone of Madingley Wood Site of Special Scientific Interest (SSSI). Madingley Wood is a small area of ash-maple ancient woodland and is located approximately 1.8km west of the Site. The Site is also located within the impact zones of two geological SSSIs: Histon Road SSSI, located approximately 2.5km north east of the Site, and Traveller's Rest Pit SSSI, located approximately 500m north of the Site.

2.2 The vision for the Site

- 2.2.1 The University of Cambridge aspires to develop the Site into a high quality academic and research campus.
- 2.2.2 The University's vision for the Site is to achieve a high quality urban environment that is well integrated with the city centre and surrounding suburbs, as well as emerging developments including the North West Cambridge development. The University's vision comprises five themes which collectively provide the purpose of the Proposed Development:
1. Optimise the amount of development on Site, supporting the city and region as a world leader in research and development.
 2. Support the commercialisation of knowledge through entrepreneurship and collaboration with industry.
 3. Create and sustain a high quality place by transforming the physical and social environment for Site users and neighbours.

4. Deliver adaptable and efficient space to support viability and long term value creation.
5. Deliver sustainable development, proactively investing in the quality of place and integration within the city.

2.3 Parameter plans

- 2.3.1 The Proposed Development will support the delivery of the vision through a series of parameter plans, Design Guidelines and a broadly defined description. This will allow flexibility in the description of the development which reflects a key aim of the Proposed Development, to build flexibility into the planning permission, so that the University can respond to changes in academic and commercial demand over the next twenty years or so, without needing to review the outline planning permission or seek a fresh permission.
- 2.3.2 The parameters for the Proposed Development are described through five parameter plans and their accompanying statements. The plans are:
- Land use;
 - Development zones;
 - Building heights;
 - Access and movement; and
 - Open space and landscape.

Land use

- 2.3.3 Built development will fall into the three land use areas shown in Figure 2.2. The Proposed Development includes the existing land uses on the Site and does not seek to introduce new land uses but rather to revise the extent of permitted land uses on the Site. The largest land use area comprises a mix of academic and commercial uses and includes the existing British Antarctic Survey, Schlumberger and Aveva plots as well as the existing Computer Laboratory, the Roger Needham Building, the CAPE Building and the Physics of Medicine and Maxwell Centre, all of which are to be retained.
- 2.3.4 The mixed use zone comprises planning use classes A1-A5 (shops, financial and professional services, restaurants and cafes, drinking establishments and hot food takeaways), B1b (commercial research / research institutes) and D1 (non-residential institutions). It includes the South Residences, North Residences and nursery, Hauser Forum and Broers Building, the Institute for Manufacturing, the Chemical Engineering / Biotech Building, the Materials Science and Metallurgy Building, and the Innes Building, all of which are to be retained.
- 2.3.5 The smallest zone is for community uses and comprises planning use classes D1 (non-residential institutions) and D2 (assembly and leisure). This zone includes the existing sports centre which is to be retained.

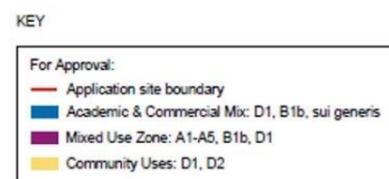


Figure 2.2 Proposed land use

Buildings

- 2.3.6 Maximum building heights are shown on Figure 2.3. The general building height across the Site will be four storeys for academic / commercial use. Building plant must be included within the height parameters set out on the plan, but exhaust flues may extend above these heights.
- 2.3.7 The Proposed Development is divided into four development zones as shown in Figure 2.4. Each development zone comprises building zones within which built development will occur including buildings, car parking and vehicular access routes. Development zones exclude existing roads and open spaces which will be retained in the Proposed Development. Table 2.1 shows the maximum developable floorspaces for each development zone and use class.

Table 2.1 Maximum floorspace (m²) for each use class and development zone

Land use	Academic research	Nursery	Commercial research / research institutes	Shop, café, restaurant, public house	Assembly & leisure (sports)	Ancillary infrastructure (data centre, energy centre)	Total proposed floor space
Use Class	D1	D1	B1b / sui generis	A1 – A5	D2	Sui generis	
Building Zone I	Up to 77,000	Up to 1,500	Up to 21,900	Up to 500	0	0	Up to 77,000
Building Zone II	Up to 38,600	Up to 1,500	Up to 38,600	Up to 300	Up to 4,100	0	Up to 44,500
Building Zone III	Up to 178,400	Up to 1,500	Up to 51,700	Up to 200	0	Up to 2,000	Up to 182,100
Building Zone IV	Up to 104,000	Up to 1,500	Up to 104,000	Up to 500	0	Up to 4,500	Up to 110,500
Total proposed floorspace	Up to 370,000	Up to 2,500	Up to 170,000	Up to 1,000	Up to 4,100	Up to 5,700	Up to 383,300

All figures quoted are Gross Floor Area, m²

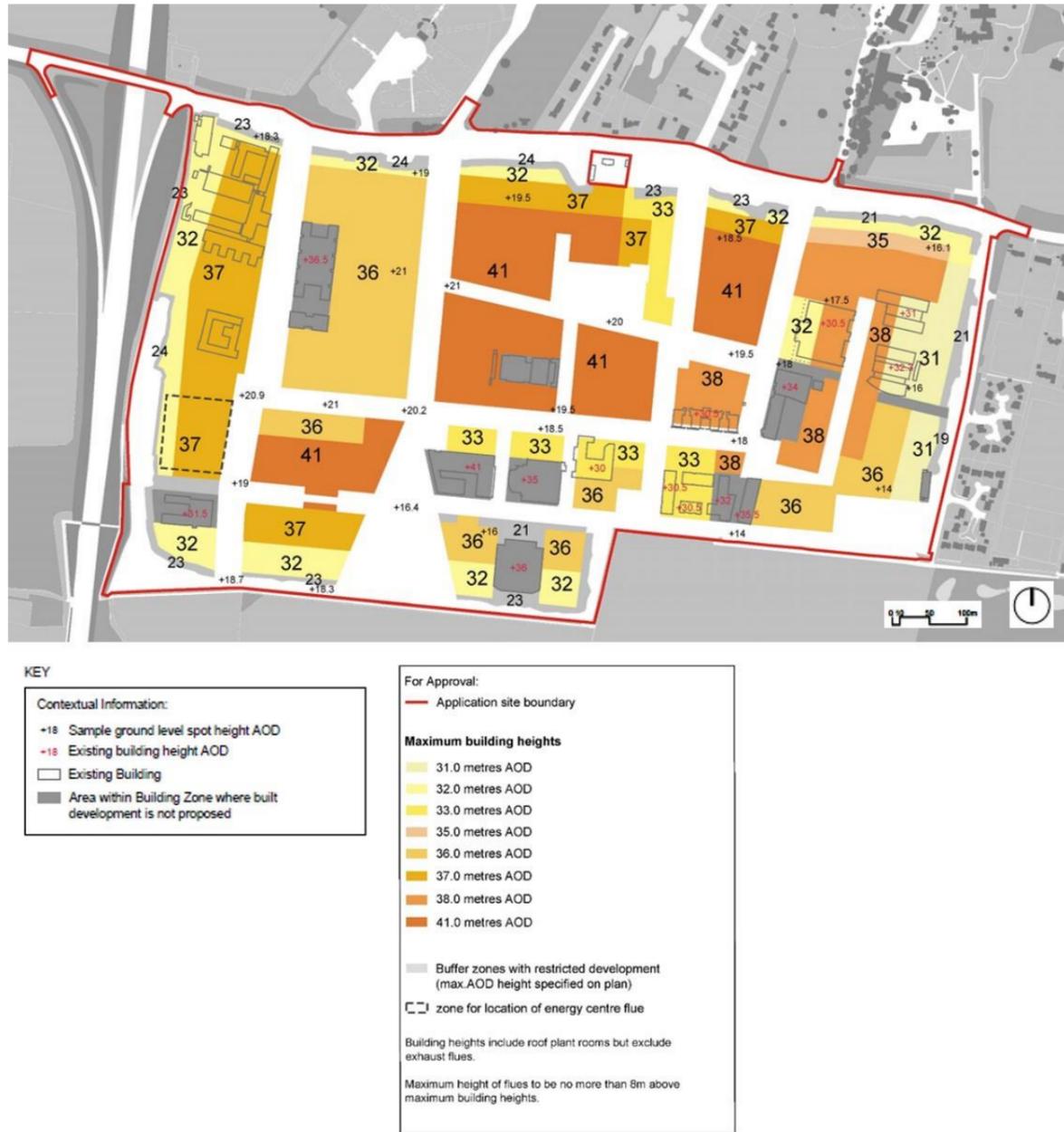


Figure 2.3 Maximum proposed building heights

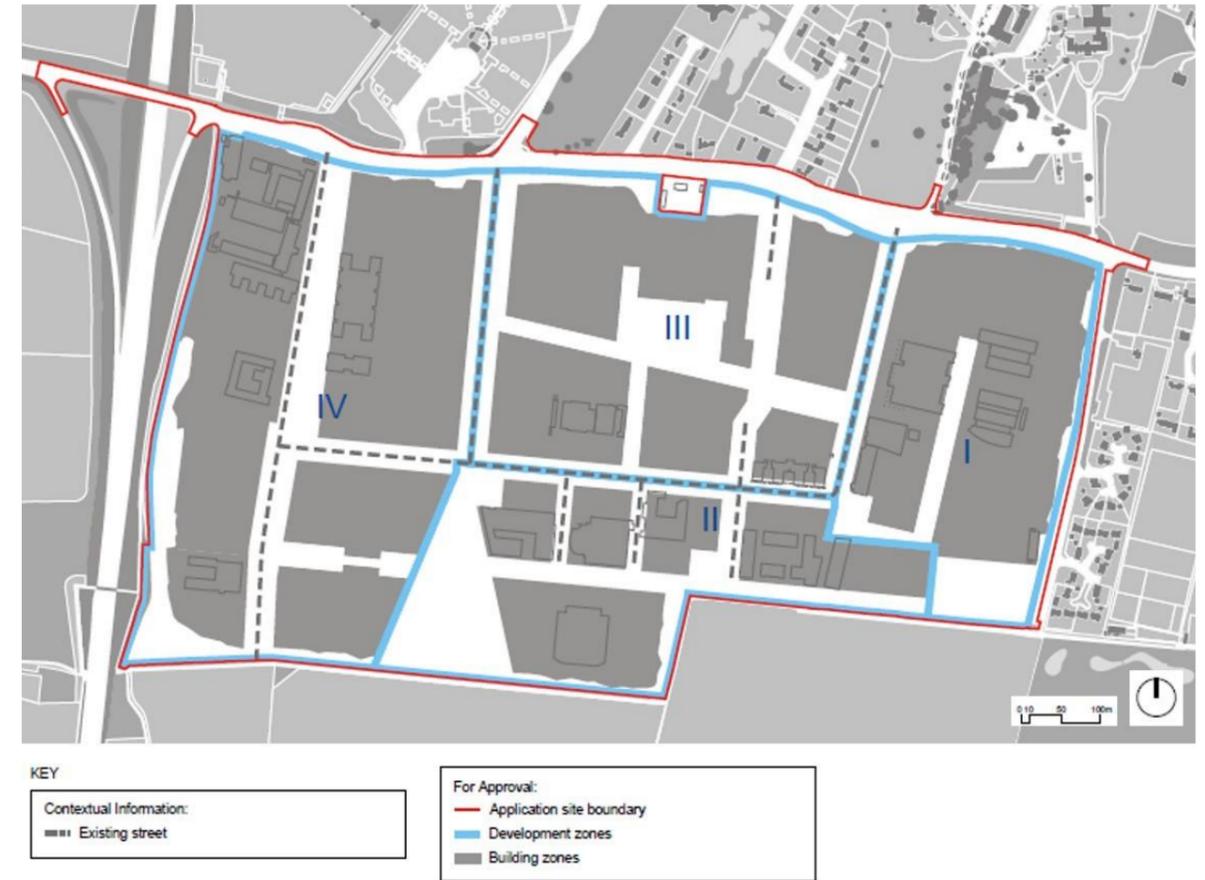


Figure 2.4 Development zones

Access and movement

2.3.8 The proposed access and movement strategy on the Site is illustrated in Figure 2.5. Access to the Site will be from the north, off Madingley Road, and from the east, off Clerk Maxwell Road. The four main roads on site (JJ Thompson Avenue, Charles Babbage Road, High Cross, and Western Access Road) will all be retained and used as the principal means of vehicular access to and across the Site. Additional secondary roads will be constructed to enhance vehicular connectivity. All existing and new vehicle routes and accesses will also allow for pedestrian and cycle movements.

2.3.9 A new pedestrian and cycle access point will be created off Madingley Road. The existing pedestrian and cycle access points along Clerk Maxwell Road will be maintained and will be the main arrival points for cyclists and pedestrians travelling from the city centre. The primary pedestrian and cycle routes through the Site include the existing pedestrian and cycle path running adjacent to the southern boundary (Coton footpath). This will be extended to continue across the Site to the western boundary. A second east-west pedestrian and cycle route will provide access from the existing entrance, approximately halfway along Clerk Maxwell Road, continuing westwards across JJ Thompson Avenue and through a new open space corridor linking up with Highcross Road. A north-south route will extend from the West Forum and along Highcross Road where the route will continue northwards towards the North West Cambridge development. Additional secondary pedestrian and cycle routes will increase connectivity through the Site.

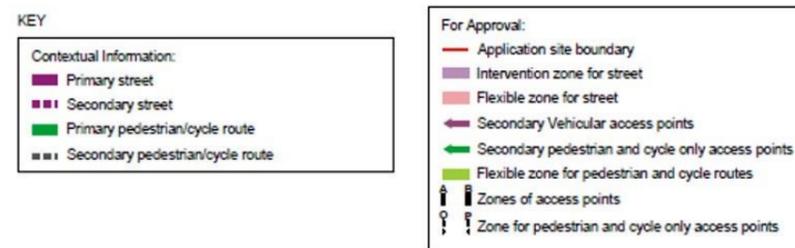


Figure 2.5 Access and movement strategy

Open space and landscape

- 2.3.10 A series of open spaces and corridors will feature in the Proposed Development as shown in Figure 2.6. The open space network will provide a variety of uses including informal recreation and outdoor entertainment, landscaping, surface water drainage, nature conservation and pedestrian and cycle routes.
- 2.3.11 Detailed design of the open space areas will be agreed through the submission of reserved matters applications pursuant to the outline planning permission, if granted.



Figure 2.6 Open space and landscape strategy

Infrastructure

- 2.3.12 An energy strategy for the Proposed Development includes an energy centre that will have a combined heat and energy plant fuelled by gas. This plant will generate sufficient power and heat to meet the requirements of the Proposed Development. The energy centre will be located to the west of the Site as indicated on Figure 2.3.
- 2.3.13 The drainage strategy is based on discharging all surface water runoff to Coton Brook to the south of the Site and Washpit Brook to the north. Greenfield discharge rates will be achieved through temporary storage on individual building plots and by enlarging the existing surface water bodies on the Site.

Built-in mitigation

- 2.3.14 In addition to the restrictions contained in the parameter plans the Proposed Development will comply with Design Guidelines which comprise design principles which seek to provide consistency in design. Like the parameter plans, the Design Guidelines are submitted for approval by Cambridge City Council.

2.3.15 The Design Guidelines set out a number of environmental mitigation measures that are 'built-in' to the Proposed Development and which will be secured through the planning permission. These measures are as follows:

- Controls on building design to minimise bulk;
- Controls on boundary planting to improve screening and soften urban edges;
- Measures to strengthen the ecological benefits of the existing ecological corridor;
- Controls on rooftop plant;
- Landscape design guidelines to strengthen other green corridors, including tree planting in streets; and
- Landscape design guidelines to ensure the amenity value of proposed new spaces.

2.3.16 The Design Guidelines also identify a number of trees that are key to the landscape of the Site due to their age, condition, or prominence and will be retained. These trees are shown on Figure 2.8, which also shows trees which 'shall' be retained. These are trees for which there is an intention to keep but should development require their removal, this would be permitted under the provisions of the planning permission.

Construction

2.3.17 Construction works will be phased over approximately 15 years. As the details of the construction works are not currently known a number of assumptions have been made, based on previous developments of a similar scale and type, to enable the assessment of environmental effects during construction to be assessed. These assumptions relate to:

- Enabling works including Site clearance and the establishment of a construction compound and worksites;
- Building demolition;
- Contaminated land remediation (if required);
- Earthworks to obtain the desired ground level (these are likely to be minimal);
- Excavation for foundations, services, basements etc;
- Import of construction materials, plant, and workers;
- Stockpiling and storage of construction materials and plant including fuels and chemicals;
- Concrete batching;
- Installation of new services;
- Erection of new structures and buildings;
- Piling for some structures and building foundations;
- Export of construction waste; and
- Landscaping including planting of soft landscaped areas and areas for ecological mitigation.

2.3.18 One of the known construction activities is the requirement to demolish a number of the existing buildings on Site. The buildings scheduled for demolition are listed below and shown in Figure 2.7:

- Cavendish Laboratory complex;
- Whittle Laboratory buildings;
- Department for Veterinary Medicine complex;
- University stores; and
- Merton Hall Farmhouse.

2.3.19 All other existing buildings on the Site will be retained and integrated into the Proposed Development.

2.3.20 A Construction Environmental Management Plan (CEMP) has been submitted in support of the outline planning application. This sets out how mitigation measures for the construction phase identified in the ES will be implemented. When a contractor is appointed for the first development on site a detailed CEMP will be prepared to cover that development. Additional CEMPs will follow for later detailed proposals.

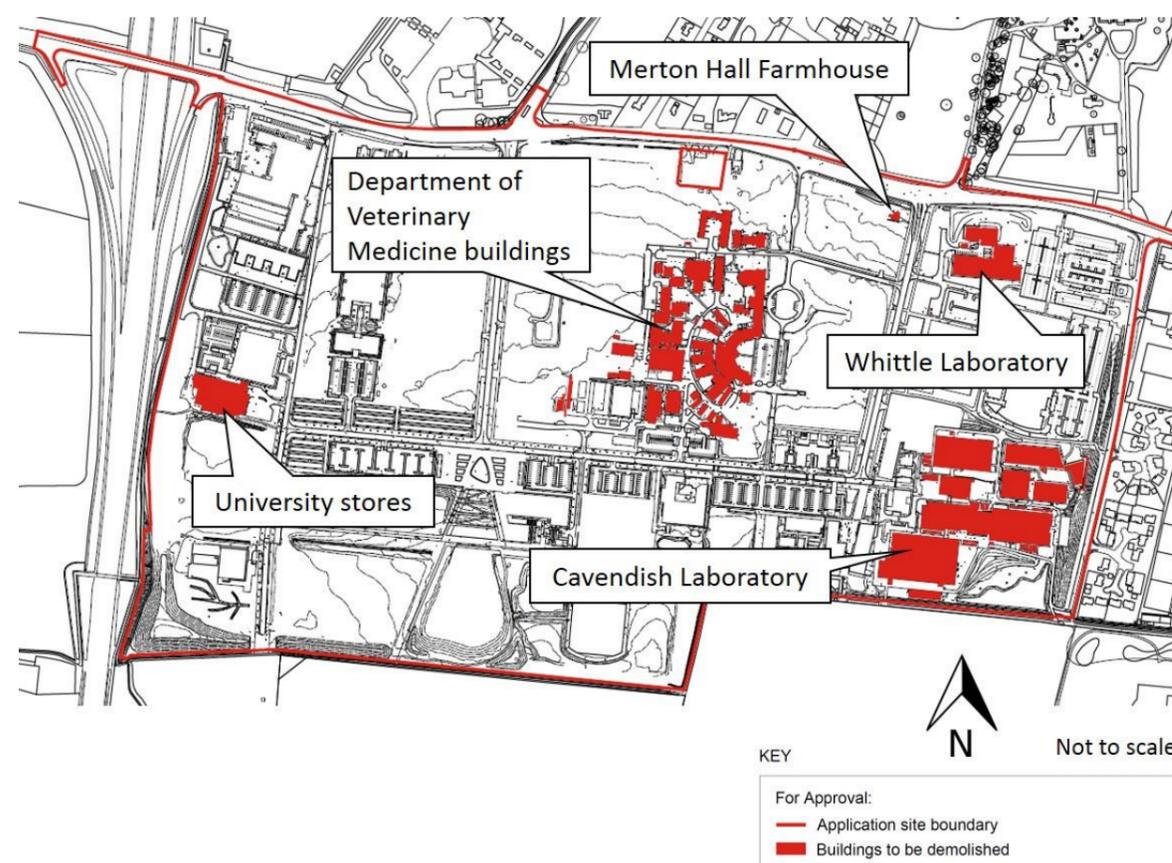


Figure 2.7 Buildings scheduled for demolition

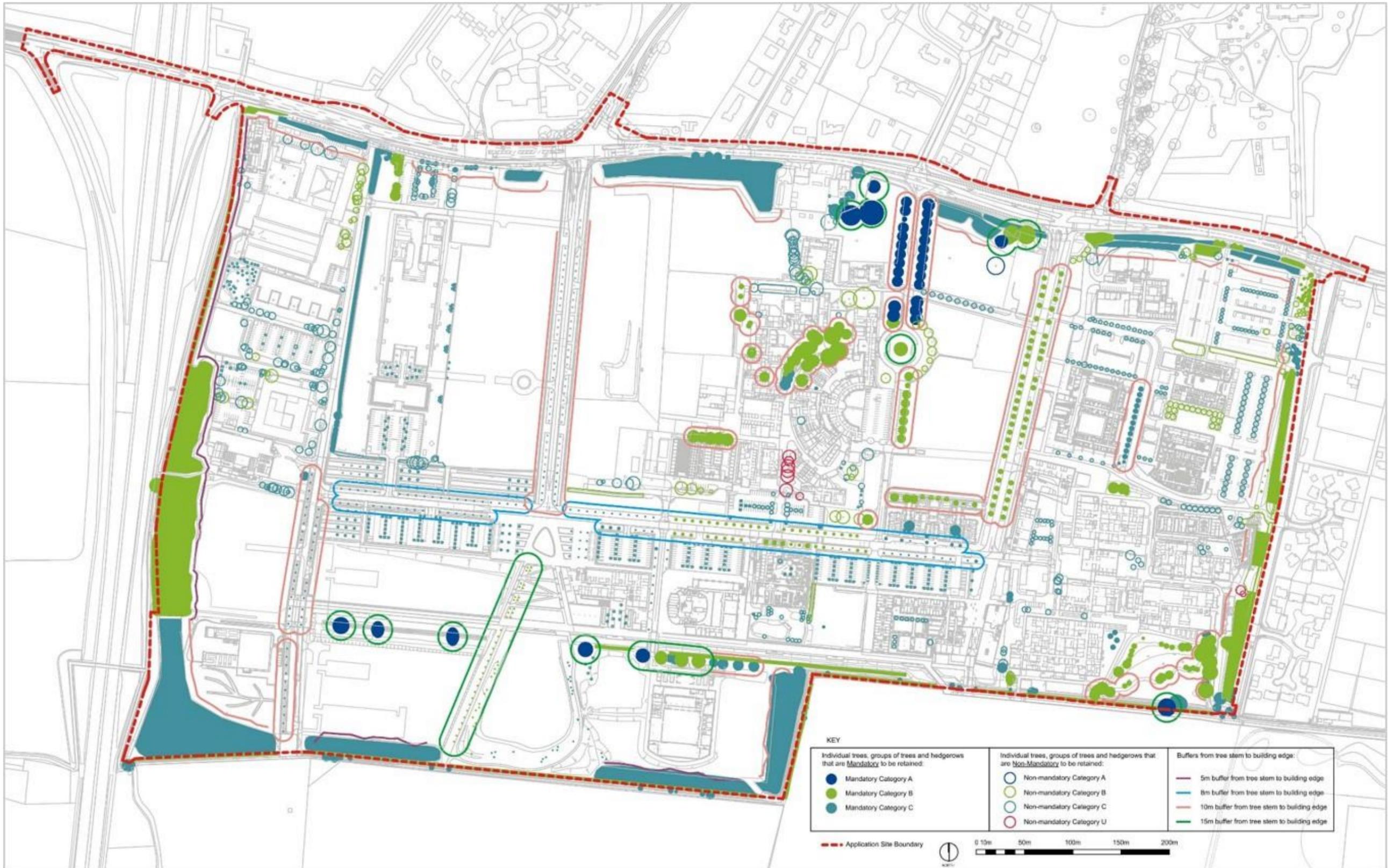


Figure 2.8 Trees to be retained

2.4 Alternatives

2.4.1 The starting point for the Proposed Development is the existing planning permission for the Site which has been partially built out, resulting in the construction of the existing buildings, landscaping and infrastructure, including the internal road network, access points and utilities. In addition there are other buildings under construction which further constrain the Proposed Development.

2.4.2 The evolution of the Proposed Development has resulted in a number of discrete alternatives for certain sections of the Site which have since been evaluated and the preferred option selected. The Proposed Development promotes sustainable intensification, working within the context of significant development and infrastructure already present on the Site.

2.4.3 The EIA has influenced the emerging design and changes to the Proposed Development have been made to avoid or reduce potential significant environmental effects. The alternatives considered include:

- Do-nothing – the existing planning permission is built out. This alternative has been discounted because it fails to achieve the University of Cambridge’s vision for the Site;
- Reduced amount of development across the Site – a lower density of development than being proposed. This alternative has been discounted because it would fail to maximise the potential for the Site;
- Retention / demolition of existing buildings – some of the buildings scheduled for demolition to be retained. This alternative has been discounted because it fails to achieve the University of Cambridge’s vision for the Site;
- Energy centre location – a different location for the energy centre along the northern boundary. This alternative has been discounted because of higher emissions concentrations at neighbouring properties, and high infrastructure costs;
- Access and movement – additional primary access routes on to Madingley Road. This alternative has been discounted because of the impact to traffic flows along Madingley Road; and
- Building heights – an increase in the heights of the proposed buildings. This alternative has been discounted because of the unacceptably high impact to the landscape.

2.4.4 The initial planning application had a different set of parameter plans which showed higher overall building heights along with a number of taller built elements as shown in Figure 2.9. Following concerns about the impact of the Proposed Development on the landscape, key viewpoints and the setting of listed buildings and conservation areas an alternative height parameter plan has been produced as shown in Figure 2.10. This has eliminated the taller built elements and reduced the overall building heights so as to minimise the impacts on long distance views.

2.4.5 In February 2017, the Schlumberger Gould Research Centre, which is within the Site, was Grade II* listed. Further discussions were held with Historic England and Cambridge City Council and following these a further reduction in the heights of the proposed buildings near the Schlumberger Gould Research Centre was made to protect the setting of the building. In addition the heights of the proposed buildings opposite the Conduit Head Road Conservation Area were also reduced in height to reduce the potential impact on the setting of the Conservation Area. The Proposed Development shown in Figure 2.3 reflects these reduced heights.

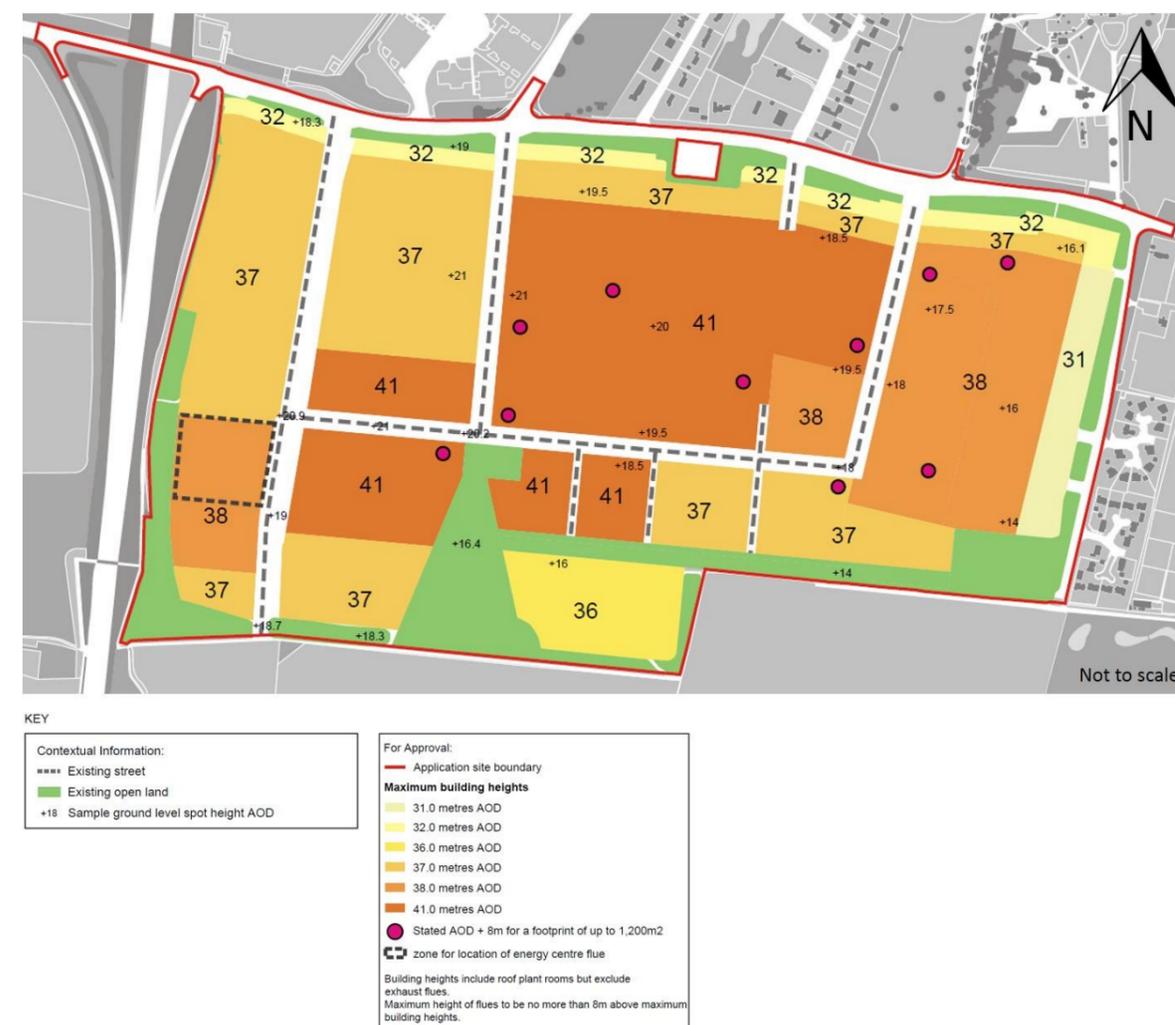


Figure 2.9 Initial planning application height parameter plan

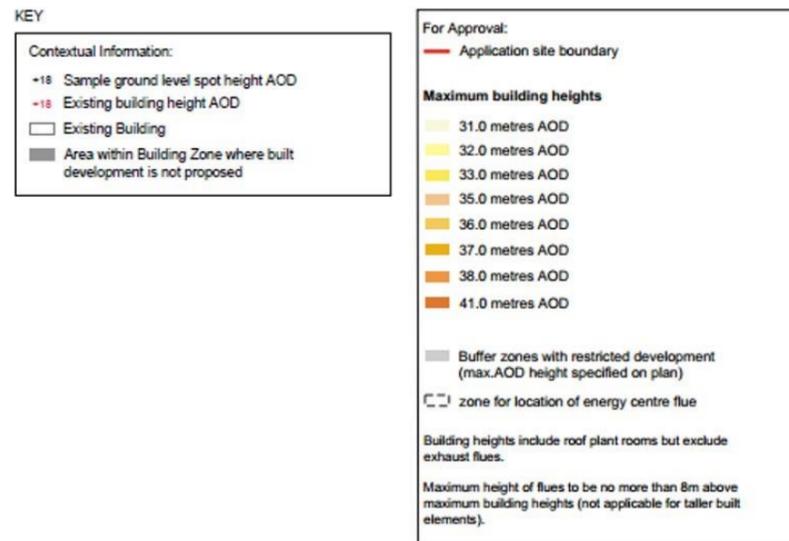
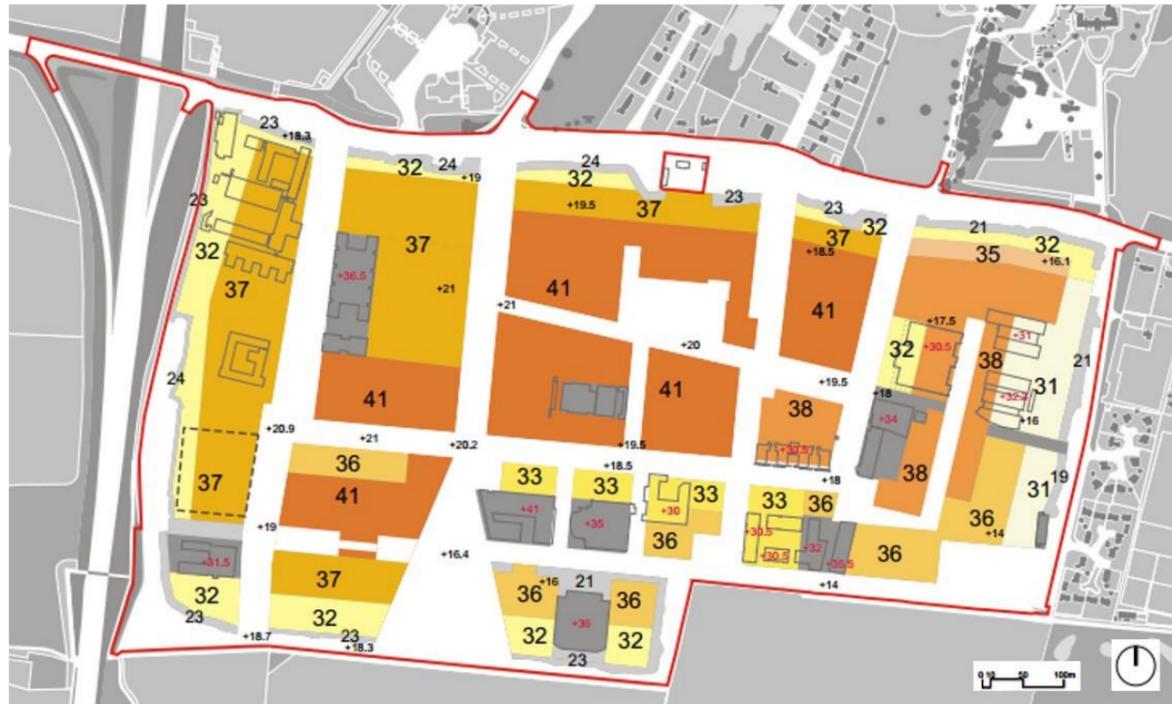


Figure 2.10 Alternative height parameter plan with reduced building heights and removal of the taller built elements.

3. Significant environmental effects

3.1.1 Cambridge City Council issued the University of Cambridge with a Scoping Opinion which sets out what information needs to be included within the Environmental Statement. The Scoping Opinion provides the basis of the environmental impact assessment by determining which elements of the environment the City Council believe could be significantly impacted by the Proposed Development. In accordance with the Scoping Opinion, detailed analysis has been undertaken to quantify, where possible, the extent of these significant effects.

3.1.2 The approach to the EIA is as follows

1. Define the baseline by identifying key features of the existing environment through a combination of desk studies and field surveys;
2. Evaluate the potential impacts identified in the Scoping Opinion through a combination of qualitative and quantitative analysis;
3. Identify any mitigation measures that may be required to avoid or minimise adverse environmental effects from the Proposed Development; and
4. Report the residual environmental effects after the mitigation measures have been implemented.

3.1.3 A summary of the significant residual environmental effects that could arise during construction and operation of the Proposed Development is shown in Table 3.1.

Table 3.1 Summary of environmental effects

Environmental topic	Existing conditions (baseline)	Potential impacts	Proposed mitigation	Summary of predicted environmental effects
Ecology	<p>The majority of the habitats on the Site are unremarkable comprising mainly amenity grassland, semi-improved grassland, hardstanding and buildings. There are a few areas with greater value which includes an area of scrub and woodland along the western boundary that is designated as a City Wildlife Site (CiWS), a hedgerow along the southern boundary designated as a County Wildlife Site (CWS), a number of drainage ditches and ponds and some veteran trees.</p> <p>There is one confirmed bat roost and bats have been recorded overflying the Site. Smooth newts are likely to be breeding on the Site but no great crested newts were found. An artificial badger sett was previously constructed on Site which appears to be well used. 46 species of birds were recorded on the Site some of which are expected to be nesting within existing vegetation. A colony of house martins and swallows was found nesting in buildings on the Site. A number of invasive plant species were also found.</p>	<p>Impacts during construction of the Proposed Development include the following:</p> <ul style="list-style-type: none"> • Demolition of buildings with bird nests and a bat roost; • Clearance of vegetation; • Leaks and spills which could migrate to surface water bodies; • Re-profiling of surface water bodies; • Disturbance caused by noise and lighting; and • Potential for the spread of invasive plant species. <p>Impacts during the operation of the Proposed Development include the following:</p> <ul style="list-style-type: none"> • Increase in the amount of lighting on Site; and • Reduction in the amount of foraging and commuting habitat for bats 	<p>Proposed mitigation measures include:</p> <ul style="list-style-type: none"> • Implementation of the Construction Environment Management Plan (CEMP) to avoid the potential for leaks and spills; • Establishing a fenced off protective buffer around sensitive habitats and areas; • Replacement of aquatic planting with planting of an equivalent or better habitat value; • Re-profiled water bodies will be designed to maximise ecological benefit; • The use of bird and bat boxes to replace nests and roosts that will be lost; • Careful specification and design of new lighting and removal of some existing lighting; • Removal of invasive plant species prior to construction; • Establishment and enhancement of green corridors through the Site; and • Retention / protection of existing trees. 	<p>The loss of habitats from the Site will not be significant as they are of low ecological value and the maintenance and enhancement of green corridors through the Site will ensure that commuting linkages to foraging sites are maintained. Specific mitigation measures for protected species will be implemented under licence and will ensure that significant adverse effects do not arise.</p> <p>There will be no significant adverse or beneficial effects to ecological receptors during construction or operation of the Proposed Development.</p>

Environmental topic	Existing conditions (baseline)	Potential impacts	Proposed mitigation	Summary of predicted environmental effects
Historic environment	<p>The historic environment comprises buried archaeological assets and above ground built heritage assets.</p> <p>An archaeological investigation on the Site was undertaken where three archaeological sites were unearthed dating from the Iron to Roman Ages. In addition previous investigations on the Site have unearthed Roman settlements.</p> <p>With the exception of the recently grade II* listed Schlumberger Gould Research Centre, none of the remaining buildings on Site are listed or locally listed but notable buildings include the Merton Hall Farmhouse, which dates from the mid to late 19th century. The Site is situated in close proximity to a number of listed buildings and conservation areas including Conduit Head Road Conservation Area, West Cambridge Conservation Area, three grade II* listed buildings, fifteen grade II listed buildings, and a grade II registered park and garden, all of which are located within 500m of the Site.</p>	<p>A number of construction activities including piling and excavations for foundations, services, and earthworks could result in the disturbance or loss of the archaeological sites.</p> <p>Construction works will impact the setting of the conservation areas adjacent to the Site and some of the associated listed buildings.</p> <p>During construction Merton Hall Farmhouse will be demolished.</p> <p>During operation, the increased density and proximity of contemporary buildings will impact the setting of the adjacent conservation areas and some of the associated listed buildings including the recently listed grade II* Schlumberger Gould Research Centre.</p>	<p>Further archaeological field investigations will be undertaken in areas where disturbance to the ground due to piling and excavation will occur.</p> <p>The Design Guidelines for the Proposed Development specify a sympathetic approach to the facades of buildings facing outwards towards listed buildings and conservation areas. Boundary planting in these areas will also be strengthened.</p> <p>The Design Guidelines secure a key view corridor through the Site towards the Schlumberger Gould Research Centre and provide additional protection to the setting of the building.</p>	<p>The archaeological assets are not of sufficiently high value to require preservation in-situ and they will be fully recorded through further field investigations prior to construction. The loss of these assets will not be significant.</p> <p>The demolition of Merton Hall Farmhouse would not be a significant effect due to its low historic value.</p> <p>The densification of the Site with contemporary institutional buildings particularly in the north east corner of the Site will result in an adverse effect to the setting of the Schlumberger Gould Research Centre on the Site and to the setting of a grade II listed building and the Conduit Head Road Conservation Area adjacent to the Site, during both construction and operation.</p>
Landscape and visual	<p>The Site is located on the western fringes of the city adjacent to the green belt and open countryside. A total of nine distinct local landscape character areas have been identified that could be affected by the Proposed Development. 23 key viewpoints have been identified and appraised.</p>	<p>During construction, works activities and the presence of tall cranes and construction plant will be new additions to the landscape which will be out of keeping and could impact both the character of the surrounding area and views from the key viewpoints.</p>	<p>The Design Guidelines include measures to minimise the impact of denser development on the Site. This includes controls on the maximum lengths of building facades, minimum gaps between buildings and new planting to soften the urban edges and provide screening.</p>	<p>During construction, one landscape character area around the village of Coton will be significantly adversely affected along with six viewpoints with clear views across the Site. This includes views from properties at The Lawns and Perry Court off Clerk Maxwell Road.</p> <p>Once construction is complete the Proposed Development will result in a westward urban encroachment, impacting on four landscape character areas, to the south and west of the Site, and 12 viewpoints. Over time screening vegetation will mature which will soften the development reducing the overall impact. Significant effects will still occur to the same four landscape character areas but only seven of the 12 viewpoints will be impacted.</p>
Socio-economics	<p>Both the City of Cambridge and South Cambridgeshire are prosperous areas, although Cambridge in particular has areas of notable deprivation, such as King's Hedges.</p> <p>Professional, scientific & technical enterprises' formed the single largest category of businesses both in Cambridge and South Cambridgeshire (22.8% and 21.7%, respectively, of all businesses) in 2014.</p> <p>Cambridge and South Cambridgeshire have limited land availability for both residential and commercial uses - a supply constraint which, in combination with high demand, has resulted in high rental costs. There is intense pressure on B1a (office) use class floorspace.</p> <p>Reflecting its status as a major student city, Cambridge has a younger than average population profile.</p>	<p>Construction works will increase the supply of jobs in the construction sector including skilled and unskilled trades. The supply of indirect jobs will also increase due to supply chain demands and income multiplier effects. Sourcing of construction materials and plant from local suppliers will result in local economic growth.</p> <p>There will be some disruption to local businesses and communities during construction due to noise, dust and construction traffic.</p> <p>During operation there will be an increase in job provision to about 14,000 including those already present on Site.</p>	<p>The CEMP will specify measures to minimise disruption from noise, dust and construction traffic</p>	<p>During construction there will be some temporary disturbance to local businesses and communities but mitigation will ensure this does not result in significant effects.</p> <p>The increase in job provision during construction and operation and the associated multiplier effects will result in local regional economic growth that will be a significant benefit of the Proposed Development.</p> <p>Significant beneficial socio-economic effects will occur during both the construction and operation of the Proposed Development.</p>

Environmental topic	Existing conditions (baseline)	Potential impacts	Proposed mitigation	Summary of predicted environmental effects
Traffic and transport	<p>Much of the road network within Cambridge is operating at close to capacity during the morning and evening rush hours which results in environmental issues relating to severance, driver delay, pedestrian and cyclist delay, reductions in pedestrian and cyclist amenity, and intimidation of pedestrians and cyclists. The high traffic flows mean that drivers will experience delays when travelling during the peak hours. Delays for pedestrian and cyclists are not as badly affected due to signalised crossings and traffic islands along the worst affect routes. Pedestrian and cyclist amenity is generally good due to the provision of designated cycle and pedestrian routes of a good quality away from busy roads. This also applies to pedestrian and cyclist intimidation levels although where pedestrians and cyclists travel along busy roads, such as Maddingley Road, intimidation levels increase.</p>	<p>Construction works will require additional vehicles to travel to the West Cambridge site to deliver construction workers, construction materials, and construction plant and equipment. This will result in a small increase in the overall traffic flows but a significant increase in the proportion of heavy vehicles particularly along the short stretch of the Maddingley Road between the Site and Junction 13 of the M11 motorway.</p> <p>Once the Proposed Development is open there will be an increase in traffic mainly due to workers at the Site travelling to and from their place of work.</p>	<p>Delivery routes during construction will be agreed with the Local highway Authority so that heavy vehicles avoid Cambridge City centre altogether and will principally travel to and from the Site along Maddingley Road from junction 13 of the M11 motorway.</p> <p>Once the Proposed Development is open, a Framework Travel Plan will be implemented encouraging the use of public transport, cycling and walking as the principal means of travelling to and from the Site. There is still anticipated to be an increase in traffic travelling to and from the Site and this will be carefully monitored and additional mitigation measures implemented if and when necessary.</p>	<p>Construction traffic is not expected to result in any significant adverse effects as the delivery routes will direct construction traffic away from sensitive areas within the city.</p> <p>Once the Proposed Development is fully open there will be an increase in traffic travelling along Maddingley Road but this will not result in any significant adverse effects.</p>
Air quality	<p>There is an Air Quality Management Area (AQMA) within Cambridge encompassing the area within the inner ring road. The AQMA is located approximately 800m to the east of the West Cambridge site and has been declared due to the high level of nitrogen dioxide which exceeds national air quality objectives. This pollutant is closely associated with traffic emissions and the high levels are due to traffic within the city.</p>	<p>During construction, works activities such as the handling and storage of aggregates, excavation, and demolition of existing structures could give rise to excessive levels of dust which can cause nuisance to nearby residents and damage habitats and designated ecological sites.</p> <p>Once the Proposed Development is open there will be emissions from the increase in traffic travelling to and from the Site, and emissions from the energy centre.</p>	<p>A range of best practice methods of working will be employed during construction to minimise the risk of generating dust.</p> <p>Traffic emissions during operation will be minimised through the implementation of the Framework Travel Plan which sets out how traffic travelling to and from the Site will be minimised. Emissions from the energy centre will disperse naturally without the need for any abatement measures.</p>	<p>Good management during construction will ensure that nuisance to residents and impacts to ecological receptors from dust will not be significant.</p> <p>The increase in traffic emissions, and emissions from the energy centre are not predicted to result in any exceedences of national air quality objectives at any residents or designated ecological sites.</p> <p>There will be no significant adverse or beneficial effects during construction or operation of the Proposed Development.</p>
Noise and vibration	<p>The principal source of noise in the area is traffic with levels varying considerably depending on the proximity to main roads including the M11 motorway and Maddingley Road.</p>	<p>Certain construction activities are likely to be noisy in nature such as demolition and piling. Some construction activities could also cause ground borne vibration.</p> <p>Once the Proposed Development is fully open, noise is likely to be generated by traffic travelling to and from the Site, the energy centre and plant associated with individual buildings.</p>	<p>A range of best practice methods will be employed to minimise levels of construction noise and vibration.</p> <p>Implementation of the Framework Travel Plan will minimise traffic noise caused by the Proposed Development by encouraging the use of public transport, cycling and walking.</p> <p>Noise from building plant and the energy centre can be minimised through the specification of the type of plant, location and orientation, and the design of the buildings housing the plant.</p>	<p>The details of construction activities have still to be determined but based on the assumptions used to inform the assessments it is unlikely that noise and vibration effects during construction could result in nuisance to nearby residents.</p> <p>Once the Proposed Development is fully open receptors on the Site could be significantly affected by noise from the building plant and the energy centre. This will depend on the detailed design of new buildings and the energy centre and could be effectively mitigated. No receptors off the Site will be affected.</p>

Environmental topic	Existing conditions (baseline)	Potential impacts	Proposed mitigation	Summary of predicted environmental effects
Water environment	<p>The upper reaches of the Coton Brook are entirely located within the Site with surface water drainage from the Site providing the source for the water course. The Coton Brook drains to Bin Brook which is a tributary of the River Cam. The watercourse is heavily modified in places and water quality varies accordingly.</p> <p>The northern part of the Site drains northwards and discharges to Washpit Brook which is located off the Site.</p> <p>There is a low risk of flooding at the Site from rivers. The majority of the Site has a low risk of surface water flooding, but this is an issue in some localised areas on the Site.</p>	<p>During construction there is a risk that surface water runoff could become contaminated from sediment, chemicals and fuels used for construction and stored on Site. This could impact the water quality of Coton Brook and Washpit Brook and the associated downstream surface water courses. Works to modify the profile of the upper reaches of the Coton Brook to provide more surface water storage could also impact water quality downstream.</p> <p>During operation there will be an increase in hard standing which could result in an increase in the volume of surface water running off the Site causing flooding downstream.</p>	<p>The implementation of best practice construction measures and the implementation of guidelines published by the Environment Agency will minimise the risk of polluting surface water courses during construction.</p> <p>The Site wide drainage strategy includes Sustainable Urban Drainage (SUDS) principals and other measures to capture surface water runoff and release it at greenfield runoff rates.</p>	<p>Good management of the construction site and activities will minimise the risk of polluting surface water courses.</p> <p>The surface water discharge rates will be similar to the existing discharge rates so that the risk of flooding to areas downstream of the Site will not change.</p> <p>There will be no significant adverse or beneficial effects to the water environment during construction or operation of the Proposed Development.</p>
Ground conditions	<p>The Site has historically been used for agriculture. Development began in the 1940s with the construction of an aircraft repair facility. After WWII these buildings were vacated and the Site was used by the University of Cambridge when the Department for Veterinary Medicine buildings were constructed. Subsequent development has culminated in the partial completion of the existing masterplan. The historic use of the Site raises the possibility of contamination with sources including storage and disposal areas for the laboratories, as the Environment Agency hold records for minor pollution incidents relating to the laboratories. None of these have resulted in any significant effect.</p>	<p>Site workers could encounter localised areas of contamination during excavation, piling or any earthworks activities.</p> <p>Leaks and spills of chemicals and fuels from construction equipment, plant and storage areas could lead to localised contamination of soils.</p> <p>Leaks and spills of chemicals from laboratory storage and disposal areas could result in localised contamination of soils.</p> <p>The creation of new pathways to ground water through drilling deep boreholes for ground source heat pumps.</p>	<p>Construction workers that are at risk of coming into contact with contaminated materials will wear personal protective clothing.</p> <p>The use of good construction practices as set out in Environment Agency and CIRIA guidance will minimise the risk of leaks and spills during construction, and minimise any impacts to ground water.</p> <p>Chemical storage and disposal areas during operation will be designed to the highest standards and will include appropriate bunding and drainage to prevent any escape of chemical spills and leaks.</p>	<p>The risk of construction workers encountering contamination on the Site during construction is low and the use of personal protective equipment will minimise any effects should contamination be encountered.</p> <p>Good construction practice and design will minimise the risk of contamination from leaks and spills during both construction and operation.</p> <p>There will be no significant adverse or beneficial effects during construction or operation of the Proposed Development.</p>
Cumulative effects	<p>Five major developments within the north west Cambridge area are predicted to be constructed at the same time as the Proposed Development:</p> <ul style="list-style-type: none"> • North West Cambridge; • National Institute of Agricultural Botany (NIAB); • Orchard Park; • Northstowe; and • West Cambourne 	<p>There is a risk that multiple impacts from the Proposed Development identified in the ES to the same receptor could result in significant in-combination effects to the receptor during both construction and operation.</p> <p>The cumulative effect of the construction and operation of the Proposed Development and the five other major developments could result in effects of greater magnitude than predicted for any of the developments individually.</p>	<p>Additional mitigation measures may be required during construction to minimise in-combination effects. This will be determined when full details of the proposed construction works are known.</p>	<p>The cumulative effects of the Proposed Development in conjunction with the five other major developments in north west Cambridge will give rise to significant adverse landscape effects, during both construction and operation, due to the urban expansion that will result.</p> <p>There will be significant beneficial cumulative socio-economic effects in the city and region during the construction phase and once the Proposed Development is fully open. This is due to the combined increase in employment land, housing, services, and the contribution that the six developments make to local, regional and national socio-economic policies</p>

3.1.4 The Proposed Development has been carefully designed to ensure that significant environmental effects are minimised, as far as possible, whilst enabling the University of Cambridge to deliver its vision for the Site and bring about the significant socio-economic benefits that will result. Nevertheless there will be significant adverse environmental effects during construction and operation relating to built heritage, the landscape and views, noise and vibration, and traffic and transport. There will also be significant cumulative effects relating to the landscape when considered with other planned developments in the north west of Cambridge.

