3 EIA Methodology

3.1 Introduction

3.1.1 This chapter sets out the scope and methodology adopted in the EIA process. It explains how the scope of the EIA was defined, the baseline assumptions, the methods used to assess the environmental effects; and the general criteria used to evaluate their significance.

3.1.2 This chapter is accompanied by the following appendices:

- Appendix 3.1: Location of Specified Information in the ES;
- Appendix 3.2: Informal EIA Scoping Note; and,
- Appendix 3.3: List of Cumulative Schemes.

3.2 Regulatory Requirements and Good Practice

3.2.1 This ES was prepared to comply with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017[1] (as amended)[2] (the 'EIA Regulations'). The structure and content of an ES is defined by Regulation 18(3)/(4)/(5) and Schedule 4 of the EIA Regulations, including the information for inclusion in an ES and requirements to ensure completeness and quality. Appendix 3.1 sets out these information requirements together with their location within the ES.

3.2.2 Good practice guidance documents were also considered when undertaking this EIA, including:

- Planning Practice Guidance ('PPG') – Environmental Impact Assessment[3];
- Guidelines for Environmental Impact Assessment: Institute of Environmental Management and Assessment ('IEMA')[4];
- Special Report: The State of Environmental Impact Assessment Practice in the UK[5] (IEMA);
- European Commission – Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report[6];
- EIA – Shaping and Delivering Quality Development (IEMA)[7];
- Delivering Proportionate EIA (IEMA)[8]; and
- Topic specific guidance referred to in each technical chapter of this ES where appropriate.

3.2.3 Each technical assessment has followed respective European, national and local planning policy and guidance as appropriate to their discipline.

3.3 Design and EIA Interface

3.3.1 The EIA was undertaken in parallel with the design process. In particular, water, biodiversity and transport specialists have worked closely with the project design team through an iterative process to reduce, or eliminate where possible, adverse environmental effects. Notably, specialists have helped define the access arrangements, Parameter Plans and Development Specification which form the basis of the planning applications. Further information on how environmental issues have influenced the design is provided in Chapter 4: Alternatives. Opportunities for enhancement, such as biodiversity and landscape, have also been identified.

3.4 Planning Application Structure

3.4.1 The Application 1 planning application is submitted as a hybrid planning application, comprising an 'Outline Component' and a 'Detailed Component'. The Application 2 planning application is submitted as an outline planning application.

3.4.2 The Town and Country Planning (Development Management Procedure) (England) Order 2015[9] (DMPO) sets out the requirements and information that need to be provided in support of both outline and detailed planning applications. Further guidance is also provided in the PPG.

3.4.3 In accordance with the definition of 'reserved matters' in the DMPO, the following matters within the Outline Component of Application 1 and Application 2 will be reserved for future approval: scale, layout, appearance, landscaping and access. The Outline Component of Application 1 and Application 2 sets out and seek approval for developable areas and building heights by way of Parameter Plans included at Appendix 5.1. The Parameter Plans also set out the location of principal open space areas and access across the Site.

3.4.4 The Outline Component of Application 1 and Application 2 are also accompanied by a Development Specification document (Appendix 5.2) which is submitted for approval and to which future reserved matters applications will adhere to. The Development Specification provides additional detail to the Parameter Plans in relation to the Development.

3.5 Scope of the EIA

3.5.1 A formal request for a Scoping Opinion under Regulation 15 of the EIA Regulations has not been sought from CDC. This would typically involve submission of an EIA Scoping Report which identifies the topics that would be assessed during the EIA process and the proposed approach to their assessment. Seeking a Scoping Opinion is not mandatory under the EIA Regulations.

3.5.2 The EIA Regulations require the ES to consider only the 'likely significant environmental effects' of a development, which is reiterated in the PPG and highlights the expectation that the ES should focus on the 'main' or 'significant' environmental effects only. The PPG states:

"The Environmental Statement should be proportionate and not be any longer than is necessary to assess properly those effects. Where, for example, only one environmental factor is likely to be significantly affected, the assessment should focus on that issue only. Impacts which have little or no significance for the particular development in question will need only very brief treatment to indicate that their possible relevance has been considered".

3.5.3 The scope of assessment for the ES was developed by reviewing baseline studies for the Site and supporting technical assessments from neighbouring planning applications, particularly the planning application for Bicester Gateway (Ref. No. 16/02586/OUT) in so far as this is applicable to the Site and Development. This has provided a good level of understanding of the prevailing environmental issues for the Site and locality and the likely significant effects.

3.5.4 An informal EIA scoping note was prepared by Quod which summarised the findings of the scoping study and the proposed scope of the ES. This scoping note was provided to CDC for comment on 7th December 2018 (Appendix 3.2). Table 3.1 provides a summary explanation of topics that are considered unlikely to give rise to significant effects and are therefore not considered further within the EIA.

Table 3.1: Topics scoped out of the EIA

Topic	Rationale
Built Heritage	The Site does not contain any built heritage resources designated of national importance, such as Scheduled Monuments (SMs), listed buildings or Parks and Gardens of Special Historic Interest. However, the Alchester Roman site SM is located immediately to the south of the Site. In addition, there are no locally listed buildings

Topic	Rationale
	within the Site or within the immediate vicinity. The Development does not include the demolition of any structures of heritage value. As such, the direct effects of the Development on built heritage assets would be negligible. The Application 1 site is allocated for employment development within the adopted Cherwell Local Plan 2015 - Policy Bicester 10 and therefore CDC consider it is suitable site for a new multi-level development. A Heritage Desk-Based assessment, dated July 2016, has established that due to the presence of intervening vegetation and built form, there are no clear views of the SM from within the Site. It is also noted that the significance of the SM principally derives from those important evidential and historical illustrative values associated with its buried archaeological remains and surviving earthworks not Built Heritage. In addition, the exiting poultry farm buildings on the Application 2 site forms part of the existing baseline in terms of setting of the SM. The proposed Development will be of higher architecture quality and appearance than the existing buildings, and therefore in combination with the proposed set back and structural planting it is considered that there will be no change to, or adverse impact upon its setting of the SM. The closest listed building is a Grade II listed bridge approximately 200m north east of Lodge Farmhouse, approximately 460m south west of the Site. A further two Grade II listed buildings are located within the vicinity of the Site; the Langford Park Farmhouse 600m north east and Oxford Lodge 630m south west of the Site. Chesterton Conservation Area, including one Grade II* and four Grade II listed buildings, is located approximately 590m to the west of the Site. As there are no on-Site built heritage assets nor are there built heritage assets within the vicinity of the Site and given the proposed height and scale of the Development and limited intervisibility between the Site and these features, the effects of Development on these features is not likely to be significant. A Heritage Desk-Based Assessment, prepared by Cotswold Archaeology dated July 2016, was undertaken and is submitted as a standalone document in support of Application 1 and Application 2. The assessment confirms that the Site does not form part of the historical setting of any designated built heritage assets located in the wider environs, and the Development would not result in harm to their setting and significance. Therefore, it is not considered that there is any potential for significant Built Heritage effects and this topic was scoped out of further assessment within the ES.
Archaeology	As discussed above, the Site does not contain any heritage resources designated of national importance, such as SMs, listed buildings or Parks and Gardens of Special Historic Interest. However, the Alchester Roman site SM is located immediately to the south of the Site. The significance of the SM principally derives from those important evidential and historical illustrative values associated with its buried archaeological remains and surviving earthworks. Development within the Site will not affect the SM directly, and there will be no change to, or adverse impact upon those principal contributors to the SMs significance. Due to the presence of the Alchester Roman site to the south of the Site, there is potential for archaeology to exist within the Application 1 site. An archaeological evaluation was undertaken by Cotswold Archaeology in February/March 2019 on the Application 1 site. The evidence recorded during the evaluation is indicative of farming, settlement and burial activity located close to the alignment of the Roman

Topic	Rationale
	road (between Bicester and Towcester), now called Wendlebury Road, immediately west of the Site boundary. The results of the evaluation mirror those recorded at the Application 2 site when the poultry farm was constructed, which revealed evidence for Romano-British pits, land reclamation and water management in addition to a metalled road surface. Many of the trenches within the Application 1 site, especially to the north and west, also provide evidence for quarrying and water management. As a result of the evaluation, it was concluded that development of the Site would not give rise to significant effects on below ground archaeology. Therefore, archaeology was scoped out of further assessment within the ES.
Landscape and Visual Impact Assessment	As discussed above, the Site does not contain any heritage resources designated of national importance, such as SMs, listed buildings or Parks and Gardens of Special Historic Interest. In addition, there are no locally listed buildings within the Site or within the immediate vicinity, with the closest Conservation Area being the Chesterton Conservation Area, approximately 590m west of the Site boundary. The Site does not lie within any sites designated because of their landscape quality (e.g. Areas of Outstanding Natural Beauty). The Site is located on the settlement edge of Bicester, with the Bicester Avenue Retail Park to the north and Bicester Gateway development to the west. The height of the Development buildings proposed, see Parameter Plans within Appendix 5.1, are smaller than the Bicester Gateway development, whose buildings range from 14m to 18.5m in height, while the Development will be only marginally taller than the Bicester Avenue Retail Park, whose buildings average circa 7.8m. Due to the location of the Site, the surrounding topography and dense landscaping along Wendlebury Road to the west and the unnamed access Road to the north, views into the Site are currently limited. From local to mid-distance viewpoint locations, where the Site is visibly, the Site is viewed in the context of the adjacent Bicester Avenue Retail Park, the nearby Bicester Park and Ride, and other built forms, such as roads and sewage works, and existing trees. The potential effects on landscape character and visual amenity would vary according to the nature of the construction works over time, with certain operations having more perceptible effects than others. Effects relate to largely the visibility of large plant and construction equipment used in the construction process, but are considered to be short term, intermittent, reversible and not significant. The Site is located within Character Area No 108, the Upper Thames Clay Vales, one of the 159 broad landscape character areas identified in the National Character Map. Changes arising from the Development are not likely to lead to significant adverse effects upon the key characteristics of the National Landscape Character Area (NCA), and will have limited visibility from within the NCA, due to the urban nature of the surrounding context area. It is considered that visual receptors from publicly accessible locations within the surrounding area may experience visual changes. However, this is to be expected when developing previously undeveloped land, therefore the effects are not unusual or unanticipated, and these will be seen in context with the existing landscape and wider urban environment and are not anticipated to lead to significant effects. Therefore, it is not considered that there is potential for significant landscape and visual effects and this topic was scoped out of further assessment within the ES.

Topic	Rationale
	However, a Strategic Landscape Assessment (SLA), which considers the impact of the Development on local landscape character and visual amenity, was undertaken, and is submitted as a standalone document in support of Application 1 and Application 2. The SLA has had consideration to the methodologies and principles set by the Landscape Institute and Institute of Environmental Management and Assessment in the Guidelines for Landscape and Visual Impact Assessment Third Edition (2013). Viewpoint photographs were prepared in accordance with the Landscape Institute's Advice Note 01/11 Photography and photomontage in Landscape and Visual Impact Assessment (2011). Consultation with Tim Screen (Landscape Architect for CDC) has confirmed he agrees with this approach.
Air Quality	The Site is not located within an Air Quality Management Area (AQMA). The closest AQMA is 'Area Quality Management Area 4' declared by CDC, is located approximately 1km north from the Site and incorporates sections of Kings End, Queens Avenue, Field Street, St Johns Street, Bicester. The AQMA is designated for exceedances of nitrogen dioxide. During the demolition and construction works, the greatest potential air quality effects relate to dust nuisance. Best practice measures will be implemented to minimise and control dust at source during construction which will be implemented as part of a Construction Environmental Management Plan (CEMP), which would be secured by appropriate planning condition(s). These will be detailed through the use of method statements and include measures such as hoarding and water suppression. Further information on the CEMP is provided in Chapter 6: Demolition and Construction. Given the implementation of such measures, dust during the demolition and construction phase are not expected to give rise to significant adverse effects on sensitive receptors. An Air Quality Assessment, prepared by WYG dated July 2019, assessed the likely change in road traffic emissions as a direct result of the Development with other committed development at the opening year of 2026. The assessment found that with the Development in place, predicted annual mean levels of NO_2, PM_{10} and $PM_{2.5}$ were forecast to increase by less than 1% at all assessed receptors, taking into account the additional vehicles associated with the Development. All modelled existing and proposed receptors would also comply with the Air Quality Objectives (AQO). Therefore, the Development will have an overall non-significant effect on local air quality and the AQMA. As such, air quality effects are not considered to be significant and was scoped out of further assessment within the ES No residential uses are proposed as part of the Development so potential odour issues associated with the nearby sewage treatment works are not considered significant. Notwithstanding, an Air Quality Assessment and Odour Assessment is submitted in support the Application 1 and Application 2 that will fully assess the air quality impacts of the Development, with mitigation measures identified as appropriate, in line with standard policy requirements and guidance.
Noise and Vibration	The existing noise conditions at the Site were determined by detailed environmental noise measurements. The results concluded that the existing noise conditions at the Site and surrounding area are currently dominated by the Oxford and London Marylebone train line to the east, vehicle movements related to Bicester Avenue Retail Park to the north, and road traffic on the surrounding roads, in particular the

Topic	Rationale
	A41 to the west. Average weekday daytime noise (LAeq,T) was identified as ranging from approximately 60.1dB to 64.5dB. BS5228 (Noise)[10] gives several examples of acceptable limits for construction or demolition noise, and criteria set out in Section E.3 considers impact significance based upon the change in ambient noise associated with construction activities. A significant effect is deemed to occur if the total LAeq noise level, including construction, exceeds the threshold level for the Category appropriate to the ambient noise level. Based on the LAeq, the Site falls within Category A (65dB), and if the combined noise level exceeds the appropriate category value, then the impact is deemed to be significant. Noise and vibration effects due to demolition and construction phase works will be of a temporary nature and will be managed by appropriate standard mitigation measures such as screening and hoarding, limited working hours and specific work methods. These measures will be set out in the CEMP which would be secured by appropriate planning condition(s). The noise measurements at the 'closest existing receptor' (Bicester Park Home Estate) during demolition and construction works with mitigation in place (i.e. CEMP and hoarding), would be unlikely to exceed the threshold level ambient noise level (65dB). Therefore, no significant effect as a result of demolition and construction noise can be expected with appropriate mitigation in place. As such, this issue is not considered to be significant and was scoped out of further assessment. There are currently no British Standards that provide a methodology to predict levels of vibration from construction activities, other than that contained within BS5228 (Vibration)[11] which relates to percussive or vibratory piling only. BS5228 indicates that the threshold of human perception to vibration is around 0.15 mms^{-1}, although it is generally accepted that for the majority of people vibration levels in excess of between 0.15 and 0.3 mms^{-1} peak particle velocity (PPV) are just perceptible, which forms the basis of the recommend maximum permitted vibration levels of 1 mms^{-1} PPV within occupied residential dwellings. BS5228 also sets out the distances (based on historical field measurements) at which certain activities could give rise to a just perceptible level of vibration. These distances are: Excavation (10 – 15m); Heavy Vehicles (e.g. dump trucks) (5 – 10m); Hydraulic Breaker (15 – 20m); Rotary Bored Piling (20 – 30m). Accordingly, given the nearest residential receptors at Bicester Park Home Estate are 150m from the Development it is unlikely that vibration would be perceptible. All other residential receptors are at a distance that vibration effects as a result of the Development would not be perceptible. As such, this issue is not considered to be significant and was scoped out of further assessment. The Development is not a noise sensitive use and it is considered that design measures can be put in place to ensure no likely significant effects result from the operation of the Development. As such, the effect of existing environmental noise levels on the Development is not considered to be significant and was scoped out of further assessment. In addition, new building services plant will be located, selected, installed and maintained such that the total noise from all relevant plant running together does not exceed a level 10 dB below the pre-existing background noise level (LA_{90}) during the hours of operation of the plant, in line with CDC requirements and current guidance, to be secured by appropriate planning condition(s). As such, this issue is not considered to be significant and was scoped out of further assessment.

Topic	Rationale
	The Development would result in an increase in vehicle movements on the surrounding road network and general noise from its operation. A Noise and Vibration Assessment, prepared by WYG dated July 2019, undertook an assessment to compare worst-case noise levels from the 'existing ambient noise levels' (L_{Aeq}) to the 'proposed scheme' noise at identified existing and proposed residential receptors. The assessment showed that the differences between the 'existing' and 'proposed' scenario are no greater than 0.2 dB(A) at all receptors which is considered to be negligible (noise level changes of ± 3dB are generally imperceptible to the human ear). Notwithstanding, a Noise and Vibration Assessment is submitted with the planning applications that fully assesses the effects of the Development, with mitigation measures identified as appropriate, in line with standard policy requirements and guidance.
Ground Conditions and Contamination	Potential point sources of contamination during the construction phase works, i.e. potential for hydrocarbon spills, will be avoided and managed by appropriate standard mitigation measures, implemented via the CEMP, such that they are unlikely to be significant. The Site comprises agricultural land and has been in agricultural use since the 18th century (see section 2.2 of Chapter 2: Site and Setting). Therefore, the presence of significant contamination at the Site is considered unlikely. In addition, there are no current or historical records of landfills within 250m of the Site. Initial site work has found no obvious visual or olfactory evidence of potential contamination on the Site. A Ground Investigations Report is submitted in support of Application 1 and Application 2. In line with standard practice, further investigation will be carried out in advance of construction to fully characterise the ground conditions across the Site, and if necessary, minor remedial measures will be developed to ensure that there is no risk to future Site users or the surrounding environment. Therefore, it is not considered that there is any potential for significant contamination on the Site and ground conditions and contamination has been scoped out of further assessment within the ES.
Wind	Due to the low-rise nature of proposed buildings (up to a maximum ridge height of circa 11-12m from development platform level) likely significant wind effects are not anticipated and this topic was scoped out of the ES.
Daylight, Sunlight and Overshadowing	The scale and massing of the Development (up to a maximum ridge height of circa 11-12m from development platform level) is such that it will not cause changes to daylight or sunlight availability or cause overshadowing of existing residential properties or amenity space. This topic was therefore scoped out of the ES.
Soils and Agricultural Land	Agricultural land in England and Wales is graded between 1 and 5, depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use. Grade 1 land is 'excellent quality' agricultural land with very minor or no limitations to agricultural use, and Grade 5 is 'very poor quality' land, with severe limitations due to adverse soil, relief, climate or a combination of these. Natural England mapping[12] indicates that the Site contains Grade 4 agricultural land (poor quality). Development of the Site will therefore not result in the loss of Best and Most Versatile (BMV) agricultural land and likely significant effects are not anticipated. The construction of the Development will result in soils being disturbed over much of the Site. Areas where soils will not be disturbed will be limited to open space and

Topic	Rationale
	landscaped areas to the east of the Site. Where soil is to be disturbed it will be removed prior to construction operations and will be stored for reuse at the Site, in line with good soil handling practice. The main threat to the soil during construction is the inappropriate handling of stored soil for example by handling soils when they are too wet or storing them in mounds that are too large. Potential effects on soil will be managed through standard measures, including a CEMP, which will ensure that soils needing to be removed during the development process are handled and stored in accordance with BS 3882:2007, *"Specification for Topsoil and Requirements for Use".* Soils removed from the development areas will be retained on the Site for use in landscaped areas or platform construction. As a result, it is considered that there would not be any significant effects on soil during construction activities as a result of the CEMP and other standard mitigation measures being implemented. Furthermore, the loss of Grade 4 land, which is allocated for employment development and open space as part of the adopted Cherwell Local Plan, is not considered to have a significant effect on agriculture. It is not considered that there would be any significant effects on soils or agriculture, and as such, these topics will not be assessed further within the ES.
Light Pollution and Solar Glare	The Site is located on the edge of Bicester and is unlikely to be particularly sensitive in terms of lighting. The Site is not in a Conservation Area or Area of Outstanding Natural Beauty and the type of proposed Development is not considered to be a significant source of light pollution. Lighting during construction activities would be controlled by the CEMP. The Development would provide a modern, efficient and controlled lighting design, which is expected to reduce any potential adverse effects to a negligible to low adverse impact (taking into account design standards and guidance, but assuming no additional mitigation). Lighting would be designed in accordance with industry best practice and such measures include: • Keeping glare to a minimum by ensuring that the main beam angle of all lights directed towards any potential observer is not more than 70°; • Higher mounting heights which allow lower main beam angles that can assist in reducing glare; • Careful consideration of the positioning and aiming of lighting equipment will be required; and, • All lighting to be designed in line with the Guidance Notes for The Reduction of Obtrusive Light[13] published by The Institution of Lighting Engineers. The effect of lighting from the Development on ecological receptors was considered within the ES Chapter 7: Biodiversity. Consequently, through mitigation introduced during construction (i.e. preparation and implementation of a CEMP) and completed Development (through targeting the light pollution limitations and best practice design), it is unlikely that new lighting installations will result in significant adverse effects to sensitive receptors. It is therefore considered that light pollution will not be significant and was scoped out of further assessment.

Topic	Rationale
Waste	Waste generation will occur as a result of the construction and operation of the Development. Waste produced during all activities on Site will be subject to the 'Duty of Care' under the Environmental Protection Act[14]. Demolition and earthwork activities are generally the activities that generate the majority of waste during development of a site. No demolition is required on the Application 1 site, with the limited demolition activities required on the Application 2 site. Therefore, the Development is not expected to produce large quantities of waste. As part of the Site is within Flood Zone 2 and 3b, a scheme is proposed to mitigate against flood risk. Ground raising is proposed within Flood Zone 1, 2 and 3b. A full compensation scheme has been developed to provide better flood volume storage than the existing Site. The compensation scheme has provided level for level compensation up to the 1 in 1000 year flood extent. The earthworks / cut and fill operations that will be required will involve the movement and re-use of soil within the Site. As such, no significant movement of soil waste off site is anticipated. Further information on the flood risk compensation scheme is provided in Chapter 8: Water Resources and Flood Risk and the Flood Risk Assessment (Appendix 8.1). Opportunities to minimise the amount of waste going to landfill will be sought by the contractor in line with best practice during construction, so that construction materials will be used efficiently on Site and that all re-useable wastes will be recovered, re-used or recycled where possible. Other potential effects of waste removal (e.g. dust, noise) will be managed through standard measures, including the CEMP. Construction traffic routing information will be agreed with CDC via a Construction Traffic Management Plans (CTMP) to minimise the effects, as far as practicable, on other road users. It is not anticipated that significant quantities of hazardous wastes will be produced or transported during these works due to the nature of the Development. Therefore, the environmental effects of waste are not considered to be significant during construction that would require further assessment within the EIA. Once complete and occupied, a quantity of occupational waste would result from the Development. The Development will be designed to optimise good waste management practices in line with Building Regulations 2010 Part H and other relevant industry standards. Details of waste and recycling facilities would be agreed with CDC as part of Reserved Matters applications. Waste was therefore scoped out of this EIA on the based that the Development would not result in likely significant effects.
Climate change and greenhouse gases	Climate change and greenhouse gases, as a separate chapter, was scoped out of the ES. Chapter 5: Description of Development summarises the findings of the ES relevant to climate change and the climate change adaptations integrated into the Development. This draws upon technical chapters and reports, including the Flood Risk Assessment, and summarises the sustainability and energy provisions included within the Development. In addition, other sustainable measures including using water resources efficiently; ensuring buildings are designed to be resilient to changing climate and extreme weather events; and choosing appropriate planting in landscaping areas are outlined within ES Chapters and planning reports, as relevant, including, not limited to, the Flood Risk Assessment, Transport Assessment, and Air Quality Assessment.

Topic	Rationale
Socio-Economics	During construction, the Development is likely to result in indirect and induced employment opportunities, as well as spending by the construction workforce. However, due to the limited size of the Development this would be a temporary beneficial effect which is likely to be of negligible significant at all spatial levels. The Development will contribute towards the CDC aspirations to provide high quality jobs within an allocated site as outlined within local planning policy. This Development would provide new employment opportunities for the area, which would be beneficial although it is not considered to be significant in EIA terms.
Human Health	In line with the EIA Regulations, the potential for significant effects on human health and wellbeing were considered. The socio-economic aspects of the Development (i.e. provision of jobs), could potentially give rise to indirect beneficial effects on human health. Greater access to employment may be positively correlated with good health, but these effects from the Development will be uncertain and not measurable. The incidence of any such health effects will be very widely dispersed through marginal changes to the wider employment markets, and so the effect is considered not significant at any level. The potential effects of a new development on the health and wellbeing of new and existing workers would be largely determined by the way the Development's buildings and spaces are used, as well as lifestyle factors which cannot be accurately quantified or controlled at the planning stage. These wider factors sit outside the scope of planning and EIA. Residential, commercial and retail uses are located within the surrounding area. The Development itself would comprise largely B1 and D2 Class Uses. It is considered unlikely that the Development would result in any significant direct adverse health impacts. Several assessments which accompany Application 1 and Application 2 planning applications and form part of the ES consider the Development's indirect or secondary impacts which can have an effect on health and well-being, including: Air Quality Assessment; Noise and Vibration Assessment; and, Transport Assessment. While these assessments don't consider the likely scale or significance of these effects with specific regard to human health impacts, they will consider these effects against the significance criteria set for each topic of assessment. The findings of these assessments conclude that permanent long-term effects would not be significant. Furthermore, the Applicant would implement industry standard measures to control potential construction related effects related to health and wellbeing, including public safety, noise and vibration controls, and air and dust management (i.e. a CEMP). The indirect health and wellbeing effects are already considered comprehensively in the planning application and EIA where their assessment was identified as being proportionate and/or potentially require mitigation. The inclusion of the requirement to consider population and human health effects in the 2017 EIA Regulations is met by the robust assessment of the topics listed above. Therefore, a human health impact assessment was scoped out of this EIA.
Vulnerability to Major Accidents or Disasters	The EIA Regulations require the ES to consider, the inclusion *"A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned."* The Development does not include uses which are hazardous. The Site is not in a location which is at risk of disasters such as

Topic	Rationale
	COMAH sites, land instability or earthquakes. Part of the Site lies with Flood Zone 2 and 3 (medium and high probability of flooding) an assessment of the effects of the Development on flood risk, including any necessary mitigation measures is provided in Chapter 8: Water Resources and Flood Risk. During construction, all applicable health and safety legislation will be complied with. No significant risks were identified in this regard and therefore this issue was scoped out of the EIA.

3.5.5 Table 3.2 outlines the topics for further assessment within the ES, which form the technical chapters of this ES.

Table 3.2: Catalyst Bicester ES Technical Chapters

Topics
Biodiversity (Chapter 7)
Water Resources and Flood Risk (Chapter 8)
Transport and Access (Chapter 9)

3.5.6 Cumulative inter-project effects are assessed in each technical chapter. Cumulative intra-project effect, i.e. effect interactions for the Development, are assessed within Chapter 10: Effect Interactions.

3.6 Consultation

3.6.1 Consultation has been undertaken with statutory consultees and other key stakeholders during the EIA and design process. Meetings have been held with CDC, Oxfordshire County Council ('OCC') and other key stakeholders on the design as it has evolved. A summary of the key issues raised through consultation relevant to the EIA process and how these were addressed in the EIA is provided in the 'Assessment Methodology - Consultation' section of each technical chapter.

3.7 Defining the Baseline

Study Area

3.7.1 The study area for each topic is based on the geographical scope of the potential impacts relevant to the topic or the information required to assess the likely significant effects, as well as topic-specific guidance and consultation with stakeholders.

Baseline Conditions and Future Baseline Conditions

3.7.2 The baseline environmental conditions need to be established to enable an accurate assessment of the potential changes that may occur and to assess the resultant environmental effects of the Development. Understanding baseline conditions also assists in the identification of the most appropriate mitigation to be employed to minimise any significant effects.

3.7.3 Baseline information was gathered to define and describe the existing environmental characteristics and receptors for each environmental topic. The baseline assessment year for the EIA was taken as the Site and its surrounds in its current condition, as recorded in recent surveys, datasets and Site inspections (i.e. 2018/2019, unless stated otherwise within the relevant technical chapter).

3.7.4 It is anticipated that construction of the Development will commence in 2020.

3.7.5 The EIA Regulations require an outline of the likely evolution of the baseline conditions without implementation of the development, as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge, i.e. the EIA future baseline scenario. Future baseline conditions are considered under the 'Baseline Conditions' section as appropriate within each technical chapter.

Sensitive Receptors

3.7.6 As part of the EIA process, the environmental effects of a given development or scheme are typically assessed in relation to sensitive receptors, including human beings (e.g. future site users), built resources (e.g. buildings) and natural resources (e.g. controlled waters). The criteria used for identifying potentially sensitive receptors include:

- Proximity to the Site;
- Extent and duration of potential exposure to environmental effects; and,
- Vulnerability and ability to respond to change.

3.7.7 Further details on sensitive receptors is provided in the baseline assessment sections of the technical chapters of the ES (i.e. Chapters 7 to 9).

3.8 Assessment of Effects

Basis of the Assessment

3.8.1 The Parameter Plans set out the minimum information required to allow the impacts of the Outline Component of Application 1 and Application 2 to be identified with sufficient certainty. The Parameter Plans provide the upper building limits and establish a 3-dimensional (3D) building envelope within which the detailed design of buildings can come forward through the submission of reserved matters applications.

3.8.2 In addition, the Development Specification defines and describes the principal components of the Development including the maximum amount of development and the uses proposed.

3.8.3 The EIA has principally assessed the Development by reference to the Parameter Plans and the Development Specification document. Due to the level of design flexibility provided by the Parameter Plans (particularly in respect of defining maximum and minimum building envelopes and Gross External Areas (GEA) by land use), the technical assessments in this ES provide an assessment of the maximum extent of the proposed Development which would represent a 'worst-case' assessment. Where this is not the case, full justification is provided.

3.8.4 Chapter 9: Transport and Access is the only EIA technical assessment that is dependent on the development uses (i.e. Class Use) and amount of each use (i.e. the proposed floor areas) proposed within the Development. The Development Specification describes the type and amount of development by land use and square metres, respectively.

Development Scenarios

3.8.5 Each of the Applications can be determined independently. The Application 1 planning application effectively "layers" the full application on top of an outline application, i.e. outline planning permission for employment floorspace is sought across the whole of the Application 1 site, with the health and racquet club presented as an alternative use for part of the Application 1 site. Application 2 seeks separate permission for additional commercial floorspace on Application 2 site.

3.8.6 For these reasons there are four possible development scenarios that could result from the two planning applications. These are outlined below.

Scenario 1: Application 1 – Employment Development

3.8.7 Assessment of construction / completed Development phase effects of Application 1 site alone, assuming employment development across the full extent of Application 1 site.

Scenario 2: Application 1 – Employment and Health and Racquet Club

3.8.8 Assessment of construction / completed Development phase effects of Application 1 site alone, assuming employment and health and racquet club development.

Scenario 3: Application 1 - Employment Development & Application 2

3.8.9 Assessment of construction / completed Development phase effects of Application 1 (employment development across the full extent of Application 1 site) plus Application 2. Application 2 will involve the demolition of existing farm buildings which is considered.

Scenario 4: Application 1 - Employment and Health and Racquet Club & Application 2

3.8.10 Assessment of construction / completed Development phase effects of Application 1 (employment and health and racquet club) plus Application 2. Application 2 will involve the demolition of existing farm buildings which is considered.

Assessment Years and Future Scenarios

3.8.11 The EIA considers the likely significant effects during construction, as well as completion and occupation of the Development. It was assumed that works for the Development would commence in the 2020, although a different start date is unlikely to materially affect the findings of the assessment.

3.8.12 The principal assessment year for the EIA is based on completion of the Development. The year 2023 is nominally assumed as the year that the Development would be complete and occupied for the purposes of the assessment. This year may be subject to change; however, this is unlikely to materially affect the outcome of the assessments.

Enabling, Demolition and Construction

3.8.13 Each technical assessment in the ES assumes a notional 'likely-worst case' scenario with respect to the envisaged construction methods, location (proximity to sensitive receptors) and timing as outlined above and in Chapter 6: Construction. These assumptions may vary between the topic specific assessments. Each individual assessment accounts for a 'hypothetical' construction site that is representative of the 'worst-case' scenario for any given set of receptors, relevant to that particular technical assessment. Both permanent and temporary construction effects were identified.

3.8.14 The key construction phase activities, which have informed the assessments, are described in Chapter 6: Construction. An assumption is in place that contractors will adhere to a CEMP, which would be secured by planning condition(s).

3.8.15 In line with the Institute of Environmental Management and Assessment (IEMA) best practice, the CEMP can be defined as 'tertiary' mitigation which is defined as that which:

"will be required regardless of any EIA assessment, as it is imposed, for example, as a result of legislative requirements and/or standard sectoral practices. For example, considerate contractor's practices that manage activities which have potential nuisance effects".

Completed Development

3.8.16 The assessment of potential effects of the completed and occupied Development incorporates analysis of the permanent effects that could arise as a result of the Development. The principal

assessment year for the EIA was based on completion and occupation of the Development which was assumed to be 2023. This year may be subject to change; however, this is unlikely to materially affect the outcome of the assessments.

Identifying and Determining the Significance of Environmental Effects

Identifying Impacts and Effects

3.8.17 The Development has the potential to create a range of 'impacts' and 'effects' on the physical, biological and human environment. The definitions of impact and effect used in this assessment are drawn from the Design Manual for Roads and Bridges (the DMRB), Volume 11[15] as follows:

- **Impact** - a change that is caused by an action. For example, road traffic from the Development would result in increased levels of noise (impact). Impacts can be classified as direct, indirect, secondary, cumulative and inter-related. They can be either positive (beneficial) or negative (adverse);
- **Effect** - is used to express the consequence of an impact. For example, increased levels of road traffic noise (impact) has the potential to disturb local noise sensitive receptors (effect).

3.8.18 This is expressed in the ES as the 'significance of effect' and is determined by considering the magnitude of the impact alongside the importance, or sensitivity, of the receptor or resource, in accordance with defined significance criteria.

3.8.19 Beneficial or adverse impacts are classified on the basis of their nature and duration as follows:

- **Temporary**: Effects that persist for a limited period only (due, for example, to particular activities taking place for a short period of time);
- **Permanent**: Effects that result from an irreversible change to the baseline environment (e.g. land-take) or which will persist for the foreseeable future (e.g. noise from regular or continuous operations or activities);
- **Direct**: Effects that arise from the effect of the project itself (e.g. removal of vegetation);
- **Indirect**: Effects that arise which are not a direct result of the project but are closely linked (e.g. changes to surface water quality due to change in land use and urbanisation);
- **Secondary**: Effects that arise as a consequence of an initial effect of the scheme (e.g. induced employment elsewhere);
- **Cumulative**: Effects that can arise from a combination of different effects at a specific location or the interaction of different effects over different periods of time.

3.8.20 In the context of the Development, short (up to 24 months duration) to medium (up to 48 months duration) term effects are generally determined to be those associated with construction activities, and the long-term effects are those associated with the completed and occupied Development.

3.8.21 Local effects are those effects affecting receptors within and in close proximity to the Site, whilst effects on receptors in the wider study area are considered to be at a district level (i.e. CDC). Sub-regional effects are those affecting adjacent district councils within the Oxfordshire County Council administrative area, whilst effects on adjacent counties are considered to be at a regional level.

Defining Magnitude of Impact and Sensitivity of Receptor

Magnitude of Impact

3.8.22 For impacts assessed in this ES, a magnitude of impact was assigned taking into account the spatial extent, duration, frequency and reversibility of the impact, where relevant. Scales of magnitudes of

impact are defined in each chapter of this ES where this is possible, otherwise professional judgement is applied to the following scale:

- No change;
- Negligible;
- Low;
- Medium; and
- High.

3.8.23 The assessment of environmental effects was undertaken in accordance with relevant industry standards and legislation where such material is available. In cases where it is not possible to quantify effects, qualitative assessments were carried out based on the available knowledge of the Site and the potential effect, alongside professional judgement. Where uncertainty exists, this is detailed in the 'Assumptions and Limitations' section under 'Assessment Methodology' in the respective technical chapters.

Sensitivity of Receptor

3.8.24 Sensitive receptors are defined as the physical or biological resource or user groups that would be affected by the project impacts. The identification of sensitive receptors was informed by baseline studies carried out as part of the EIA. In defining the sensitivity of receptors, the following factors were considered:

- Vulnerability of the receptor - The degree to which a receptor is susceptible to injury, damage, or harm from an activity.
- Value / importance of the receptor - The ability of a receptor to be able to return to a state close to that which existed before an activity or event caused damage.
- Recoverability of the receptor - The importance of the receptor in terms of ecological, social / community and / or economic value.

3.8.25 A summary of sensitive receptors is provided within each baseline assessment sections of the ES topic chapters. Sensitivity is defined within each topic according to the following scale:

- Negligible;
- Low;
- Medium; and
- High.

Evaluation of Significance

3.8.26 Each technical chapter provides the specific criteria, including sources and justifications, for quantifying the level of effect significance. Where possible, this was based upon quantitative and accepted criteria, together with the use of value judgements and expert interpretations to establish to what extent an effect is significant.

3.8.27 There is no statutory definition of what constitutes a significant effect and guidance is of a generic nature. However, it is widely recognised that 'significance' reflects the relationship between the magnitude of an impact and the sensitivity (or value) of the affected resource or receptor. Statutory designations and any potential breaches of environmental law take precedence in determining significance because the protection afforded to a receptor or resource is already established as a matter of law, rather than requiring a project or site-specific evaluation.

3.8.28 Where adverse or beneficial effects were identified, these were generally assessed against the scale set out in Table 3.3.

Table 3.3: Description of the Level of Significance of Environmental Effects

Level of Significance	Description
Major	Major effects (by extent, duration or magnitude) and/or a highly pronounced change in environmental conditions. Effects, both adverse and beneficial, which are likely to be important considerations at a regional or district level because they contribute to achieving regional or council wide objectives, or, could result in exceedance of statutory objectives and/or breaches of legislation.
Moderate	Intermediate effects (by extent, duration or magnitude) and/or pronounced change in environmental conditions. Effect that is likely to be an important consideration at a local level.
Minor	Noticeable but small effect or change in environmental conditions. These effects may be raised as local issues but are unlikely to be of importance in the decision-making process. Typically, 'Minor' effects are considered 'Not Significant' in EIA terms unless otherwise stated within the technical chapter.
Negligible	No discernible change or neutral effect on environmental conditions. An effect that is likely to have a negligible influence, irrespective of other effects.

3.8.29 The matrix presented in Table 3.4 was generally applied throughout this ES to determine the scale or magnitude of effects. Where different assessment criteria were used, this is clearly stated within the relevant chapter.

Table 3.4: Significance Matrix

Sensitivity / Value of Receptor	Magnitude of Effect			
	High	Medium	Low	Negligible
High	Major	Major/Moderate	Moderate	Negligible
Medium	Major/Moderate	Moderate	Moderate/ Minor	Negligible
Low	Moderate	Moderate/ Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

3.9 Mitigation, Monitoring and Residual Effects

3.9.1 The development of mitigation measures is an integral part of EIA. Mitigation measures are set out in each of the technical assessment chapters where significant effects are identified, with the aim of avoiding, reducing, or offsetting for potential adverse effects and maximising potential beneficial effects. In each technical chapter, the specialists undertaking the EIA have identified appropriate mitigation measures based on their assessment of potential significant impacts.

3.9.2 Mitigation measures are divided into:

- Inherent mitigation measures - are those which are 'designed in' or embedded to the scheme and certain to be delivered, i.e. what is proposed by the application forms and drawings.

- Standard mitigation – e.g. construction mitigation with a high degree of certainty over delivery, i.e. measures to be included in the CEMP(s).
- Actionable mitigation measures - those that require a controlling mechanism or legal undertaking to be implemented, but are under the control of the Applicant, CDC or statutory bodies, e.g. planning conditions, Section 106 and Section 278 agreements.

3.10 Cumulative Effects

3.10.1 The EIA Regulations require that, in assessing the effects of a development, consideration should also be given to any cumulative effects. Potential cumulative effects were categorised into two types:

- **Intra-project effects**: The combined effects of individual effects resultant from the Development upon a set of defined sensitive receptors, for example, noise, dust and visual effects; and
- **Inter-project effects**: The combined effects arising from another development site(s), which individually might be insignificant, but when considered together, could create a significant cumulative effect.

3.10.2 There is currently no guidance on how to define an appropriate study area for considering cumulative effects. A set of screening criteria was, therefore, developed to identify which reasonably foreseeable developments in the vicinity of the Site should be subject to assessment. This screening criteria was informed by the government's online PPG *'When should cumulative effects be assessed?'* and the PINS Advice Note 17[16]. Schemes to be considered were identified based on the following criteria:

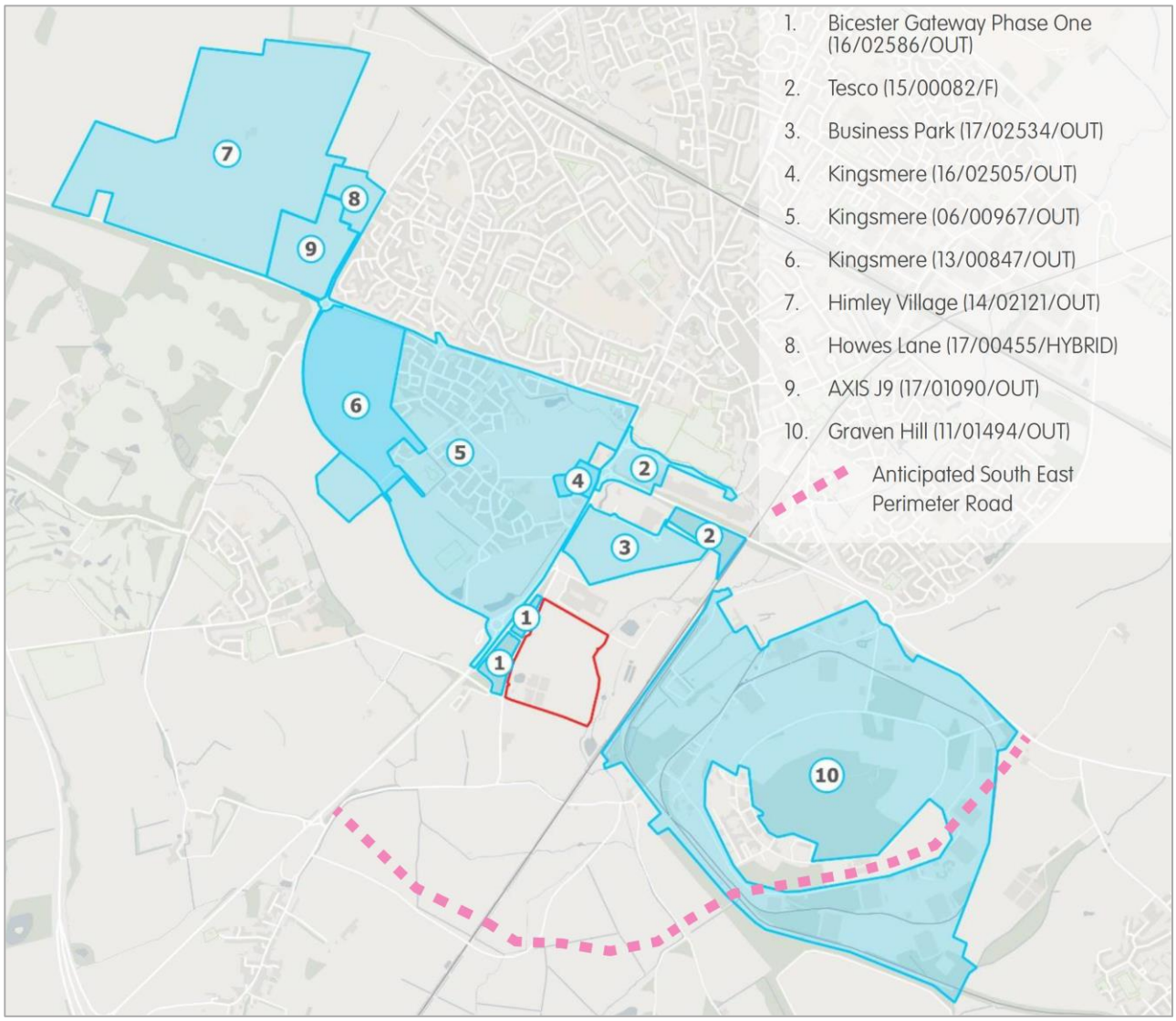
- Expected to be built-out at the same time as the Development and with a defined planning and construction programme;
- Spatially linked to the Development;
- Considered an EIA development and for which an ES was submitted with the planning application;
- Those which were granted planning consent from the planning authority (granted or resolution to grant); and/or,
- Introduce sensitive receptors within close proximity to the Site boundary (but are not EIA development).

3.10.3 The development schemes which meet the above criteria and were included within the cumulative assessment are identified in Figure 3.1. Appendix 3.3 provides further detail of each cumulative scheme and its status. Each technical chapter assesses and presents the potential for inter-project effects arising from the cumulative schemes.

3.10.4 The list of cumulative schemes was kept under review during the preparation of the ES, but no further relevant developments were identified to those identified in Figure 3.1 and Appendix 3.3 at the time of writing.

3.10.5 Inter-project effects are considered in Chapter 10: Effect Interactions.

Figure 3.1 Cumulative Schemes (See Appendix 3.3 for further details)



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