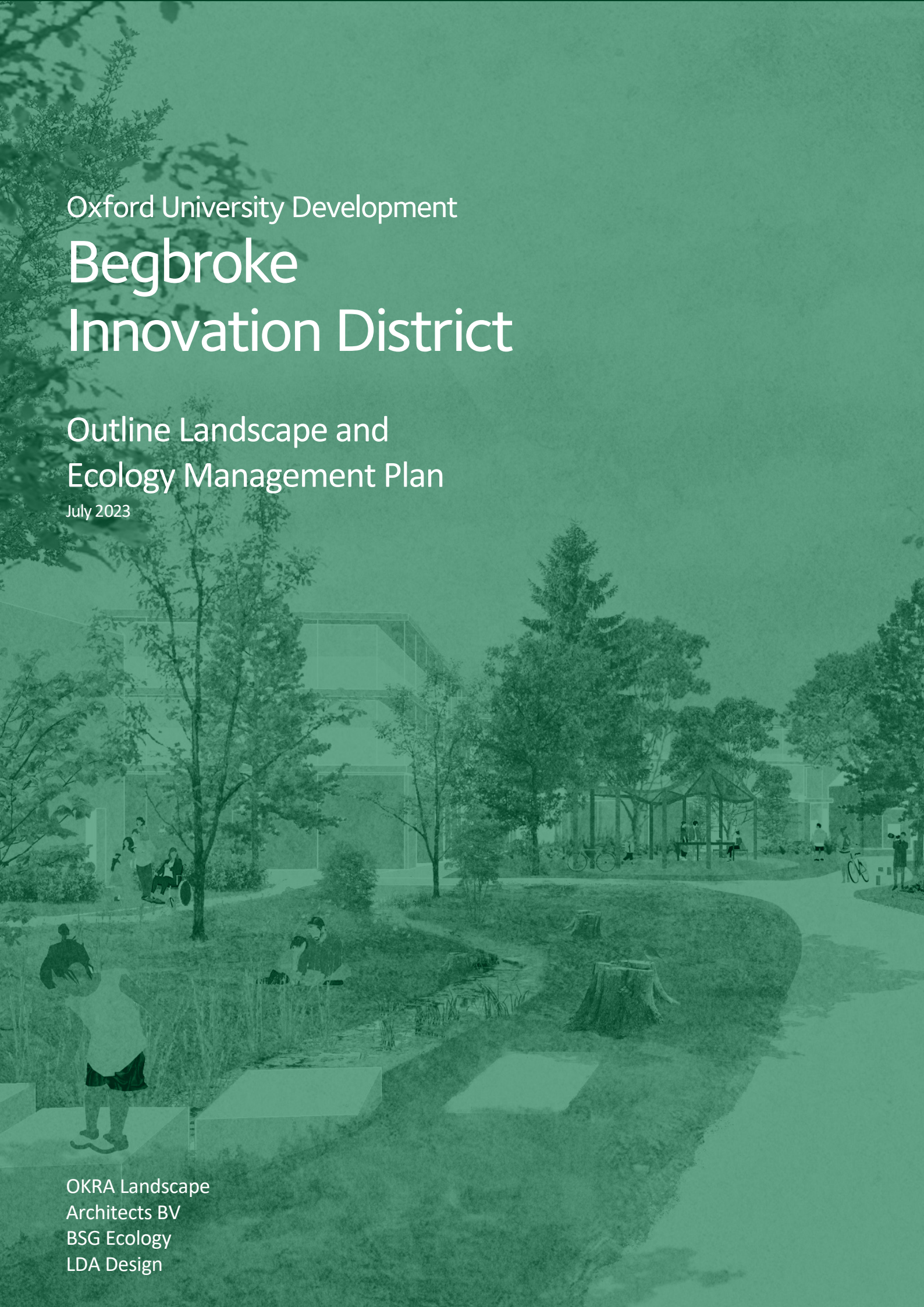
Oxford University Development

Begbroke Innovation District

Outline Landscape and Ecology Management Plan

July 2023



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This document has been prepared and checked in accordance with ISO 9001:2015.

1.0 Introduction

1. The Applicant, Oxford University Development ('OUD'), has commissioned this Outline Landscape and Ecology Management Plan ('OLEMP') to support their outline planning application ('OPA') for the Begbroke Innovation District development.

2. The OLEMP forms the framework that will ensure the intent of the Proposed Development's landscape design and mitigation is realised. This OLEMP would inform the subsequent detailed design of the Proposed Development's landscaping proposals and guide the preparation of detailed Landscape and Ecology Management Plans ('LEMP') in the future. Detailed landscaping proposals, submitted through reserved matters applications, should demonstrate how they are contributing to the achievement of the objectives (set out in **Section 3.0**). The detailed LEMPs will need to show regard to this OLEMP.

3. The OLEMP sets out the Proposed Development's objectives in relation to restoring nature and enhancing biodiversity within the Site. The Oxfordshire Biodiversity Action Plan ('BAP') has been considered as part of this application, resulting in the following objectives:

   1) Significantly enhance the overall biodiversity value of the Site.

   2) Protect, restore, enhance and maintain the existing characteristics, planting and features of value within the Site including mature trees, hedgerows and ditches.

   3) Create a strong structural planting framework, which would also provide enhanced screening of close- and middle-distance views to the Proposed Development.

   4) Create greater opportunities (in terms of habitat and habitat connectivity) for protected species and species of conservation concern.

   5) Protect and enhance recreational amenity that is accessible from Public Rights of Ways ('PRoW').

4. The OLEMP has been produced with reference to the *'Biodiversity – Code of Practice for Planning and Development British Standard: BS 42020:2013'* (BSI Standards Limited, 2013) and in particular, **Section 11.1** and **D4.5**, which provides details on the content of the management plans.

5. The measures proposed should ensure that there is an overall net gain in the biodiversity value of the Site in accordance with National Planning Policy Framework ('NPPF', Paragraph 179, 2021). The NPPF advises that:

   "To protect and enhance biodiversity and geodiversity, plans should… safeguard components of local wildlife-rich habitats and wider ecological networks… promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity."

6. This document provides the information required for a proposed 'Biodiversity Improvement and Management Plan', as set out in paragraph 20 of Cherwell Local Plan Policy PR8, apart from assessment of impacts, which is covered by **Chapter 13: Biodiversity** of the Environmental Statement ('ES') (ES Volume I) , and protection measures during construction and habitat creation, which are covered by the **Outline Construction Environmental Management Plan** (July 2023).

1.1. Structure of the OLEMP

7. The OLEMP is structured as follows:

- **Section 1:** Describes the Site; sets out its ecological value; records the habitats and species present; and summarises the landscape character of the Site and its surrounds.
- **Section 2:** Details the proposed landscape and biodiversity benefits of the Proposed Development.
- **Section 3:** Sets out the objectives for landscape and ecology within the Site.
- **Section 4:** Provides recommended management works.
- **Section 5:** Provides a recommended management programme for the Site.
- **Section 6:** Sets outs the recommended roles, responsibilities, and monitoring programme.

1.2. Associated Documents

8. The OLMEP has been informed by the following drawings and reports:

- **Parameter Plan 3 – Green Infrastructure** (P10, dated 15 May 2023) ('PP3 – Green Infrastructure').
- **Strategic Design Guide** (July 2023).
- **Chapter 13: Biodiversity** (including Biodiversity Net Gain Statement) contained within the ES (ES Volume I), which has been undertaken by BSG Ecology.
- **Landscape and Visual Impact Assessment** contained within ES Volume II, which has been undertaken by LDA Design.
- **Outline Construction Environmental Management Plan** (July 2023).

1.3. Summary of Baseline Data

1.3.1. The Site

9. The Site comprises an area of arable land to the south of Begbroke and encompasses a total area of approximately 170 hectares ('ha'). The nearby settlements of Kidlington, Yarnton and Oxford City are situated to the east and south. The Site lies within the administrative boundary of Cherwell District.

10. The Site is divided into several interlinked fields with hedgerow and tree-lined borders alongside a small number of farm buildings and access roads. A network of ponds and ditches (the latter of which drain into nearby watercourses) are also found across the Site.

11. There are several built elements located within the Site, comprising:

- Begbroke Science Park – located within the Site's northern extents, it comprises several one and two-storey life science and laboratory buildings; areas for servicing and car parking; and includes Begbroke Hill Farmhouse (a Grade II listed building); and

- Cherwell Railway Line – passes through the Site's centre, the railway is on a north-west alignment.

12. There is also an area of restored landfill within the centre of the Site, along Sandy Lane East (which encompasses approximately 5.2ha).

13. The boundaries of the Site are defined as follows:

- To the north and north-east, the Site boundary is delineated by Rowel Brook, which discharges into the Oxford Canal to the east of the Site, beyond which are residential dwellings off Fernhill Road, Begbroke; and Begbroke Lane.
- To the north-west, the Site boundary is delineated by a combination of established woodland, tree and shrub vegetation that borders the Rowel Brook.
- To the east, the Site boundary is delineated by established vegetation, comprising tree and shrub vegetation that lines the Oxford Canal. Residential properties that form the western edge of Kidlington and other associated road infrastructure characterise the landscape beyond the Site.
- To the south, the Site boundary is delineated by a combination of the established vegetation, comprising trees and shrubs, that lines the Oxford Canal and the northern extents of the Flit Solar Farm. Beyond the Site, south of the Oxford Canal, the landscape comprises a combination of agricultural farmland; the A44 and A34 and associated infrastructure; and areas of residential and commercial buildings.
- To the west, the Site boundary is delineated by a combination of established hedgerows and trees along with areas of residential/commercial properties that run along the A44 and make up the northern and eastern extents of Yarnton. Further afield, the southern extents of Yarnton (i.e. west of the A44) and a series of agricultural fields characterises the landscape, which in general, is well vegetated and rises up to Spring Hill.

15. The Site's extent is shown on **Figure 1: Site Location and its Immediate Context** below:

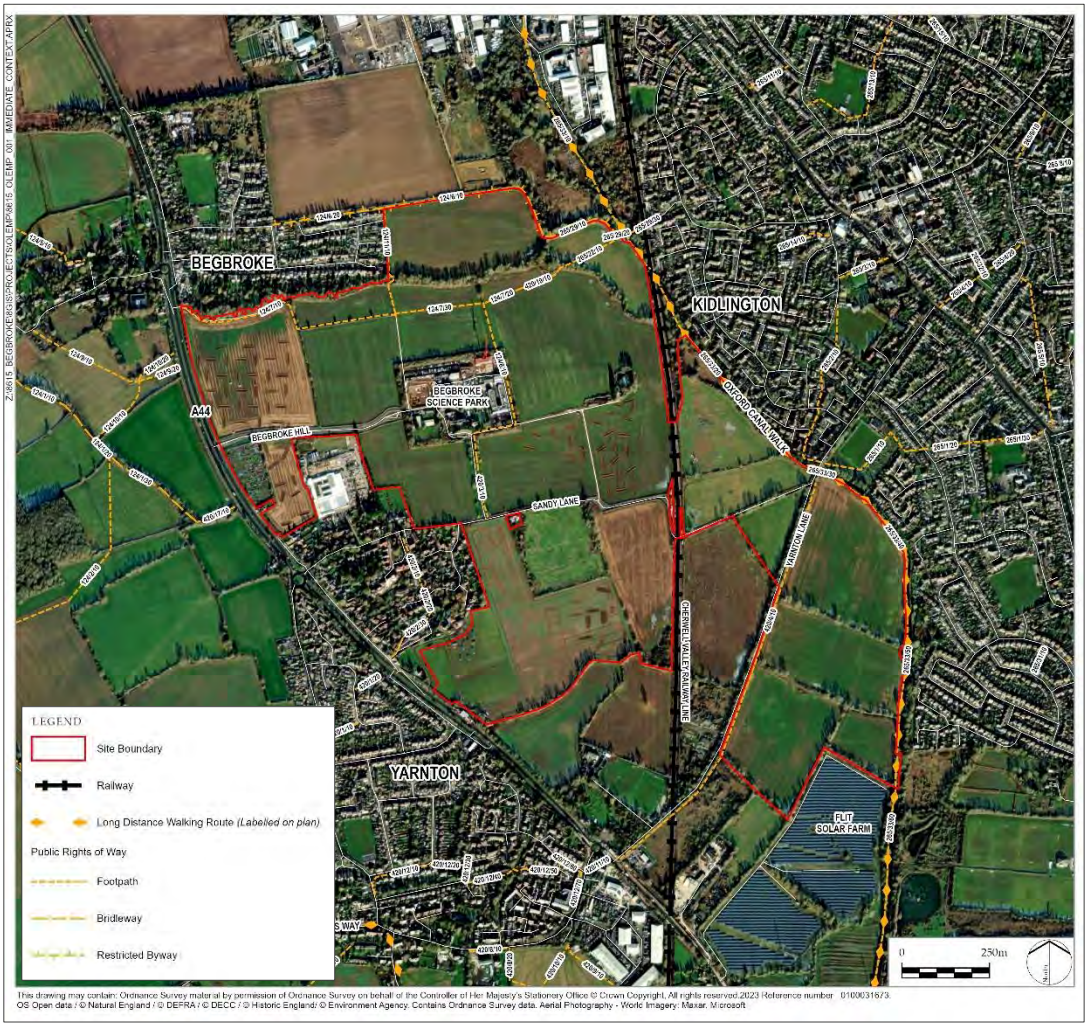

Figure 1: Site Location and its Immediate Context

17. The topography of the Site is relatively level, with a gentle fall from its western boundary eastwards towards the Oxford Canal. Beyond the Site, the landform rises broadly to the north-east of the Site, being that it lies within a broad valley, falling gradually in a southerly direction. The landform rises more steeply beyond the Site's western boundaries towards the crown of Spring Hill and in the direction of Woodstock. **Figure 2: Landform** below shows the elevation of the Site and its surroundings.

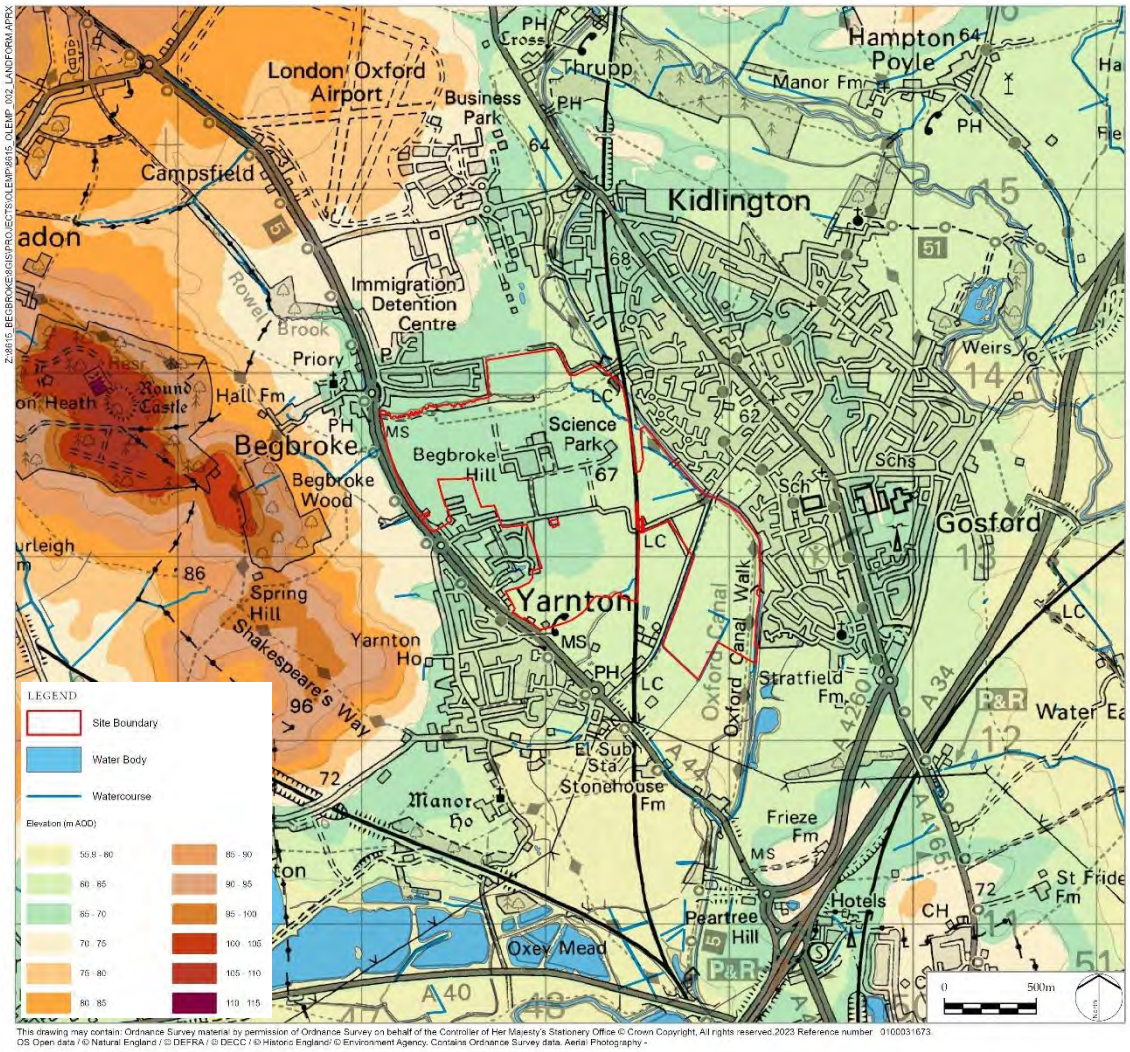

Figure 2: Landform

1.4. Habitats and Designated Sites

1.4.1. Habitats

18. A Phase 1 Habitat survey of the Site was undertaken by BSG Ecology, most recently in May 2022, and is contained in Appendix 13.2 of **Chapter 13: Biodiversity** (ES Volume I).

19. The report provides a description of the habitats on Site and records the presence (or potential presence) of protected species and species of conservation concern. Protected species surveys – including for badgers, dormice, bats, reptiles, brown hairstreak butterfly,

freshwater invertebrates, great crested newts and breeding birds – were carried out in between 2021 to 2022.

20. The main habitats present at the Site are arable land; poor semi-improved grassland; semi-improved woodland; hedgerows; streams; and ditches. Six ponds are present within the Site, as are numerous mature trees, and there are small areas of good semi-improved grassland; scrub; tall ruderal vegetation; amenity grassland; plantation woodland; and hardstanding. Buildings are present at Begbroke Science Park in the centre-north of the Site and at Parker's Farm in the north-east of the Site. Of these habitats, the woodland and hedgerows, and one of the ponds are classified as *'Habitats of Principal Importance in England'*. Of the 54 hedgerows present at the Site, 38 hedgerows are species-rich, and 31 are considered 'Important' under the wildlife and landscape criteria of the '*Hedgerow Regulations 1997'*.

21. The parts of the Site proposed for development are dominated by arable land. The parts of the Site proposed for green space include grassland and arable fields in the east, and arable land and the Rowel Brook (and adjacent woodland) in the north.

1.4.2. Species

22. The results of surveys indicate that the Site supports the following protected species: badger (including setts); bats (roosting, foraging, and commuting); birds (ground and scrub/tree nesting); great crested newt; and reptiles (slow-worm, common lizard, and grass snake). The following further *'Species of Principal Importance'* are present: common toad; brown hare; brown hairstreak butterfly; and several bird species.

23. Based on the surveys undertaken, dormouse and white-clawed crayfish are unlikely to be present. Freshwater invertebrate surveys indicate that the stream at the Site, the Rowel Brook, has fair to good water quality. Surveys in 2022 did not find evidence of water vole or otter at the Site. However, water vole is known to be present on the Oxford Canal, which is adjacent to the east, and so could be present on the Rowel Brook in future years, and the Rowel Brook has the potential to support otter.

1.4.3. Nature Conservation Designations

24. There are no statutory sites designated for nature conservation within the Site. There are sixteen statutory designated sites within 5km of the Site boundary. These comprise Oxford Meadows SAC and fifteen Sites of Special Scientific Interest ('SSSI'). Oxford Meadows Special Area of Conservation ('SAC') is the only internationally designated site within 10km of the Site.

25. Rushy Meadows SSSI is adjacent to the northern boundary of the Site, separated from it by a stream, bridleway and double hedgerow. The next closest SSSI is Pixey and Yarnton Meads SSSI, 1.8km to the south of the Site. There are no other SSSIs within 2km of the Site.

26. The Site contains one non-statutory designated site: Lower Cherwell Valley Conservation Target Area ('CTA'), part of which occupies an arable field and a pasture field in the northeast of the Site (within areas of proposed greenspace). This CTA also extends along the Oxford Canal adjacent to the eastern boundary of the Site. There are 11 Local Wildlife Sites ('LWSs') within 2 km of the Site, two Potential Local Wildlife Sites ('PLWSs'), and one Woodland Trust Reserve.

1.5. Summary of key ecological characteristics of the Site

27. Key ecological characteristics of the Site are as follows:

- The Rowel Brook and associated riparian and adjacent woodland habitat provides an east-west ecological corridor across the site and has potential to support water vole in the future.
- The Oxford Canal provides a habitat corridor along the eastern boundary of the Site.
- The arable fields, which dominate the west of the Site, are of limited ecological value, but do support skylark and brown hare, both of which are *'Species of Principal Importance in England'*.
- The existing hedgerow network provides ecological connectivity across the Site, although much is relatively intensively manged (by annual cutting), limiting its ecological value.
- The populations of great crested newts and reptiles are limited to small populations with limited habitat connectivity.
- The grassland in the north-east of the site is of low to moderate ecological value currently but given its low soil nutrient levels (see Appendix 13.5 of the Environmental Statement), and its location (close to a Conservation Target Area, the Oxford Canal and Rushy Meadows SSSI) it has potential for significant ecological enhancement.

1.6. Landscape Designations

28. The Site is not located within, or adjacent to, any nationally designated landscapes such as National Parks or Areas of Outstanding Natural Beauty ('AONB').

29. The nearest designated landscape is the Cotswold AONB, which is located approximately 3.5km north-west of the Site.

30. The Site previously fell within the Oxford Green Belt. However, the boundary of the Oxford Green Belt has been altered in accordance with Policy PR8, which allocates the Site (albeit parts of the Oxford Green Belt remain within the overall Site extents). The Proposed Development ensures that areas of built development are located outside of the revised Green Belt boundary, with only areas of proposed open space falling within retained areas of Green Belt. It is important to note that Green Belt is a land use designation rather than one which indicates a 'valued landscape'.

1.7. Landscape Character

1.7.1. National Landscape Character

31. At a national level, the Site is located within the 'National Character Area 108: Upper Thames Clay Vales', which is described as [inter alia]:

"The Upper Thames Clay Vales National Character Area (NCA) is a broad belt of open, gently undulating lowland farmland on predominantly Jurassic and Cretaceous clays. Blenheim Palace World Heritage Site falls within the NCA, along with around 5,000 ha of the North Wessex Downs Area of Outstanding Natural Beauty (AONB) and smaller areas of the Chilterns AONB and the

Cotswolds AONB. Two of its Special Areas of Conservation (SAC) are designated for their lowland meadow vegetation communities, while Little Wittenham SAC has one of the most studied great crested newt populations in the UK. There are contrasting landscapes, including enclosed pastures of the claylands with wet valleys, mixed farming, hedges, hedge trees and field trees and more settled, open, arable lands. Mature field oaks give a parkland feel in many places."

32. The NCA profiles also included Statements of Environmental Opportunity ('SEO'). From the SEOs listed, the following opportunities have been identified as being relevant to the Site and the Proposed Development [inter alia]:

- SEO 2: *"Manage farmland across the Upper Thames Clay Vales to produce food sustainably and to maintain sense of place. Taking a catchment approach, improve filtration of pollutants and regulation of water flow by realising a farmland habitat mosaic that incorporates strategic areas of wet grassland, reedbed, wet woodland and ponds as well as ditches and hedgerows."*
- SEO 3: *"Ensure that heritage assets, especially characteristic features such as ridge and furrow, abandoned medieval villages, Roman roads, canals and historic parkland, including Blenheim Palace World Heritage Site, are maintained in good condition. Integrate conservation of these features with sustainable food production and provide public access to key examples..."*
- SEO 4: *"Realise sustainable development that contributes positively to sense of place and built heritage. Ensure adequate greenspace in association with all development [...]. Create and manage greenspace to provide benefits for biodiversity, floodwater management, filtration of pollutants, tranquillity and recreation, and secure strategic access routes between town and country."*

1.7.2. Regional/Local Landscape Character

33. The Oxfordshire Wildlife and Landscape Study ('OWLS') is a regional-scale study, which assesses the landscape character and biodiversity attributes across Oxfordshire County. It was published in 2004 and documents the most recent overview of Oxfordshire's landscape character.

34. The OWLS identifies 24 landscape character types ('LCT'), describing the distinctive and unique characteristics of the landscape in Oxfordshire. It also identifies key 'forces for change'; and sets out key recommendations and guidelines for the protection, management and planning of its landscape. Whilst the OWLS is regional in scale, the prevailing local landscape character assessment – the Cherwell Landscape Character Assessment – dates from 1995; meaning it is circa 28 years old at the time of this Project. Fieldwork has also shown that the OWLS's descriptions more accurately reflect the landscape character present within the Site and its surroundings and is referred to in CDC's Policy ESD 13: Local Landscape Protection and Enhancement.

35. The Site is situated within the following LCTs and Local Character Areas ('LoCA'), which are described as follows [inter alia]:

- LCT 8. Lowland Village Farmlands – *"…a variable, often large scale farmed landscape closely associated with village settlements."*
  - LoCA I. Begbroke (UT/30); which the OWLS describes as *"…an area characterized by medium-sized arable fields enclosed by prominent poplar shelterbelts and tall, thick hedges dominated by elm, hawthorn with some hazel and field maple. Scattered hedgerow*

trees of ash, oak and some field maple are found throughout the area, and a dense corridor of willows borders Rowell Brook."

- LCT 1. Alluvial Lowlands – an area that *"…includes flat landscapes of lowland river valleys, associated with alluvial soils. It is characterised by a regular pattern of medium-sized hedged fields with permanent pasture and arable cropping."*
  - LoCA D. Yarnton (UT/29); which the OWLS describes as an area that *"…is characterised by medium-sized fields dominated by arable farming and semi-improved grassland. They are enclosed by hawthorn and elm hedges which, in some places, are bordered by ditches. The hedgerow network is generally intact, with tall and dense hedges. Tree cover is very distinctive and consists of ash and crack willow trees scattered throughout, and dense corridors of crack willow alongside ditches."*

36. The Site's current characteristics are reflective of the characteristics recorded by OWLS.

37. The OWLS also sets out a series of management guidelines, which recommends the following for each LCT/LoCA:

<u>*LCT 8. Lowland Village Farmlands: Landscape Strategy*</u>

"Conserve and enhance the vernacular character of the villages and strengthen the existing pattern of hedgerows, hedgerow trees and tree-lined watercourses."

Guidelines

- *"Strengthen the field pattern by planting up gappy hedges using locally characteristic species such as hawthorn, and hedgerow trees such as willow and ash.*
- *Promote environmentally-sensitive maintenance of hedgerows, including coppicing and layering when necessary, to maintain a height and width appropriate to the landscape type.*
- *Enhance and strengthen the character of tree-lined watercourses by planting willows and ash and where appropriate, pollarding willows.*
- *Conserve the surviving areas of permanent pasture and promote arable reversion to grassland, particularly on land adjacent to watercourses.*
- *Minimise the visual impact of intrusive land uses, such as industrial estates, gravel pits, landfill sites, airfields and the fringes of towns and villages with the judicious planting of tree and shrub species characteristic of the area. This will help to screen the development and integrate it more successfully with its surrounding countryside.*
- *Maintain the vernacular character of settlements and promote the use of local building materials and a scale of development and that is appropriate to this landscape type. This ranges from limestone and stone tiles at Garsington and Merton through to the red bricks and tiles associated with the clay vales."*

<u>*LCT 8. Lowland Village Farmlands: Biodiversity Strategy*</u>

"Ensure that all surviving priority habitats are safeguarded, in favourable condition and management, and enhanced to satisfy the actions and targets identified within the relevant habitat and species action plans. Safeguard, maintain and enhance all locally important habitats in a way that is appropriate to the landscape character of the area. Promote agri-environment schemes which will benefit biodiversity in general and protected species and farmland birds in particular."

Guidelines

- *"Priority habitats in this landscape type are relatively small and isolated. They include some species-rich neutral grassland, fen and species-rich hedgerows.*
- *The species-rich neutral grassland and fen sites are S.S.S.I.s and the priority is to ensure that they are in favourable condition and management through formal agreement between the landowner and English Nature. Opportunities for successfully expanding this habitat type are limited.*
- *Species-rich hedgerows are distributed throughout different parts of the landscape type. Priority should be given to safeguarding, maintaining and expanding this resource, particularly in those local character areas where they remain a significant feature.*
- *There are a number of ancient semi-natural woodland within the landscape type, and several have been designated as county wildlife sites. The priority must be to ensure that all these sites are in favourable condition and management.*
- *There are a few flooded gravel pits which are of ornithological importance, such as Dix and Cassington pits, and priority must be given to safeguarding and enhancing this interest.*
- *Tree-lined watercourses are a feature throughout the landscape type. They should be safeguarded and enhanced by planting species such as ash and willows, pollarding willows where appropriate, and establishing buffer strips/field margins to potentially benefit small mammals, invertebrates and birds.*
- *Opportunities for the establishment of other locally important habitats, such as semi-improved grassland and small deciduous woodlands, should be promoted in a way to strengthen wildlife corridors and enhance the local landscape character.*
- *Promote the use of agri-environment schemes such as conservation headlands, over-wintered stubbles, and winter-sown crops to benefit farmland birds such as skylarks and yellowhammers."*

LCT 8. Lowland Village Farmlands: Key Recommendations

- *"Safeguard and enhance the landscape character of the hedgerow network, and tree-lined watercourses.*
- *Ensure that all priority habitats are in favourable condition and management."*

2.0 The Proposed Development and its proposed landscape and biodiversity benefits

38. The Site is be developed into a mixed-use development, which would provide up to 155,000 square metres ('sqm') gross external area ('GEA') of new faculty, and research and development space associated with the expansion of the existing Begbroke Science Park, up to 215,000sqm GEA of residential floorspace that would deliver apartments, communal and sharer accommodation and traditional houses and associated amenity, education and community uses. Further details of the Proposed Development are described the **Development Specification** (July 2023); and the **Strategic Design Guide** (July 2023).

39. The Proposed Development would provide a number of landscape and biodiversity benefits, which would implement a lasting legacy. The landscape and biodiversity benefits are illustrated spatially on **PP3 – Green Infrastructure** and summarised below:

- **Canalside Parkland** – this will be an area of semi-natural open grassland and meadows in the eastern extent of the Site, to the east of the railway line and adjacent to the Oxford Canal. The Canal Parkside includes indicative provision for a formal sports and recreation area of approximately 3.5ha; and walking and cycling routes. The Parkland will include a skylark mitigation area and new meadows that fronts onto the Oxford Canal.
- **Railway Marshes** – this will be a nature conservation area of circa 12.2ha in the eastern extent of the Site (to the east of the railway line), primarily for habitat and biodiversity enhancement with limited public access. A bird-viewing hide or similar type of structure may be constructed where this does not cause unacceptable visual impacts or adverse impacts to existing or new habitats and species. These measures aim to strengthening the Oxford Canal corridor contributing to Oxfordshire's Nature Recovery Network. **Central Park** – a multi-use park will be located on the historical landfill site in the centre of the Site, which will be remediated to an appropriate standard. The park will include provision for formal sports and recreational areas. High quality, non-vehicular routes will be provided across the park to aid permeability to other areas of the Proposed Development.
- **Rowel Brook Park** – comprises areas to the north and south of Rowel Brook in the north of the Site and west of the railway line. The southern area of Rowel Brook Park is to be improved to deliver public open space with high quality walking and cycle routes, and new habitats and enhanced biodiversity. The northern area is intended to primarily to be used for cultivation and uses related to its existing agricultural use, including (but not limited to) allotments, community gardens, farms and orchards. This is the indicative location for a proposed social farm and re-provided allotments. Structural planting to the east of Begbroke village will be delivered to provide visual screening. Parts of Rowel Brook Park will form a new Local Nature Reserve.

  With consideration of the SSSI, strategies to prevent the deterioration of the SSSI should be implemented, such as a 15m buffer of native vegetation (such as wild flower grassland with scrub) bounding the perimeters of the Community Farm fringing the SSSI. In addition, the east of Rowel Brook Park shall be developed as a damp meadow to serve as an extension of the Rushy Meadow SSSI. This serves as a link parallel to the Oxford canal, linking the SSSI southwards to the Railway Marshes.

- **Green arteries** – These will be wide green, car-free corridors that bisect areas of built development and connect them to different elements of green infrastructure. They will also be used to deliver non-vehicular routes, play areas, surface water drainage including SuDS, biodiversity, 'pocket parks' and food growing areas.

40. The recommended works that would be carried out to the above areas are described in greater detail under Objective 3 in **Section 3.0** below.

3.0 Landscape and Ecology Objectives

41. This section sets out the management objectives for the key habitats, species, and functionality of the Site. The following management objectives are proposed:

3.1. Objective 1: Enhance the biodiversity of the Site.

42. The biodiversity value of the Site will be significantly enhanced to achieve a biodiversity net gain above 10%. (i.e. above the target required under the Environment Act). This will primarily be achieved through new habitat creation via planting of more diverse habitat, which could include:

- Native species tree belts and hedgerows, including a range of species such as hazel, hawthorn, scrub willows, alder buckthorn, crab apple and field maple.
- Native scrub, including blackthorn, the larval foodplant of the brown hairstreak butterfly.
- Native woodland (comprising a scattered tree canopy, an understorey shrub layer, and field and ground layer planting with native woodland species).
- Wildflower grassland (i.e. 'other neutral grassland' under the UK Habitat classification).
- Lowland meadows grassland, which is a priority habitat.
- Appropriate cutting regimes on grassland, to allow flowering and seeding, maintain appropriate levels of scrub, and provide a level of winter cover.
- The positive management regimes of trees and hedgerows to allow existing habitats to mature.
- The positive management of existing ponds on-site (where they are retained) through the deepening of the pond in places, removal of silt and encroaching swamp vegetation, and cutting back of overhanging vegetation, to increase light levels and encourage the development of existing aquatic vegetation.

3.2. Objective 2: Protect and enhance the existing characteristics and features of value of the Site.

43. A strong network of habitats is present across the Site and would be retained by the Proposed Development in accordance with **PP3 – Green Infrastructure**. Where habitats are lost to facilitate the delivery of the built development, they would be compensated for within the newly created habitats within the Site's extents; providing new and important habitat connectivity that are of biodiversity value.

44. Existing hedgerows, including hedgerow trees (where they are retained) would be manged with the aim of enhancing their biodiversity value, whilst also providing important ecological connectivity. This approach would ensure:

- The retention and enhancement of the existing wildlife corridors during the operational lifespan of the Proposed Development.
- The protection of existing habitat for nesting birds, dormice and foraging and roosting bats.

- The protection of existing habitat corridors along these features.
- The protection of the functionality of the landscape and its watercourses. The enhancement of existing vegetation and the implementation of proposed planting would promote improved interception, evapotranspiration, infiltration rates, whilst also providing water quality treatment for surface water runoff before it enters the watercourses within and surrounding the Site.

3.3. Objective 3: Create a strong structural planting framework.

45. In addition to the retention and enhancement of the existing planting and features of value to the Site (in accordance with **PP3 – Green Infrastructure**), further structural planting of vegetation is proposed. This would ensure:

- An enhanced landscape structure which delivers green infrastructure corridors and connectivity around and within the Site, especially along retained PRoWs.
- Enhanced screening of close views to the built components of the Proposed Development from PRoWs, local roads (such as the A44) and other publicly accessible areas within and immediately adjacent to the Site. This would also mitigate (as far as possible) the potential effects on landscape and visual receptors.
- Enhanced screening for middle-distance views from PRoWs and other publicly accessible areas within the elevated local landscape to the west of the Site. This would also mitigate (as far as possible) the potential effects on landscape and visual receptors.
- A greater ability to mitigate against climate change impacts, such as flooding. Additional planting would help promote improved interception, evapotranspiration, and infiltration rates alongside water quality treatment for surface water runoff before it enters watercourses.

46. Key structuring elements in the Proposed Development to achieve Objective 3 would include:

Rowel Brook Park

47. Rowel Brook Park is to be located within the northern extent of the Site, encompassing approximately 29ha. Its objective is to provide a new public open space for recreational and educational purposes whilst being managed for the benefit of biodiversity. A new community farm and allotments also forms an integral part of this area within its northernmost extent (north of Rowel Brook). To achieve this objective the following is recommended:

- Existing vegetation should be retained and enhanced wherever feasible.
- A new belt of tree and woodland scrub (in appropriate locations) should be planted within the north-western part of Rowel Brook Park; connecting with and strengthening the existing woodland currently located along Rowel Brook. This planting should transition gradually into new areas of wildflower-rich meadow (within its central extent) and wetland/marsh habitats (in the eastern extent next to the Oxford Canal). In wetter areas, planting dominated by crack willow, goat willow and alder is appropriate. In drier areas, planting dominated by oak is appropriate. Appropriate native shrub layer and understorey planting should be included.

48. These proposals will improve on-site biodiversity; provide new and enhanced ecological corridors; and improve the Site's general Green Infrastructure network, all of which would be of considerable benefit to the local community. The park would provide significant additional access to nature for existing and new residents in Yarnton and Begbroke.

Railway Marshes

49. Railway Marshes is approximately 12ha in extent; situated in the north-east corner of the Site. This area will comprise a rewilded marshland with willow scrub directly abutting the Oxford Canal and a more open floodplain grassland towards the Cherwell Railway Line. To achieve this objective, the following is recommended:

- The Railway Marshes should provide a gradient of wet habitats. This would strengthen the Oxford Canal corridor within the Lower Cherwell Valley CTA and should provide areas for biodiversity with limited human access through a designated boardwalk. Oxfordshire BAP targets associated with this CTA are:
  - Lowland meadow – management, restoration and creation;
  - Floodplain grazing marsh – management, restoration and creation (for breeding waders in particular);
  - Lowland fen (including swamp);
  - Reedbed – management and creation; and
  - Rivers – management and restoration (including management for water vole).
- Given the low soil nutrient levels in the field east of the Cherwell Valley Railway Line and the seasonal flooding, it is recommended to target grassland at the MG4 floodplain meadow community, which is a rare habitat nationally, and appropriate to the Oxford area.
- Existing vegetation should be retained and enhanced wherever feasible. Enhancement of the existing grasslands into biodiverse wet grasslands could be achieved through harrowing and seeding the more species poor areas (e.g. the two meadows immediately north of Sandy Lane) and should be maintained by hay-cutting with some grazing (if possible).
- New areas of marshland and wet meadow should be created through one-time minor land rework, which would create areas of deep and shallow parts. With the creation of micro-relief and rewilding, the marshland area would be expected to turn into a riparian willow woodland (wet woodland). The area should be left free to develop in natural succession. This would provide wetland area of value to invertebrates, amphibians and wading birds.
- New wildlife ponds should be constructed in this area (at least six are recommended), thus doubling the current number of ponds within the overall Site. These new ponds would provide suitable sites for the translocation of great crested newt and common toad, should the existing formal pond at Begbroke Science Park be removed as part of the Proposed Development.
- At least six shallower scrapes should be provided within this area, targeted at wading birds.

- There is an existing ditch which has the classification of statutory main river, which should be retained and ecologically enhanced wherever possible.
- The northernmost part of the field to the east of the Cherwell Valley Railway Line supports populations of slow-worm and common lizard, and the management here should include reptile conservation as one of its key objectives (with precautions to avoid impacts during cutting operations alongside rotational management to ensure that levels of scrub and winter grass cover are high enough to provide shelter and hibernation sites for these species).
- A 15m buffer of native vegetation (comprising native scrub and grassland) should be created in the part of the Site closest to Rushy Meadows SSSI, i.e. near to the proposed community farm. The boundary hedgerow, in proximity to the SSSI, should also be retained and managed for conservation.

Canalside Park

50. The Canalside Park would be the most active part of the Proposed Development, located within the eastern extent of the Site, encompassing approximately 35ha. It would be a shared destination for play, sports, and leisure with fixed and temporal activities. To achieve this objective, the following is recommended :

- The Canalside Park should embrace its wet and cultivated landscape character; with proposals including open meadow fields along the canal, which would maintain existing views from the towpath. Within the flood zone, there should be wet grassland; with dry flowering meadow within areas located outside of the flood zone. The most appropriate target habitat for these areas, given their current arable and soil nutrient status, is 'Other neutral grassland' under the UK Habitat classification.
- Existing hedges and trees should be retained and supplemented with a wildflower edge to encourage a wider gradient transition, which is beneficial to wildlife. An ecological strip would extend from and along Oxford Canal through widening the existing hedgerow corridor to include biodiverse layered planting of native canopy trees, subcanopy trees, shrubs, herbaceous and groundcover plants.
- An 11ha part of the Canalside Park should be designed to provide habitat for skylark (a ground-nesting bird). This area should avoid public access and any management during the spring and summer breeding season.

Central Park

51. Central Park is the main urban green space of the district. It is located at the south from the Farmstead. Organised around a central multifunctional lawn, the edges of the park would offer a diverse programme of activities and experiences, including biodiversity areas, public garden spaces and sport and play facilities.

52. The park is formerly a landfill and will be remediated, likely with a clean soil cap. This is insufficient for tree growth which means a thicker soil layer in the form of a mound would be needed for areas of trees.

53. Works in this area would need to be carefully coordinated with the restoration and capping of the landfill site, and licensed translation of badger setts which are present in this area.

Farmstead

54. The Farmstead Plaza around the Jacobean Farmhouse would be the main urban hardscape area of the district. It would comprise of a patchwork of different spaces that grows from the existing gardens of the farm complex. The plaza would have a more urban character with more hardscape and ornamental planting.

55. Existing trees in front of the Jacobean Farmhouse will be retained in accordance with **PP3 – Green Infrastructure**. Careful and regular maintenance will ensure a high-quality ornamental planting and urban space is maintained.

56. Lighting of the direct surroundings of the farmhouse should be mindful of bat roots present there and in the stone building to the south in order to avoid impacts. Dark and green corridors of habitat linking the farmhouse gardens to Sandy Lane to the south and to Rowel Brook to the north should be preserved. This is shown in **Figure 3: Habitat connectivity from Farmstead** below:

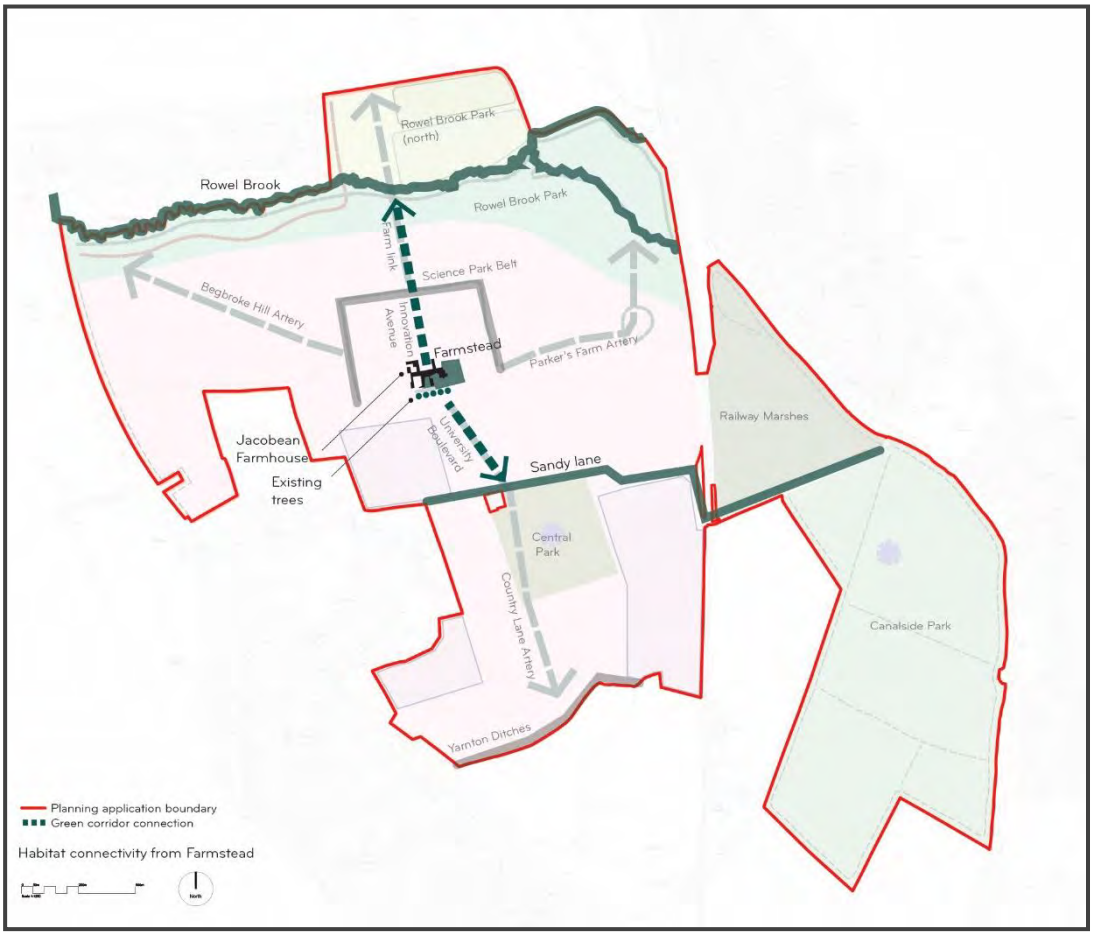

Figure 3: Habitat connectivity from Farmstead

Other Areas

57. These would comprise the following areas located within the built extent of the Proposed development:

- **Green Arteries.**

  These linear parks at the core of each neighbourhood would provide immediate or close access to green spaces for the district, and provide space for shaded active mobility corridors, sports and play facilities while also improving ecological links throughout the Site. There would be three arteries with distinct characteristics:

  – The Begbroke Hill Artery would have a more wooded atmosphere, taking on character elements of an oak dominated forest (field maple, common alder and English oak) with a rich understory of spring bulbs, climax shrubs and ferns.

  – The Parker's Farm Artery would focus on its productive and cultural landscape qualities with pockets of fruit tree orchards and edible hedges with fruits for people, such as currants, raspberries and elderberries; and fauna such as the crab apple, wild pear and bird cherry.

  – The Country Lane Artery would adopt a country village planting atmosphere, where rural species are combined with more cultivated planting in an informal arrangement. Trees species should include (but would not be limited) to lime, maple and sweet chestnut.

- **Green lanes (Farm link & Innovation Avenue & University Boulevard),**

  These green lanes would provide a substantial canopy and ecologically sensitive lighting along the green linear corridor. The tree lanes should be supplemented with ecologically diverse shrubs and ground cover, including a proportion of native species.

- **The Science Park Belt.**

  This is the existing woodlands surrounding the Begbroke Science Park. This retained stretch of woodland would be designed as a leisure green strip with a variety of programmes. New entrances should be framed with dense vegetation. Strategic thinning of the woodlands would help to the healthy development of the retained trees. The understory would be composed of lawn and mixed planting. The existing hedges to the east should be retained and enhanced.

- **Yarnton Ditches.**

  Yarnton Ditches would be retained on the southern boundary of the Site; with provisions for a buffer of native planting to protect it value as a bat habitat. This could be achieved through the retention of existing hedges and trees along Yarnton Ditches, which could be enhanced. The ditch should also be adequately widened and deepened to accommodate suitable water detention volume. It would double up to serve as a green corridor with ecological biodiverse planting.

- **Sandy Lane.**

  The hedgerows and trees along Sandy Lane will be retained; providing a dark and green east-west link across the Site for bats and other wildlife. The hedgerows should be maintained through a 'relaxed' trimming regime to allow the ecological value of the existing vegetation to improve through increased flowering, fruiting and height.

3.4. Objective 4: Create greater opportunities for protected species and species of conservation concern.

58. Given the limited ecological value of much of the Site currently, and the extensive greenspace areas that are proposed, the Proposed Development provides the opportunity to enhance the populations of many species, such as amphibians, reptiles, small mammals, tree and shrub-nesting birds, and invertebrates. To achieve this objective, the following is recommended:

- Installation of permanent bat boxes within the fabric of new dwellings to increase roosting opportunities. These should be located in the most appropriate parts of the Site, (e.g., away from areas of lighting, and in proximity to suitable habitat). They should number at least 20% of new residential dwellings.
- Installation of permanent bird boxes within the fabric of new dwellings to increase nesting opportunities. These should target the priority species house sparrow and starling, include general purpose boxes, and be located in the most appropriate parts of the Site (e.g., in proximity to suitable habitat). They should number at least 20% of new residential dwellings.
- Careful specification and management of vegetation in the north-east corner of the Site to protect and enhance reptile populations known to be present there.
- Undisturbed zones along the Rowel Brook suitable for water vole, and management of bankside woodland (e.g. selective thinning of sycamore) to open up the river and allow increased marginal vegetation to benefit this species. Also, a programme of monitoring (and if necessary, control) of Americana mink along Rowel Brook, - to be carried out in discussion with Oxford's Water Vole Project Officer.
- Creation of habitat piles. Arisings from vegetation and tree removal during construction and on-going management should be used to create habitat piles in appropriate areas of the Site.
- Creation of ground nesting opportunities for skylark, in the Nature Conservation Area north of Sandy Lane, and in part of the Canalside Park. These areas should have grassland vegetation subject to one cut annually (carried out in September or October) and no other management.
- Ecologically sensitive lighting for bats, particularly in the vicinity of known roosts, habitat corridors, or greenspace, and where paths, cycle paths or roads cross such areas. Dark corridors should be maintained through greenspaces, along Rowel Brook, Oxford Canal, Sandy Lane, Begbroke Lane and Yarnton Lane, and green corridors crossing the development.
- Creation of green link corridors to connect the roosting bats at the Begbroke Hill Farmhouse to the wider landscape.
- Consideration of off-site mitigation to sufficiently compensate for the loss of skylark habitat in the Proposed Development, where it might not be possible to accommodate the requirements of this species with large open spaces of low vegetation without disturbance on site.

3.5. Objective 5: Protect and enhance recreational amenity that is accessible from Public Rights of Ways (PRoW).

59. A number of PRoWs run through and around the Site. PRoW connections will be maintained to ensure continual free public access and realigned when necessary to ensure a more seamless and convenient mobility network within the Proposed Development.

60. An important objective is to minimise (where possible) the perceived detrimental impacts of the Proposed Development on recreational amenity. The recreational amenity of many of the PRoWs within the Site will be improved as a result of the landscaping proposals and biodiversity enhancements that will be delivered. Key views from PRoWs outside of the Site will be protected (in so far as possible) by the additional structural planting.

4.0 Outline Management Measures

61. This section sets out the likely regime of management measures that would help to ensure the objectives detailed in **Section 3.0** continue to provide benefits to people and wildlife well into the future.

4.1. Construction Management Measures

62. An **Outline Construction Environmental Management Plan** ('Outline CEMP') has submitted as part of this OPA; setting out the responsibilities and requirements with regard to legal and regulatory compliance and the implementation of Environmental Management Systems and Mitigation measures for the Proposed Development. It details the procedures and plans for the avoidance, minimisation and mitigation of potential environmental impacts as a result of the construction phase of works in accordance with the mitigation hierarchy. The Outline CEMP provides the framework for the production of detailed CEMP, as detailed design and commencement of construction works progresses on the Site.

4.1.1. Planting stock

63. All new planting should be sourced from a reputable UK based provider who are able to demonstrate UK provenance of planting and adhere to all relevant biohazard controls, including LI *'Technical Note 1/15 Pests and Disease Threats'*.

64. All new planting must be certified disease and pest free from the chosen supplier(s). Planting to be undertaken in suitable planting conditions in accordance with '*BS 4428:1989 Code of practice for general landscape operations (excluding hard surfaces).*' All new tree planting will be undertaken in accordance with the *'BS8545:2014 'Trees: from Nursery to Independence in the Landscape – Recommendations'*.

4.1.2. Grassland seeding

65. Grassland seeding of floodplain meadow/lowland meadows in the Nature Conservation Area should be through the use of green hay from the local SSSI floodplain meadow or similar (e.g., from Oxford Meadows SAC). The Floodplain Meadows Partnership may be able to advise on a suitable source. Short mowing and heavy harrowing should be carried out prior to seeding in order to open up the sward.

66. Grassland seeding of areas of wildflower meadow/other neutral grassland should use an appropriate native wildflower grassland seed mix that includes native grasses and wildflowers appropriate for the location and soil type.

67. Areas of bare earth and scarification, as a result of the construction, should be resown with a suitable mix of grassland species to encourage sward diversity.

4.1.3. Woodland planting

68. In order to allow a varied habitat structure to development, with ground vegetation, woodland planting should avoid dense and regular spacing of canopy trees (except in certain areas where a dense linear screen is required). Canopy trees species (e.g. oak, crack willow, goat willow, maple, crab apple) should be spaced irregularly, allowing for glades and denser areas to develop. Species composition should not be uniform but should reflect local soil

moisture conditions. Low density scattered (i.e. non uniform) understory planting (e.g. of hazel, holly, dogwood, wild privet) and woodland field and ground flora species (e.g. ferns, English bluebell, red campion, wood anemone, bramble and honeysuckle) should be included, either as seed or plug plants.

4.1.4. Scrub planting

69. Areas of new scrub should be created through scattered planting of native scrub species (e.g. hawthorn, blackthorn, dog rose). Mulching and management should not be employed following planting, to ensure that an herb-rich grassy vegetation develop in and around the scrub.

4.1.5. Hedgerow translocation and planting

70. Where possible, hedgerow translocation should be used in preference to new planting of hedgerows, with coppiced stools of hedgerow shrubs being translocated at an appropriate time of year. New hedgerow planting should use a mix of native species, including at least 10% blackthorn to provide habitat for brown hairstreak butterfly. Native hedgerows should, as far as possible, have made provisions for an adjacent 4m wide buffers of low management tall grassland and basal flora (e.g. cut once every two years) adjacent, to enhance their habitat value and to allow access for management machinery. This vegetation should be seeded with a suitable native seed mix.

4.1.6. Pond enhancement and management

71. Retained ponds should be positively manged through the deepening of the pond in places; removal of silt and encroaching swamp vegetation; cutting back of overhanging vegetation to increase light levels; and encourage the development of existing aquatic vegetation. Appropriate protections for amphibians, water vole and nesting birds would be necessary in undertaking these works.

72. Retained and new ponds and scrapes should be subject to a cycle of on-going management to maintain their habitat value. New ponds should be subject to initial planting with appropriate native aquatic and marginal species.

4.1.7. Bat and bird boxes

73. Bat boxes should be incorporated in to the structure of new buildings at the Site. These should be the Schwegler 1FF Bat Tube, Vivara Prop Build-in Woodstone bat box, or similar, with precise locations to be advised by an ecologist as part of the detailed design of the Proposed Development.

74. Bird boxes should be incorporated into the structure of new buildings at the Site. These should be sparrow terraces and general-purpose nest boxes from the above suppliers, or equivalent products. All new buildings (commercial and residential) that are three storeys or taller should each incorporate at least ten swift boxes, such as the Schwegler Swift Box, or similar. Precise locations to be advised by an ecologist as part of the detailed design of the Proposed Development.

4.1.8. Mammal access holes in fences

75. Mammal access points should be provided to allow access for badger and other mammals across all new or replacement fences within area of greenspace Access points for badger will be in the form of holes, 35 x 35cm.

76. Access for hedgehogs through any further fences that border greenspace or gardens (including residential gardens) should be provided by the inclusion of hedgehog access holes (10cm x 10cm across all boundaries, with at least one hole per 20m along boundaries longer than 10m).

4.2. Operational Management Measures

77. Work should be planned and carried out in a manner and at times to minimise unnecessary disturbance to local residents, as well as considering the correct timing of seasonal works such as planting, pruning and cutting to comply with good horticultural practice and any restrictions imposed by ecological constraints such as nesting birds.

4.2.1. Trees, Hedgerows and Scrub

78. Tree, hedgerow and scrub vegetation are key components of the landscape proposals for the Proposed Development. Their long term management should seek to:

- Guide the creation of a well-balanced, naturalistic landscape including woodland/woodland copses, scrub and tree belts, with a varied woodland edge and a dense canopy to provide screening at appropriate locations; and
- Increase the habitat potential and functioning of the hedges, some of which may contain mature hedgerow trees, whilst maintaining them as key features of the landscape, and to provide screening of Proposed Development.

79. This should be achieved through the following landscape management prescriptions (regimes):

Trees

- Trees should be visually inspected on an annual basis by a suitably qualified arborist to ensure risks to the public and/or infrastructure are managed appropriately. If necessary, repair deer, livestock and rabbit protection fencing regularly to ensure that it is effective in preventing browsing of plants by deer, livestock and rabbits.
- Adjust stakes and ties at the end of each growing season (or as necessary) to maintain support and avoid chafing damage, and thus, minimise the possibility of infection taking hold within any wounds.
- In order to minimise competition between species and allow them to grow unimpeded the ground around new planting is to be maintained and kept weed free, for a period to be agreed post-consent. In areas where natural habitats would be proposed, such as the Railway Marshes and the Rowel Brook Park, the management of these natural habitats would be specific to the requirements of with the corresponding management objectives.

- Whilst it should be expected that a certain level of die off of species would occur, which would naturally prevent overcrowding, where necessary, species that die annually should be replanted at the end of each growing season to allow the required habitat to properly establish (for a period to be agreed post-consent). This is until it has been agreed that the woodland or scrub has established effectively, and individual plant replacement is unnecessary.
- New tree planting should consider the soil type, topography and climate. The selected palette of tree should take into consideration adaptability for climate change, such as selecting climate resilient trees that can withstand droughts. The palette of new trees should also have consideration of species of different ages, growth rates and cycles to ensure a sustainable and varied landscape in the long term. A wide range of native species should be considered to enhance the resilience of the landscape against disease outbreak.
- By year three, woodland and scrub would need to be thinned. When choosing the specimens to be retained, it should be remembered that the primary functions of the woodland and scrub are to lessen landscape and visual impacts of the Proposed Development and help to integrate it into its setting.
- Stakes and ties should be removed in year 5, or when each plant is deemed firm and self-supporting.
- If used, plant shelters and guards should be removed once the trees/shrubs reach a level of maturity where they can withstand browsing wildlife and livestock.
- If the thinned specimens are intended to grow back as coppice, the cut needs to be angled to ensure water will not pool on the cut.
- Brushwood and other vegetative arisings are important for small mammals/insects. They should be stacked within the woodland or scrub as small habitat piles or disposed only when necessary.
- Deadwood is a particularly important woodland habitat and is of value to bats, birds, invertebrates and fungi. To ensure the woodland provides deadwood habitat, dead and dying trees, where they do not present a significant safety risk, they should be retained in a variety of situations. Dead or dying trees should be retained where possible subject to risk assessment to provide dead wood habitat.
- Plants that pose a health and safety risk should be managed appropriately.

Hedgerows

- Existing and new hedgerows should be managed for the benefit of biodiversity whilst retaining the objectives of the Proposed Development's prevailing management objectives.
- New hedgerows to be planted should comprise a mix of native hedgerows that consist of native tree and shrub species including, but not limited, to hawthorn, blackthorn, oak, field maple and dog rose. The new hedges should be planted as a double row of whips/feathers protected with tree guards. The new plantings should be maintained in the first three years to ensure establishment. Plantings should be selectively pruned in

Years 1 and 3 to promote growth and vigour. Any losses should be replaced following completion, within a period that will be agreed post-consent.

- A suitable basal flora seed mix for seeding in buffer strips adjacent to hedgerows is 50% Emorsgate EH1F Wildflowers for hedgerows or equivalent and 50% general purpose native wildflower grassland mix (such as Emorsgate EM1 Basic General Purpose Meadow Mixture, or equivalent). Combining these mixtures would allow a gradient species to develop toward the hedge base and will account for variations in aspect and shading.
- Adjust stakes and ties of hedgerow trees at the end of each growing season or as necessary to maintain support and avoid chafing damage and thus minimise the possibility of infection taking hold within any wounds.
- In order to minimise competition between species and allow them to grow unimpeded the ground around new planting is to be maintained and kept weed free, for a period to be agreed post-consent.
- Remove stakes and ties in year 5, or when the trees are deemed firm and self-supporting.
- If used, plant shelters/guards should be removed once the trees/shrubs reach a level of maturity where they can withstand browsing wildlife.
- Once established, cut hedges not more than once every two to three years between September and February to approximately 2m height, or the height of existing hedges as appropriate. The hedgerows should be managed to create a thick base with a good density of stems. Larger log cutting should be removed and stacked securely to provide deadwood habitat. Any tree or limb removal should be preceded by an inspection to determine whether it is suitable for roosting bats. Should features be present, an appropriate survey effort will be carried out to determine whether roosts are present.
- Plants that pose a health and safety risk should be managed appropriately.

Scrub

- Areas of native scrub planting should be allowed to develop naturally following initial sparse plating of native woody species and managed for landscape and biodiversity value. Planting should include but not be limited to, hawthorn, blackthorn, dog rose, purging buckthorn, bramble and elder in drier areas, and shrub willows, in wetter areas.
- Periodic cutting and/or pruning to maintain open herb-rich conditions should be undertaken outside of the bird nesting season (at the end of the winter period) to ensure fruit and seeds remain in place a food source during the winter months (i.e. in early February). Such management is likely to be necessary approximately every three to 10 years of any given area of scrub, depending on growth rate.

4.2.2. Lowland Meadows and Floodplain Meadows

80. This applies to grassland creation and enhancement within the Nature Conservation Area and Railway Marshes.

- Grassland seeding of floodplain meadow/lowland meadows in the Nature Conservation Area should be through the use of green hay form local SSSI floodplain meadow or similar (e.g., from Oxford Meadows SAC). The Floodplain Meadows Partnership may be able to advise on a suitable source. Short mowing and heavy harrowing should be carried out prior to seeding in order to open up the sward.
- Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out divide the seed into two or more parts and sow in overlapping sections. The seed should not be incorporated or covered; rather it should be firmed in with a roll, or by treading, to give good soil/seed contact.
- Grassland should be managed through annual cuts in late summer (August) after the setting of the seed. All arisings would be collected and used to create habitat piles in the margins of the grassland adjacent to the new scrub planting. Excess arising should be removed from the Site to maintain low nutrient levels. Bi-annual visual inspections should be carried out to ensure no substantial areas of bare ground have developed. Should bare ground be found, re-seeding would be undertaken in successive autumn or spring months to establish the grassland habitat.
- Around 25% of the grassland should avoid being cut in any one year, in order to provide overwintering habitat structure and shelter for amphibians, small mammals, invertebrates and reptiles, and seed resources for birds.

4.2.3. Wildflower meadow (other neutral grassland)

81. This applies to grassland creation and enhancement within the Rowel Brook Park, and in meadows within the Canalside Park.

- Grassland seeding of areas of wildflower meadow/other neutral grassland should use a native wildflower grassland seed mix that includes native grasses and wildflowers appropriate for the location, moisture conditions and soil type. Soils at the Site are broadly neutral, with areas around the Rowel Brook having freely-draining slightly acid but base-rich soils; with areas at the Canalside Park having loamy soils with naturally high groundwater (Cranfield University, 2023).
- An appropriate seed mix for grassland in the Rowel Brook Park would be the Emorsgate EM 5 Meadow mixture for Loamy Soils, or equivalent.
- An appropriate seed mix for the Canalside Park areas would be Emorsgate EM8 Meadow Mixture for wetlands, which focuses on floodplain meadow species, or equivalent.
- For wetland habitats within the above areas, such as pond edges, scrapes or SUDS areas, an appropriate seed mix would be Emorsgate EP1F Wildflowers for Pond Edges, or equivalent.
- Loamy and sandy soils (which are present in this area) are easily worked and can usually be prepared for seeding in either the autumn or spring. To prepare the seedbed in these areas, the ground should be deep ploughed to reduce nutrient levels. After a few weeks, when natural regeneration of weeds has occurred, these areas should be

removed by shallow cultivation or sprayed with a suitable weedkiller. The ground can then be harrowed to produce a medium tilth and rolled if necessary to produce a firm surface. Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out divide the seed into two or more parts and sow in overlapping sections. The seed should not be incorporated or covered; rather it should be firmed in with a roll, or by treading, to give good soil/seed contact.

- In order to provide a range of grassland sward structures and winter cover, approximately 50% of the grassland should avoid being cut in any one year. This approach would maximise the biodiversity value of the Site. A rotational cutting regime should therefore be devised to ensure that grassland cutting is appropriate.
- All arisings should be collected; with some of the arisings used to create habitat piles in the margins of the fields. Excess arising should be removed from the Site.

4.2.4. Skylark Mitigation Area

82. Approximately 11ha of the Proposed Development could be managed for skylark habitat. This would entail maintaining a low, tussocky grassland sward through spring to autumn to provide habitat for ground nesting breeding skylark.

83. To achieve this, a suitable seed mixture, e.g. Emorsgate EM10 – Tussock grassland or similar – should be sown into a suitably prepared seedbed (using the same methods described for other areas of tussocky grassland). This area should also be subsequently managed with one cut in September or October each year with cuttings removed.

4.2.5. Pathways

84. Maintenance should be put in place to ensure that pathways within landscaped areas feel safe and accessible to all users. They should be clear from overgrowth and easily discernible, especially in areas with a more wild and naturalistic character. A mowed grass strip on both sides of the paths can aid a tidy look.

4.2.6. Site wide green buffers

85. Wherever feasible existing vegetated screenings and corridors will be retained within the development. In particular, along the A44,the existing green verge and hedge is to be retained and enhanced to potentially screen a new sound barrier, in accordance with **PP3 – Green Infrastructure**.

86. When these buffers are directly facing the development, a thinning should be put in place together with replanting shrubs to create a more varied appearance to existing understory.

87. Where enough space is available, planted buffers should be put in place on the edge of the development.

4.2.7. Sustainable Drainage Systems

88. All drainage swales and rain gardens should be maintained to retain the chosen aesthetic appearance, their functionality and, where applicable, their accessibility. Regular monitoring

should be put in place to control any invasive weeds and monitor the correct development of planted vegetation.

89. Sustainable Drainage Systems ('SuDs') within greenspace should typically be designed so that some areas are generally wet (or at least generally have damp soils conditions) and some areas are generally dry. Appropriate vegetation in these areas include, in seasonally wet areas, marshy grassland (e.g. seeded with a mix such as Emorsgate EP1F Wildflowers for Pond Edges, or equivalent) and in generally wet areas: common reed (to encourage the establishment of reedbed habitat).

90. SuDs may require periodic digging out of silt or strimming of vegetation to maintain their function. Frequent annual cutting of vegetation (beyond what is necessary to maintain function) should be avoided as this will significantly limit their biodiversity value.

4.2.8. General management measures

91. Below is a recommended set of general management measures that should be considered when formulating detailed LEMPs.

Pest and Disease Control

92. All plant material should be inspected for the presence of any pests or disease occurring on the Site and appropriate action should be taken to remedy the disease and eradicate pests.

93. All materials used in connection with these works should be of an approved type and be applied and used in accordance with the conditions for the use of herbicides which would be outlined in the specification documents at construction stage.

Public Rights of Way

94. PRoWs through the Site should be maintained to a similar quality to allow unhindered passage during the construction and operational phases. Vegetation should be checked periodically and pruned where necessary to maintain an obstruction free route. Gates should be checked to ensure they are safe and operationally effective. Repair and replacement of gates should be undertaken as and when required.

Fencing

95. All internal and perimeter fencing for the development should be regularly checked to ensure it is safe and fit for purpose. Repairs and replacement of fencing should be made as soon as practically possible as and when required.

Maintenance of Tree Supports

96. Supporting tree stakes, ties and tree guards (where used) should be maintained in good condition, replaced as necessary and removed when trees are self-supporting (normally after two years).

97. Tree ties should be adjusted for tightness as necessary to avoid strangulation of the stem.

Watercourses

98. Watercourses, including ditches, should be managed for the biodiversity enhancements whilst maintaining flow levels. Vegetation would be managed to maintain a variety of habitats along watercourses and ensure watercourses do not become significantly overshadowed by vegetation. Particular precautions would be taken regarding water voles and otters in any works in or near watercourses, including professional ecological advice.

Control of Litter/Vandalism

99. Grounds maintenance would be delivered throughout the Proposed Development. The Proposed Development would be kept clean and litter free. Response to acts of vandalism or graffiti would be dealt swiftly with repair or replacement implemented as soon as practically possible.

5.0 Roles, Responsibilities and Monitoring

5.1. Roles and Responsibilities

100. The aim of this OLEMP is to promote a sensitive management approach, which protects and improves the landscape and visual amenity value of the Site, enhances biodiversity and is compatible with the Proposed Development.

101. The management and maintenance of the Proposed Development should be undertaken by a private landscape management company appointed by the Applicant, OUD.

102. The successful contractor should be required to manage and maintain the landscapes of the Proposed Development in accordance with the principles of this OLEMP, which will be developed post-consent into the final and detailed Landscape and Ecology Management Plan(s) ('LEMP'), and supported by a Biodiversity Improvement and Management Plan ('BIMP') (which will be informed by the findings of the Biodiversity Impact Assessment and habitat surveys) and will be agreed prior to the commencement of construction.

103. OUD should satisfy themselves the appointed contractor is fit and capable of undertaking the management tasks as detailed within the final LEMP(s).

104. Details of the appointed contractor will be provided to Cherwell District Council. Contact details of the appointed contract will also be made available at suitable locations within the Site.

5.2. Monitoring

105. The final LEMP(s) is/are a dynamic document that should be reviewed regularly and developed or amended as circumstances change and the Site evolves.

106. Monitoring of the final LEMP(s) should be undertaken every five years by a suitably qualified ecologist and landscape architect and a written report produced.

107. Where the delivery of the final LEMP(s) is not being met for whatever reason(s), appropriate action will be identified and taken to rectify failings. This may entail making changes to specification of planting species if these are failing to establish successfully. Equally, where successes are identified, these should be promoted further, and lessons learned from both successes and failures fed into the next iteration of the final LEMP(s).

6.0 References

Cranfield University (2023) *Soilscapes Viewer.* Cranfield University. Available online: https://www.landis.org.uk/soilscapes/[accessed 09/06/23].

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