Luton Rising
Our airport.
Our community.
Our planet.

April 2023

London Luton Airport Expansion

Planning Inspectorate Scheme Ref: TR020001

Volume 5 Environmental Statement and Related Documents

5.02 Appendix 8.2 Outline Landscape and Biodiversity Management Plan

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London Luton Airport Expansion Development Consent Order 202x

5.02 ENVIRONMENTAL STATEMENT APPENDIX 8.2 OUTLINE LANDSCAPE AND BIODIVERSITY MANAGEMENT PLAN

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1 INTRODUCTION

1.1 Background

1.1.1 Luton Rising (a trading name of London Luton Airport Limited (the 'Applicant')), is proposing to expand London Luton Airport (the airport) through an application for development consent for works that would allow growth to accommodate 32 million passengers per annum (mppa) (hereon referred to as the 'Proposed Development').

1.1.2 The infrastructure to support growth to 32 mppa would be constructed incrementally, however, for the purposes of assessment three assessment phases are defined as:

a. assessment Phase 1 construction works start in 2025 and would be operational in 2027;
b. assessment Phase 2a construction works start in 2033 and would be completed in 2036; and
c. assessment Phase 2b construction works start in 2037 and completed in 2041, with 32 mppa expected to be reached in 2043.

1.2 Landscape and Biodiversity Management Plan

1.2.1 This Outline Landscape and Biodiversity Management Plan (LBMP) has been prepared to set out the high-level requirements for the establishment, management and monitoring of proposed landscape and biodiversity areas in relation to the Proposed Development. The Outline LBMP identifies those landscape and ecological mitigation measures set out within the Environmental Statement (ES) (**Chapter 14** and **Chapter 8 [TR020001/APP/5.01]** respectively) and provides outline information on how these measures will be managed during the operation of the Proposed Development, from assessment Phase 1. Habitat management will also continue through the construction and operation of assessment Phase 2a and 2b. This Outline LBMP will therefore be updated with more detailed information during detailed design, creation and establishment phases, incorporating feedback received during statutory consultation, stakeholder engagement and examination by the Planning Inspectorate. Suitably experienced and specialist contractors would be engaged to deliver the creation of the ecological valuable habitats.

1.2.2 This Outline LBMP submitted with the ES will remain a working document and will be further updated to reflect changes agreed with stakeholders and the Planning Inspectorate through the examination process. Once the Outline LBMP is in an agreed form, it will then be used as the basis for the lead contractor appointed to take forward to prepare a Finalised LBMP for approval by the relevant statutory bodies as required by the development consent. Should subsequent updates be required during construction of the various assessment phases of the Proposed Development, these would be made in agreement with the relevant consultees where appropriate.

1.2.3 The Code of Construction Practice (CoCP) provided as **Appendix 4.2** of the ES **[TR020001/APP/5.02],** describes specific requirements to be followed to protect

and manage all identified mitigation measures prior to and during construction as well as contractual, legislative and industry best practice requirements. The Applicant and its appointed lead contractors must comply with the requirements set out in the CoCP in conjunction with this document where relevant, including for ongoing management and maintenance.

1.2.4 The Applicant and its appointed contractors will also comply with all statutory legislative requirements, statutory guidance and best practices at the time the works are carried out.

1.2.5 The area covered by this Outline LBMP is defined as the Proposed Development Mitigation Areas as shown in the Landscape Mitigation Plans **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]**, including associated provision of open spaces, habitat creation and off site mitigation and **Figure 1**, **Appendix A** to this report.

1.2.6 The responsibility for delivering and maintaining each area will depend on individual land considerations, but the standards set by this report will be consistently applied across the Proposed Development.

1.3 Aims and objectives

1.3.1 The overall aim of this plan is to adopt a coherent, strategic and integrated approach to the management and maintenance of the habitats and soft landscape components associated with the Proposed Development, and to enhance the biodiversity and amenity value of the Application Site; ensuring the successful establishment of vegetation and overall integration of works within the surrounding landscape, adopting a management approach that is appropriate to nature conservation, the users of the Application Site and its amenity.

1.3.2 The main objectives of the Outline LBMP are to:

a. ensure the effectiveness of structure planting proposed to mitigate significant landscape and visual effects;
b. retain and enhance the value of existing habitats/landscape features;
c. successfully establish and integrate new habitats/landscape features into the surrounding landscape;
d. maximise the biodiversity value of both new and existing habitats on the Main Application Site;
e. accommodate appropriate public use of the Main Application Site, by promoting a management regime which is appropriate to the Main Application Site's role;
f. fulfil legal requirements, including nature conservation, environmental protection and public safety;
g. ensure the successful establishment and aftercare of all planting and seeded areas; and

h. ensure the mitigation proposed as part of the Proposed Development, as a result of the Environmental Impact Assessment (EIA), remains effective at reducing identified environmental effects as intended.

1.3.3 This Outline LBMP details the requirements of the landscape and biodiversity mitigation, including associated provision of open spaces, habitat creation and off site mitigation. It then sets out in the sections below, the Management of Existing Habitats, followed by the Establishment and Management of Proposed Habitats. This covers the creation, establishment and aftercare, along with an appropriate management schedule, of the following habitats, along with subsequent specific mitigation requirements relating to:

a. broad-leaved woodland;
b. hedgerows;
c. hedgerow and specimen trees;
d. scrub;
e. ornamental plants;
f. neutral grassland;
g. calcareous grassland;
h. chalk exposures; and
i. cluster of small wildlife ponds.

1.4 Timeframe

1.4.1 The LBMP for the Proposed Development will cover a 50-year period from planting commencing on the Main Application Site. However, for the purposes of the ES, this Outline LBMP primarily covers the initial five-year period for habitats created and enhanced within the Proposed Development, with some information on the principles of ongoing management.

1.4.2 The contractor's maintenance period will extend for five years post-planting, following contractual requirements. Any defects or other faults because of workmanship (other than those found to be stolen or maliciously damaged), will be made good by the Contractor during this period.

1.4.3 On completion of this initial five-year period, an initial review will be undertaken by the appointed ecologist and landscape architect to ensure that the management and maintenance that it prescribes remains relevant and appropriate to the habitats as they develop and mature. Should it be determined during this review that the objectives of the LBMP are not being met, remedial action will then be identified, and implemented so that the Proposed Development still delivers the fully functioning biodiversity objectives of the approved application. The LBMP itself will be updated as required at this time for use during the following period.

1.4.4 Alongside this, review will also be made as to an appropriate length of time for the following management periods, which are anticipated to continue on a five

yearly basis during establishment for the first 15 years, with subsequent review periods being assessed and subject to appropriate amendments.

1.4.5 This process of review/update/periods will continue throughout the 50 year period at a frequency that ensures that the management and maintenance that it prescribes remains relevant and appropriate to the habitats as they continue to mature.

2 MANAGEMENT REQUIREMENTS

2.1 Description of the works

2.1.1 The requirements within this plan are applicable to the future maintenance of existing vegetation to be retained as part of the Proposed Development, and proposed trees, shrubs, hedgerows, woodland planting, mown grass, meadow grass and pond habitat areas, as well as additional habitat measures such as reptile hibernacula, brash/log piles, and bat and bird boxes. It also covers for any street furniture or paving to be installed.

2.1.2 Maintenance work within these areas may include elements such as: ground preparation; minor top-soiling; grass cutting; edge trimming; tree, hedge and shrub pruning; general tree care; watering; treatment of pests and diseases; creation of habitat features; woodland management; tree felling; brash removal; rubbish and debris removal; and cleaning and repairing of damaged street furniture and boundary treatments to ensure successful vegetation establishment and functionality.

2.1.3 A programme of ecological monitoring will underpin this plan as included in **Section 7** of this Outline LBMP, and the Ecological Mitigation Strategies provided as **Appendix 8.6 to 8.10** of the ES **[TR020001/APP/5.02]**. This monitoring will include an annual inspection of all habitats and ecological condition monitoring against the target habitat type.

2.2 Establishment and maintenance responsibilities

2.2.1 The lead contractor's period of responsibility will extend for five years post-planting, which will be a contractual requirement. Any defects or other faults because of workmanship (other than those found to be stolen or maliciously damaged), will be made good by the contractor during this period.

2.2.2 The Applicant and its appointed contractor will employ a suitably qualified ecologist and landscape architect to advise on the establishment of habitats in line with requirements detailed in **Chapters 4**, **8** and **14** of the ES **[TR020001/APP/5.01]** and LBMP.

2.2.3 Once the contractor's obligations have ended, the maintenance operations identified below will be carried out by a Landscape Maintenance Contractor capable of delivering the measures prescribed within this document appointed by the Applicant, which would also be audited by a suitably qualified ecologist and landscape architect as required, throughout the remainder of the 50 year period of the LBMP, and subject to appropriate review periods.

2.2.4 The approach outlined above will be implemented for works associated with each assessment Phase. It is envisaged that once parcels of land arising from a particular assessment Phase have been passed over to a Landscape Maintenance Contractor, they will remain responsible for that land (and will continue to follow this LBMP and relevant timeframes/requirements) alongside any construction work that may be ongoing in other areas of the site for subsequent assessment Phases. Should there be a need for construction activities (e.g. additional planting) to be undertaken at any specific location

already under the control of the Landscape Maintenance Contractor, agreement will be required by appropriate parties (Applicant, Main Contractor, Landscape Maintenance Contractor and relevant stakeholders) as to how this will be managed and associated responsibilities/timeframes.

2.2.5 Further detail regarding establishment and management responsibilities will be developed by the Applicant and contractor and provided in the LBMP as detailed design and implementation develops.

2.3 Standard of work

2.3.1 The Applicant and its appointed contractors must comply with the requirements set out in the CoCP, **Appendix 4.2** of the ES **[TR020001/APP/5.02],** in conjunction with this document, including control of dust, control of water quality, control of noise and light pollution, management and eradication protocols for invasive species such as Japanese knotweed (*Reynoutria japonica*), protection of adjacent watercourses and erection of tree protection fencing to ensure root protection zones are adhered to.

2.3.2 At all times throughout implementation of the LBMP the Application Site is to be kept clean and neat and all planting is to be kept in a healthy state. The carrying out of the works will not cause danger or inconvenience to others, nor will it restrict other on site activities from taking place. All operations will be carried out using only suitable machinery in accordance with best practice, or by hand where impracticable to use machinery, as agreed with the airport authority with regards to health and safety within the airport environs.

2.4 Location of services

2.4.1 The Applicant and its appointed contractors must comply with the requirements set out in the CoCP, **Appendix 4.2** of the ES **[TR020001/APP/5.02]** in conjunction with this document, including identifying location of services. Before undertaking works on site, contractors will contact service authorities to ascertain the accurate location of all services and apparatus. Contractors will not interfere with the operation of existing services (gas, water, electricity, telephones, buried cables or drains) without permission of the Applicant and, in the case of works, the relevant Statutory Authorities and/or private owners.

2.4.2 Any trees, shrubs, seeding or other planting which needs to be removed to enable access to buried services will be made good.

2.5 Weather and ground conditions

2.5.1 Contractors will order their works to take account of any specific ground or weather conditions required to undertake the maintenance operations and any specific requirements or conditions advised by the airport facilities management team. All works involving cultivation will not be carried out in conditions which will result in damage to the soil structure.

2.5.2 All cultivating and grass cutting operations will be suspended in periods of excessive rain, snow or frost; and herbicide applications will only be carried out in suitable weather conditions as described by the manufacturer.

2.5.3 Vegetation clearance works will be undertaken outside of the bird nesting season (generally taken to extend between March and August inclusive) where practicable, or following oversight by a suitably qualified ecologist where this is not practicable.

2.6 Biosecurity

2.6.1 The Applicant and its appointed contractors must comply with the requirements set out in the CoCP, **Appendix 4.2** of the ES **[TR020001/APP/5.02],** in conjunction with this document, including appropriate biosecurity measures. Biosecurity measures are the practical steps designed to minimise the risk of introducing or spreading pests, diseases and non-native species. Pests are most often transported in soil or organic material, such as plant debris, that can be carried on footwear or by the wheels/tracks of vehicles. Some pathogens are also dispersed in water, so the risk of these being spread increases when conditions are wet.

2.6.2 To avoid the spread of pests, diseases and non-native species on site the following measures will be employed during maintenance works:

a. workers/contractors will wear footwear and outerwear that can easily be kept clean;
b. footwear and outerwear must be cleaned regularly, ensuring that they are visually free from soil and organic debris;
c. if moving between different sections of the site, these sections must be ordered from low to high risk, to reduce the likelihood of cross-contamination;
d. a disinfectant solution such as Agrichlor or Virkon S must be used to clean footwear, outerwear and equipment (following removal of any organic material) where there is a risk of spreading any pests, diseases or non-native species during works;
e. vehicular access to any high-risk sites will be avoided and vehicles will be regularly cleaned;
f. ensure that mud and organic debris does not accumulate on tyres, wheels or under wheel arches; and
g. ensure all tools and equipment are clean, serviceable and free from organic debris.

2.6.3 Contractors will immediately notify the Applicant of any significant pest or disease problems on site and seek advice from a suitably qualified contractor to manage appropriate removal/disposal (where required) in line with relevant legislation at the time, notifying the Applicant of measures to be taken. Each review of the LBMP will include an update to the relevant legislation and guidance on potential biosecurity risks and take account of what if any has been found in the previous period and how it was addressed.

2.7 Approved chemicals

2.7.1 The use of chemicals including pesticides and herbicides during landscape and biodiversity works will be avoided or minimised wherever practicable. Where use of chemicals is deemed to be absolutely necessary, care will be taken to ensure that all chemicals used are non-toxic to humans and animals under normal conditions and will comply with the relevant guidance/legislation at the time of work, current including Control of Pesticides (Amendment) Regulations 1997 (Ref. 1) and any relevant Code of Practice issued by the Department of Environment, Food and Rural Affairs (Defra).

2.7.2 Where appropriate, contractors will inform the Applicant of their intention to use chemicals, the product to be used, and the dose rates, before commencing operations.

2.7.3 Where work is near water, drainage ditches or land drains, the contractor will comply with all relevant EA requirements, including those for the use of herbicides on weeds in watercourses and lakes.

2.8 General management

2.8.1 A number of general prescriptions are applicable across the Application Site. These are:

a. all legally designated weeds will be controlled, such as ragwort (*Senecio jacobaea*) and others on the Weeds Act 1959 (Ref. 2);

b. vegetation, which suppresses or otherwise inhibits the development of planted species and proper management of habitats will be restricted and/or removed;

c. any species which colonise the site, and are incongruous with the planting scheme and/or the surrounding context, will be removed, subject to confirmation with the Applicants suitably qualified ecologist;

d. all herbicides will be systemic, biodegradable, and non-residual, and only used where necessary and appropriate; and

e. all areas will be subject to a regular system of litter collection and removal.

2.8.2 The Proposed Development comprises existing and proposed habitats, as detailed within the relevant Landscape Mitigation Plans **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report. The mitigation areas are described in **Section 3**. The management of existing habitats and establishment and management of new areas of habitat are described respectively in **Sections 4** and **5** of this report. Maintenance measures for public access and street furniture are described in **Section 5** and **6**. Monitoring procedures are described in **Section 7**.

3 MITIGATION AREAS

3.1 Introduction

3.1.1 To address the landscape and ecological mitigation measures identified within the ES, this section of the Outline LBMP outlines those elements relevant to mitigation areas as highlighted in the relevant Landscape Mitigation Plans **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]**, and **Figure 1**, **Appendix A** to this report.

3.2 Provision of open space

3.2.1 A large area of open space is proposed to be created in the north east of the Main Application Site (as defined in **Chapter 2** of the ES **[TR020001/APP/5.01]**), shown as Work No. 5b(01) including enhancement to the existing open space remaining in Wigmore Valley Park, and Work No. 5b(02) provision of replacement open space for that lost, on **Figure 4.1** of the ES **[TR020001/APP/5.03]**. All of the open space would be created in assessment Phase 1 with additional provision of habitats and landscape restoration created within assessment Phase 2a and 2b, as shown on **Figures 4.2 and 4.3** of the ES **[TR020001/APP/5.03]**, and **Figure 1**, **Appendix A** to this report.

3.2.2 The provision of open space consists largely of previously intensively managed arable farmland that has been fallow since 2020, grassland fields and small blocks of woodland and scrub. This provision of open space will connect to the retained areas of Wigmore Valley Park, providing east west connectivity within the Main Application Site and wider landscape. This area will include habitat creation measures to mitigate for those habitats lost within Wigmore Park County Wildlife Site (CWS). The replacement habitat, once established, would mitigate for the loss of foraging, dispersal and shelter habitats which are used by a range of species including badger (*Meles meles*), bats, birds, reptiles, amphibians and invertebrate species.

3.2.3 This provision of open space would contain a landscaped mosaic of woodland, both retained, enhanced and newly planted, retained and restored hedgerows, scrub, ornamental planting (within urban realm areas throughout the Proposed Development), neutral meadow mown grassland and amenity grassland. As this area will be open to the public, and contain a network of footpaths and bridleways, as well as street furniture, discussed in detail in **Sections 5** and **6** respectively.

3.3 Habitat creation

3.3.1 Outside of the provision of open space, habitat creation proposals shown as Work No. 5d on **Figures 4.1 to 4.3** of the ES **[TR020001/APP/5.03]**, within the Main Application Site include large areas of neutral grassland, two areas of calcareous grassland and woodland blocks to the east of the provision of open space.

3.3.2 These habitat creation areas are created during assessment Phase 1, Phase 2a and Phase 2b as detailed within the relevant Landscape Mitigation Plans, **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]**, and **Figure 1**, **Appendix A** to this report.

3.3.3 The habitat creation areas consist almost entirely of previously intensively managed arable cropping land (fallow since 2020) with two small plantation woodlands in the southern section of this mitigation area. It is bordered to the east, north and south by partially defunct hedgerows and two small woodland blocks immediately to the north.

3.3.4 Four woodland blocks are to be created in the habitat creation area, that would link with the existing woodland blocks both spatially and in ecological characteristics. They would also complement and link to the five blocks of woodland planting within the provision of open space. Additional smaller blocks would also be created in the rest of the Main Application Site.

3.3.5 Hedgerow restoration and enhancements are planned around each field boundary, shown as Work No. 5e on **Figures 4.1 to 4.3** of the ES **[TR020001/APP/5.03]**, and **Figure 1**, **Appendix A** to this report, in order to remove gaps and increase linkage with the hedgerow network within the wider landscape. This would link to the extensive hedgerow restoration works that are planned to take place off site, as shown within the relevant Landscape Mitigation Plans, **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]**.

3.3.6 Calcareous grassland is proposed to be created within the Main Application Site during assessment Phase 2b as detailed within the relevant Landscape Mitigation Plans, **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report. These areas would mitigate for the loss of this habitat.

3.3.7 The Airport Access Road (AAR) mitigation area is located on the western side of the Proposed Development, north west of the carpark by new airport way. This includes part of Dairyborn Scarp District Wildlife Site (DWS) and the surrounding habitat which comprises mainly of scrub and tall ruderals, where it lies within the Proposed Development.

3.3.8 Neutral meadow grassland, exposed chalk and scrub would be created on the reinstated slopes of the AAR. The scrub within this area would be managed and undesirable species such as buddleia (*Buddleja davidii*) would be removed.

3.3.9 Where suitable, small bunds would be created using excavated material from the site (but not the landfill area) such as when excavating the ponds. These would be allowed to develop a grassland and herb rich cover, and would include small areas with exposed/bare earth, aiming for an open mosaic habitat that could support rich and high quality invertebrate assemblages. When including south facing banks, these would also be of benefit for reptiles and could include an element of rubble or logs beneath the topsoil, with exposed sections of these materials at the base, to also function as hibernacula for reptiles and amphibian species.

3.4 Off-site mitigation

3.4.1 Hedgerow restoration and enhancements are planned on defunct hedgerows offsite, in addition to planting new hedgerows, in order to mitigate visual effects and improve the hedgerow network within the wider landscape. These are shown within the relevant Landscape Mitigation Plans **Figures 14.11 to 14.13** in of the ES **[TR020001/APP/5.03]**, Work No. 5e on **Figures 4.1 to 4.3** of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report.

3.5 Mitigation area considerations

3.5.1 Each mitigation area would comprise a mosaic of habitat types, and it is important to note that other habitats would be created within the Proposed Development outside these main mitigation areas such as the landscape restoration areas. Each habitat retained and created within the Proposed Development will require varying management practices in order to maximise their landscape and biodiversity value, with careful consideration given to planning the integration of retained and proposed habitats. The aim is to increase ecological connectivity both between mitigation areas and with the wider landscape, and as a result, these mitigation areas should not be considered in isolation from one another.

3.5.2 Consequently, management techniques and regimes specific to each habitat are discussed in the following sections and will be applied to any areas within the Proposed Development that they occur following establishment.

3.5.3 It should be noted that the habitat creation shown with the relevant Landscape Mitigation Plans, **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report, is at a level of detail relevant to the Proposed Development. Variation within each field is expected and will be especially encouraged in habitat creation areas. This is likely to include having some patches of bare ground.

3.5.4 Planting within these mitigation areas will be designed to segregate footpaths from the verges to ensure habitat is protected from trampling and disturbance.

3.5.5 All planting and maintenance operations have been designed to avoid any increased risk of bird strike, by planting away from the flight path. The carrying capacity for wood pigeon (*Columba palumbus*) will not be significantly increased by this planting for further details please see the Bird Strike Risk Assessment provided in **Appendix 8.4** of the ES **[TR020001/APP/5.02]**.

4 MANAGEMENT OF EXISTING HABITATS

4.1 Introduction

4.1.1 All management outlined below supersedes current or previous management practices within these existing habitats. All enhancements would be undertaken in assessment Phase 1, at the same time as the creation of the Habitat Creation Area and provision of open space.

4.1.2 All existing habitats referred to below are in the ownership of the Applicant with the exception of off-site hedgerow enhancements (**Figure 1**, **Appendix A** of this report).

4.2 Trees and Woodland

4.2.1 Trees and woodland are to be retained in various locations across the Proposed Development, this is shown within the relevant Landscape Mitigation Plans, **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report.

4.2.2 Five woodlands are to be enhanced. Details of the enhancements are described below:

a. Woodland 6 (Winch Hill Wood CWS (**Figure 3**, **Appendix A** of this report) and Local Wildlife Site (LWS)) with Ancient Woodland Indicator (AWI) species present. Woodland will be permanently fenced to prevent access to people and deer. Opportunities to create woodland glades and increase structural diversity will also be implemented where appropriate. Management of Winch Hill Wood will include sensitive thinning and coppicing to open up the canopy, and improve the structural diversity of the woodland, along with targeted planting. The provision of deadwood will also be increased, by utilising trunks and large limbs from trees felled during the clearance works.

b. Woodland 1 (**Figure 1**, **Appendix A** of this report) will be managed to improve its condition, and opportunities to create woodland glades and increase structural diversity will also be implemented where appropriate. The provision of deadwood will also be increased, by utilising trunks and large limbs from trees felled during the clearance works.

c. Three woodlands (Woodland 2 (plantation coniferous), Woodland 3 (plantation coniferous) and Woodland 4 (mixed plantation)) will be enhanced to become broadleaved woodland (**Figure 3**, **Appendix A** of this report). A staged felling will occur within these woodlands retaining any broadleaved trees, subject to condition surveys for diseases such as ash dieback, while removing non-native coniferous trees. Coniferous trees will be slowly removed in three stages over a period of 10 years and replaced with suitable native broadleaf species. Approximately a third of the coniferous species will be removed in years 1, 5 and 10 starting in assessment Phase 1.

4.2.3 The location of these woodlands is shown within the ES assessment Phase 1 habitat map, Appendix A to the Ecology Baseline Report (**Appendix 8.1**, of the ES **[TR020001/APP/5.02]**) and **Figure 3**, **Appendix A** to this report.

4.2.4 Retained trees will be subject to protection and monitoring to ensure their health is maintained throughout the life of the Proposed Development in line with BS5837: 2012 Trees in relation to design, demolition and construction (Ref. 3), including assessing for signs of ash dieback.

4.2.5 All maintenance works will be undertaken in accordance with BS 3998: 2010 Tree Work – Recommendations (Ref. 4) (and subsequent updates to this), and carefully monitored to eliminate undue stress to trees. Contractors will be required to comply with the current Arboriculture and Forestry Advisory Group (AFAG) relevant to tree maintenance works.

4.2.6 The majority of arisings (>95%) that result from works to existing trees will be removed from site, but a small proportion will be retained. Large trunks and limbs will be retained as dead specimens in situ, with smaller material used as deadwood/brash piles within proposed wooded areas for their biodiversity value.

4.2.7 Where possible specific existing trees identified within the Arboricultural Impact Assessment (see **Appendix 14.3** of the ES **[TR020001/APP/5.02]**) will be managed and maintained differently in order to maintain and enhance their high nature conservation value, such as veteran trees. Such trees may include features such as dead limbs, hollows, rot-holes, water pools, seepages, woodpecker holes, splits, loose bark, limbs reaching the ground, and epiphytic plants and lichens, which may well be considered as undesirable on a non-veteran tree. This may include measures such as thinning of young trees around veteran trees to reduce stresses upon the tree. Opportunities will also be explored to undertake 'veteranisation' of mature trees within the Applicant's land ownership; for example, wounding the tree to encourage rot features to form and replicate the beneficial features of naturally occurring veteran trees.

4.2.8 Translocation will be undertaken where practicable, of suitable live trees that would otherwise be felled as part of the site clearance. Selected trees, including Category A tree T343, will be coppiced and moved to woodland habitat creation areas to provide a habitat resource for a range of species while the habitat creation areas establish.

4.3 Hedgerows

4.3.1 Hedgerows are to be retained and protected wherever possible throughout the Proposed Development. Management will primarily focus on restoration and enhancement of existing hedgerows, both within the Proposed Development, and within the wider agricultural landscape.

4.3.2 Retained hedgerows within the Proposed Development will be cut on a 3-year rotation from commencement of establishing habitat areas, with alternate sides of the hedgerow cut to maintain a constant food source for birds and other wildlife. They will be maintained to a height and width customary to the local

landscape, but not less than 2m in height (except when laid or coppiced as part of a regular management cycle).

4.3.3 No fertilisers, manures or pesticides will be applied to land within 2m of the centre of the hedgerow.

4.3.4 Any hedge-laying and coppicing will be carried out in a style customary to the local landscape and will be completed during February (in exceptional circumstances work may continue until 31 March, provided a survey has been carried out that concludes there are no nesting birds present). Berry bearing shrubs will be left overwinter to provide a food source for birds (and other wildlife) between October to February and cut later in February before the bird nesting season. Hedgelaying can be done from 10 years between cycles, or longer if retaining good condition, moving round the site in sections to stagger growth.

4.4 Scrub

4.4.1 Areas of scrub are to be retained where possible. Existing scrub would be enhanced through additional planting where specified in the Landscape Mitigation Plans, **Figures 14.11 to 14.13** in of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report, and wherever it is practicable to retain diverse stands of existing scrub within the habitat creation areas.

4.4.2 Management would primarily focus on increasing botanical and structural diversity while ensuring that scrub is not beginning to encroach into neighbouring habitats. Well-developed grassland edges cut every three years will ensure a suitable buffer strip exists around the scrub.

4.5 Field margin vegetation

4.5.1 Arable margins will be retained along maintained woodland belts and hedgerows where possible. These margins will be managed to encourage retention and proliferation of the notable arable plant species and invertebrates that have been identified within the survey area.

4.5.2 Existing rough grass margins would be cut once every three years at a height between 7.5cm to 15cm. Cutting will be undertaken between mid July and the end of September, to allow mature tussocks to develop and insect populations to build up, and on a rotation so that there are a number of uncut margins every year.

4.5.3 Maintaining elements of bare ground on selected field margins through lower cuts and up to annual turnover of the ground in discrete areas, will help to emulate arable field margins, and encourage the continued presence of their associated notable arable plants.

4.5.4 No fertiliser, manure or pesticides/herbicides are to be applied to existing margins, as these can encourage weeds and remove beneficial plants and associated insects.

4.5.5 Undesirable species such as thistles, docks or ragwort will be spot treated or weed-wiped whenever they occur in significant numbers as appropriate through

the active growing season to avoid other species being out-competed. Retention of some thistles and docks in smaller numbers is of benefit as pollinator nectar sources. Hand pulling will be deployed as a potential method of eradication.

4.6 Semi-improved neutral grassland

4.6.1 Semi-improved neutral grassland is to be retained and enhanced in various locations across the Proposed Development, this is shown within the relevant Landscape Mitigation Plans, **Figures 14.11 to 14.13** in of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report. This would include areas within Luton Parkway Verges DWS where practicable, as the extent of potential remaining areas of the section of this DWS within the Proposed Development would not be known until detailed design stage. This will be reviewed at detailed design stage to ensure that areas with potential to be retained or replaced are incorporated into the design.

4.6.2 Retained semi-improved neutral grassland areas will be mown between late-July and mid-August (although the timing of this will remain flexible to ensure cutting does not take place before desirable plant species set seed).

4.6.3 Cuttings will be left to lie and then removed between one and two days after an area has been cut, to help conserve invertebrates and to ensure the seeds are dispersed on site and not removed with the arisings.

4.6.4 Mowing will avoid times of high bird breeding and reptile activity after hibernation and breeding (March to June inclusive), and late August to October when hatchlings remain active.

4.6.5 Mowing method will be done slowly, and either from the centre out or along straight lines to ensure that wildlife, including birds and reptiles, has an opportunity to escape. Walking through areas of long grass prior to mowing can encourage them to move elsewhere. Ideally this will be done on a warm day when they will be most active and able to move away quickly, and not in winter when they are hibernating.

4.6.6 The grass cutting height of the mower will be varied across different sections of the grassland to improve insect diversity and abundance.

4.6.7 Strimming or herbicide control will be undertaken where grassland areas abut for example fences, walls and around trees and obstacles (with care not to damage trees within grassed areas) in June and September, or more frequently is deemed necessary.

4.6.8 A mown strip will be maintained to form a boundary between grasslands and more intensively managed areas.

4.6.9 Damaged or worn areas will be reinstated during the next available season.

4.6.10 Undesirable herbaceous species or scrub within the grassland sward will be controlled by hand pulling or weed wiping/spot spraying with an appropriate systemic herbicide (if absolutely necessary).

4.6.11 Any large areas of encroaching scrub will be removed from grassland areas during winter months (October to February), but leaving some scrub along the borders of the grassland to act as habitat for wildlife. Scalloped south-facing bays of vegetation will be used to provide sheltered pockets for reptile basking.

4.6.12 No machinery will access the grassland when ground conditions are damp so as to avoid rutting and vegetation damage.

4.6.13 Ruts and other damage will be repaired as appropriate. Such repairs will be undertaken using techniques and materials sensitive to this component.

4.6.14 Soil ameliorants will not be used on grassland areas.

4.6.15 Where space permits following the detailed design and construction of car park P1, areas of Luton Parkway Verges DWS (**Figure 2**, **Appendix A** of this report) will be retained and/or reinstated, and managed to improve its condition as described above. Any remaining areas of Luton Parkway Verges DWS where it lies within the Proposed Development will be fenced off to prevent 'cut throughs' from use of the new car park adjacent.

4.6.16 In addition, grassland habitats [redacted]

4.7 Amenity grassland

4.7.1 Established areas of amenity grassland to be retained will continue to be managed in accordance with their current management regimen unless changes are agreed with the respective authority.

5 ESTABLISHMENT AND MANAGEMENT OF PROPOSED HABITATS

5.1 Broad-leaved woodland

Location

5.1.1 Broad-leaved woodland blocks are proposed in various locations across the Proposed Development, as shown in the relevant Landscape Mitigation Plans, **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report. Where possible these establishing woodlands would link to existing woodland, aiming to increase their extent, connectivity and ecological value.

5.1.2 Woodland planting has been designed to avoid any increased risk of bird strike, by planting away from the flight path. The carrying capacity for wood pigeon, the only high bird strike risk species identified for the site, would not be significantly increased by this planting; for further details please see the Bird Strike Risk Assessment provided as **Appendix 8.4** of the ES **[TR020001/APP/5.02]**.

Specification

5.1.3 Woodland tree and shrub species to be planted would be similar to those that exist within the surrounding landscape, in line with the local landscape character and be resilient to climate change. The existing semi-natural broadleaved woodlands within the surrounding area are characteristic of the National Vegetation Classification (NVC) W8 and W10 plant communities, with the canopy comprising mainly either ash (*Fraxinus excelsior*), pedunculate oak (*Quercus robur*), and/or hornbeam (*Carpinus betula*). These woodlands qualify as **lowland mixed deciduous woodland** habitat of principal importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref. 5). The oak-hornbeam woodland present at Chicksands Wood CWS and King's and Baker's Woods and Heaths CWS and Site of Special Scientific Interest (SSSI), are cited as good examples of this habitat type in Central Bedfordshire (Ref. 6). There is also a particular responsibility to protect this habitat type within Hertfordshire as a large proportion of the national resource is present within this county (Ref. 7).

5.1.4 Any woodland created will contain:

a. 50% of the following woodland canopy species:
   i. elm (a resistant variety such as *Ulmus* new horizon);
   ii. pedunculate oak; and
   iii. hornbeam.

b. 50% of the following woodland understorey species:
   i. blackthorn (*Prunus spinosa*);
   ii. field maple (*Acer campestre*);
   iii. hawthorn (*Crataegus monogyna*);
   iv. hazel (*Corylus avellana*);
   v. holly (*Ilex aquifolium*);
   vi. honeysuckle (*Lonicera periclymenum*);

vii. silver birch (*Betula pendula*); and
viii. wild cherry (*Prunus avium*).

5.1.5 To add structural diversity to the new woodlands, specimen trees in addition to whips (unbranched young tree) will be planted and comprise resistant elm, pedunculate oak and hornbeam, as well as a plants added to begin creation of a woodland ground layer. All woodland ground layer species will be plug planted and comprise shade tolerant species such as pignut (*Conopodium majus*), wood melick (*Melica uniflora*), native bluebell (*Hyacinthoides non-scripta*), yellow archangel (*Lamiastrum galeobdolon subsp*. *montanum*) and greater stitchwort (*Stellaria holostea*).

5.1.1 Where woodland is to be established in new landscape areas, topsoil is required to be spread to a depth of 350mm (+/- 25mm) over at least 650mm of landscape subsoil. Topsoil for woodland to be established in new landscape areas should typically have the properties of Soil Profile 1 (Agricultural Soils) or Soil Profile 3 (Parkland Soil), as defined within the Outline Soil Management Plan provided as **Appendix 6.6** of the ES **[TR020001/APP/5.02]**. Should topsoil with the properties of Soil Profile 2 (Agricultural Soils [Calcareous]) or Soil Profile 4 (Woodland Soils) be necessary to make up any shortfall of Soil Profiles 1 and 3, these areas of topsoil must be placed separately and woodland species selection must be adjusted to reflect the guidance set out at **Section 5.3** of the Soil Resource Survey provided as **Appendix 6.5** of the ES **[TR020001/APP/5.02]**. Soil amelioration and handling operations in new landscape areas must be conducted in accordance with the Soil Management Plan, which would be substantially in accordance with the Outline Soil Management Plan. This is secured as part of the CoCP, **Appendix 4.2** of the ES **[TR020001/APP/5.02]** which is a Requirement of development consent.

5.1.2 Where woodland is to be established within existing landscape areas, it may be necessary to locally revise the species selection and stock sizes to make them more tolerant of heavy moisture retentive soils; and/or to improve the physical aspects of the soils to broaden their re-use potential through the installation of artificial drainage or localised mounding of topsoil. Proposed measures to improve poorly draining soils must be set out by the contractor within a detailed Soil Management Plan and should be advised by an appropriately experienced soil scientist. Soils within existing landscape areas to receive woodland planting must be handled and ameliorated in accordance with the Soil Management Plan, which should be substantially in accordance with the Outline Soil Management Plan.

5.1.3 Where possible woodland planting will aim for a more natural/random appearance, with trees not being planted in straight lines.

5.1.4 Deadwood from clearance activities within the Proposed Development, will be moved into woodland creation areas to provide a habitat for saproxylic invertebrates and fungi.

5.1.5 Where practicable monoliths (standing deadwood) will also be created to provide a diversity of structure within the new woodland. Large sections of felled trunks will be reinstalled vertically in the ground within the habitat creation areas, which would encourage the deadwood to decay in a similar way to how it

would naturally as standing deadwood in-situ. This is described within the Bat Mitigation Strategy **Appendix 8.8** of the ES **[TR020001/APP/5.02]**.

Establishment

5.1.6 The proposed new woodlands will be planted in line with English Woodland Grant Scheme (Ref. 8), UK Forestry Standard (Ref. 9) and UK Woodland Assurance Scheme guidelines (Ref. 10). This would provide recognised management objectives and techniques to ensure the successful establishment of habitat and to provide long term benefits to biodiversity.

5.1.7 The Applicant or their appointed contractors will undertake the following operations as necessary during the first five years after planting, to ensure the satisfactory establishment and development of the woodland trees and shrubs:

a. clearance of any woodland shrub species within a 1m diameter of the base of each tree;
b. maintenance of a 1m diameter weed free area around the base of all woodland specimens, through the application of an appropriate herbicide;
c. spot treatment of pernicious weeds (e.g. brambles (*Rubus fruticosus agg.*));
d. treatment against pests and diseases with spraying and dusting;
e. application of a slow release fertiliser around the base of all woodland specimens to ensure soil fertility is maintained at appropriate levels;
f. inspection, adjustment and maintenance of translucent guards, stakes and ties;
g. review of fencing to ensure against structural damage in the period to establishment;
h. re-firming of plants after strong winds, frost heave or other disturbances;
i. removal of any vandalised, unhealthy or dead shrubs and replacement with plants of a similar size to those adjacent, during the next available planting season;
j. watering of plants to ensure moisture levels are maintained appropriate for optimum growth; and
k. mowing of underlying grassed areas to a height of 50mm, whenever the sward achieves a height of 125mm.

Management/Maintenance

5.1.8 Following initial establishment, the Applicant or their appointed contractors will undertake the following operations as necessary, subject to appropriate reviews:

a. Inspect and where necessary remove and replace any tree or shrub found to be dead, dying or diseased, unless can reasonably be retained for biodiversity reasons.

b. Inspect the created woodland to ensure the desired diversity of flora is achieved. Carry out remedial action, where necessary pruning or removing plants that are dominating or smothering the woodland.

c. Inspect the structure of the woodland every five years, if crowding occurs some trees will be felled to promote the growth of others. The removal of any trees will aim to create a natural appearance with a diversity of structure. Any felled trees will be left within the woodland to provide dead wood habitat.

d. Formative pruning to achieve optimum growth rates and maintain a good shape, clear of any vehicular or pedestrian circulation routes.

e. Removal of redundant fencing, guards, stakes and ties at appropriate times to ensure the optimum health of individual plants.

5.1.9 The Applicant or their appointed contractors will ensure that:

a. Most parts of the woodland are structurally diverse and includes dominant/sub-dominant tree species, understory tree and shrub species, low level shrubs, natural regeneration and ground flora.

b. There is a good mix of nectar rich herbaceous plants.

c. The woodland slowly merges into adjacent habitat, creating woodland/scrub habitat similar to those found within a wood glade.

d. Invasive or undesirable species such as sycamore (*Acer pseudoplatanus*), Himalayan balsam (*Impatiens glandulifera*) and *Rhododendron* are controlled and do not dominate the space.

e. Deadwood (standing trunks/monoliths and deadwood/brash piles) has been left wherever safe to do so.

f. Clearing and coppicing work is limited to specific areas on a rotational basis.

g. Unacceptable levels of litter, debris or dog fouling are removed, and additional measures put in place to reduce the likelihood of reoccurrence where applicable.

Woodland Management Schedule

5.1.10 The following woodland management schedule includes prescriptions for both the management of existing habitats, **Section 4**, and establishment and management of proposed habitats, **Section 5**.

Table 5.1: Woodland Management Schedule

Year post establishment / Prescription	All	0	1	2	3	4	5	10	15	20 +
Practical management and removal of undesirable species (management of shrubs, weeds, mowing)		X	X	X	X	X	X			
Active care of establishing woodland (pest treatment, fertiliser application, watering, guard checks)		X	X	X	X	X	X			
Control and removal of invasive species (e.g. rhododendron, sycamore, Himalayan balsam)	X									
Dynamic management of woodland (pruning, guard removal, rotational coppicing, deadwood assessment (including retention of trunks and limbs lost), litter management)	X									
Creation of glades and increase of structural diversity of Woodland 6 (Winch Hill Wood AW) and Woodland 1, as appropriate (**Figure 3**, **Appendix A** to this report).	X	X	X							
Staged felling of a third of the coniferous species in Woodland 2, 3 and 4 (**Figure 3**, **Appendix A** of this report) during assessment Phase 1, replacing with suitable native broadleaf species.			X				X	X		
Provision of suitable deadwood within woodlands created and enhanced. Will be undertaken in assessment Phase 1 and assessment Phase 2a.			X				X			
Continuing assessment of woodland on a 5-yearly basis							X	X	X	X

Year post establishment / Prescription	All	0	1	2	3	4	5	10	15	20 +
(subject to review) to ensure desired species mix and optimal structure										

5.2 Hedgerows

5.2.1 The overall target for hedgerow creation and enhancements is to create hedgerows that achieve the species-rich hedgerow priority habitat type listed on Section 41 of the NERC Act 2006 (Ref. 5).

Location

5.2.2 Hedgerow creation is proposed in various locations across the Proposed Development, as detailed within the relevant Landscape Mitigation Plan **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report for demarcation, screening and visual interest along with their biodiversity benefit. As the primary effort will be the restoration and enhancement of retained hedgerows, establishment of new hedgerows will primarily be utilised to separate the previously extensive agricultural fields and provide a buffer to habitats that are adjacent to footpaths. Further hedgerow restoration is planned offsite, increasing habitat connectivity both within the Proposed Development and to the network of hedgerows in the wider landscape.

Specification

5.2.3 The new hedgerows will be species rich and comprise a mixture of native shrubs, which when established will be a habitat of principal importance. Where possible coppiced stools will be added to hedgerows to provide additional variation in the structure of the newly created hedgerows.

5.2.4 The existing hedgerows are dominated by hawthorn with variable amounts of the following species ash, blackthorn, dogwood (*Cornus sanguinea*), elder (*Sambucus nigra*), field maple (*Acer campestre*), hazel, holly, dog rose (*Rosa canina*) aggregate and bramble aggregate. The species selected to be planted have been designed to be characteristic of the surrounding area. The species to be planted and the proportion of each are as follows:

a. hawthorn 50%
b. blackthorn 10%
c. field maple 10%
d. hazel 10%
e. holly 10%

f. hornbeam 10%

5.2.5 Where hedgerows are to be established in new landscape areas, topsoil is required to be spread to a depth of 350mm (+/- 25mm) over at least 650mm of landscape subsoil. Topsoil for hedgerows to be established in new landscape areas should typically have the properties of Soil Profile 1 (Agricultural Soils) or Soil Profile 3 (Parkland Soil), as defined within the Outline Soil Management Plan provided as **Appendix 6.6** of this ES **[TR020001/APP/5.02]**. Should topsoil with the properties of Soil Profile 2 (Agricultural Soils [Calcareous]) or Soil Profile 4 (Woodland Soils) be necessary to make up any shortfall of Soil Profiles 1 and 3, these areas of topsoil must be placed separately and hedgerow species selection must be adjusted to reflect the guidance set out at **Section 5.3** of the Soil Resource Survey provided as **Appendix 6.5** of this ES **[TR020001/APP/5.02]**. Soil amelioration and handling operations in new landscape areas must be conducted in accordance with the Soil Management Plan, which should be substantially in accordance with the Outline Soil Management Plan.

5.2.6 Where hedgerows are to be established within existing landscape areas, it may be necessary to locally revise the species selection and stock sizes to make them more tolerant of heavy moisture retentive soils; and/or to improve the physical aspects of the soils to broaden their re-use potential through the installation of artificial drainage or localised mounding of topsoil. Proposed measures to improve poorly draining soils must be set out by the contractor within a detailed Soil Management Plan and should be advised by an appropriately experienced soil scientist. Soils within existing landscape areas to receive hedgerow planting must be handled and ameliorated in accordance with the Soil Management Plan, which should be substantially in accordance with the Outline Soil Management Plan **Appendix 6.6** of this ES **[TR020001/APP/5.02]**.

5.2.7 The new native species-rich hedgerows will be maintained at a height and width customary to the local landscape, of at least 1.5 to 2m (except when laid or coppiced as part of a regular management cycle) in order to provide habitat for a range of species, and as an appropriate hedge form and density to the location.

Establishment

5.2.8 The Applicant or their appointed contractors will undertake the following operations as necessary during the first five years after planting, to ensure the satisfactory establishment and development of the hedgerow trees and shrubs:

a. replanting will occur as necessary (replacing poorly established and/or dead plants) so there are no gaps (using 1.5m deer protective guards/fencing);
b. weed control will be carried out as needed;
c. plant guards/supports will be straightened where needed and removed if necessary;
d. irrigation as necessary to ensure healthy growth;

e. cut back 50% of the current year's growth in the Autumn to achieve the desired height and shape; and

f. controlling of pests and diseases.

Management/Maintenance

5.2.9 Following initial establishment, the Applicant or their appointed contractors will undertake the following operations as necessary, subject to appropriate reviews:

a. hedgerows will be maintained to a height and width customary to the local landscape, but not less than 2m in height (except when laid or coppiced as part of a regular management cycle);

b. the removal of redundant fencing, guards, stakes and ties at appropriate times to ensure the optimum health of individual trees;

c. no fertilisers, manures or pesticides are to be applied to land within 2m of the centre of the hedge;

d. any hedge laying, and coppicing will be carried out in a style customary to the local landscape and will be completed between February and March; and

e. hedgerows would be cut on a 3-year rotation with alternate sides of the hedgerow cut to maintain a constant food for wildlife. Hedges will be cut in January or February to avoid the nesting bird season, but berry bearing shrubs will be left overwinter to provide a food source for birds between October to February and cut later in February before the nesting season.

Hedgerow Management Schedule

5.2.10 The following hedgerow management schedule includes prescriptions for both the management of existing habitats, **Section 4**, and establishment and management of proposed habitats, **Section 5**.

Table 5.2: Hedgerow Management Schedule

Year post establishment / Prescription	All	0	1	2	3	4	5	6	9	12 +
Practical management and removal of undesirable species (weeds, extensive areas of bramble)		X	X	X	X	X	X			
Active care of establishing hedgerow (planting up gaps, straightening and removal of guards, pest control)		X	X	X	X	X	X			

Year post establishment / Prescription	All	0	1	2	3	4	5	6	9	12 +
Cut back of 50% of yearly growth to promote desired height and shape			X	X	X	X	X			
Ongoing maintenance (laying and coppicing)	X									
Management cycle with 3-yearly rotational cutting of alternate sides					X			X	X	X
Continuing assessment on an annual basis (subject to review) to ensure desired species mix and optimal structure and condition.	X	X	X	X	X	X	X	X	X	X

5.3 Hedgerow trees and specimen trees

5.3.1 Hedgerow trees would provide further height and structure within several of the proposed hedgerows. In additional, proposed individual trees would provide landscape structure to the soft landscaping areas within the provision of open space. Trees or groups of specimen trees would also be used to create enclosure, focal points and features. The overall target for hedgerow creation and enhancements is to create hedgerows that achieve the species-rich hedgerow priority habitat type listed on Section 41 of the NERC Act 2006.

Location

5.3.2 Hedgerow trees would be planted within several of the proposed hedgerows, distributed in various locations throughout the site. Individual or groups of specimen trees would also be planted to provide habitat and landscape features at various locations across the Proposed Development.

Specification

5.3.3 The specimen trees and those to be planted in mixed species hedgerows would include resistant elm, pedunculate oak and hornbeam. Where possible coppiced stools will be added to hedgerows to provide additional variation in the structure of the newly created hedgerows. The shallow and calcareous nature of Soil Profile 2, as defined within the Outline Soil Management Plan provided as **Appendix 6.6** of this ES **[TR020001/APP/5.02]**, would be taken into account at the detailed design stage in terms of species selection and tree pit design.

5.3.4 The soil profiles for heavy standard, light standard and feathered trees within woodland and hedgerow areas would reflect those identified in **Sections 5.1**

and **5.2** above. Drainage would however be installed at key locations or specifically for particularly vulnerable planting types. The type, design and depth of the drainage would be suitable to the proposed application and be advised by an appropriately experienced practitioner.

5.3.5 Localised mounding of topsoil may also be used, where appropriate, for vulnerable heavy standard, light standard and feathered tree species, to effectively 'lift' these plants, reduce the risk of harm from waterlogging and improve aeration within the rooting zone. Mounding can be done on an individual tree basis or larger mounds provided for clusters of trees. The use of topsoil mounding should be advised by an appropriately experienced practitioner.

5.3.6 The site topsoil and subsoil are not of an adequate quality for back-filling tree pits for extra heavy standard trees and semi-mature trees. Appropriate modifications must therefore be incorporated into the design of all tree pits envisaged for trees of this size, to ensure their successful establishment. The level of modification required depends on the extent of disturbance and degradation caused to the soil structures and the level of drainage following landscape construction and must be advised by an appropriately experienced soil scientist.

5.3.7 An appropriate imported free-draining sand or sandy subsoil must be used as subsoil in all tree pits for extra heavy standard trees and semi-mature trees, spread to a depth of 650mm (+/- 50mm); and must be overlaid with a suitable free draining sandy, fertile imported topsoil, spread to a depth of 350mm (+/- 25mm). For any locations subject to significant disturbance, consideration would be given to the provision of an appropriate gravel soakaway layer at the base of the tree pits.

5.3.8 Appropriate irrigation measures must also be included for all specimen trees to be planted in public realm locations at Work Types 3 and 4 (as defined in **Chapter 4** of the ES **[TR020001/APP/5.01]**).

Establishment

5.3.9 The Applicant or their appointed contractors will undertake the following operations as necessary during the first five years after planting, to ensure the satisfactory establishment and development of the trees:

a. treatment against pests and diseases with spraying and dusting;
b. application of a slow release fertiliser around the base of all trees to ensure soil fertility is maintained at appropriate levels;
c. the removal of any vandalised, unhealthy or dead specimens (where not possible to retain safely) and replacement with trees of a similar size, during the next available planting season;
d. inspection, adjustment and maintenance of fencing, guards, stakes and ties;
e. re-firming of plants after strong winds, frost heave or other disturbances;

f. removal of any vandalised, unhealthy or dead shrubs and replacement with plants of a similar size to those adjacent, during the next available planting season; and

g. watering of plants to ensure moisture levels are maintained appropriate for optimum growth.

Management/Maintenance

5.3.10 Following initial establishment of the hedgerow with trees, the Applicant or their appointed contractors will undertake the following operations as necessary, subject to appropriate reviews:

a. the formative pruning of specimens to achieve optimum growth rates and maintain a good shape, clear of any vehicular or pedestrian circulation routes; and

b. the removal of redundant fencing, guards, stakes and ties at appropriate times to ensure the optimum health of individual trees.

5.3.11 The Applicant or their appointed contractors will ensure that in relation to hedgerow trees and specimen trees:

a. growth is healthy and vigorous with no sign of disease;

b. no inappropriate dead branches;

c. no basal or sucker growth on specimen trees, however this may be beneficial when left in place for hedgerow trees in order to add thickness to the hedgerow;

d. no damage to base of tree during maintenance; and

e. no dead material or cuttings left in area (to be removed from site unless agreed area appointed on site).

Hedgerow Trees and Specimen Tree Management Schedule

5.3.12 The following hedgerow tree and specimen tree management schedule includes prescriptions for both the management of existing habitats, **Section 4**, and establishment and management of proposed habitats, **Section 5**.

Table 5.3: Hedgerow Trees and Specimen Tree Management Schedule

Year post establishment / Prescription	All	0	1	2	3	4	5	6+
Practical management and removal of undesirable species (management of shrubs, weeds)		X	X	X	X	X	X	

Year post establishment / Prescription	All	0	1	2	3	4	5	6+
Active care of establishing hedgerow and specimen trees (pest treatment, fertiliser application, watering, guard checks)		X	X	X	X	X	X	
Dynamic ongoing management of hedgerow trees and specimen trees (pruning, deadwood assessment, disease treatment)	X							
Continuing assessment on an annual basis (subject to review) to ensure desired structure and condition.	X	X	X	X	X	X	X	X

5.4 Scrub

Location

5.4.1 Scrub areas are to be established in various locations, as shown in the relevant Landscape Mitigation Plans, **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report. These scrub areas primarily border areas of woodland to be established within the provision of open space, to provide breeding and foraging habitat and a place of shelter for a range of fauna.

Specification

5.4.2 New areas of scrub would comprise a mixture of blackthorn, dog rose, field maple, hawthorn, hazel and holly. It is anticipated that bramble and elder will naturally colonise, so it has not been included within the planting species mixture.

5.4.3 Areas of scrub would comprise at least three shrub species with no one species occupying more than 75% of the cover. The planted shrubs species would include a mixture of whips and older plants.

5.4.4 Where areas of scrub are to be established within existing landscape areas, it may be necessary to locally revise the species selection and stock sizes to make them more tolerant of heavy moisture retentive soils; and/or to improve the physical aspects of the soils to broaden their re-use potential through the installation of artificial drainage or localised mounding of topsoil. Proposed measures to improve poorly draining soils must be set out by the contractor within a detailed Soil Management Plan and should be advised by an appropriately experienced soil scientist. Soils within existing landscape areas to receive areas of scrub planting must be handled and ameliorated in accordance with the Soil Management Plan, which should be substantially in accordance

with the Outline Soil Management Plan provided as **Appendix 6.6** of the ES **[TR020001/APP/5.02]**.

Establishment

5.4.5 The Applicant or their appointed contractors will undertake the following operations as necessary during the five years after planting, to ensure the satisfactory establishment and development of the shrubs:

a. Cutting back scrub between September and February to avoid impacting nesting birds.
b. All cuttings are to be removed (to be removed from site unless agreed area appointed on site) to avoid smothering the sward underneath.
c. Inspection, adjustment and maintenance of fencing, guards, stakes and ties.
d. No fertiliser, manure or pesticides/herbicides are to be applied to existing scrub margins, as these can remove beneficial insects and plants.
e. Undesirable plant species such as thistles, docks or ragwort will be spot treated or weed-wiped whenever they occur in significant numbers as appropriate through the active growing season to avoid other species being out-competed by them. Hand pulling will be deployed as a potential method of eradication where appropriate, with arisings disposed of appropriately.

Management/Maintenance

5.4.6 Following initial establishment, the Applicant or their appointed contractors will undertake the following operations as necessary, subject to appropriate reviews:

a. Grass margins will be cut once every three years at a height between 7.5cm to 15cm, between mid July and the end of September, to allow mature tussocks to develop and insect populations to build up, and will be cut on a rotation so that there are plenty of uncut margins every year.
b. Removal of redundant fencing, guards, stakes and ties at appropriate times to ensure the optimum health of individual plants.
c. All cuttings are to be removed (to be removed from site unless agreed area appointed on site) to avoid smothering the sward underneath.
d. No fertiliser, manure or pesticides/herbicides are to be applied to existing margins, as these can encourage weeds and remove beneficial insects and plants.
e. Undesirable plant species such as thistles, docks or ragwort will be spot treated, weed-wiped or hand pulled whenever they occur to prevent numbers building up.

Scrub Management Schedule

5.4.7 The following scrub management schedule includes prescriptions for both the management of existing habitats, **Section 4**, and establishment and management of proposed habitats, **Section 5**.

Table 5.4: Scrub Management Schedule

Year post establishment / Prescription	All	0	1	2	3	4	5	6	9	12+
Active cutting of establishing scrub areas and removal of debris	X	X	X	X	X	X	X			
Practical management and removal of undesirable species (weeds, ruderals)	X	X	X	X	X	X	X			
Management cycle with 3-yearly rotational cutting of grass margins		X			X			X	X	X
Continuing assessment on an annual basis (subject to review) to ensure desired species mix and optimal structure and condition.	X	X	X	X	X	X	X	X	X	X

5.5 Ornamental plants

Location

5.5.1 Ornamental plants are to be planted for aesthetic purposes in urban realm areas throughout the Proposed Development. The ornamental plant mixture will exclude those species which are invasive and included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (Ref. 11) and The Invasive Alien Species (Enforcement and Permitting) Order 2019 (Ref. 12).

5.5.2 The responsibility for delivering and maintaining each of these areas will depend on individual land considerations (to be determined as the project progresses), but the standards set by this report will be consistently applied across the Proposed Development.

Specification

5.5.3 Ornamental shrub and groundcover planting will be concentrated within accent locations throughout the development (e.g. roundabout junctions, entrance points).

5.5.4 The site topsoils and subsoil are not of an adequate quality for use in ornamental shrub and groundcover planting areas. Appropriate modifications must therefore be incorporated into the design of all ornamental shrub and groundcover planting areas to ensure their successful establishment. The level of modification required depends on the extent of disturbance and degradation caused to the soil structures and the level of soakage following landscape construction and must be advised by an appropriately experienced practitioner.

5.5.5 An appropriate imported free-draining sand or sandy subsoil must be used as subsoil in all ornamental shrub and groundcover planting areas, spread to a depth of 650mm (+/- 50mm); and must be overlaid with a suitable free draining sandy, fertile imported topsoil, spread to a depth of 350mm (+/- 25mm). For any locations subject to significant disturbance, consideration would also be given to the provision of an appropriate gravel soakaway layer at the base of the tree pits.

5.5.6 Soils to be used in ornamental shrub and groundcover planting areas must be handled and ameliorated in accordance with the Soil Management Plan, which should be substantially in accordance with the Outline Soil Management Plan provided as **Appendix 6.6** of the ES **[TR020001/APP/5.02]**.

5.5.7 Appropriate irrigation measures must also be included for all ornamental shrub and groundcover planting areas to be delivered in public realm locations at Work Types 3 and 4 (as defined in **Chapter 4** of the ES **[TR020001/APP/5.01]**). Planting will include a combination of taller specimen shrub species (achieving in excess of one metre ultimate height), low ground cover species (averaging 600mm height) and specimen shrub planting to provide stature at key points. Ornamental plants will typically be planted in single species groups of 2-12 plants per sqm.

5.5.8 Detailed plant selection will ensure groundcover shrubs and those of a more compact nature are located nearer to the front of planting beds, with those of a more upright form located further to the rear. Planting design will also take into consideration highway visibility splay requirements, ensuring species selection is appropriate to maintain clear visibility within these areas.

5.5.9 The species planted will be chosen to include a variety of plants which provide benefits for wildlife such as offering food sources, including those which produce nectar and berries, in particular through the winter.

5.5.10 Deer protective guards/fencing will be installed to vulnerable species following planting to assist in long term establishment.

Establishment

5.5.11 The Applicant or their appointed contractors will undertake the following operations as necessary during the first two years after planting, to ensure the satisfactory establishment and development of the ornamental plants:

a. hand weeding of planting beds during the first year;
b. application of an appropriate herbicide to shrub planting areas;
c. spot treatment, using an appropriate systematic herbicide only (to prevent damage to desired plant material) of herbaceous planting;
d. annual replenishment of mulch to agreed contract levels;
e. application of a slow release fertiliser to ensure soil fertility is maintained at appropriate levels;
f. treatment against pests and diseases with spraying and dusting;
g. pruning of shrubs for floral, foliage and stem colour effect and to remove weak, dead and diseased wood;
h. training and tying of shrubs and climbers to walls/frames;
i. removal of dead growth and trim herbaceous perennial plants, avoiding damage to any new shoots that have emerged;
j. removal of any vandalised, unhealthy, dead or short-living plants and replace with plants of a similar size to those adjacent, during the next available planting season;
k. maintaining and replacing frames, ties and guards; and
l. watering of plants to ensure moisture levels are maintained appropriate for optimum growth.

Management/Maintenance

5.5.12 Following initial establishment, the Applicant or their appointed contractors will also undertake the following operations as necessary, subject to appropriate reviews:

a. heavy pruning, usually back to a stool, of overgrown shrubs and climbers;
b. ensure pruning is correct for species type and that cuts are sharp and neat;
c. ensure shrub beds are free of weeds;
d. ensure no dead material or cuttings are left in area. Leaf fall, litter, debris and dog fouling will all be removed;
e. ensure the selective removal of shrubs and other plants from planting beds;
f. removal of redundant guards, stakes and ties at appropriate times to ensure the optimum health of individual plants;
g. ensure a balanced and well-maintained display with a neatly defined edge; and

h. if mulched, ensure that this is done evenly and to the correct depth across the area.

Ornamental Planting Management Schedule

5.5.13 The following ornamental planting management schedule includes prescriptions for both the management of existing habitats, **Section 4**, and establishment and management of proposed habitats, **Section 5**.

Table 5.5: Ornamental Planting Management Schedule

Year post establishment / Prescription	All	0	1	2	3	4	5
Practical management and removal of undesirable species (hand weeding, spot treatment, herbicide application)		X	X	X	X	X	X
Active care of establishing ornamental beds (pest treatment, fertiliser application, watering, mulch application, dead growth removal)		X	X	X	X	X	X
Dynamic ongoing management of ornamental planting (heavy pruning, weed treatment, aesthetic maintenance, mulch application)	X						

5.6 Neutral grassland

Location

5.6.1 Neutral grassland is to be established throughout various locations within the Proposed Development, as shown on the relevant Landscape Mitigation Plan **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report. This grassland is divided into two types: neutral meadow grassland and neutral grassland – low intensity grazing. While the establishment of these habitats would be similar, neutral meadow grassland would be within areas accessible to public and therefore subject to a cutting management regime. The neutral grassland – low intensity grazing habitat type will be subject to a mix of cutting and low intensity grazing.

5.6.2 Neutral grassland would be created on previously existing arable fields (now fallow) to compensate for the loss of neutral grassland. The overall target habitat type is the priority habitat type lowland meadow grassland listed under Section 41 of the NERC Act 2006 for neutral grassland – low intensity grazing. The overall target habitat type for neutral grassland is the UKHAB 'other neutral grassland' habitat.

Specification

5.6.3 To create lowland meadow, species-rich neutral grassland characteristic of the NVC MG5[1] plant community will be created using the seed mix listed below, and may be supplemented with seed harvesting as described in the Seeding description of this section. A suitably experienced specialist would be engaged to deliver the creation of this habitat due to the difficultly in successfully creating this habitat.

5.6.4 The neutral grassland seed mixture will comprise the following species:

a. common knapweed (*Centaurea nigra*);
b. crested dog's-tail (*Cynosurus cristatus*);
c. lady's bedstraw (*Galium verum*);
d. oxeye daisy (*Leucanthemum vulgare*);
e. common bird's-foot-trefoil (*Lotus corniculatus*);
f. meadow buttercup (*Ranunculus acris*);
g. red clover (*Trifolium pratense*); and
h. yellow-rattle (*Rhinanthus minor*).

5.6.5 Cornfield annuals will be added to the seed mix to give instant visual appeal and to act as a nurse crop. Nurse crops are used in restoration to improve the establishment of target meadow species by providing shelter for seedlings of other species during the early stages of establishment, and by suppressing weed growth (Ref. 13). The cornfield annual species mixture will include:

a. common poppy (*Papaver rhoeas*);
b. cornflower (*Centaurea cyanus*);
c. corncockle (*Agrostemma githago*);
d. corn chamomile (*Anthemis arvensis*); and
e. corn marigold (*Glebionis segetum*).

5.6.6 Where neutral grassland is to be established in new landscape areas, topsoil is required to be spread to a depth of 200mm (+/- 25mm) over at least 100mm of landscape subsoil. Topsoil for neutral grassland may have the properties of any of the soil profiles defined within the Outline Soil Management Plan provided as **Appendix 6.6** of this ES **[TR020001/APP/5.02]**.

5.6.7 Soils to be used for neutral grassland must not be ameliorated with a pre-seeding grass fertiliser and must be handled in accordance with the Soil Management Plan, which should be substantially in accordance with the Outline Soil Management Plan provided as **Appendix 6.6** of this ES **[TR020001/APP/5.02]**.

[1] MG5 is the NVC term for the Mesotrophic Grassland community *Cynosurus cristatus–Centaurea nigra*

Establishment

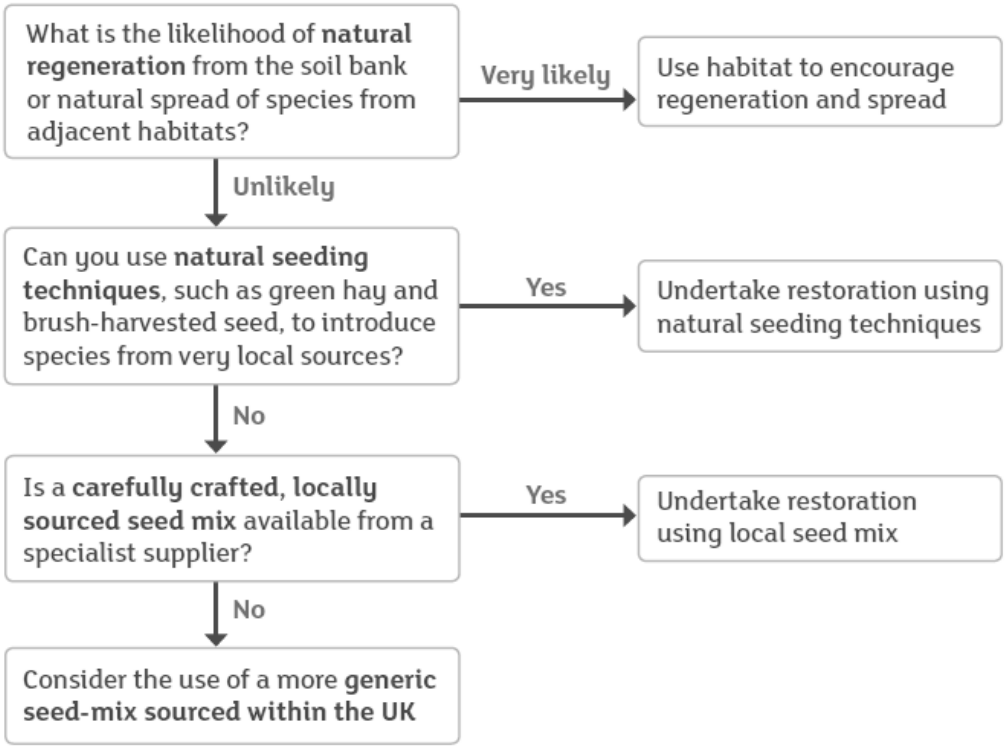
5.6.8 The land currently allocated for the creation of species-rich neutral grassland was previously utilised for intensive arable cropping but now lies fallow due to ending of tenancy contracts.

5.6.9 Supplementary watering may be required depending on weather conditions at time of establishment.

Seeding

5.6.10 The impoverishment of lowland species-pools (and seed sources) through habitat loss and fragmentation has meant that natural grassland re-establishment has usually been seed-limited (Ref. 14). Furthermore, the widespread loss of farming practices that formerly transported grassland species between sites (e.g., shepherding, folding, hay-strewing) has meant that many grassland species are now isolated within a ‘‘sea’’ of intensively farmed land Ref. 14). Given these constraints, few target species are likely to reach isolated sites unaided, therefore the sowing of seed is required to create species rich grassland. Within the “Keeping the wild in wildflower – Frequently asked questions” article (Ref. 15), Plantlife have created the chart (shown in **Inset 1**) of the steps to consider when planning the sowing of seed in the countryside for conservation purposes.

Inset 1: Steps to consider when planning the sowing of seed in the countryside for conservation purposes



5.6.11 Engagement with the local Wildlife Trusts and other suitable local conservation organisations will be undertaken to determine if there are suitable sites nearby which could be utilised as a source for seed harvesting. Consent from Natural England would need to be requested at least four months in advance (by February of the year intended to harvest seed from a SSSI if using one as a donor site). This technique will be focused on sowing one field within the Proposed Development.

5.6.12 Green hay, taken from a species-rich donor site and spread on a species-poor receptor site, is another method of restoring and recreating wildflower grasslands. Green hay is harvested wildflowers and grasses just as they are shedding seed and still ‘green’. The hay is quickly transferred to the species-poor recipient site where it is spread allowing the seed to drop.

5.6.13 Brush-harvested seed taken from a species-rich donor site and spread on a species-poor recipient site is another method of restoring and recreating wildflower grasslands. Good seed sources should be swept for seed throughout the growing season so that early and late flowering plants can be collected.

5.6.14 Where wildflower seeds are collected mechanically (brush harvesting or vacuum harvesting), this activity comes under the umbrella of ‘marketing’ seed. ‘Marketing’ includes:

a. packing, selling or labelling seed;

b. processing seed;
c. marketing seed; and
d. collection and preparation of preservation mixtures.

5.6.15 Given the extent of species-rich neutral grassland created it is acknowledged that a commercially available seed mix would be needed. Seed mixtures, as stated above which are based on recognised commercially available mixes, need to suit the soil types and will be purchased from reputable companies. Reputable seed suppliers will be used that have signed up to the Code of Practice for collectors, growers and suppliers of native flora. Using locally sourced seeds is thought to improve performance due to the genotypes being better adapted to the local soil and weather conditions (Ref. 16).

Management/Maintenance

5.6.16 The Applicant or their appointed contractors will undertake the following operations as necessary during the first five years after planting, to ensure the satisfactory establishment of the neutral grassland, subject to appropriate reviews.

5.6.17 Livestock will not be placed on neutral grassland until it has established, which is likely to take at least three years. During this time frame cutting may be required. The exact details will be determined by a suitably experienced ecologist, upon establishment of the grassland.

5.6.18 Undesirable plant species will be controlled by hand (pulling, digging or cutting) or with selective herbicides depending on the species and extent of the problem. The cover of bracken and bramble will not be allowed to increase above 5%, with further remedial action required should this occur. All non-native invasive species will be removed.

Management/Maintenance – mowing

5.6.19 It is acknowledged that not all areas of neutral grassland created will be suitable for sheep grazing. For these reasons some grassland fields will be mown instead of grazed following establishment for at least three years. This will be confirmed by a suitably experienced ecologist, upon establishment of the grassland.

5.6.20 Cutting once a year in late-July or late August (less likely to impact skylark (*Alauda arvensis*)) will be sufficient, a second cut in late-September can be undertaken if needed.

5.6.21 Whilst not appropriate for all areas within the designated as open space, the mowing regime will vary sward height within different sections where possible, aiming to encourage structural heterogeneity to the grassland for the benefit of a variety of faunal species.

5.6.22 The grassland will be monitored by a suitably qualified ecologist annually to record changes in the sward and recommend changes to management requirements implemented, including changes to the cutting regime if necessary in order to increase wildflowers, sedges and indicator species along with

structural diversity (aiming for greater than 9 species per m^2). This will ensure the sward created is in line with requirements of mitigation specified.

5.6.23 Undesirable plant species can be controlled by hand (pulling, digging or cutting) or with localised use of herbicides, if necessary, depending on the species and the level of the problem. The cover of bracken and bramble will not be allowed to increase above 5%, with further remedial action required should this occur. All non-native invasive species will be removed.

5.6.24 The amount of bare ground will be managed to remain below 5%, with reseeding undertaken if necessary, using seed sources from adjacent areas.

Management/Maintenance – low intensity grazing and /or cutting

5.6.25 Where fields are to be grazed, a conservation grazier (to be appointed by the Applicant and their contractor under a farm tenancy agreement at an appropriate future stage) will be consulted to confirm an appropriate grazing regime; this is likely to comprise a summer cut with aftermath (subsequent) grazing.

5.6.26 Low intensity cattle grazing management will be implemented once the grassland has established. This will be used in combination with a summer cut where appropriate. This regime aims to create a mosaic of grassland of varying sward height, to provide a range of habitats for different species (including ground nesting birds such as skylark).

5.6.27 Where light grazing is practicable it is usually the better choice of management because it creates more diverse conditions than cutting, benefiting a wider variety of plants and animals. Trampling by cattle also creates small gaps in the turf in which plants can establish. Cattle are more likely to maintain species-richness in a small area than sheep or horses, which are more selective in their grazing and as such more likely to remove most if not all individuals of a preferred species, however it is likely that grazing by sheep will occur in most areas.

5.6.28 A combination of a summer cut with aftermath grazing between late Summer and late Winter is likely to maximise the biodiversity value of the species-rich neutral grasslands and would be undertaken where practicable. The conservation grazier in discussion with the Applicant and their appointed ecologist, will determine the exact combination of cutting and/or grazing depending on the results of the initial establishment of the sward.

5.6.29 The grassland will be monitored by a suitably qualified ecologist (to be appointed by the Applicant and their contractor) annually to record changes in the sward and recommend changes to management requirements implemented, including changes to the grazing regime if necessary in order to increase wildflowers, sedges and indicator species along with structural diversity (aiming for greater than 9 species per m^2). This will ensure that the sward created is in line with requirements of mitigation specified. The grassland will also be monitored for poaching by livestock (damage done to grass and the underlying soil by livestock) and the extent of bare ground.

5.6.30 Undesirable plant species can be controlled by hand (pulling, digging or cutting) or with localised use of herbicides if necessary, depending on the species in need of control and the level of the problem. The cover of bracken and bramble will not be allowed to increase above 5%, with further remedial action required should this occur.

Neutral Grassland Management Schedule

5.6.31 The following neutral grassland management schedule includes prescriptions for both the management of existing habitats, **Section 4**, and establishment and management of proposed habitats, **Section 5**.

Table 5.6: Neutral Grassland Management Schedule

Year post establishment / Prescription	All	0	1	2	3	4	5+
Practical management and removal of undesirable species (hand weeding, selective herbicide application)	X	X	X	X	X	X	X
Active care of establishing grassland (watering)	X	X	X	X	X	X	X
Intensive cutting		X	X	X			
Annual cutting regime (where no grazing occurs)				X	X	X	X
Annual cutting regime (where grazing occurs)	X	X		X	X	X	X
Low intensity grazing regime late Summer to later Winter						X	X
Continuing assessment on an annual basis (subject to review) to ensure desired species mix and optimal structure and condition.	X	X	X	X	X	X	X

5.7 Calcareous grassland

Location

5.7.1 Calcareous grassland is to be established in two fields, to the south east of the Proposed Development, as shown within the relevant Landscape Mitigation Plans, **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report. Chalk exposure is covered in **Section 5.8**.

Specification

5.7.2 The calcareous grassland to be created will be characteristic of the National Vegetation Classification CG2 plant community, which qualifies as **lowland calcareous grassland** habitat of principal importance listed under Section 41 of the NERC Act, 2006. A suitably experienced specialist would be engaged to deliver the creation of this habitat due to the difficultly in successfully creating this habitat.

5.7.3 The calcareous grassland seed mixture will comprise the following species, using the seed mix listed below, and may be supplemented with seed harvesting as described in the Seeding description of this section.

a. meadow oat-grass (*Helictotrichon pratense*);
b. sweet vernal-grass (*Anthoxanthum odoratum*);
c. crested dog's-tail;
d. yarrow (*Achillea millefolium*);
e. common knapweed;
f. greater knapweed (*Centaurea scabiosa*);
g. wild marjoram (*Origanum vulgare*);
h. wild thyme (*Thymus drucei*);
i. dropwort (*Filipendula vulgaris*);
j. lady's bedstraw;
k. perforate St John's-wort (*Hypericum perforatum*);
l. rough hawkbit (*Leontodon hispidus*);
m. oxeye daisy;
n. common bird's-foot-trefoil;
o. kidney vetch (*Anthyllis vulneraria*);
p. ribwort plantain (*Plantago lanceolata*);
q. hoary plantain (*Plantago media*);
r. salad burnet (*Sanguisorba minor*);
s. agrimony (*Agrimonia eupatoria*);
t. cowslip (*Primula veris*);
u. selfheal (*Prunella vulgaris*); and
v. yellow-rattle.

Establishment

Substrate preparation

5.7.4 There are several locations where surplus topsoil may be placed within the area of Landscape Restoration, including for calcareous grassland establishment.

5.7.5 For the *Low Intensity Grazed Calcareous Grassland* the chalk (once prepared) would be ideally suitable as *subsoil* for this purpose.

5.7.6 Seeding directly onto the chalk (unameliorated) would result in a very prolonged period of establishment for the new sward. The establishment period could be reduced by providing a suitable '*topsoil'* (150-200mm) for this purpose by spreading site-won subsoil.

5.7.7 As an alternative, the upper layer of the chalk may be ameliorated (e.g. green compost) as a *topsoil substitute* for this purpose. The aim would be to improve the quality of the chalk to aid establishment of the new sward, without over fertilising the chalk.

5.7.8 Due to requirements for regarding the land, and the flat grade that is not conducive to drainage, the chalk used will be granular and not cohesive and will use 400mm of exposed unameliorated chalk plus 200mm subsoil.

Seeding

5.7.9 Consultation with the local Wildlife Trusts and other suitable local conservation organisations will be undertaken to determine if there are suitable sites nearby which could be utilised for seed harvesting. Consent from Natural England would need to be requested at least four months in advance for seed harvesting (by February of the year intended to harvest seed) from a SSSI if using one as a donor site.

5.7.10 Green hay, taken from a local, where possible, species-rich donor site and spread on a species-poor receptor site, is another method of restoring and recreating wildflower grasslands. Green hay is harvested wildflowers and grasses just as they are shedding seed and still 'green'. The hay is quickly transferred to the species-poor recipient site where it is spread allowing the seed to drop.

5.7.11 Brush-harvested seed taken from a species-rich donor site and spread on a species-poor recipient site is another method of restoring and recreating wildflower. Good seed sources need to be found and swept for seed throughout the growing season so that early and late flowering plants can be collected.

5.7.12 Where wildflower seeds are collected mechanically (brush harvesting or vacuum harvesting), this activity comes under the umbrella of 'marketing' seed. 'Marketing' includes:

a. packing, selling or labelling seed;
b. processing seed;
c. marketing seed; and,
d. collection and preparation of preservation mixtures.

5.7.13 Given the extent of species-rich calcareous grassland to be created it is acknowledged that a commercially available seed mix will be needed as a base, and may be possible to supplement with the use of local provenance green hay. Seed mixtures, as stated above, which are based on recognised commercially available mixes and will be purchased from reputable companies. Reputable

seed suppliers will be used that have signed up to the Code of Practice for collectors, growers and suppliers of native flora. Using locally sourced seeds is thought to improve performance due to the genotypes being better adapted to the local soil and weather conditions (Ref. 16).

5.7.14 The Applicant or their appointed contractors will undertake the following operations as necessary during the first five years after planting, to ensure the satisfactory establishment of calcareous grassland.

5.7.15 Livestock will not be placed on this grassland until it has established, this is likely to take at least three years. Cutting may be required during this time frame. The exact details will be determined by a suitably experienced ecologist, upon establishment of the grassland.

5.7.16 Supplementary watering may be required depending on weather conditions at time of establishment. The exact details will be determined by a suitably experienced ecologist. Undesirable species will be controlled by hand (pulling, digging or cutting) or with localised use of herbicides, if necessary, depending on the species and the level of the problem.

Management/Maintenance

5.7.17 A conservation grazier will be consulted to confirm an appropriate grazing regime; however, this is likely to comprise low-intensity cattle grazing on rotation across the site. Grazing management will be implemented on the site once the grassland has established. This regime will aim to create a mosaic of grassland of varying sward height, to provide a range of habitats for different species.

5.7.18 Where light grazing is practicable it is usually the better choice of management because it creates more diverse conditions than cutting, benefiting a wider variety of plants and animals. Trampling by cattle also creates small gaps in the turf in which plants can establish.

5.7.19 Cattle are more likely to maintain species-richness in a small area than sheep or horses, which are more selective in their grazing and as such more likely to remove most if not all individuals of a preferred species, however it is likely that grazing by sheep will occur in most areas

5.7.20 Grazing between late summer and late winter is likely to maximise the biodiversity value of the calcareous grasslands, and will be undertaken where practicable.

5.7.21 The grassland will be monitored by a suitably qualified ecologist annually to record changes in the sward and recommend changes to management requirements implemented, including changes to the grazing regime if necessary. This will ensure that the sward created is in line with requirements of mitigation specified. The grassland will also be monitored for poaching.

5.7.22 Undesirable species can be controlled by hand (pulling, digging or cutting) or with localised use of herbicides, if necessary, depending on the species in need of control and the level of the problem. Invasive species, are to be controlled to ensure they not dominate the space.

Calcareous Grassland Management Schedule

Table 5.7: Calcareous Grassland Management Schedule

Year post establishment / Prescription	All	0	1	2	3	4	5+
Practical management and removal of undesirable species (hand weeding, selective herbicide application	X	X	X	X	X	X	X
Active care of establishing grassland (watering)	X	X	X	X	X	X	X
Annual cutting regime			X	X	X		
Bi-annual light grazing regime						X	X
Cutting as needed to complement grazing						X	X
Continuing assessment on an annual basis (subject to review) to ensure desired species mix and optimal structure and condition.	X	X	X	X	X	X	X

5.8 Amenity grassland

Location

5.8.1 Amenity grassland is proposed within the airfield, in the enhancements to the existing Wigmore Valley Park (Work No. 5b(01)), at the margins of paths within the provision of open space (Work No. 5b(02)), in public realm locations at Work Types 3 and 4 (as defined in **Chapter 4** of the ES **[TR020001/APP/5.01]**), on engineered slopes and adjoining proposed highway infrastructure both within the Main Application Site and forming part of the Off-Site Highway Improvements.

Specification

5.8.2 Amenity grassland areas will be seeded or turfed at a rate of 35g/m² using grass seed mixtures selected to be appropriate for their intended use.

5.8.3 Where amenity grassland is to be established in new landscape areas, on engineered slopes, site topsoil is required to be spread to a depth of 300mm over the prepared subgrade. Topsoil for these areas should typically have the properties of Soil Profile 1 (Agricultural Soils) or Soil Profile 3 (Parkland Soil), as defined within the Outline Soil Management Plan provided as **Appendix 6.6** of

the ES **[TR020001/APP/5.02]**. Should topsoil with the properties of Soil Profile 2 (Agricultural Soils [Calcareous]) or Soil Profile 4 (Woodland Soils) be necessary to make up any shortfall of Soil Profiles 1 and 3, these areas of topsoil must be placed separately and grassland species selection must be adjusted to reflect the guidance set out at **Section 5.3** of the Soil Resource Survey provided as **Appendix 6.5** of the ES **[TR020001/APP/5.02]**.

5.8.4 Where amenity grassland is to be established in new landscape areas within the airfield or adjoining proposed highway infrastructure, site or imported subsoil should be spread to a depth of 300mm and overlaid with either site topsoil with the properties of Soil Profile 1 (Agricultural Soils) or Soil Profile 3 (Parkland Soil), as defined within the Outline Soil Management Plan provided as **Appendix 6.6** of the ES **[TR020001/APP/5.02]**, or appropriate imported topsoil, spread to a depth of 100mm. Artificial drainage must be accommodated within amenity grassland areas wherever subsoil won from within the Main Application Site is to be used and should be considered also for areas established using imported subsoil.

5.8.5 The site subsoil and topsoils are not of an adequate quality for use to establish amenity grassland areas within public realm locations at Work Types 3 and 4. An appropriate imported free-draining sand or sandy subsoil must be used as subsoil for amenity grassland areas in these locations, spread to a depth of 350mm; and must be overlaid with a suitable free draining sandy, fertile imported topsoil, spread to a depth of 100mm. For any locations subject to substantial disturbance, consideration should be given to the provision of artificial drainage beneath these amenity grassland areas. Appropriate irrigation measures must also be included for all amenity grassland areas to be delivered in public realm locations at Work Types 3 and 4 (as defined in **Chapter 4** of the ES **[TR020001/APP/5.01]**).

5.8.6 Where amenity grassland is to be established within existing landscape areas, soils must be ameliorated with a pre-seeding grass fertiliser in accordance with the Soil Management Plan, which should be substantially in accordance with the Outline Soil Management Plan provided as **Appendix 6.6** of the ES **[TR020001/APP/5.02]**.

5.8.7 All soils to be used to establish amenity grassland would be handled in accordance with the Soil Management Plan, which would be substantially in accordance with the Outline Soil Management Plan provided as **Appendix 6.6** of the ES **[TR020001/APP/5.02]**.

Establishment

5.8.8 The Applicant or their appointed contractors will undertake a ‘first cut’ once the grass has achieved an initial growth of 75mm. The sward will be mown to a height of 40mm and the mower shall have no roller and be sufficiently sharp to avoid root pulling.

Management/Maintenance

5.8.9 Following initial establishment the Applicant or their appointed contractors will undertake the following operations at rates to be determined with the relevant authorities throughout the defined management period:

a. mowing the established grass sward using mowing equipment and at a frequency suitable for its intended use, to be agreed with the relevant authority;

b. edging off all paths and kerb edges prior to the mowing season;

c. frequent trimming (or herbicide control) of areas where grass abuts structures such as fences or walls, and around trees and obstacles;

d. watering of areas, using a fine rose spray, to ensure moisture levels are maintained appropriate to develop healthy sward growth;

e. reinstatement of damaged or worn areas (to maintain a healthy, vigorous sward, free from disease, fungal growth, discolouration, scorch or wilt); and

f. application of a selective herbicide, suitable for suppressing perennial weeds.

5.9 Chalk exposures

Location

5.9.1 Chalk exposures are to be promoted in shallow lying areas to the base of the engineered slope at Dairyborn Scarp DWS.

Specification

5.9.2 Exposed chalk slopes will be created as a result of engineering works. No soil will be placed on these slopes and the chalk will be left exposed. This area will not be seeded, instead being left to self-seed through natural colonisation by calcicolous species from the surrounding area.

Establishment

5.9.3 Given the base rock, steepness of the slope and the poor nutrient level it is anticipated that an interesting calcareous plant community will establish on these slopes. The need for future maintenance will be reviewed annually by a suitably qualified ecologist and a landscape consultant, for example if the slopes become colonised with scrub, in particular buddleia, and appropriate control measures need to be implemented should it be safe to do so given the steep slope.

Chalk Exposure Management Schedule

Table 5.8: Chalk Exposure Management Schedule

Year post establishment / Prescription	All	1	2	3	4	5+
Practical management and removal of undesirable species (Scrub removal) where possible	X	X	X	X	X	X
Continuing assessment on an annual basis (subject to review) to ensure desired condition.	X	X	X	X	X	X

5.10 Wildlife ponds

Location

5.10.1 A cluster of small wildlife ponds will be excavated, as shown in the relevant Landscape Mitigation Plans, **Figures 14.11 to 14.13** of the ES **[TR020001/APP/5.03]** and **Figure 1**, **Appendix A** to this report. These ponds will be designed to be small and not attractive to large waterfowl likely to present bird strike hazard, as per the Bird Strike Risk Assessment (**Appendix 8.4** of the ES **[TR020001/APP/5.02]**).

Specification

5.10.2 A cluster of small ponds will be created in a fenced off area surrounded by neutral grassland and woodland habitat (**Figure 1**, **Appendix A** of this report).

5.10.3 The design of the ponds is indicated within the Amphibian and Reptile Mitigation Strategy, **Appendix 8.6** of the ES **[TR020001/APP/5.02]**, however the detailed design will need to take into account the topography of the exact location and the soil type. A specialist contractor would need to be appointed for the construction of the ponds. The ponds would be approximately 250m^2 in surface area (total), with at least one point being 3m in depth if practicable. A range of depths and areas of shallow water, plus an undulating perimeter will give good marginal habitat.

5.10.4 Detailed design of the ponds will determine if artificial lining will be required, as although the subsoil mainly comprises clay it may not be adequate for pond lining.

5.10.5 The excavated material from the ponds could be used to create small bunds with exposed earth and grassland and herb rich cover, that would be beneficial for use by invertebrates, and reptiles where they include south facing banks.

5.10.6 The ponds will be left to fill up with rainwater or filled from a rainwater source if water levels fall too low, or remains too low, when amphibian translocation is required to this feature.

5.10.7 Planting will be used to ensure that cover is established relatively quickly within and around the new ponds. This will also help to attract invertebrates. The plants chosen to populate the ponds will be native marginal, floating and submerged vegetation (of local provenance), with some areas of open water.

Establishment

5.10.8 During the first year of establishment the ponds will be monitored by a suitably qualified ecologist, on a bi-monthly basis to check water levels and determine if additional measures need to be implemented (to ensure that the ponds retains water) and monitor the establishment of aquatic planting, recommending remedial action as needed including replanting of any failed plants and/or additional water inputs.

Management/Maintenance

5.10.9 Water levels will be checked annually to ensure the ponds retains water; remedial action will be taken as needed, as directed by the appointed ecologist. Aquatic planting will also be monitored during these checks, and replanting will occur as necessary. Emergent, submerged or floating aquatic vegetation (excluding duckweed) should cover at least 50% of the pond area. Visual checks will also be undertaken to determine whether the water quality appears suitable and that the pond is not being choked by filamentous algae or duckweed.

Wildlife Ponds Management Schedule

Table 5.9: Wildlife Ponds Management Schedule

Year post establishment / Prescription	All	0	1	2	3	4	5+
Bi-monthly check of water retention and water quality (visual) with remedial action as necessary		X	X				
Bi-monthly monitoring of aquatic flora establishment with remedial action as necessary		X	X				
Annual check of water retention and water quality (visual) with remedial action as necessary				X	X	X	X

Year post establishment / Prescription	All	0	1	2	3	4	5+
Annual monitoring of aquatic flora establishment with remedial action as necessary				X	X	X	X

5.11 Plant translocation

Location

5.11.1 Grassland turves as described below are due to be translocated to the existing set aside land and chalky soils within the provision of open space and Habitat Creation Area, described in the Orchid and Invertebrate Mitigation Strategy in **Appendix 8.10** of the ES **[TR020001/APP/5.02]** and **Figure 3**, **Appendix A** of this report.

Specification

5.11.2 Updated soil surveys will be undertaken at the receptor sites (described in the Orchid and Invertebrate Mitigation Strategy in **Appendix 8.10** of the ES **[TR020001/APP/5.02]** and **Figure 3**, **Appendix A** of this report), to determine whether the soil profiles attributed remain accurate. This would indicate whether additional preparation compared to that below is required before translocation of grassland turves can begin.

5.11.3 Grassland turves containing bee orchid (*Ophrys apifera*), common spotted orchid (*Dactylorhiza fuchsii*), common twayblade orchid (*Neottia ovata*), and pyramidal orchid (*Anacamptis pyramidalis*) (if present), plus common bird's-foot-trefoil plants (larval foodplant for the dingy skipper) will be translocated from impacted areas to suitably prepared receptor sites. This is described in the Orchid and Invertebrate Mitigation Strategy in **Appendix 8.10** of the ES **[TR020001/APP/5.02]**.

Establishment

5.11.4 The translocation will take place during September and will involve the cutting of turves around the target species to a depth of at least 300mm (exact depths possible for each area will require investigation due to the underlying landfill). The areas where orchids are present will be identified earlier in the year by marking out where the rosettes of orchids are located, using small sticks or other means of identification. The turves from these locations will be cut during periods avoiding extremes of soil dampness or desiccation (to avoid disintegration when they are lifted) and translocated to suitably prepared receptor sites.

5.11.5 The area of translocation will be defined and protected by fencing (permanent for Receptor Site 2 (**Figure 3**, **Appendix A** to this report) within the Habitat

Creation Area (Work No. 5d(01)) and temporary within Receptor 1 (**Figure 3**, **Appendix A** to this report) within the provision of open space (Work No. 5b(02)) and/or information boards to prevent trampling. In addition the pathways will be designed to direct away from these areas.

5.11.6 During September/October, a year after translocation, the turves will be mown to a height of 100mm, with a second cut in March if necessary. The arisings from the vegetation cut are to be removed to prevent nutrient build up. This maintenance is to occur on an annual basis for five years.

5.11.7 Monitoring by the appointed ecologist will be carried out annually between mid-June and early-July for a period of five years. At the end of the five year monitoring program a review of the management and monitoring strategy will be undertaken, and the strategies updated appropriately to ensure the long-term viability of translocated populations.

Translocated Turf Management Schedule

Table 5.10: Translocated Turf Management Schedule

Year post establishment / Prescription	All	0	1	2	3	4	5
Annual monitoring of turf establishment	X	X	X	X	X	X	X
Annual cutting of turf to 100mm			X	X	X	X	X
Weed Control			X	X	X	X	X
Review of management and monitoring strategy							X

5.12 Bat and Bird boxes

Location

5.12.1 Bat and bird boxes will be placed on retained mature trees away from public footpaths and other areas that have high public pressures. Once standing trees have established bat and bird boxes may be placed on these features.

Specification

5.12.2 A variety of bat and bird boxes will be used to provide nesting and roosting habitat for a variety of common bat and bird species. Details of the indicative specifications and locations are provided in the Bat Mitigation Strategy (**Appendix 8.8**) and Bird Mitigation Strategy in **Appendix 8.9** of the ES **[TR020001/APP/5.02]**. As such, summary details are provided here.

5.12.3 At least ten durable woodcrete or woodstone style bat boxes and ten wooden bat boxes will be installed throughout the appropriate areas, see **Figure 3**, **Appendix A** to this report for indicative locations. In addition, five larger boxes including maternity and hibernacula will be installed within areas such as Winch Hill Wood.

5.12.4 At least ten durable woodcrete or woodstone style bird boxes and ten wooden bird boxes will be installed throughout the appropriate areas, see **Figure 3**, **Appendix A** to this report for indicative locations. In addition, two barn owl boxes (as a pair placed at approximately 50m apart) will be installed within areas to the far east boundary area of the Habitat Creation Area (within the Order Limits), see **Figure 3**, **Appendix A** of this report.

5.12.5 Boxes will not be erected within the provision of open space as this area will be subject to increased disturbance with the potential for increased vandalism.

5.12.6 Consideration will be made to attaching felled sections of trees with existing suitable features, to retained mature trees in areas away from public access.

Management/Maintenance

5.12.7 Boxes will be checked annually for the first five years by the appointed ecologist, to ensure that they remain in place and in good condition, with the frequency subject to review at this point. Any maintenance and/or cleaning required will be conducted by a suitable bat licence holder. Where boxes are lost or damaged, replacements will be installed as necessary with the exception of wooden boxes after 10 years. Following this it is anticipated that existing trees would have begun to develop suitable features naturally and therefore lost wooden boxes would not require replacements.

Bat and Bird Box Management Schedule

Table 5.11: Bat and Bird Box Management Schedule

Year post establishment / Prescription	All	0	1	2	3	4	5+
Ensure bird/bat box is still structurally sound and firmly attached to the tree. Replace any lost or damaged boxes except for wooden ones after 10 years.	X	X	X	X	X	X	X
Maintenance/cleaning if required done by a suitable bat licence holder	X	X	X	X	X	X	X

Year post establishment / Prescription	All	0	1	2	3	4	5+
Check for use by a suitable bat licence holder	X	X	X	X	X	X	X

5.13 Artificial badger sett

Location

5.13.1 At the time of writing, no active main sett is anticipated to be lost during the construction the Proposed Development. The main sett previously anticipated to be lost was found to be disused during the 2022 badger survey, see **Appendix 8.1** Ecology Baseline Report of the ES **[TR020001/APP/5.02]**. As badger activity levels can fluctuate and setts are created, abandoned or become recolonised over time, this level of activity could change and the main sett may become active prior to being lost, or new setts could be created within the footprint of the Proposed Development. Therefore, an indicative location and design for a new artificial badger sett remains included in the confidential Badger Mitigation Strategy in **Appendix 8.7** of the ES **[TR020001/APP/5.02]** should one be required, if identified by subsequent surveys.

5.13.2 The locations of existing setts and the proposed new sett if required, is not included within this LBMP so that it does not require to be classified as a confidential document.

Specification

5.13.3 The indicative specification of the artificial badger sett is outlined within the confidential Badger Mitigation Strategy in **Appendix 8.7** of the ES **[TR020001/APP/5.02]** and **Figure 3**, **Appendix A** to this report. The exact design will depend on the number of sett entrances of any main sett that is lost, and would fit within the topography of the proposed replacement sett location for that size of sett.

Management/Maintenance

5.13.4 Any created sett will be checked annually for the first five years by the appointed ecologist to ensure that the entrances remain open and accessible, with the frequency subject to review at this point. The use of the sett will be monitored as per the licence requirements.

Artificial Badger Sett Management Schedule

Table 5.12: Artificial Badger Sett Management Schedule

Year post establishment / Prescription	All	0	1	2	3	4	5+
Ensure that the sett entrances remain open and accessible (i.e. not blocked). Note the current status of use by badger.	X	X	X	X	X	X	X

5.14 Public Access

Public Rights of Way (PRoW)

5.14.1 The Applicant or their appointed contractors will reinstate and clearly mark a ploughed-up footpath or bridleway within 14 days of being affected and any subsequent operations will be reinstated within 24 hours and will seek permission from the relevant highway authority to erect any type of structure on or across a PRoW.

5.14.2 The Applicant or their appointed contractors will ensure that the minimum width (2m for footpaths/4m for bridleways) of all rights of way in their ownership are kept clear of obstructions and with nothing overhanging the path.

5.14.3 The Applicant or their appointed contractors will ensure that the surface of the path is kept level and firm, where necessary making good defective areas, in accordance with the HCC Rights of Way Good Practice Guide (Ref. 17).

5.14.4 The Applicant or their appointed contractors will ensure the condition of gates are maintained in accordance with Defra guidance (Ref. 18).

5.14.5 The Applicant or their appointed contractors will maintain vegetation around directional sign posting and way marking sufficiently to clearly show the line of the path on the ground and in accordance with all relevant highway authority guidance.

5.14.6 The Applicant or their appointed contractors will maintain the functionality of the PRoW network when undertaking management activities.

Public open space

5.14.7 The Applicant and their appointed contractors will manage and maintain areas of open space to the standard of at least 'Good' and target 'Excellent' where feasible as set out within the *'Green space Quality Manual'* v2018-04 (Produced by Parks for London/London Parks Benchmarking Group), to which the Applicant subscribes.

6 STREET FURNITURE

6.1 General maintenance

6.1.1 The responsibility for delivering and maintaining each area will depend on individual land considerations (to be determined as the project progresses), but the standards set by this report will be consistently applied across the Proposed Development.

6.1.2 The Applicant or their appointed contractors will undertake the following operations to all street furniture items (such as benches and bins) throughout the proposed management period:

a. surface cleaning (in accordance with guidance below);
b. inspect and repair any superficial or physical damage to street furniture items;
c. inspect and tighten (as necessary) all fixtures and fixings;
d. remove graffiti, bird droppings or algae if present;
e. check that the surrounding surface is sound;
f. ensure paintwork/finish is weather protected with no marks where applicable; and
g. manage litter, debris or dog fouling around street furniture.

6.2 Cleaning requirements

6.2.1 The Applicant or their appointed contractors will undertake the following cleaning regimes according to the surface type, as listed below:

a. timber surfaces - to be cleaned annually with a stiff brush to prevent a verdigris type build up, removing sand, splinters and graffiti with 100 grit sandpaper to ensure an even and smooth surface finish;
b. galvanised surfaces - to be cleaned annually using a damp cloth and warm soapy water only (scourers and abrasive cleaners are not suitable for these types of finish and may damage them);
c. polypropylene carbonate (ppc) surfaces - to be cleaned quarterly using a damp cloth and warm soapy water only (scourers and abrasive cleaners are not suitable for these types of finish and may damage them);
d. stainless steel - to be cleaned annually using a stainless-steel polish and a lint free cloth (to remove ground in dirt a stainless-steel finishing pad may be required); and
e. concrete - to be cleaned annually using an abrasive sponge and warm soapy water only (to remove ground in dirt a stainless-steel finishing pad may be required).

7 MONITORING PROCEDURES

7.1 Biodiversity

7.1.1 Annual biodiversity monitoring will include a programme of fauna species monitoring (**Paragraphs 7.1.3 - 7.1.4** below) and habitat monitoring (**Paragraphs 7.1.5 – 7.1.6** below).

7.1.2 An annual monitoring report will be compiled to summarise the results of all biodiversity monitoring visits across the site, to be submitted to the Applicant in December each year as part of the appointed contractors Environmental Management Systems (EMS) and contract requirements. This annual monitoring report will record any corrective actions taken and monitor the condition of habitats against that prescribed within **Chapter 8** of the ES **[TR020001/APP/5.01]** and calculations in the Biodiversity Net Gain (BNG) Report provided as **Appendix 8.5** of the ES **[TR020001/APP/5.02]** to ensure that the requirements of the assessment are met in the long term. A five year summary report, including a review of proposed subsequent review periods will also be completed. This summary report will include an update of the BNG calculations and BNG report in advance of assessment Phase 2a.

7.1.3 A more detailed programme of fauna species monitoring will be prescribed within the later finalised LBMP prior to construction. However, this is likely to include monitoring of the following species/species groups as required:

a. badger;
b. bats;
c. birds (including Schedule 1 species);
d. reptiles and amphibians;
e. orchids;
f. dingy skipper; and
g. Roman snail and terrestrial invertebrates.

7.1.4 **Table 7.1** and the respective Mitigation Strategies in **Appendix 8.6 to 8.10** of the ES **[TR020001/APP/5.02],** provide an overview of the proposed annual schedule of species monitoring on site, which could be influenced by details agreed within appropriate Natural England licences where applicable.

Table 7.1: Outline schedule and responsible parties for species monitoring on site

Activity	Description	Timing	Responsible Party
Badger			
Updated badger field sign surveys	Full survey of suitable habitats within the Main Application Site to provide up to date baseline data.	Year prior to each of the assessment Phases 1, 2a and 2b (years 2024, 2032 and 2036 respectively). Recommended for February/March to provide	Applicant Appointed Ecologist

Activity	Description	Timing	Responsible Party
		time for further surveys and subsequent licence applications and sett creation if needed.	
Updated badger territory mapping surveys as required	Updated bait marking exercise covering the same areas as previously used to establish up to date baseline conditions.	Spring (March/April) prior to each of the assessment Phases 1 and 2a, years 2024 and 2032.	Applicant Appointed Ecologist
Monitoring of created sett (if new sett needed) - **Figure 3**, **Appendix A** to this report	Ensure that the sett entrances remain open and accessible to badger. Confirm the current status of use by badger.	Checked annually for the first five years following sett creation (assume sett created 6 months prior to removal of Main sett under licence), with the frequency subject to review at this point.	Applicant Appointed Ecologist/ Badger licence holder
Monitoring of setts to be closed.	Monitoring of gates by the licence holder/accredited agent to check for signs of re-entry prior to destruction.	For a period of at least 21 days as part of the closure of each sett, as required in each assessment Phase.	Badger licence holder/ Accredited agents
Updated badger field sign surveys	Survey of suitable habitats within the Main Application Site (not yet constructed for each assessment Phase) to provide data on use of the site following construction.	Spring (March/April) of each year for two years following construction of each assessment Phase (starting years 2028, 2037 and 2042), where this does not already occur for updated baseline of the next assessment Phase.	Applicant Appointed Ecologist
Bats			
Bat roost assessments	Ground level roost assessments and subsequent tree climbing surveys.	Winter prior to scheduled removal of trees for each assessment Phase (assuming winters of 2023/24, 2031/32 and 2035/36), allowing time for the subsequent emergence and re-entry surveys throughout the active season.	Applicant Appointed Ecologist
Emergence and re-entry bat surveys	Emergence surveys of trees identified as lost or disturbed with categories of medium or high suitability, and	Active survey season (April to September) prior to removal of trees and buildings of each assessment Phase (years 2024, 2032, 2036), to allow	Applicant Appointed Ecologist

Activity	Description	Timing	Responsible Party
	buildings of low, medium or high suitability.	amendment of Natural England licence.	
Monitoring of installed bat boxes and limbs with features attached to other trees (if done) - **Figure 3**, **Appendix A** to this report	Ensure that the box entrances remain open and accessible to bats and free from dropping build up. Check current status of use by bats.	Checked annually for the first five years following installation (commencing 2026 assuming installed in early 2025), with the frequency subject to review at this point.	Applicant Appointed Ecologist/ Bat licence holder
Updated bat activity surveys	Transect surveys of suitable habitats, and use of static detectors within the Main Application Site (areas not yet constructed for each assessment Phase) to provide data on use of the site following construction.	Active survey season (April to September) of each year for two years following construction of each assessment Phase (commencing 2028, 2037 and 2042), where this does not already occur for updated baseline of the next assessment Phase.	Applicant Appointed Ecologist
Birds (including Schedule 1 species)			
Updated barn owl and red kite surveys	Repeat of surveys the year prior to establish current use. To cover all potential nest sites (buildings and trees) within and up to 1.5km of the Main Application Site (where possible).	Breeding bird season (March to June) the year prior to the construction of assessment Phase 1 and 2a (years 2024 and 2032).	Applicant Appointed Ecologist
Nesting bird check of all vegetation to be cleared if not undertaken outside of the nesting bird season.	To ensure that no active bird nest is adversely affected, or disturbed in the case of Schedule 1 species such as barn owl.	When vegetation cannot be cleared outside of the nesting bird season, therefore anything cleared between March and September inclusive, plus other recommendations and requirements identified by the appointed ecologist.	Applicant Appointed Ecologist/ Barn owl licence holder (if barn owl nest found)
Monitoring of installed bird	Ensure that the box entrances remain open	Checked annually for the first five years following installation	Applicant Appointed

Activity	Description	Timing	Responsible Party
boxes - **Figure 3**, **Appendix A** to this report	and accessible to birds and free from dropping build up. Check for current status of use by birds.	(commencing 2026 assuming installed in early 2025), with the frequency subject to review at this point.	Ecologist/ Barn owl licence holder (if barn owl nest found)
Monitoring wintering bird surveys	Transect wintering bird surveys for one year post construction of each assessment Phase to establish continued use.	Wintering bird season (October to March) for one year post construction of each assessment Phase (years 2028, 2037 and 2042).	Applicant Appointed Ecologist
Monitoring breeding bird surveys, including schedule 1 species	Transect breeding bird surveys for one year post construction of each assessment Phase to establish continued use.	Breeding bird season (March to June) for one year post construction of each assessment Phase (years 2028, 2037 and 2042 where this does not already occur for updated baseline of the next assessment Phase for Schedule 1 species surveys).	Applicant Appointed Ecologist
Reptiles and amphibians			
Amphibian surveys of ponds to be lost - **Figure 2**, **Appendix A** to this report	Four surveys, to mirror previous surveys to allow for comparison. Using torch surveys, egg searches and refugia searches.	Within the core period of mid-April to mid-June for the year prior to construction of each assessment Phase (years 2024, 2032 and 2036). Will inform if a licence for great crested newts becomes a requirement (considered highly unlikely), and will inform need and scope of translocations of other amphibian species during loss of ponds.	Applicant Appointed Ecologist
Reptile surveys within key suitable habitats to be lost and proposed receptor sites - **Figure 3**,	Survey using artificial refugia placed and checked on at least seven occasions of appropriate weather.	Key active period between May and October for each year prior to the construction of each assessment Phase (years 2024, 2032 and 2036).	Applicant Appointed Ecologist

Activity	Description	Timing	Responsible Party
Appendix A to this report			
Translocation of amphibian and other species (grass snake if found) from within ponds prior to loss of ponds	Trapping out and hand searching of ponds prior to and during draw down of the water.	Undertaking during spring (April to June) 2025 will capture higher numbers than at other times of year as they would be present in the pond.	Applicant Appointed Ecologist
Translocation of reptiles as found during staged vegetation clearance and hand searching	Watching brief and handsearching before, during and after vegetation removal done in staged clearance to encourage reptiles away from the area of works. Those which do not move themselves, or found during searching refugia such as log piles will be moved to the Habitat Creation Area.	Within the active season (March to October) 2025 for reptiles to encourage them to move outside of the area during vegetation clearance. Hibernation period (November to February – temperature dependent) to be avoided as they would not be active enough to move away.	Applicant Appointed Ecologist
Amphibian monitoring of remaining and new ponds **Figure 3**, **Appendix A** to this report.	Four surveys, to mirror previous surveys to allow for comparison. Using torch surveys, egg searches and refugia searches.	Within the core period of mid-April to mid-June for year two and five post construction of the ponds (years 2029 and 2032).	Applicant Appointed Ecologist
Pond assessments	Assessment of condition and flora of remaining ponds and new ponds **Figures 2** and **3**, **Appendix A** of this report.	Within the appropriate season of April to September annually for five years post construction (years 2026 to 2030).	Applicant Appointed Ecologist
Monitoring of suitable reptile and terrestrial	Systematic walkover of the retained habitat, provision of open space and Habitat	Within the core period of mid-April to mid-May for year two and five post construction of each assessment Phase (years	Applicant Appointed Ecologist

Activity	Description	Timing	Responsible Party
amphibian habitats	Creation Area, to assess habitats for their suitability to support reptiles and inform targeted areas for further surveys.	2029 and 2032, 2038 and 2041, and 2045 and 2048).	
Reptile surveys in appropriate habitats including receptor sites if used for translocation	Survey using artificial refugia placed and checked on at least seven occasions of appropriate weather.	Key active period between May and October for year two and five post construction of each assessment Phase (years 2029 and 2032, 2038 and 2041, and 2045 and 2048).	Applicant Appointed Ecologist
Orchids and Invertebrates (dingy skipper and Roman snail)			
Dingy Skipper butterfly survey	Walkover transect surveys to update baseline.	Mid-June for years prior to the construction of assessment Phase 1 and 2a (years 2024 and 2032).	Applicant Appointed Ecologist
Orchid and bird's foot trefoil	Botanical survey to update baseline and locations of these plants prior to translocation.	Between mid-June and early-July the year prior to assessment Phase 1 (2024).	Applicant Appointed Ecologist
Soil surveys	Soil surveys at the orchid receptor sites (**Figure 3**, **Appendix A** of this report) to confirm suitability of receptor sites and inform additional requirements.	2022/23 prior to translocation of the orchids.	Appointed Soil Specialist and Ecologist
Roman snails	Daytime hand search and nocturnal torchlight surveys in suitable weather conditions [redacted].	June the year prior to assessment Phase 2a (2032).	Applicant Appointed Ecologist
Monitoring for the Dingy Skipper butterfly	Walkover transect surveys.	Mid-June for a period five years following construction of assessment Phase 1 (years 2028 to 2032).	Applicant Appointed Ecologist

Activity	Description	Timing	Responsible Party
Monitoring of orchids and bird's foot trefoil	Botanical survey of receptor sites (**Figure 3**, **Appendix A** of this report).	Between mid-June and early-July for a period of five years following construction of assessment Phase 1 (years 2028 to 2032).	Applicant Appointed Ecologist
Monitoring of general terrestrial invertebrates including visual check for Roman snails	Daytime surveys in suitable weather conditions.	June for year two and five post construction of assessment Phase 2a (years 2038 and 2041).	Applicant Appointed Ecologist
Monitoring of translocated (if required) Roman snail population [redacted]	Daytime hand search and nocturnal torchlight surveys in suitable weather conditions.	June for year two and five post construction of assessment Phase 2a (years 2038 and 2041).	Applicant Appointed Ecologist

7.1.5 Detailed mitigation and enhancement measures are provided in the respective Mitigation Strategies in **Appendix 8.6 to 8.10** of the ES **[TR020001/APP/5.02],** for each of the above groups/species, including long-term management and monitoring procedures.

7.1.6 **Table 7.2** provides an overview of the proposed annual schedule of habitat monitoring on site. Habitat monitoring will be undertaken using the Defra Metric 3.1 habitat condition sheets (Ref. 19), focusing on the desired criteria detailed within the Biodiversity Net Gain Report **Appendix 8.5** of the ES **[TR020001/APP/5.02].**

Table 7.2: Outline schedule and responsible parties for habitat monitoring on site

Feature	Activity	Timing	Responsible Party
Neutral grassland and lowland calcareous grasslands	Botanical survey to record species and cover-abundance of grassland habitats. Additional orchid counts will be undertaken at the receptor sites.	Spring and Summer for five years following each assessment Phase as created (subject to review)	Applicant Appointed Ecologist

Feature	Activity	Timing	Responsible Party
All hedgerows, scrub and trees	Botanical survey to record species and abundance of habitats, including ground flora.	Spring and Summer for five years following assessment Phase 1 (creation of habitats and commencement of enhancement) (subject to review)	Applicant Appointed Ecologist
All woodland	Woodland survey to record species and composition of habitats, including ground flora.	Spring and Summer every five years for 20 years following assessment Phase 1 (creation of woodland and commencement of enhancement) (subject to review)	Applicant Appointed Ecologist
Ponds	Monitoring of aquatic flora establishment and water levels.	Spring for years two to five years following assessment Phase 1 (creation of ponds) (subject to review)	Applicant Appointed Ecologist
All habitats	Photographic monitoring to be carried out using fixed-point photography to keep record of developing habitats and results of habitat management works. Fixed points to be set out in Y0 within the LBMP.	Spring and Summer for five years following each assessment Phase (subject to review)	Applicant Appointed Ecologist and Landscape Contractor
All habitats	Monitoring and implementation of corrective/replacement measures where necessary.	September to December for five years following each assessment Phase (subject to review)	Applicant Appointed Ecologist and Landscape Contractor

Feature	Activity	Timing	Responsible Party
All habitats	Habitat distinctiveness and condition assessment in advance of assessment Phase 2a	One to two years in advance of construction starting in assessment Phase 2a	Applicant Appointed Ecologist
All habitats	Condition assessment undertaken using the sheets and guidance provided within Defra 3.1 Metric.	Spring to early summer, every five years.	Applicant Appointed Ecologist

7.1.7 The LBMP will be reviewed and updated every five years for 15 years, with review period beyond this to be amended appropriately, to ensure its suitability and effectiveness for managing habitats on site. Any changes to maintenance measures required in the interim will be prescribed and recorded within the annual monitoring reports.

7.2 Landscape

7.2.1 The monitoring outlined below has been developed in consultation with the LVIA Working Group to ensure establishment and effectiveness of mitigation measures against judgements stated within the LVIA.

7.2.2 Monitoring of landscape areas is required to:

a. provide assurance to the overseeing authority that required mitigation measures are delivered;

b. inform the overseeing authority about the effectiveness of proposed mitigation measures with regards to mitigating significant effects;

c. provide an early warning to the overseeing authorities about any unexpected impacts of development as a consequence of changes to construction and/or mitigation procedures; and

d. provide an evidence base for discussions with the overseeing authorities or public concerning future delivery and/or management practices.

7.2.3 Monitoring of landscape areas will include both quantitative information and qualitative judgements.

7.2.4 Quantitative information will be compiled by the Applicant and their appointed Contractors and will include:

a. information, to be agreed with the relevant authority, about the status of construction activities at the point of review;

b. information, to be agreed with the relevant authority, about where and when embedded and additional landscape mitigation measures (as described in **Sections 14.8** and **14.10** in **Chapter 14** of the ES

[TR020001/APP/5.01] and detailed in **Figures 14.9** and **14.10** of the ES **[TR020001/APP/5.03]**) have been delivered at the point of review;

c. information, to be agreed with the relevant authority, about the maintenance activities that have been undertaken since the previous review;

d. information, to be agreed with the relevant authority, about the establishment of vegetation within areas of delivered landscape mitigation; and

e. a photographic record, from viewpoint locations to be agreed with the relevant authority.

7.2.5 A qualitative review, prepared by a Chartered Member of the Landscape Institute (CMLI) and/or other professional experienced in the preparation of Landscape and Visual Impact Assessments (LVIAs), will be provided by the Applicant or their appointed contractors to consider the effectiveness of proposed landscape mitigation with reference the assumptions and judgements set out in **Chapter 14** Landscape and Visual Impact of the ES **[TR020001/APP/5.01]**.

7.2.6 Monitoring of landscape areas will be carried out in conjunction with the ecological monitoring where appropriate:

a. annually for five years following the initial planting and/or seeding of landscape mitigation measures;

b. in the year ahead of assessment Phase 2a construction works commencing;

c. annually throughout the construction of assessment Phases 2a and 2b; and

d. at a frequency to be agreed with the relevant authority thereafter.

7.2.7 Quantitative and qualitative monitoring of landscape areas will consider the assumptions for landscape mitigation establishment set out in **Appendix 14.10** of the ES **[TR020001/APP/5.02]**.

7.2.8 The Applicant and their appointed contractors need not hold professional competencies in order to compile the identified quantitative information but will acquire specialist advice (e.g. the input of a qualified ecologist or landscape consultant) on matters requiring professional expertise (e.g. how effectively landscape mitigation measures have established), to be agreed with the relevant authority.

GLOSSARY AND ABBREVIATIONS

Term	Definition
AAR	Airport Access Road
AFAG	Arboriculture and Forestry Advisory Group
AWI	Ancient Woodland Indicators
BS	British Standard
BSRA	Bird Strike Risk Assessment
CBC	Central Bedfordshire Council
CG	Calcareous Grassland
CoCP	Code of Construction Practice
COSHH	Control of Substances Hazardous to Health Regulations
CMLI	Chartered Member of the Landscape Institute
CWS	County Wildlife Site
Defra	Department of Environment, Food and Rural Affairs
DWS	District Wildlife Site
EA	Environment Agency
EIA	Environmental Impact Assessment
EMS	Environmental Management Systems
ES	Environmental Statement
Ha	Hectare
Habitat Creation Area	The Habitat Creation Area comprises an area to the east of the Main Application Site of existing arable land owned by the Applicant, which will be converted to create an area of improved habitat value including broadleaved woodland, neutral meadow grassland, and hedgerows with trees, to mitigate for loss of habitats as part of the Proposed Development and secured as part of the Proposed Development.
HCC	Hertfordshire County Council
LBC	Luton Borough Council
LBMP	Landscape and Biodiversity Management Plan
Luton Rising	A trading name of London Luton Airport Limited
LMP	Landscape Mitigation Plans
the airport	London Luton Airport
LVIA	Landscape and Visual Impact Assessments

Term	Definition
LWS	Local Wildlife Site
MG	Mesotrophic Grassland
mppa	million passengers per annum
NE	Natural England
NERC	Natural Environment and Rural Communities
NVC	National Vegetation Classification
PPC	Polypropylene Carbonate
PRoW	Public Right of Way
Sqm	Square metre
SSSI	Site of Special Scientific Interest
Y0	Year zero

REFERENCES

Ref 1 Control of Pesticides (Amendment) Regulations 1997. His Majesty's Stationery Office, London
Ref 2 Weeds Act 1959. His Majesty's Stationery Office, London.
Ref 3 British Standards Institution. (2012). BS5837: 2012 Trees in relation to design, demolition and construction. BSI Standards Limited
Ref 4 British Standards Institution. (2010). BS3998: 2010 Tree Work - Recommendations. BSI Standards Limited
Ref 5 Natural Environment and Rural Communities Act 2006 (Chapter 16). His Majesty's Stationery Office, London
Ref 6 A Nature Conservation Strategy for Central Bedfordshire (January 2015). Prepared by the Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire for Central Bedfordshire Council.

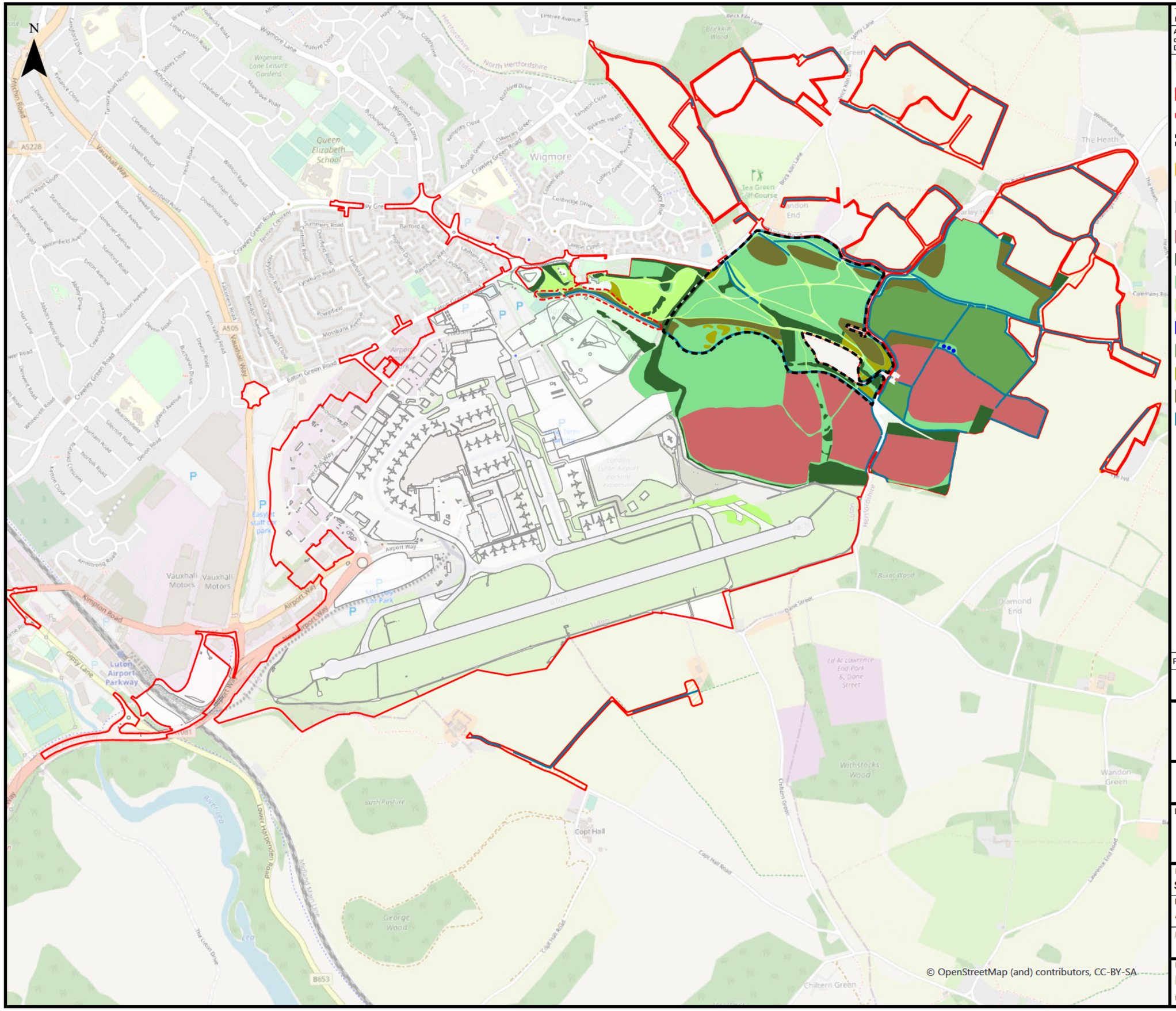
Ref 7 Biodiversity Partnership (2006). A 50 Year Vision – Biodiversity Action Plan. Herefordshire Environmental Forum
Ref 8 Forestry Commission (2010) English Woodland Grant Scheme. Forestry Commission
Ref 9 Forestry Commission (2017) UK Forestry Standard: The Governments Approach to Sustainable Forestry. Fourth Edition. Forestry Commission
Ref 10 UKWAS (2006) UK Woodland Assurance Scheme Standards. Second Edition. UKWAS
Ref 11 Wildlife and Countryside Act 1981 (as amended). His Majesty's Stationery Office, London
Ref 12 Invasive Alien Species (Enforcement and Permitting) Order 2019. His Majesty's Stationery Office, London
Ref 13 Walker, K.J. *et al*. (2003). The restoration and re-creation of species-rich lowland grassland on land formerly managed for intensive agriculture in the UK. Biological Conservation 119 (2004) 1-18
Ref 14 Poschlod, P., *et al*. (1998) Species richness in calcareous grasslands is affected by disperability in space and time. Applied Vegetation Science, 1, 75–90
Ref 15 Plantlife.(2016). Keeping the Wild in Wildflower: Frequently Asked Questions. Plantlife (June 2016).
Ref 16 Gilbert, O.L. and Anderson, P. (1998) Habitat Creation and Repair. Oxford University Press
Ref 17 HCC Rights of Way Good Practice Guide
Ref 18 The Pittecroft Trust. (2012) Understanding the Defra Guidance on public Path Structures V3b.
Ref 19 Biodiversity Metric 3.1 - Habitat Condition Assessment Sheets with Instructions, Natural England. Available at http://publications.naturalengland.org.uk/publication/6049804846366720 (Accessed: 12/09/2022)

APPENDIX A

Figure 1 – Landscape Plans

Figure 2 – Constraints Plan

Figure 3 – Mitigation Plan (Redacted as contains CONFIDENTIAL information)



All structure positions are indicative. The proposed works will be subject to detailed design development. The changes will be within limits of deviation specified in the Development Consent Order.

Legend

- Order Limits
- Landscape Earth Bund
- Replacement Open Space
- Off-site Hedgerow Restoration and Screening
- Airport Infrastructure Layout - Assessment Phase 1
- Existing arable areas
- Existing vegetation
- Neutral meadow grassland
- Amenity grassland
- Wildlife ponds
- Neutral grassland – low intensity grazing
- Proposed scrub
- Proposed woodland
- Hedgerow restoration

Note: Illustrative only

First Issue	AB	NL CS	22/02/23	P01
Revision History	Drawn	Checked Approved	Date	Rev.

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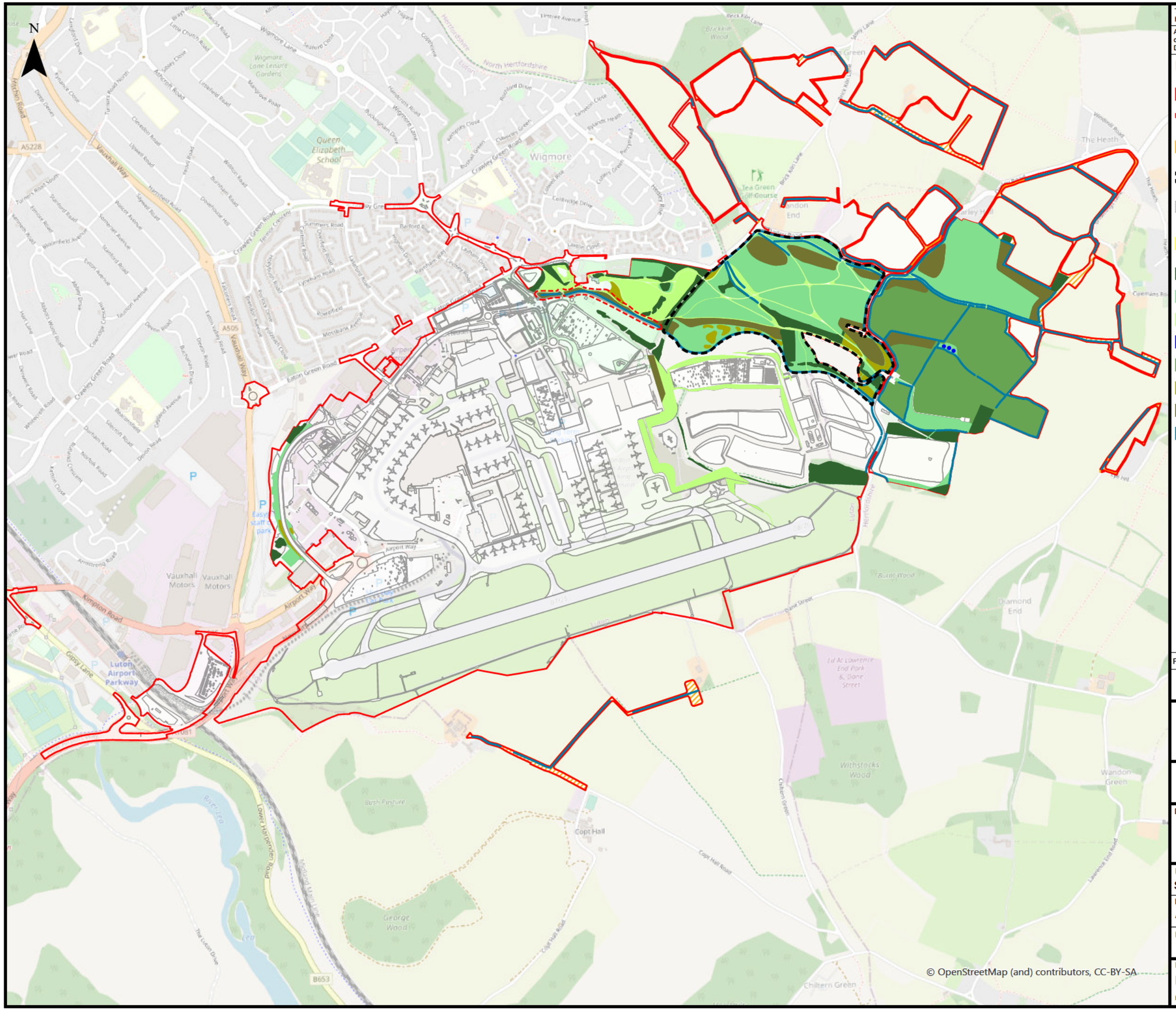
Drawing Title

Figure 1 Landscape Plans
Page 1: Assessment Phase 1

Purpose of issue				Suitability	
SUITABLE FOR INFORMATION				S2	
Drawn	Checked	Approved	Date	Scale	Size
AB	NL	CS	22/02/23	1:15,000	A3
DCO Application Ref.	APFP Regulation	DCO Document Ref.			
TR020001	APFP 5(2)(a)	TR020001/APP/5.02			

Drawing Number	Revision
LLADCO-3C-ARP-00-00-DR-YE-0420	P01
Project - Phase - Originator - Asset/Zone - Sub Asset - Type- Discp. - Number	



All structure positions are indicative. The proposed works will be subject to detailed design development. The changes will be within limits of deviation specified in the Development Consent Order.

Legend

- Order Limits
- Landscape Earth Bund
- Off-site Hedgerow Restoration and Screening
- Replacement Open Space
- Airport Infrastructure Layout - Assessment Phase 2a
- Calcareous grassland – low intensity grazing
- Existing vegetation
- Neutral meadow grassland
- Amenity grassland
- Wildlife ponds
- Neutral grassland – low intensity grazing
- Proposed scrub
- Proposed woodland
- Hedgerow restoration

Note: Illustrative only

Revision History	Drawn	Checked / Approved	Date	Rev.
First Issue	AB	NL / CS	22/02/23	P01

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Drawing Title

Figure 1 Landscape Plans
Page 2: Assessment Phase 2a

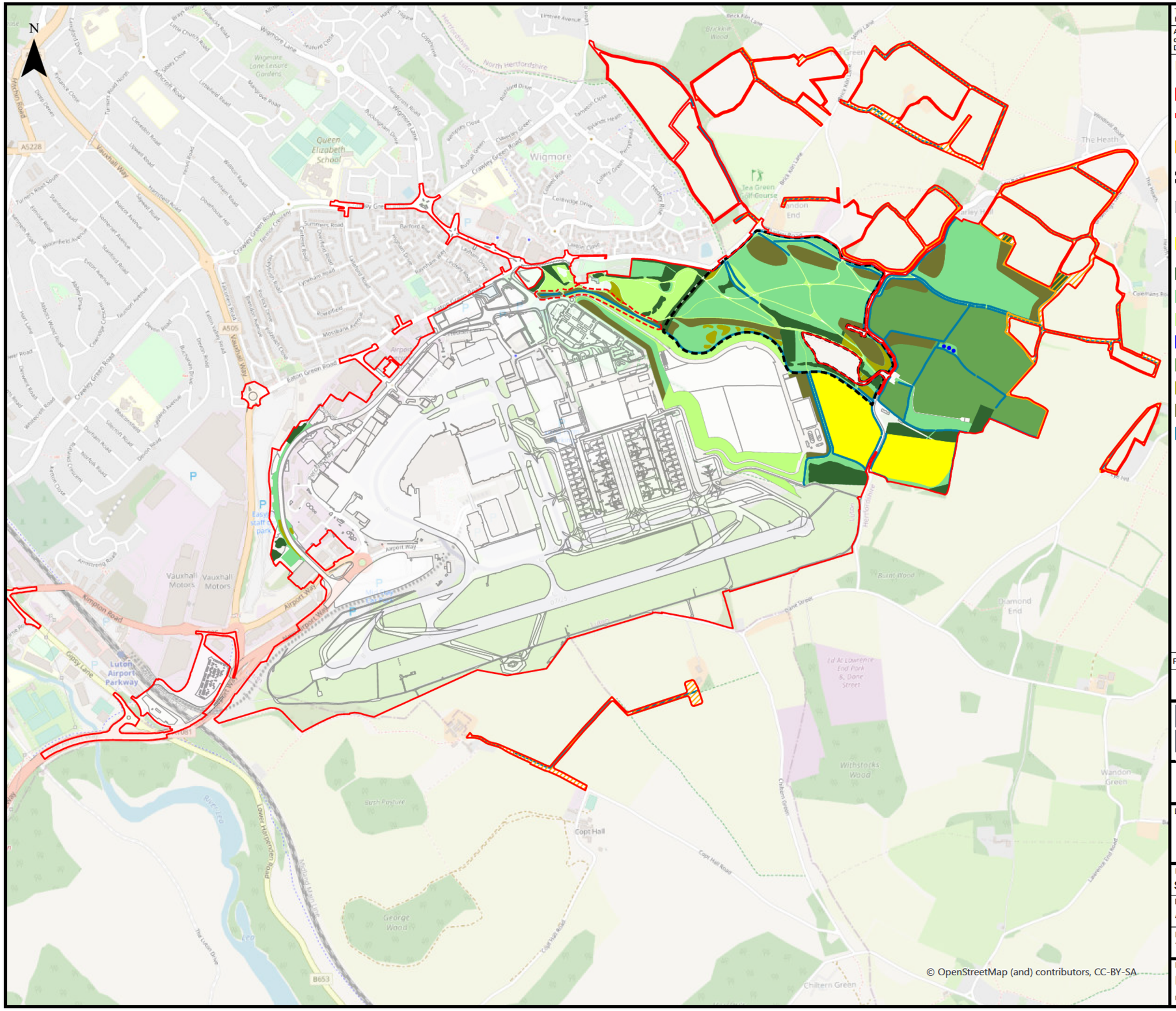
Purpose of issue	Suitability
SUITABLE FOR INFORMATION	S2

Drawn	Checked	Approved	Date	Scale	Size
AB	NL	CS	22/02/23	1:15,000	A3

DCO Application Ref.	APFP Regulation	DCO Document Ref.
TR020001	APFP 5(2)(a)	TR020001/APP/5.02

Drawing Number	Revision
LLADCO-3C-ARP-00-00-DR-YE-0420	P01

Project - Phase - Originator - Asset/Zone - Sub Asset - Type- Discp. - Number



All structure positions are indicative. The proposed works will be subject to detailed design development. The changes will be within limits of deviation specified in the Development Consent Order.

Legend

- Order Limits
- Landscape Earth Bund
- Off-site Hedgerow Restoration and Screening
- Replacement Open Space
- Airport Infrastructure Layout - Assessment Phase 2b
- Calcareous grassland – low intensity grazing
- Existing vegetation
- Neutral meadow grassland
- Amenity grassland
- Wildlife ponds
- Neutral grassland – low intensity grazing
- Proposed scrub
- Proposed woodland
- Hedgerow restoration

Note: Illustrative only

Revision History	Drawn	Checked / Approved	Date	Rev.
First Issue	AB	NL / CS	22/02/23	P01

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Drawing Title

Figure 1 Landscape Plans
Page 3: Assessment Phase 2b

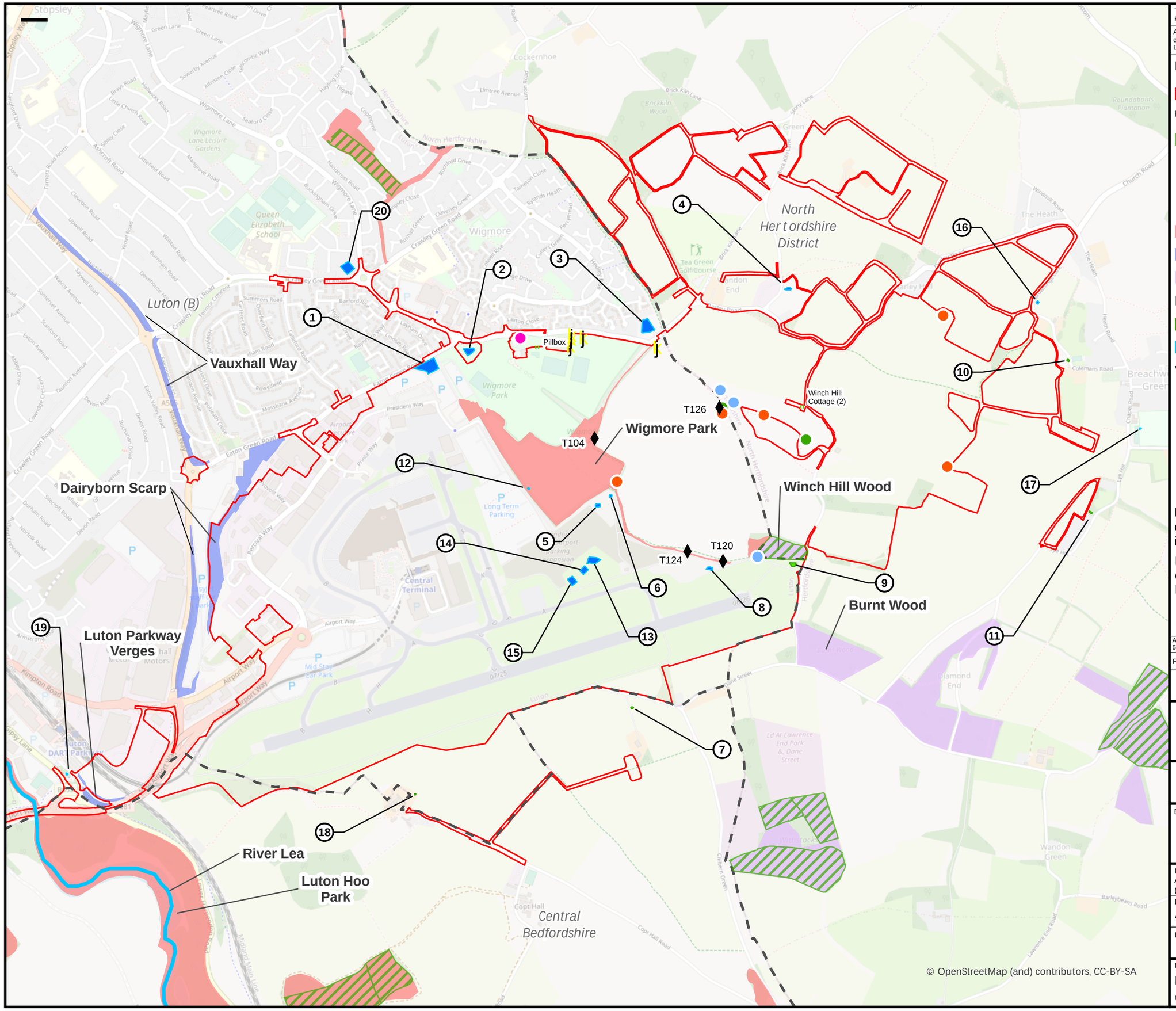
Purpose of issue	Suitability
SUITABLE FOR INFORMATION	S2

Drawn	Checked	Approved	Date	Scale	Size
AB	NL	CS	22/02/23	1:15,000	A3

DCO Application Ref.	APFP Regulation	DCO Document Ref.
TR020001	APFP 5(2)(a)	TR020001/APP/5.02

Drawing Number	Revision
LLADCO-3C-ARP-00-00-DR-YE-0420	P01

Project - Phase - Originator - Asset/Zone - Sub Asset - Type- Discp. - Number



All structure positions are indicative. The proposed works will be subject to detailed design development. The changes will be within limits of deviation specified in the Development Consent Order.

Legend

- Order Limits
- Local Authority Boundaries
- Ancient Woodland
- Confirmed Bat Roost Building
- Bat Roost in Trees
- Reptiles (Slow-worms)
- County Wildlife Sites (CWS)
- District Wildlife Sites (DWS)
- Hertfordshire Local Wildlife Sites (LWS)

Ponds

- Dry
- Wet

Veteran Trees

- Ancient
- Ancient or Veteran
- Tree Preservation Order
- Veteran

Note 1: Badger Sett information can be found on the confidential badger survey plan in Appendix 8.1 of the ES [TR020001/APP/5.02]

Note 2: Roman snail locations are shown on confidential version submitted to the Planning Inspectorate

Note 3: Numbers on drawing denote the location of Ponds 1 to 20

Revision History	Drawn	Checked / Approved	Date	Rev.
Amended following section 51 advice	AB	NL / CS	04/04/23	P02
First Issue	AB	NL / CS	22/02/23	P01

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Drawing Title

Figure 2 Constraints Plan

Purpose of issue	Suitability
Additional submissions (amended following section 51 advice)	S2

Drawn	Checked	Approved	Date	Scale	Size
AB	NL	CS	04/04/23	1:15,000	A3

DCO Application Ref.	APFP Regulation	DCO Document Ref.
TR020001	APFP 5(2)(a)	TR020001/APP/5.03

Drawing Number	Revision
LLADCO-3C-ARP-00-00-DR-YE-0421	P02

Project - Phase - Originator - Asset/Zone - Sub Asset - Type- Discp. - Number