University of Nottingham – Sutton Bonington Campus

Preliminary Ecological Appraisal and Baseline Biodiversity Impact Assessment

April 2024

For:

University of Nottingham
University Park,
Nottingham,
NG7 2RD

Control sheet

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Summary

A Preliminary Ecological Appraisal (PEA) and Baseline Biodiversity Impact Assessment (BIA) of University of Nottingham – Sutton Bonington Campus, Nottingham, Nottinghamshire (NGR: SK 50686 26665, hereafter referred to as 'the Site') were undertaken between May and July 2023, to provide baseline information to inform future proposals and ecological enhancement of the campus.

The Site comprised the University Campus, surrounding arable land, boundary hedgerows, woodlands, scrub, ponds, wetland, woodpasture and parkland and farmyard. The University Campus comprised buildings, hardstanding, introduced shrub areas, ornamental ponds/lakes, modified grassland, scattered trees and other neutral grassland.

Important ecological features, impacts, recommendations, further survey requirements and survey timings are detailed in Table 1 below. Details relating to specific proposed works are not known at this stage.

Table 1: Summary of important ecological features, impacts, recommendations and further survey requirements

Ecological feature	Recommendations	Recommendations section(s)
Designated sites	Should any work be planned that may result in the impact of these designated sites, then discussion with the Local Planning Authority and Natural England may be required	4.2.1, 4.2.2, 4.2.3, 4.2.4
Protected/notable plants	These species should be retained in situ and not subject to any damage or removal of surrounding habitat in order to preserve their health and presence on Site. If unavoidable, a translocation program must be utilised in order to move the plants to another appropriate location on Site	4.5.1, 4.5.2
Invasive plants	Removal of all plants on Site which are listed under Schedule 9 of the WCA to prevent their spread into the wider environment. These species require specific removal methods and incorrect removal techniques could result in further spread. It is also recommended to remove the further invasive species and poison hemlock from the Site	4.5.1, 4.5.3, 4.5.4, 4.5.5
Birds	Prior to any works on Site, an assessment of potential impacts to birds should be undertaken. A suite of breeding bird surveys of the Site may be required once potential impacts have been assessed. These surveys will utilise vantage points to cover as much of the suitable habitat on Site. Retention of suitable habitats is highly recommended in order to reduce the loss of suitable habitat British Standard BS 42021:2022 sets out requirements for the selection and installation of integrated nest boxes in new developments	4.5.7, 4.5.6, 4.5.7, 4.5.8, 4.5.9
Great crested newt (*Triturus cristatus*)	All waterbodies within 500m of the Site that are not considered to lie beyond significant barriers to dispersal should be subject to eDNA surveys for GCN. If any eDNA results are positive, further full surveys for GCN will be required by suitably licenced ecologists	4.5.10, 4.5.11
Reptiles	Depending on proposals, reptile surveys may be required via the use of artificial refuges, with refuges concentrated around suitable habitats. Optimal periods for undertaking reptiles surveys are between April and May or September, during which seven visits are required in suitable weather conditions, with an additional visit a month before the surveys commence to set the refugia and allow them to "bed in".	4.5.12, 4.5.13
Bats (roosting in buildings / structures)	Any built structures requiring works or to be affected by works should be subject to a Preliminary Roost Assessment (PRA) by a suitably experienced ecologist. Depending on the results of the PRA survey, further surveys of the built structures may be required.	4.5.15, 4.5.16, 4.6.17

	Hibernation surveys may be required if any built structures have hibernation potential, which would involve two visits spread four weeks apart during the coldest months of the year. These surveys should be supported by static bat detector surveys, undertaken over a minimum of two weeks per survey each month from November to March	
Bats (roosting in trees)	Any trees to be affected by works on Site should be subject to GLTAs by a suitably experienced ecologist. Further surveys may be required depending on the results of the GLTA surveys	4.5.18, 4.5.19, 4.5.20
Bats (foraging / commuting)	Depending on proposals, in line with best practice guidelines for sites with High suitability habitat for foraging and commuting bats, bat activity surveys may be required. This would involve one survey visit per season (spring – April/May, summer – June/July, autumn – September/October) is recommended. Further surveys may be required if these visits, or the results of the static detector surveys, reveal activity of interest that requires more observation on Site. These should be carried out in conjunction with the deployment of static bat detectors, set to collect data for a minimum of five consecutive nights per month (April to October) in appropriate weather conditions.	4.5.21, 4.5.22
Badger (*Meles meles*)	Depending on the location and nature of proposed works, further survey for badger of inaccessible areas of the Site and within 30m of the Site boundary in the winter/spring. Further survey of the identified mammal holes on Site to determine whether they comprise entrance holes to an active badger sett. This will involve monitoring of the holes, ideally undertaken during spring or summer	4.5.23, 4.5.24, 4.5.25, 4.5.26
Invertebrates (including terrestrial and aquatic)	If any works result in the loss of suitable habitats including woodland, wet woodland, grasslands, woodpasture and parkland, wetland areas (including reedbeds), ornamental ponds, ditches, ponds (including priority ponds) and lakes, scrub and arable/urban habitats, it may be necessary to undertake surveys for terrestrial and aquatic invertebrates If any proposed works would result in the loss or degradation of ditches or impacts to off Site watercourses, further surveys for aquatic invertebrates including WCC may be required	4.5.27, 4.5.28
Otter (*Lutra lutra*) and water vole (*Arvicola amphibius*)	If works occur within 100m of a ditch or watercourse, further survey of the two linear waterbodies on Site and the off Site watercourses including a 200m buffer is recommended for otter and watervole. If potential signs of otter are identified, further survey may be required. If watervole is confirmed on the first survey, a second visit for this species may not be required,	4.5.29, 4.5.30, 4.5.31
Fish	If any works result in the loss of ditches or impacts to off Site watercourses, further surveys for fish may be required	4.5.32
Additional Species of Principal Importance	Contractors will be made aware of the potential presence of these species. Reasonable avoidance measures will be implemented to avoid impacts	4.5.33, 4.5.34

The BIA baseline currently demonstrates a total of 973.16 habitat units, 94.57 hedgerow units and 19.56 watercourse units on Site. At this time, only a baseline assessment is required so a full BIA has not been carried out and full enhancement and mitigation measures cannot be provided. However, broad enhancement measures that may be taken to enhance the value of the Site for habitats and species include the following, full details of which can be found in Section 5:

- Any loss of medium, high and very high distinctiveness habitats on Site will likely result in a significant loss of units, particularly high and very high distinctiveness habitats. It is recommended that these habitats are retained and are kept free of impacts, the woodpasture and parkland in particular (section 4.4.6);

- Areas of modified grassland and other neutral grassland could be enhanced to achieve moderate condition by improving the habitat to pass failing criteria (sections 4.4.7 and 4.4.8);

- Areas of bramble scrub could be supplementarily planted in order to enhance this habitat to mixed scrub, managed in moderate condition if possible. Areas of ornamental scrub could also be removed and replaced with native mixed scrub (sections 4.4.9 and 5.1.12);

- It is advised that any woodlands on Site, are retained and left free of any impacts. Any loss of this habitat will result in a significant loss of units and will require the same habitat in order to replace it, due to its status as a high distinctiveness habitat. Enhancement of areas of woodlands which were assessed as poor condition may be possible, targeting condition criteria for which each individual woodland scored low (section 4.4.10);

- There are several hedgerows and hedgerows with trees on Site ranging in condition. Species poor hedgerows (including hedgerows with trees) could be enhanced to species-rich hedgerows by supplementary planting (sections 4.4.11 and 5.1.10);

This report should be read in conjunction with the completed baseline Statutory Metric for the Site (EMEC Ecology, 2024).

Measures that may be taken to enhance the value of the Site for native wildlife species are also provided in Section 5.

1. Introduction

1.1. Purpose and Scope of the Report

1.1.1. EMEC Ecology was commissioned by the University of Nottingham to undertake a Preliminary Ecological Appraisal (PEA) and Biodiversity Baseline Impact Assessment (BIA) of their Sutton Bonington Campus, Nottingham, Nottinghamshire ((NGR: SK 50686 26665), hereafter referred to as 'the Site', location shown in Figures 1). The PEA and BIA were required to provide baseline information to inform future proposals and ecological enhancement of the campus. As there are no proposals for works to the Site at present, this report will not include any assessment of effects or associated recommendations.

1.1.2. The PEA and BIA followed the Guidelines for Accessing and Using Biodiversity Data in the UK (CIEEM, 2020), the Guidelines for Preliminary Ecological Appraisal, the Guidelines for Ecological Report Writing (CIEEM, 2017 a & b), the Biodiversity Net Gain Report & Audit Templates (2021) and the British Standard BS42020:2013 'Biodiversity – Code of practice for planning and development'.

1.1.3. The aims of the PEA and BIA were to:

- Undertake a desk study to identify any statutory and/or non-statutory nature conservation sites and other notable habitats and records of legally protected and notable species within the Study Area (defined in Section 2.1).
- Identify and map habitats occurring within the Site.
- Identify the presence of, or the potential for the Site to support legally protected and/or notable species.
- Identify any potential impacts of the proposed development on protected or notable habitats and species, in addition to any associated constraints to the proposals in line with current ecological legislation.
- Assess the baseline biodiversity units on Site using the Biodiversity Metric 4.0 (Natural England, 2023).
- Provide recommendations for mitigation, enhancements and further surveys relating to the proposed development.

1.2. Site Location and Context

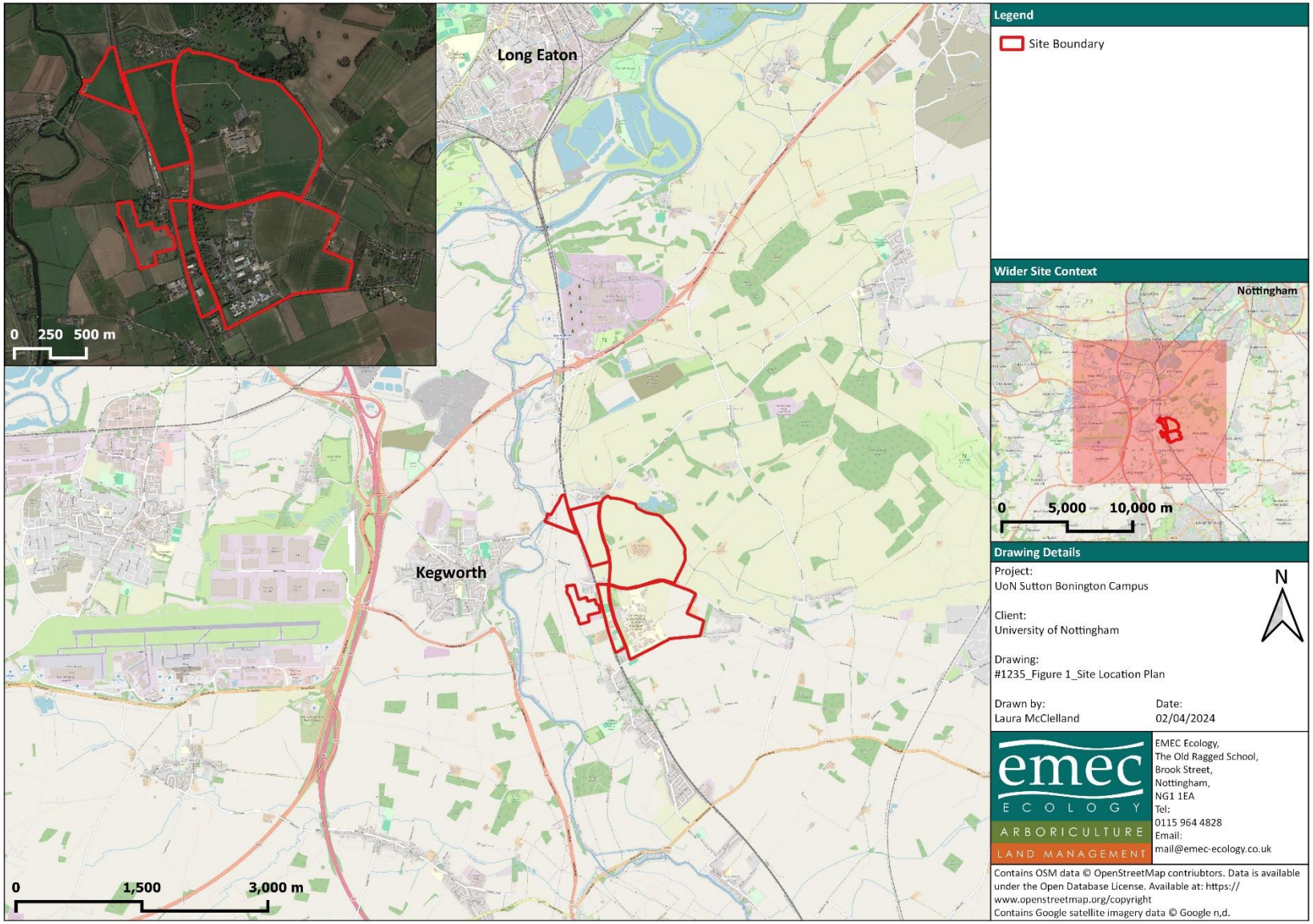
1.2.1. The Site consisted of the University of Nottingham Sutton Bonington campus, which included hardstanding, buildings, introduced shrub, modified grassland, other neutral grassland, ruderal vegetation and woodland. The Site also comprised arable land, boundary hedgerows, wood pasture and parkland, woodland and farmyard surrounding the campus. The Site was accessed largely from College Road and Station Road, with other access points used to survey less-central areas of the Site. The Site was situated within a rural context, with the village of Sutton Bonington to the south and Kingston-on-Soar to the north. East Midlands Airport lay far to the east of the Site and the villages of East Leake and West Leake lay to the west of the Site. The Site was surrounded largely be agricultural land, with the River Soar present to the east of the Site, and Sutton Bonington village in the South.

1.3. Planning and Legislation

1.3.1. Current legislation and planning policy have been considered when preparing this report and when planning and undertaking the associated surveys. This is necessary to identify potential constraints to the project, and to inform recommendations for further surveys and mitigation. The following legislation and planning policy have been considered when planning and undertaking this report to identify potential constraints to the project, and when making recommendations for further surveys and mitigation. Compliance with legislation may require the attainment of relevant European Protected Species licences prior to the commencement of works. Further detail regarding the legislation considered as part of this PEA and BIA is provided in Appendix E.

- The Conservation of Habitats and Species Regulations 2017 (as amended).
- The Wildlife and Countryside Act,1981 (as amended).
- The Environment Act, 2021.
- The Countryside and Rights of Way Act, 2000.
- The Natural Environment and Rural Communities Act (NERC), 2006.
- The National Planning Policy Framework, 2021.
- The Protection of Badgers Act, 1992.
- The Hedgerow Regulations, 1997.
- Nottinghamshire Local Biodiversity Action Plan.
- Taxa-specific conservation lists (e.g. Bird Species of Conservation Concern, Stanbury *et al*., 2021).

Figure 1: Sutton Bonington Campus Site Location Plan



2. Methodology

2.1. Desk Study

2.1.1. A desk-based assessment of the Site including appropriate buffer zones was undertaken, the Site and buffer together are hereafter referred to as the 'Study Area'. The Study Area for each receptor is defined in Table 2 below.

2.1.2. The Multi-Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk[1]) was reviewed to identify any statutory designated nature conservation sites and Habitats of Principal Importance (HPI, Section 41 of the NERC Act, 2006), in addition to records of previous European Protected Species Licences (EPSLs) within the Study Area. Although it is acknowledged that this database may not be up to date, if present, licences for EPSLs within the locality can provide further information of species that may be present and can augment the species records provided by data centres.

2.1.3. Nottinghamshire Biological Records Centre was instructed to undertake a data search in May 2023, to identify non-statutory designated sites and records of protected and notable species within the Study Area. With regard to species records, only those considered relevant to the Site (for example where habitat types present on Site or within the surrounding area would reasonably be considered to support that species), and that are ten years old or less have been included within the summary of records provided (Table 6). Exceptions to this will however be made, such as in instances whereby historical records are pertinent to the specific Site and/or proposals. A full copy of the data search is available on request.

2.1.4. Ordnance Survey (OS) maps and satellite imagery (Google Maps, maps.google.com/maps and Google Earth, earth.google.com) were reviewed to identify any waterbodies and other waterbodies within a 500 m buffer of the Site boundary.

Table 2. Summary of Study Areas and resources used for desk study

Receptor	Resource	Study Area (radius from Site boundary)
Waterbodies	Combination of OS maps and satellite imagery	500 m
HPIs Nationally important statutory designated sites Internationally important statutory designated sites EPSLs	MAGIC	1 km 5 km 20 km 2 km
Non-statutory designated sites Protected/principal species records	Nottinghamshire Biological Records Centre	2 km 2 km

[1] MAGIC resource was accessed on 21/02/2024

2.1.5. The Nottinghamshire Local Biodiversity Action Plan was checked for any species or habitats that may be relevant to the Site.

2.2. Field Survey

Habitat Classification and Condition Assessment

2.2.1. Habitats on Site were assessed and classified according to the UK Habitat Classification system (UKHab Ltd., 2023). A detailed plan (Appendix A) was subsequently completed using Geographical Information Systems (QGIS), mapping habitats using UKHab suggested symbology (UKHab, 2020) and including target notes to record important ecological features including sightings, signs, evidence and potential habitat for legally protected and/or notable species. Photographs and descriptions of any target notes are provided in Appendix B.

2.2.2. The Minimum Mapping Units (MMU) used when mapping habitats on Site were >= 25 m sq / >=5 m length by >=1 m width for area habitats and 5 m length by <1 m width for linear habitats.

2.2.3. The voluntary secondary codes (UKHab, 2020) in the built environment, all habitats and farming groups were used in addition to the mandatory secondary codes.

2.2.4. The BIA process relies on baseline information regarding the condition of habitats within a Site prior to the proposed works taking place. A condition assessment was therefore undertaken as part of the field survey, using the DEFRA Biodiversity Metric 4.0 condition assessment sheets (taken from Biodiversity Metric 4.0: auditing and accounting for biodiversity – Technical Supplement Part 1a, 2022). As this was the most recent guidance available at the time of survey, condition assessments undertaken in 4.0 were converted to the Statutory Metric, where applicable, following the latest guidance (DEFRA, 2024).

Species Scoping Assessment

2.2.5. Habitats on Site were also assessed for their potential to support protected, priority or notable species that may be affected by the proposals. Any incidental sightings of individuals or field signs of protected species, such as footprints, droppings or feeding remains were noted during the survey and their locations recorded as a target note.

2.2.6. The species scoping assessment included noting the location of any non-native, invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act (WCA), 1981 (as amended). Such species include (but are not limited to) New Zealand pygmyweed (*Crassula helmsii*), Japanese knotweed (*Reynoutria japonica*), giant hogweed (*Heracleum mantegazzianum*), rhododendron (*Rhododendron* sp.), and Himalayan balsam (*Impatiens glandulifera*).

2.3. BIA

Statutory Metric

2.3.1. Condition assessments were undertaken during the field survey using the most recent guidance available at that time. Using the condition assessment of habitats undertaken within DEFRA Metric 4.0 and converted to the Statutory Metric conditions, a baseline BIA was completed using the Statutory Metric. This involves inputting baseline data for existing habitats (habitats shown in Appendix C) and their conditions which were assessed during the field survey. The metric then calculates the amount of biodiversity units present on Site for area habitats (such as grassland) in addition to linear hedgerow habitats, to provide the baseline biodiversity units for the Site.

2.3.2. Assessed habitat conditions are provided in Section 3, however the completed full condition sheets for the Site can be provided on request.

2.4. Limitations

2.4.1. A single visit at any time of year is likely to miss a proportion of the plant and animal species supported by a site. Ecological surveys are limited by factors that affect the visibility or presence of plants and animals such as time of year, migration patterns and behaviour. Therefore, the survey has not produced a comprehensive species list for the Site.

2.4.2. The optimal time period for carrying out condition assessment surveys is April-October inclusive. For condition assessment surveys carried out outside of this timeframe, it is considered that some condition assessment criteria are unable to be accurately assessed. As such, condition assessments carried out outside of the optimal period have been assessed precautionarily, with any criteria not able to be accurately assessed assumed as passed (or assumed to score 3 in the case of woodland condition assessments). Whilst the surveys were largely carried out within the optimal time period, certain areas of this Site were assessed after October and as such have been assessed on a precautionary basis.

2.4.3. Biological records held by data centres can be received from a wide variety of sources, as such they may or may not be detailed and/or accurate. Likewise, desk study data should not be treated as a comprehensive list of species within a search area. Many species are under-recorded and low numbers of records can indicate a lack of survey effort, as opposed to the absence of a species.

2.4.4. The list of non-native plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (WCA) (as amended) is extensive, and these plants are found in a variety of different habitats. The survey checked for all species listed on Schedule 9. However, there may be additional non-native invasive plant species present which were not recorded during the survey due to access constraints or surveying outside of the relevant growing period.

2.4.5. Preliminary Roost Assessments (PRA), consisting of full, systematic assessments of each tree, building and structure on Site to determine Bat Roost Potential (BRP) and Habitat Suitability Index (HSI) assessment(s) of waterbodies within 500 m of the Site for great crested newts were beyond the scope of the PEA and baseline BIA at this stage. This was due to the early stage of the project, as it is not yet known which features of the Site will be affected by the proposals. Due to the limited lifespan of this type of data (generally considered to be 12 months from the date of survey), it was considered likely that these surveys would require repeating once a plan is available for the Site and therefore it would be more efficient to target these surveys once this is in place. As such, BRP of features on Site are only reported when this was incidentally noted.

2.4.6. Modular River Physical (MoRPh) surveys and a river condition assessment of the adjacent and on Site ditches/watercourses were also beyond the scope of this assessment. The River Lean has therefore been excluded from the BNG baseline for the Site. MoRPh 5 surveys and a river condition assessment should be completed once any development plans for the Site which impact the river or its riparian zone (any area within 10 m of the banks top) are provided.

2.4.7. Certain areas of the Site were not accessible during the survey and as such, these areas have been precautionarily assessed where a condition assessment was not able to be fully carried out.

2.4.8. Due to the scale of the Site, not all habitat parcels were individually photographed during the survey; however, all identified habitat types were photographed and as the habitat assessments relied on data gathered in the field and not analysis of photographs, this does not impact on the results of the survey.

2.5. Re-survey of the Site

2.5.1. If the works are not undertaken on site within 12 months of the date of survey upon which this appraisal is based, or if any changes to the proposals are made, a further ecological survey may be necessary. This is due to the mobile nature of many protected/notable species and potential changes to the suitability of habitat present.

3. Results

3.1. Desk-based Assessment[2]

Designated Sites, Habitats of Principal Importance and Waterbodies

3.1.1. There were ten statutory designated nature conservation sites identified within the Study Area. These are summarised in Table 3 below.

Table 3: Summary of statutory designated nature conservation sites identified within the Study Area

Site name and designation	Distance and direction from Site	Brief description
Internationally important sites		
River Mease SAC[3]	18.25km south-west	The River Mease is an important lowland clay river. It is designated as an SAC due to the importance of the species and habitats it supports. Designated for its water course. It's a good example of a riverine population of Spined Loach (*Cobitis taeniaa*) and Bullhead (*Cottus gobio*). It is known for White Clawed Crayfish (*Austropotamobius pallipes*) and Otter (*lutra lutra*) populations.
Nationally important sites		
Lockington Marshes SSSI[4]	2.12km north	This SSSI comprises one of the largest remaining areas of willow carr woodland in Leicestershire and a diverse complex of wetland habitat supporting an important invertebrate fauna with many nationally scarce species. Includes willow carr woodland, inundation meadow and pools lying in the floodplains of the Rivers Soar and Trent.
Rushcliffe Golf Course SSSI	3.18km east	This SSSI contains some of the best examples of calcareous and neutral grassland remaining in Nottinghamshire and is representative of species rich grassland on calcareous loam soils in Central and Eastern England. It forms part of Rushcliffe Golf Course. Additional interest is provided by areas of mixed scrub which are valuable for the variety of species of breeding birds they support. The variety and numbers of passage and wintering birds are also important.
Gotham Hill Pasture SSSI	3.73km north-east	This SSSI comprises one of the best mixed pastures and associated grassland in Nottinghamshire and is representative of species-rich grassland developed on calcareous and neutral clays in Central and Eastern England.
Oakley Wood SSSI	4km south	This SSSI represents a unique example in Leicestershire of the transition from mixed oakwood, developed on free-draining acid soil, to ash-hazel woodland characteristic of the heavy clays of Eastern Central England. Rides provide additional floristic diversity within the woodland.
Loughborough Meadows SSSI	4.6km south-east	This SSSI comprises the largest remaining example of unimproved alluvial flood meadow in Leicestershire. Nationally, this habitat is becoming scarce as a result of agricultural improvement and flood prevention schemes.

[2] A copy of the full desk study data can be provided upon request.
[3] Special Area of Conservation – Protected under the Conservation of Habitats and Species Regulations, 2019 (as amended).
[4] Site of Special Scientific Interest – Protected under the Wildlife and Countryside Act, 1981 (as amended).

		The site has been managed by traditional methods for centuries, providing long term ecological stability.
Locally important sites		
Sutton Bonington Spinney and Meadows LNR[5]	0.91km south	This LNR is a 4 hectare site containing grassland, woodland, a dyke and a pond. Ridge and furrow patterns can be seen in the meadow. The site lies adjacent to the River Soar.
Bishop's Meadow LNR	4.27km south-east	Habitats in this LNR include grassland, fen and swamp and a rich ground flora, fine beech trees and a rare mixture of fungi and bryophytes.
Forbes Hole LNR	4.58km north	This LNR comprises willow carr, dry woodland and areas of grassland and scrubland, as well as a mature hedgerow. This represents a good variety of habitats in a relatively small area.
Trent Meadows LNR	4.96km north	Description not available for this site.

3.1.2. In addition, Natural England's Site of Special Scientific Interest (SSSI) Impact Risk Zone (IRZ) tool (available at MAGIC.defra.gov.uk) showed the Site also lay within an SSSI Impact Risk Zone (IRZ) Lockington Marshes (SSSI), Gotham Hill Pasture (SSSI), Rushcliffe Golf Course (SSI), Loughborough Meadows (SSSI), Oakley Wood (SSSI), Breedon Cloud Wood and Quarry (SSSI), Breedon Hill (SSSI), and Donnington Park (SSSI).

3.1.3. However, due to overlapping IRZ shown on MAGIC, it was not possible to accurately determine which specific SSSI this related to. In line with the IRZ tool, should any works on Site fall within the following categories, then Natural England must be consulted prior to said works taking place (where there were multiple zones within the same category, the one with the highest/most strict requirements has been listed):

- **Infrastructure** – Airports, helipads and other aviation proposals.
- **Minerals, Oil & Gas** – Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.
- **Rural Non-residential** – Large non-residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000 m² or footprint exceeds 0.2 ha.
- **Residential** – Residential development of 100 units or more.
- **Rural Residential** – Any residential development of 50 or more houses outside existing settlements/urban areas.
- **Air Pollution** - Any development that could cause AIR POLLUTION or DUST either in its construction or operation (including: industrial/commercial processes and agricultural developments such as livestock & poultry units, manure/slurry stores).
- **Combustion -** All general combustion processes. Including: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/combustion.

[5] Local Nature Reserve – Designated by the local authority, under the National Parks and Access to the Countryside Act, 1949.

- **Waste -** Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management.

- **Composting -** Any composting proposal. Including: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.

- **Discharges -** Any discharge of water or liquid waste that is discharged to ground (i.e. to seep away) or to surface water, such as a beck or stream.

- **Water Supply -** Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1000m2 or any development needing its own water supply (e.g. remote rural housing).

3.1.4. There were three non-statutory designated nature conservation sites identified within the Study Area. These are summarised in Table 4 below[6].

Table 4: Summary of non-statutory designated nature conservation sites identified within the Study Area

Site name and designation	Distance and direction from Site	Brief description
Pithouse Lane Marsh SINC[7] and LWS[8]	1.5 km E	Marshland which is possibly an old pond situated in a pasture. Wetter areas contain a good selection of marshland plants. The southern part of the site is dominated by scrub with willows. Likely to be seasonally wet in winter.
St. Anne's Churchyard Candidate LWS	1.55 km N	A churchyard with grassland which includes species characteristic of base-rich soils. The site is bounded by hedgerows and stone walls. Planted trees are present throughout the churchyard.
River Soar, Loughborough Meadow to Trent LWS	1.57 km W	This stretch of the River Soar, which for much of its length forms the county boundary with Leicestershire, runs through farmland and a number of villages in south Nottinghamshire. It retains many of its natural features including gentle meanders and low banks running through pastures. It also cuts stretches of canalisation and locks in places. Margins are rich in characteristic flora.

3.1.5. There were 16 Habitats of Principal Importance (HPI) identified within the Study Area and these are summarised in Table 5 below. The closest parcels of HPI were on Site, consisting of priority habitat inventory – deciduous woodland, national forest inventory – broadleaved woodland, national forest inventory – mixed mainly conifer and woodpasture and parkland.

Table 5: Summary of HPI identified within the Study Area

HPI	Closest HPI parcel distance and direction from Site	Number of HPI parcels within Study Area
Priority Habitat Inventory – Deciduous Woodland	On Site	c.60

[6] Distances taken from the centre of the Site. Due to the size of the Site, designated sites may be closer to particular areas of the Site than listed in the table

[7] Site of Importance for Nature Conservation

[8] Local Wildlife Site

National Forest Inventory – Broadleaved Woodland	On Site	50
National Forest Inventory – Mixed mainly conifer	On Site	9
Woodpasture and Parkland	On Site	6
National Forest Inventory – Mixed mainly broadleaved	177m east	5
Coastal and Floodplain Grazing Marsh	205m west	9
National Forest Inventory – Assumed Woodland	245m east	15
Traditional Orchard	294m south	3
Lowland Fens	419m north-west	3
Good Quality Semi-improved Grassland (non-priority)	1.03km south-west	1
National Forest Inventory – Conifer	1.4km north	5
National Forest Inventory – Shrub	1.48km east	1
Ancient and Semi-natural woodland	1.6km west	2
Open Mosaic Habitat	1.69km east	1
National Forest Inventory – Felled	1.74km east	1
National Forest Inventory – Young trees	1.8km north-west	2

3.1.6. There were 13 waterbodies and three watercourses identified within the Study Area. These are discussed further with regard to species in the following section.

Species

3.1.7. Records of protected, priority and notable species were received from Nottinghamshire Biological and Geological Record Centre. A summary of these records is provided in Table 6 below[9]. For further detail regarding which records are included in the summary, please refer to Section 2.

Table 6: Summary of protected, priority and notable species records from within the Study Area

Common name	Scientific name	Total no. records	Closest record	Most recent record	Conservation status/protection
Plants					
Bay Willow	*Salix pentandra*	1	2016, 1.57km, N	Same as closest	Nottinghamshire Rare Plant Register (NRPR) - Rare
Bird Cherry	*Prunus Padus*	2	2016 1.3km SSW	Same as closest	Scarce on NRPR - Scarce
Chicory	*Cichorium intybus*	4	2016, 650 m NW	2019, 1.2 km SE	NRPR[10] - IUCN vulnerable
Common Columbine	*Aquilegia vulgaris*	1	2016, 540 m SW	Same as closest	NRPR - county scarce

[9] The distances in the table below are calculated to the centre of the Site, rather than the nearest boundary, so the species may be closer than they are listed in the table

[10] Nottingham Rare Plant Register, 2021

Common Cudweed	*Filago Germanica*	1	2017, 1.94 km NW	Same as closest	NRPR - IUCN near threatened
Floating Pennywort	*Hydrocotyle ranunculoides*	9	2022, 1.27 km W	Same as closest	WAC9[11]
Giant Hogweed	*Heracleum mantegazzianum*	3	2017, 930 m S	Same as closest	WAC9
Himalayan Balsam	*Impatiens glandulifera*	10	2015, 1.09km NE	Same as closest	WAC9
Large Leaved Lime	*Tilia platyphyllos*	5	2016, 530 m SW	2016, 1.5 km E	NRPR – nationally scarce, restricted in the county
Nettle-leaved bell flower	*Campanula trachelium*	1	2019, 1.43 SE	Same as closest	NRPR – county scarce
Ragged Robin	*Lychnis flos-cuculi*	1	2018, 1.50 km E	Same as closest	IUCN Near Threatened
Short-leaved water starwort	*Callitriche truncata*	9	2019, 1.32 km SW	Same as closest	NRPR – nationally scarce
Tutsan	*Hypericum androsaemum*	1	2016, 350 m SW	Same as closest	NRPR – county extinct (as native)
Amphibians					
Common frog	*Rana temporaria*	3	2022, 1.44 km S	Same as closest	Partial protection under WCA5[12]
Mammals					
Brown Hare	*Lepus europaeus*	1	2022, 1.30km NW	Same as closest	BAP[13], NERC[14]
Common Pipistrelle Bat	*Pipistrellus pipistrellus*	23	2015, 530 m SW	2017, 1.5 km E	WCA5, EPS[15],, HDir[16]
Daubenton's Bat	*Myotis Daubentonii*	3	2016, 1.52km W	Same as closest	Bern[17], HDir, WCA5
European Hedgehog	*Erinaceus europaeus*	6	2021, 310 m S	2022, 1.83 km SE	Bern, BAP, NERC
Noctule Bat	*Nyctalus noctula*	8	2017, 1.50 km E	Same as closest	BAP, WCA5, Bern, HDir
Soprano Pipistrelle Bat	*Pipistrellus pygmaeus*	4	2017, 1.50 km E	Same as closest	WCA5, EPS, HDir
Whiskered Bat	*Myotis mystacinus*	1	2017, 1.68 km N	Same as closest	Bern, HDir, WAC5
Unidentified bat roost	*Bat species*	1	700m SW, 2021	Same as closest	BAP, WCA5, Bern, HDir, EPS , NERC
Invertebrates					
Scarce Chaser	*Libellula fulva*	1	2020, 1.52km, W	Summer 2020	Near threatened in the British Odonata Red List 2008
Fish					

[11] Wildlife and Countryside Act, 1981 (as amended) – Schedule 9 invasive species.
[12] Wildlife and Countryside Act, 1981 (as amended) – Schedule 5 protected animal species.
[13] UK Biodiversity Action Plan list of priority species
[14] Species of Principal Importance under Section 41 of the Natural Environment Rural Communities Act (NERC Act, 2006).
[15] European Protected Species under The Conservation of Habitats and Species Regulations, 2010.
[16] EU Habitat Directive.
[17] BERN directive – The Convention of the Conservation of European Wildlife and Natural Habitat.

Brown-Sea Trout	*Salmo Trutta*	1	2015, 1.75km NW	Same as closest	BAP, NERC
Bullhead	*Cottus Gobio*	3	2014, 1.6km NW	2015, 1.75 km NW	HDir
Minnow	*Phoxinus phoxinus*	1	2022, 0.51km, ESE	22/06/2022	IUCN LC
Pike	*Esox lucius*	1	2019, 0.61km, NW	23/09/19	IUCN LC

3.1.8. One record of an EPSL was identified from within the Study Area, consisting of a bat licence for the destruction of a breeding site and resting place for common pipistrelle and brown long-eared bats, located 1.4km from the Site between 17th December 2012 and 31st of August 2014.

3.2. Field Survey Details

3.2.1. The field surveys were carried out by ecologists Kiran Johal ACIEEM (Natural England [NE] licence for Bats: 2021-54853-CLS-CLS and NE licence for GCN: 2019-42473-CLS-CLS), Laura McClelland MSc BSc (NE licence for GCN: 2019-38694-CLS-CLS), Sarah Spotswood (NE licence for bats: 2021-55192-CLS-CLS and NE licence for GCN: 2021-10001-CL08-GCN) and Greg Gilmore BSc (NE licence for bats: 2020-49351-CLS-CLS and NE licence for GCN: 2019-41090-CLS-CLS). The surveys were undertaken in suitable weather conditions. Survey dates, surveyors and weather conditions are shown in Table 7 below.

Table 7: Survey dates and weather conditions

Survey	Date	Surveyors	Weather conditions
1	09/06/23	Kiran Johal and Laura McClelland	Temperature (°C): 18 Wind (Beaufort scale): 3 Cloud cover (%): 10 Precipitation: 0
2	23/06/23	Kiran Johal and Laura McCelland	Temperature (°C): 21 Wind (Beaufort scale): 2 Cloud cover (%): 20 Precipitation: 0
3	05/07/23	Sarah Spotswood	Temperature (°C): 16-18 Wind (Beaufort scale): 3-4 Cloud cover (%): 30-100 Precipitation: light showers
4	07/07/23	Sarah Spotswood	Temperature (°C): 20-26 Wind (Beaufort scale): 3-4 Cloud cover (%): 5-40 Precipitation: dry
5	28/07/23	Laura McClelland	Temperature (°C): 19 Wind (Beaufort scale): 3 Cloud cover (%): 40 Precipitation: 0
6	31/07/23	Laura McClelland	Temperature (°C): 16 Wind (Beaufort scale): 3 Cloud cover (%): 80 Precipitation: Light rain
7	01/08/23	Greg Gilmore Laura McClelland	Temperature (°C): 16 Wind (Beaufort scale): 3 Cloud cover (%): 70% Precipitation: None
8	03/08/23	Sarah Spotswood	Temperature (°C): 19-20 Wind (Beaufort scale): 3 Cloud cover (%): 70

			Precipitation: Occasional light rain
9	10/08/23	Greg Gilmore	Temperature (°C): 21 Wind (Beaufort scale): 2 Cloud cover (%): 50 Precipitation: None
10	24/10/23	Greg Gilmore	Temperature (°C): 11 Wind (Beaufort scale): 1 Cloud cover (%): 80 Precipitation: Light showers passing by mid-morning
11	25/10/23	Greg Gilmore	Temperature (°C): 10 Wind (Beaufort scale): 2 Cloud cover (%): 40 Precipitation: None

3.3. Habitats (Area)

3.3.1. Habitat descriptions are detailed below, along with the UKHab code for each habitat type. Habitats are listed in alpha-numerical order with reference to their UKHab codes and plant species nomenclature follows Stace (2019). Descriptions and photographs of Target Note features are included within Appendix B and the UKHab Habitat Plan of the Site (Appendix A) includes the locations of the Target Notes. Table 8 below shows the area or length of each habitat on Site, listed in their assigned habitats for the BIA, and their ecological value.

Table 8: Summary of the ecological value of habitats on Site

Habitat type	Area (m^2) or length (m) present during survey	Ecological value
Cereal crops	833,404	Of value to birds, badgers and other mammals as a foraging resource. Ground nesting birds such as skylark will nest within this habitat type
Modified grassland	411,521	Limited in its ecological value as the majority of the habitat was short mown. Longer areas of habitat may be of value to invertebrates and foraging for badgers and birds
Other neutral grassland	195,898	Valuable for range of species including birds, mammals, herptiles and invertebrates. Invertebrate presence will in turn provide a food source for other fauna such as bats and birds
Blackthorn scrub	1,246	Valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and commuting and foraging resource for bats
Bramble scrub	404	Valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and commuting and foraging resource for bats
Mixed scrub	4,973	Valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals,

		sheltering and resting for herptiles and commuting and foraging resource for bats
Ornamental lake or pond	916	Dependant on the type and size of the habitat, it may be valuable to herptiles including GCN, grass snake and other reptiles. As well as for mammals, bats, invertebrates and birds
Ponds (priority habitat)	474	Particularly valuable to amphibians including GCN, as well as grass snake and other reptiles. Also valuable for mammals, bats, invertebrates and birds
Ruderal/ephemeral	659	Provides nectar sources for invertebrates depending on the species present, which in turn can provide a food source for bats. May also be valuable for small mammals and birds
Allotments	602	Can be valuable for species which would forage on the food grown within this habitat, such as badgers, hedgehogs, birds, small mammals and invertebrates, which will in turn, provide a food source for bats
Artificial unvegetated, unsealed surface	379	Limited ecological value
Bare ground	3,083	Limited ecological value. May hold some value to invertebrates.
Developed land; sealed surface	218,044	Limited ecological value aside from bat roosting and bird nesting (buildings). Some of the buildings present on Site contained bat bricks and bat lofts, valuable features for bat roosting
Introduced shrub	5,365	Unlikely to hold much value, though depending on species present, may provide nectar sources for invertebrates and in turn a foraging resource for bats. May also provide foraging and nesting opportunities for birds
Vegetated garden	17,799	May hold some value for birds and mammals, as well as invertebrates and in turn, bats. Hedgehogs may foraging and shelter/hibernate in gardens
Reedbeds	3062	Valuable for a range of wetland birds and herptiles
Other coniferous woodland	11,698	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering, resting and hibernating for herptiles and commuting and foraging resource for bats
Other woodland; broadleaved	26,369	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering, resting and hibernating for herptiles and commuting and foraging resource for bats
Other woodland; mixed	37,643	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering, resting and hibernating for herptiles and commuting and foraging resource for bats

Willow scrub	2837	Valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering, resting and hibernating for herptiles and commuting and foraging resource for bats
Woodpasture and parkland	135,015	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and commuting and foraging resource for bats. This habitat also provides opportunities for ground nesting birds
Sustainable urban drainage system	4,121	Dependant on the type and size of the habitat, it may be valuable to herptiles including GCN, grass snake and other reptiles. As well as for mammals, bats, invertebrates and birds
Individual trees (area measured using BNG tree helper tool)	30,455	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and invertebrates and commuting and foraging resource for bats
Ditch/linear waterbody	1,500	Dependant on the type and size of the habitat, it may be valuable to herptiles including GCN, grass snake and other reptiles. As well as for mammals, bats, invertebrates and birds
Native hedgerow - associated with bank or ditch	686	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and invertebrates and commuting and foraging resource for bats
Native hedgerow with trees - associated with bank or ditch	431	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and invertebrates and commuting and foraging resource for bats
Native hedgerow with trees	3,319	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and invertebrates and commuting and foraging resource for bats
Native hedgerow	3,377	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and invertebrates and commuting and foraging resource for bats
Non-native and ornamental hedgerow	92	Not as valuable as a native hedgerow, however, is still valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and invertebrates and commuting and foraging resource for bats
Species-rich native hedgerow with trees	143	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and invertebrates and commuting and foraging resource for bats

Line of trees - associated with bank or ditch	1,360	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and invertebrates and commuting and foraging resource for bats
Line of trees	1,989	Very valuable for a range of species including nesting and foraging habitat for birds, foraging, resting and sheltering for mammals, sheltering and resting for herptiles and invertebrates and commuting and foraging resource for bats

Cereal crops (c1c)

3.3.2. The fields surrounding the university campus were largely agricultural farm fields consisting of cereal crops. These fields varied in composition. One field consisted of bare earth cultivated with some spring cereals developing. Another consisted of stubble with newly sown wheat (*Triticum* sp.) crop, and others consisting of more mature wheat and maize crop. Further fields had been left to fallow. Other species present within these fields were *Brassica* species, groundsel (*Senecio vulgaris*), sow thistle (*Sonchus oleraceus*), spear thistle (*Cirsium vulgare*), and cocksfoot. A stand of Japanese knotweed (*Reynoutria japonica*) was present close to the southern boundary of the Site within the cereal crop.

Figure 2: Cereal crops (c1c)

3.3.3. Arable habitats are a Nottinghamshire LBAP habitat and certain areas fell within green belt land. Therefore, this habitat was considered to be formally identified in the local plan and to have high strategic significance. All areas of cereal crop (including c1a above) contributed 191.68 habitat units to the on Site baseline biodiversity value. In line with the Statutory DEFRA Metric, a condition assessment was not required for this habitat type.

Reedbeds (f2e)

3.3.4. A small area dominated by *Phragmites* species was present within the farmland in the north of the Site. This area resembled a sustainable urban drainage (SUDs) feature as it appeared to be used as drainage for the farm. However, the area consisted of inundation vegetation entirely dominated by *Phragmites* species.

Figure 3: Reedbeds (f2e)

3.3.5. Reedbeds are a Nottinghamshire LBAP habitat and the habitat fell within green belt land. Therefore, this habitat was considered to be formally identified in the local plan and to have high strategic significance. In line with the Statutory DEFRA Metric, this habitat was assumed to be of good condition and contributed 2.55 habitat units to the on Site baseline biodiversity value.

Other neutral grassland (g3c)

3.3.6. There were various areas of other neutral grassland present on the Site, both within the campus and surrounding fields. Species and condition assessments varied between the areas.

3.3.7. There were a number of fields outside of the campus and farmyards themselves that were classified as other neutral grassland. The species compositions and condition assessments of these parcels varied between poor and good condition. Some of these areas contained more frequent ruderal species in the sward and have been given the secondary code of 16 – Tall forbs. Species present in these areas included field barley (*Hordeum vulgare L.*), cock's foot, annual meadow grass (*Poa annua*), perennial rye grass, greater plantain (*Plantago major*), dandelion, yarrow, self-heal (*Prunella vulgaris*), wall barley, nettle, hemlock (*Conium maculatum*), creeping thistle, forget-me-not (*Myosotis* sp.) species, broadleaved dock, curled dock (*Rumex crispus*), common hogweed, bristly oxtongue (*Helminthotheca echioides*), burdock (*Arctium* sp.), cleavers (*Galium aparine*), bramble, spear thistle, hairy brome (*Bromopsis ramosa*), barren brome (*Bromus sterilis*), nipplewort (*Lapsana communis*), herb robert (*Geranium robertianum*), ground ivy (*Glechoma hederacea*), field forget-me-not (*Myosotis arvensis*), field pansy (*Viola arvensis*), field poppy (*Papaver rhoeas*), small flowered cranesbill (*Geranium pusillum*), cut-leaved cranesbill (*Geranium dissectum*), spotted medick (*Medicago arabica*), speedwell (*Veronica* sp.) species and bittercress (*Cardamine hirsuta*).

University campus and farmyard

3.3.8. There were several areas of other neutral grassland parcels present within the campus itself, including road verges around the campus as well as the farmyard in the north. Some of these areas were not accessed and as such have been assumed as other neutral grassland have an assumed condition. Some areas of other neutral grassland contained a high proportion of ruderal species. Dominance of species vary across parcels, as did management styles and sward height. As such, condition of the habitat parcels varied. Species included perennial rye grass, false-oat grass, rough meadow grass (*Poa trivialis*), common bent (*Agrostis capillaris*),

Yorkshire fog (*Holcus lanatus*), cocks foot, broadleaved dock, creeping thistle, false-oat grass, nettle, dandelion, creeping buttercup (*Ranunculus repens*), plantain (*Plantago* sp.) species, ribwort plantain (*Plantago lanceolata*), wild carrot (*Daucus carota*), sow thistle, Canadian fleabane (*Erigeron canadensis*), white clover (*Trifolium repens*), common mouse-ear (*Cerastium fontanum*), prickly sow thistle (*Sonchus asper*), ragwort (*Senecio jacobaea*), spear thistle, greater burdock (*Arctium lappa*), cats ear (*Hypochaeris radicata*), buddleja (*Buddleja davidii*), mugwort (*Artemisia vulgaris*), cinquefoil (*Potentilla* sp.), small flowered cranesbill, germander speedwell (*Veronica chamaedrys*), greater plantain and bird's foot trefoil (*Lotus corniculatus*). These areas varied in condition from poor to good condition.

3.3.9. One area in the central portion of the campus had been planted with a wildflower mix and appeared to be managed as a wildflower meadow. Species included dominant rough meadow grass and Yorkshire fog, abundant plantain species, creeping buttercup and self-heal, as well as frequent Canadian fleabane, ragwort, broadleaved dock, field poppy, burnet (*Sanguisorba* sp.) and red clover (*Trifolium pratense*). Creeping thistle, teasel (*Dipsacus fullonum*), red fescue (*Festuca rubra*) and black medick (*Medicago lupulina*) were occasional throughout the sward and cleavers, cats ear and greater burdock were rarely occurring. This area passed all criteria and achieved good condition.

Figure 4: Other neutral grassland (g3c)

Horse paddocks

3.3.10. The horse paddock along the southern boundary of the Site contained dominant perennial rye grass and Yorkshire fog, and frequent dandelion, red fescue, annual meadowgrass and creeping buttercup. Occasional species included common mouse ear, creeping thistle, cut-leaved cranesbill, small flowered cranesbill, smooth brome (*Bromus racemosus*); which is a Nottinghamshire LBAP species, cocks foot, southern hawksbeard (*Crepis* sp.), birds foot trefoil, white goosefoot (*Chenopodium album*), white clover, nettle, prickly sow thistle, greater plantain and common hogweed. Rarely occurring species included ragwort, weld (*Reseda luteola*), shepherds purse (*Capsella bursa-pastoris*), scarlet pimpernel (*Anagallis arvensis*) which is a Nottinghamshire Local Biodiversity Action Plan (LBAP), knotgrass (*Polygonum* sp.), broadleaved dock and cudweed (*Gnaphalium* sp.). This grassland had a tufted sward and was up to 30 cm in height. Perennial rye grass was more dominant to the east, and white clover, cudweed and greater plantain were more frequent in this parcel. These parcels of grassland were assessed to be of moderate condition.

Figure 5: Other neutral grassland (g3c)

Field margins

3.3.11. The arable fields around the farmland on Site consisted of other neutral grassland. Species identified in these areas included cock's foot (*Dactylus glomerata*), wall barley (*Hordeum murinum*), perennial rye grass (*Lolium perenne*), false oat grass (*Arrhenatherum elatius*), yarrow (*Achillea millefolium*), knapweed (*Centaurea nigra*), field scabious (*Knautia arvensis*), dandelion (*Taraxacum officinale*), broadleaved dock (*Rumex obtusifolius*), common hogweed (*Heracleum sphondylium*), cow parsley (*Anthriscus sylvestris*), creeping thistle (*Cirsium arvense*), bramble (*Rubus fruticosus*) and nettle (*Urtica dioica*).

3.3.12. This habitat is a Nottinghamshire LBAP habitat and certain areas fell within green belt land. Therefore, this habitat was considered to be formally identified in the local plan and to have high strategic significance. It contributed 185.93 habitat units to the on Site baseline biodiversity value. In line with the Statutory DEFRA Metric, this habitat varied between poor and good condition. All poor condition parcels contribute 12.81 habitat units, moderate condition parcels contribute 117.56 and good condition parcels contributed 55.56 habitat units to the on Site biodiversity baseline.

Modified grassland (g4)

3.3.13. Modified grassland was an abundant habitat within both the campus and the surrounding farmland, comprising various management practices and species compositions. One area was a grazing pasture and had been reduced almost down to bare ground. Species recorded within this habitat type included perennial rye-grass, cocksfoot, Yorkshire fog, red fescue, lesser trefoil (*Trifolium dubium*), white clover, common mouse-ear, ragwort, creeping thistle, dandelion, creeping buttercup, white campion (*Silene latifolia*), greater plantain, ribwort plantain, self-heal, daisy (*Bellis perennis*), crested dogs tail (*Cynosurus cristatus*), common hogweed, curled dock, annual meadow grass, smooth hawksbeard (*Crepis capillaris*), mallow (*Malva sylvestris*), cinquefoil, cleavers, wood avens (*Geun urbanum*), meadow foxtail (*Alopecurus pratensis*), bramble, colts foot (*Tussilago farfara*), dove's foot cranesbill (*Geranium molle*), dock (*Rumex* sp.), cranesbill (*Geranium* sp.) species, greater burdock, cow parsley, spear thistle, teasel, mouse-ear (*Cerastium* sp.) species, thyme-leaved speedwell (*Veronica serpyllifolia*), prickly sow thistle, bur clover (*Medicago polymorpha*), green alkanet (*Pentaglottis sempervirens*), bristly oxtongue, forget-me-not species, yarrow and nettle. Dominance of species varied across parcels, as did condition of the parcels. Common dominant species included perennial rye grass, cocksfoot and Yorkshire fog.

Figure 6: Modified grassland (g4)

3.3.14. This habitat is a Nottinghamshire LBAP habitat and certain areas fell within green belt land. Therefore, this habitat was considered to be formally identified in the local plan and to have high strategic significance. In line with the Statutory DEFRA Metric, this habitat varied between poor and good condition. All poor condition parcels contributed 78.64 habitat units, moderate condition parcels contributed 29.38 and good condition parcels contributed 3.96 habitat units to the on Site biodiversity baseline. In total all parcels contributed 111.98 habitat units to the on Site biodiversity baseline.

Introduced shrub (h, 847)

3.3.15. Throughout the university campus there were ornamental areas planted with a variety of garden/ornamental species, managed as landscaping for the campus. The species included, but were not limited to, cherry laurel (*Prunus laurocerasus*), mahonia (*Mahonia* sp.) species, dogwood (*Cornus sanguinea*), conifer (*Pinophyta* sp.) species, snowberry (*Symphoricarpos albus*), Russian sage (*Perovskia atriplicifolia*), orpine (*Sedum telephium*); which is a Nottinghamshire LBAP species, honeysuckle (*Lonicera* sp.) species, bears breeches (*Acanthus mollis*), hydrangea (*Hydrangea macrophylla*), bindweed (*Convolvulus arvensis*), pink jasmine (*Jasminum polyanthum*), firethorn (*Pyracantha* sp.), lavender (*Lavandula* sp.), Oregon grape (*Mahonia aquifolium*), rosemary (*Salvia rosmarinus*), an ornamental thistle (*Cirsium* sp.) species, red robin (*Photinia x fraseri*), laurel (*Laurus* sp.) species, ghost bramble (*Rubus thibetanus*), barberry (*Barberis vulgaris*), Indian cluster berry (*Lonicera ligustrina*), spotted laurel (*Aucuba japonica*), mock orange (*Philadelphus* sp.), *Salvia* species, *Hosta* species, stag-leaved sumac (*Rhus typhina*), Japanese wax-leaved privet (*Ligustrum japonicum*), yucca (*Yucca elata*), Japanese spindle (*Euonymus japonicus*), creeping juniper (*Juniperus horizontalis*), Japanese maple (*Acer palmatum*) and buddleja. The non-native invasive species rugosa rose (*Rosa rugosa*) and a *Cotoneaster* species were present. Some plants were not able to be identified down to species-level due to be being non-native garden varieties.

Figure 7: Introduced shrub (h, 847)

3.3.16. Urban land is a Nottinghamshire LBAP habitat and was therefore considered to be formally identified in the local plan and to have high strategic significance. In line with the Statutory DEFRA Metric, a condition assessment was not required for this habitat type. It contributed 1.24 habitat units to the on Site biodiversity baseline value.

Dense scrub, blackthorn scrub (h3a)

3.3.17. There was a patch of blackthorn (*Prunus spinosa*) scrub present within the farmyard area in the north. Blackthorn was dominant in this area, with other species including hazel (*Corylus avellana*), willow (*Salix* sp.), silver birch (*Betula pendula*), holly (*Ilex aquifolium*), field maple (*Acer campestre*) and Scot's pine (*Pinus sylvestris*). No photograph is available for this habitat.

3.3.18. This habitat fell within green belt land, was considered to be formally identified within the local plan and to have high strategic significance. It contributed 1.15 habitat units to the on-Site baseline biodiversity value. In line with the Statutory DEFRA Metric, this habitat passed three condition assessment criteria and was assessed as moderate condition.

Dense scrub, bramble scrub (h3d)

3.3.19. There was one patch of bramble dominated scrub on-Site, located in the north to the east of the farmland. Bramble was entirely dominant within this habitat parcel.

Figure 8: Dense scrub, bramble scrub (h3d)

3.3.20. This habitat fell within green belt land, was considered to be formally identified within the local plan and to have high strategic significance. In line with the Statutory Metric, a condition assessment was not required for this habitat type. This habitat contributed 0.19 habitat units to the on Site baseline biodiversity value.

Dense scrub, mixed scrub (h3h)

There were a number of parcels of mixed scrub across the Site with varying species compositions. Species within these habitat parcels included hazel, holly, silver birch, blackthorn, field maple, *Malus* species, bramble, cherry species (*Prunus* sp.), hawthorn (*Crataegus monogyna*), elder (*Sambucus nigra*), pussy willow (*Salix discolor Muhl*), buddleja, cherry laurel, wild cherry (*Prunus avium*), and crack willow (*Salix x fragilis*). Ground flora included broadleaved dock, curled dock, cock's foot, rosebay willowherb (*Chamaenerion angustifolium*), common hogweed, common nettle and hairy willowherb (*Epilobium hirsutum*).

Figure 9: Dense scrub, mixed scrub (h3h)

3.3.21. This habitat is a Nottinghamshire LBAP habitat, and some habitats fell within green belt land. Therefore, this habitat was considered to be formally identified within the local plan and to have high strategic significance. In line with the Statutory DEFRA Metric, this habitat ranged

from poor to good condition across the Site, with some parcels assumed in good condition due to lack of access. All poor condition parcels contributed 1.10 habitat units, moderate condition parcels contributed 0.69 and good condition parcels contributed 2.06 habitat units to the on Site biodiversity baseline. All parcels in total contributed 3.85 habitat units to the on Site biodiversity baseline.

Rivers and lakes, priority pond (r, 40)

3.3.22. There were two ponds present within woodlands in Site. One of the ponds was located within a woodland located on the farm in the north of the Site, and one was located within the south of the Site, to the south west of the campus. As surveys of the ponds for great crested newt have not been undertaken at this stage, both have been assumed to support great crested newts and have therefore been assumed as priority habitats. Both ponds contained little to no vegetation at the time of survey and appeared to have poor water quality. Waterfowl were present within the more northern pond.

Figure 10: Rivers and lakes, priority pond (r, 40)

3.3.23. This habitat was assumed to be a priority habitat and was therefore considered to be formally identified in the local plan and to have high strategic significance. In line with the Statutory DEFRA Metric, one pond was assessed as moderate condition, and one was assumed as good condition as it was not accessed on the survey. This habitat contributed 0.80 habitat units to the on Site baseline biodiversity value in total, with the moderate condition pond contributing 0.35 units and the good condition pond contributing 0.45 units to the on Site biodiversity baseline.

Rivers and lakes, ornamental pond (r, 46)

3.3.24. A large ornamental pond was present within the central area of the university campus. The pond was located between two of the university buildings within the campus, and curved around the side of one of these buildings. A hardstanding bridge was located over this pond. Iris and lilies were present within the pond, as well an early marsh orchid (*Dactylorhiza incarnata*), which is listed as Scarce on the Nottinghamshire Plant Register and is a Nottinghamshire Local Biodiversity Action Plan (LBAP) species.

3.3.25. Two more ornamental ponds were present within the university campus and existed in the form of ornamental pools with fountains present. No vegetation was present and the waters odour suggested chemical treatment.

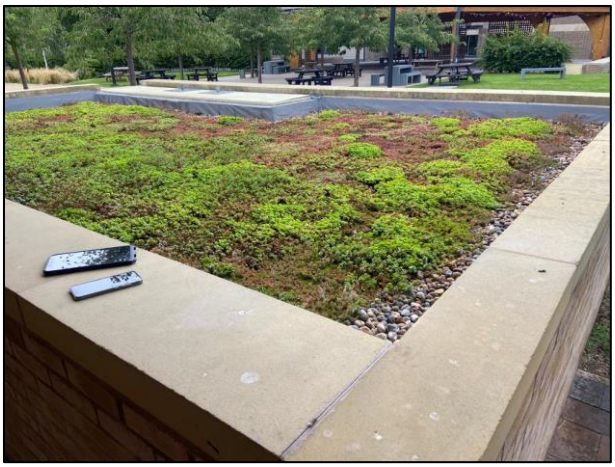
Figure 11: Rivers and lakes, ornamental pond (r, 46)

3.3.26. The large pond in the university campus was formally identified in the local plan. However, the two water features in the campus were considered to have no strategic significance. In line with the Statutory DEFRA Metric, the habitat was assessed using the rivers and lakes condition assessment sheet, and the ponds were assessed as poor condition. This habitat contributed 0.21 habitat units to the on Site biodiversity baseline.

Sparsely vegetated land, ruderal/ephemeral species (s, 81)

3.3.27. Three areas in the western portion of the Site were dominated by ruderal species. Common nettle was dominant, with frequent hemlock and occasional creeping thistle. One small raised concrete platform was present within the grounds of the university campus, with a gravelly substrate and dominated by ephemeral species including mosses and drought tolerant species. The area appeared to be some form of drainage, however being raised off the ground at waist height, its exact function was unknown.

Figure 12: Sparsely vegetated land, ruderal/ephemeral species (s, 81)



3.3.28. This habitat did not have strategic significance and contributed 0.26 habitat units to the on Site baseline biodiversity value in total, with moderate condition habitats contributing 0.25 habitat units and poor condition habitats contributing 0.01 habitat units. In line with the

Statutory DEFRA Metric, the habitat was assessed using the urban condition assessment sheet, and the areas were assessed as poor condition.

Urban, bare ground (u, 510)

3.3.29. Five bare ground areas were present on Site, three of which were present within the University campus in the south of the Site, and two of which were present in the west of the Site to the north of the sports field.

Figure 13: Urban, bare ground (u, 510)

3.3.30. This habitat did not have strategic significance and contributed 0.66 habitat units to the on Site baseline biodiversity value in total. In line with the Statutory DEFRA Metric, the three parcels within the campus were assessed as poor condition and the other two parcels were assessed as moderate condition. The poor condition parcels contributed 0.58 habitat units and the moderate condition parcels contributed 0.08 habitat units to the on Site baseline biodiversity value.

Urban, allotments (u, 616)

3.3.31. An allotment was present within the university campus. It appeared to be relatively unmanaged, with lots of garden variety plants, as well as vegetables, herbs and fruits including rhubarb (*Rheum rhabarbarum*), tomatoes (*Solanum* sp.), courgettes (*Cucurbita* sp.), beans (*Phaseolus* sp.), raspberry (*Rubus idaeus*), mint (*Mentha* sp.) and strawberry (*Fragaria x ananassa*). Some areas were too overgrown to access, including some of the grow beds. An old polytunnel was located to the immediate west of the allotment. Native species present included abundant common nettle, thistle (*Cirsium* sp.) and sow thistle (*Sonchus* sp.), frequent broad-leaved dock and occasional dogwood, comfrey (*Symphytum officinale*), bristly oxtongue and ash (*Fraxinus excelsior*).

Figure 14: Urban, allotments (u, 616)

3.3.32. This habitat did not have strategic significance and contributed 0.42 habitat units to the on Site baseline biodiversity value. In line with the Statutory DEFRA Metric, this habitat was assessed as good condition.

Built-up areas and gardens (u1)

3.3.33. Throughout the Site there were a number of residential areas including homes, roads, and gardens and ground level planters, which were not accessible during the surveys due to being private property for which access was not granted for the surveys. These areas have been classified as built-up areas and gardens. There was a stand of montbretia (*Crocosmia x crocosmiiflora*), which is a Schedule 9 non-native invasive species, present within this habitat, inside the university campus.

Figure 15: Built-up areas and gardens (u1)

3.3.34. Urban land is a Nottinghamshire LBAP habitat, and this habitat was therefore considered to be formally identified within the local plan. In line with the Statutory DEFRA Metric, a condition assessment was not required for this habitat type. Some of these areas were classified under “developed land; sealed surface” for the purposes of the BNG calculation, with the exception of areas that appeared to be largely vegetated gardens and the three ground level planter areas within the university campus. These areas have been classified for the BNG as “vegetated garden” and contributed 4.09 habitat units to the on Site baseline biodiversity value.

Developed land, sealed surface (u1b)

3.3.35. A large portion of the Site consisted of developed land; sealed surface, including hardstanding paths, roads, carparks and tracks.

Figure 16: Developed land, sealed surface (u1b)

3.3.36. This habitat did not have strategic significance and, in line with the Statutory DEFRA Metric, a condition assessment was not required for this habitat type. This habitat contributed 0 habitat units to the on Site baseline biodiversity value.

Buildings (u1b5)

3.3.37. There were a large number of buildings present within the Site, associated mostly with the University Campus, and some with farms within the boundary. Buildings consisted of farm buildings, residential properties, university buildings, greenhouses and commercial buildings.

Figure 17: Buildings (u1b5)

3.3.38. This habitat did not have strategic significance and, in line with the Statutory DEFRA Metric, a condition assessment was not required for this habitat type. This habitat contributed 0 habitat units to the on Site baseline biodiversity value.

Urban – other developed land, sustainable urban drainage system (u1b6, 848)

3.3.39. A square polythene-lined depression in the ground was present within the farmland in the north of the Site. This resembled a sustainable urban drainage system. However, it appeared to be used as storage as opposed to drainage, as it was raised higher than the surrounding land, therefore not serving the purpose of drainage. The water appeared to be very poor water quality and no vegetation was present. There were areas where the polythene lining had risen to the surface, indicating air trapped below it.

Figure 18: Urban – other developed land, sustainable urban drainage system (u1b6, 848)

3.3.40. Urban habitats are Nottinghamshire LBAP habitats and the habitat was therefore considered to be formally identified within the local plan. It contributed 0.95 habitat units to the on Site baseline biodiversity value. In line with the Statutory DEFRA Metric, the habitat was assessed as poor condition.

Artificial unvegetated unsealed surface (u1c)

3.3.41. There were four areas of artificial unvegetated unsealed surface, mostly located within the university campus, with one area located within the west of the Site near the sports fields. The areas consisted largely of gravelly areas.

Figure 19: Artificial unvegetated unsealed surface (u1c)

3.3.42. Urban habitats are Nottinghamshire LBAP habitats and the habitat was considered to be formally identified within the local plan. In line with the statutory DEFRA Metric, a condition assessment was not required for this habitat type. This habitat contributed 0 habitat units to the on Site baseline biodiversity value.

Woodland, woodpasture and parkland (w, 26)

3.3.43. Two large areas of woodpasture and parkland were located in the north of the Site. One field contained short, modified grassland and the smaller more northern field contained longer sward grassland with evidence of historic ridge and furrow land management. The woodpasture and parkland contained intermediate to mature tree specimens either grouped in small copses or as individual trees scattered across the habitat. The southernmost parcel of woodpasture and parkland contained dominant perennial rye grass, with occasional nettle, cleavers and mouse-ear. In areas underneath the copses of trees, the grassland was dominated by Yorkshire fog and nettle. The trees consisted of native field maple, whitebeam (*Sorbus subg. Aria*), cherry species, pedunculate oak (*Quercus robur*), lime (*Tilia* sp.), hazel and ash, as well as the non-native sycamore (*Acer pseudoplatanus*) and blue atlas cedar (*Cedrus atlantica Glauca*). On the northern parcel of woodpasture and parkland, the grassland consisted of dominant Yorkshire fog and cock's foot, abundant nettle and frequent creeping thistle. This area of woodpasture and parkland was less intensively managed than the southern-most..

Figure 20: Woodland, woodpasture and parkland (w, 26)

3.3.44. This habitat is a priority habitat, is listed as a Nottinghamshire LBAP habitat and was present within green belt land. It is considered formally identified within the local plan. This habitat contributed 372.64 habitat units to the on Site biodiversity baseline. This habitat was assessed as good condition.

Former attenuation pond: Willow scrub (h3j) and other wetland habitat (f2f)

3.3.45. An area of mature willow scrub was present in the south of the Site just outside of the university campus. The habitat consisted of willow carr with a boundary of marginal vegetation in the form of reedbeds which was classified as other wetland (f2f). This area is thought to have previously been an attenuation pond which has since overgrown. Species consisted of crack willow, grey willow (*Salix cinerea*) and field maple in the willow scrub. Bulrush (*Scirpoides holoschoenus*) and *Phragmites* species dominated the other wetland habitat.

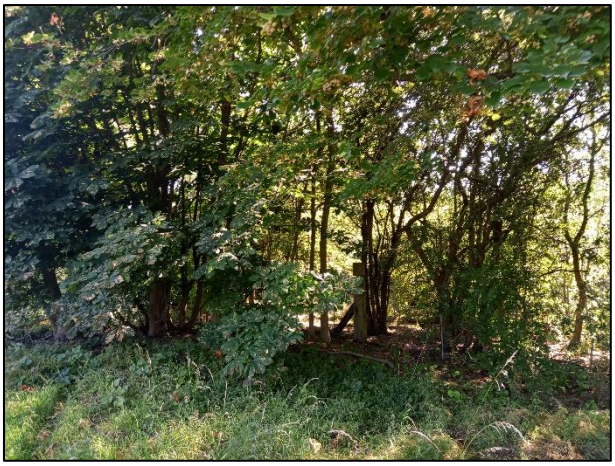
Figure 21: Willow scrub (h3j) and other wetland habitat (f2f)

3.3.46. Reedbeds are listed as a Nottinghamshire LBAP habitat and as the area of other wetland habitat was similar to this habitat, it was considered formally identified within the local plan and contributed 2.53 habitat units to the on Site baseline biodiversity value. It was assessed as moderate condition. The willow scrub was assessed as moderate condition and due to its location adjacent to the wetland area, it has been considered within a location ecologically desirable but not within the local strategy. It contributed 2.50 habitat units to the on Site biodiversity baseline value.

Other woodland - broadleaved (w1g)

3.3.47. Numerous parcels of other broadleaved woodland were present on Site, varying in species composition and condition. Species present within this habitat type included pedunculate oak, Scot's pine, field maple, ash, hawthorn, elder, sweet chestnut (*Castanea sativa*), lime species, cherry laurel, whitebeam, cherry, *Robinia* species, plum species (*Prunus* sp.), yew (*Taxus baccata*), snowberry, dogwood, beech (*Fagus sylvatica*), silver birch and rowan (*Sorbus subg. Sorbus*). Ground flora consisted of cleavers, nettles, hedge mustard (*Sisymbrium officinale*), wall barley, burdock, hemlock, perennial rye-grass, elder, alder (*Alnus glutinosa*), willowherb species (*Epilobium* sp.), bramble, wood avens, ivy (*Hedera helix*), holly and ragwort.

Figure 22: Other woodland - broadleaved (w1g)



3.3.48. Some areas of broadleaved woodland were located within green belt land and as such were considered to be formally identified within the local plan. The remaining areas did not have strategic significance. In line with the Statutory DEFRA Metric, this habitat varied between poor and good condition. Some areas which were not able to be fully accessed were precautionarily assessed or assumed to be in good condition. All poor condition parcels contributed 2.67 habitat units, moderate condition parcels contribute 6.46 and good condition parcels contributed 16.88 habitat units to the on Site biodiversity baseline. All parcels in total contributed 26.01 habitat units to the on Site biodiversity baseline.

Other woodland - mixed (w1h)

3.3.49. There were four parcels of mixed woodland on Site, one in the south of the university campus, one to the west of the campus near the sports fields, and one to the north, in the farmland. The last was an arboretum located to the north of the campus that consisted of 50% native and non-native species.

3.3.50. The arboretum consisted of dominant silver birch, abundant London plane (*Platanus x acerifolia*) and redwood (*Sequoia* sp.) species, frequent *Cotoneaster* species, dogwood and Douglas fir (*Pseudotsuga menziesii*). Maple (*Acer* sp.) species, wayfaring tree (*Viburnum lantana*) and hornbeam (*Carpinus betulus*) were occasional species throughout the woodland. This habitat scored 25 woodland points on the woodland condition assessment sheet and achieved poor condition. Species present within the other areas of woodland consist of pine (*Pinus* sp.) species, ash, elder, *Prunus* species, wild cherry, field maple, willow species, lime, cherry laurel, black Corsican pine (*Pinus nigra*), blue atlas cedar, yew, oak (*Quercus* sp.), Scot's pine, sycamore and black locust (*Robinia pseudoacacia*). Ground flora across all parcels consisted of ivy, snowberry, hawthorn, wood avens, white dead-nettle (*Lamium album*), and rose (*Rosa* sp.) species. These parcels were assessed as poor (scored 22 woodland condition assessment points), moderate (scored 27 woodland condition assessment points) and good condition (assumed good condition as not assessed during the survey due to access constraints).

Figure 23: Other woodland - mixed (w1h)

3.3.51. One of the mixed woodland parcels was listed as a habitat of principle importance during the desk study, and another lay within greenbelt land. They were therefore considered to be formally identified within the local plan. The remaining areas did not have strategic significance. In line with the Statutory DEFRA Metric, this habitat varied between poor and good condition. All poor condition parcels contribute 12.93 habitat units, moderate condition

parcels contribute 2.27 and good condition parcels contribute 7.94 habitat units to the on Site biodiversity baseline. In total all areas contribute 23.14 habitat units to the on Site biodiversity baseline.

Coniferous woodland (w2)

3.3.52. Two areas of coniferous woodland were present on Site, one adjacent to the woodpasture and parkland in the north of the Site, and the other was located in the corner of the arable field to the west of the Site. The larger area of coniferous woodland in the north was not able to be accessed due to it being present on private land for which no access was granted. [redacted] It contained abundant pine, frequent oak and rarely occurring yew. Ground flora consisted of frequent bramble and cleavers and occasional Spanish bluebell (*Hyacinthoides hispanica*), which is a Schedule 9 non-native invasive species. Scrub present within the woodland consisted of elder, hawthorn, beech and holly. The area in the west was much smaller and consisted of dominant Scot's pine and frequent ash. Ground flora consisted of nettle, elder and bramble. This area was also not accessed and as such has also been assumed at good condition.

Figure 24: Coniferous woodland (w2)

3.3.53. Planted coniferous woodland is listed as a Nottinghamshire LBAP habitat and the northernmost parcel was located within green belt land. Therefore, this habitat was considered to be formally identified within the local plan. This habitat contributed 8.07 habitat units to the on Site baseline biodiversity value. This habitat was assessed as good condition.

Individual trees (32)

3.3.54. The Site contained over 100 individual trees ranging in size from small to large. Species consisted of broad-leaved lime (*Tilia platyphyllos*), Scot's pine, pedunculate oak, weeping willow (*Salix babylonica*), ash, horse chestnut (*Aesculus hippocastanum*), redwood, silver birch, lime species, cypress species (*Cupressus* sp.), holly, beech (ornamental) (*Fagus* sp.), cherry species, Corsican pine, whitebeam, apple (*Malus* sp.), ornamental cherry species, small-leaved lime (*Tilia cordata*), common lime (*Tilia x europaea*), red maple (*Acer rubrum*), *Robinia* species, London plane, Norway maple (*Acer platanoides*), turkey oak (*Quercus cerris*), blue atlas cedar, aspen (*Populus tremuloides*), field maple, Leyland cypress (*Cupressus x leylandii*) and narrow leaved ash (*Fraxinus angustifolia*). This habitat varied between poor, moderate and good condition, and some trees were precautionarily assessed due to access constraints.

Figure 25: Individual trees (32)

3.3.55. Trees in the northern half of the Site were located within green belt land and were considered to be formally identified within the local plan, the remaining trees were present within urban and arable habitats, included in the Nottinghamshire LBAP. These trees have also been classed as formally identified within the local plan. All areas together contribute 32.33 habitat units to the on Site baseline biodiversity value. In line with the Statutory DEFRA Metric, this habitat varied between poor and good condition. All poor condition parcels contributed 2.21 habitat units, moderate condition parcels contribute 10.56 and good condition parcels contributed 19.55 habitat units to the on Site biodiversity baseline.

3.4. Habitats (Linear)

3.4.1. *Linear waterbodies – Ditch (50)*

3.4.2. There were eight linear waterbodies present on Site, five of these contained water, and three of these were dry ditches (WB2, WB5 and WB6). One of the wet ditches (WB3) was present along a field boundary and associated with a hedgerow in the north-west portion of the Site. One was present to the east of the farmland in the north, another was present between the sports fields in the west of the Site and other two (WB1 and WB2) were located in the south-east of the Site, also present along field boundaries.

Figure 26: Ditch (50)

3.4.3. The five ditches on Site were assumed to be good condition as they were not assessed on Site. Ditches are included within the Nottinghamshire LBAP, as such they were considered to be formally identified within the local plan. The riparian encroachment varied for the ditches, with most falling under the "No Encroachment/No Encroachment" category, and one of the ditches falling under the "Major/Minor" category. All ditches on Site in total afforded 19.56 watercourse units to the on Site biodiversity baseline.

Hedgerows

3.4.4. A total of 47 hedgerows and 26 tree lines were recorded on Site. Their conditions ranged between poor and good condition and some were assumed to be good condition where they were not fully accessed.

Figure 27: An example of a hedgerow on Site

Figure 28: An example of a tree line on Site

3.4.5. Hedgerows and tree lines in the north of the Site were located within green belt land, and any hedgerow and tree lines that were species-rich were listed within the Nottinghamshire LBAP, and were therefore considered to be formally identified within the local plan. There were eight types of hedgerows and tree lines on Site. Appendix D summarises the total hedgerow units afforded to the on Site biodiversity baseline per each type of tree line and hedgerows on Site at each condition. Descriptions of the hedgerows are provided in Appendix D and their locations are shown in Appendix A.

3.5. Species

Plants - Invasive, protected and notable species

3.5.1. A total of 45 records of plant species originating from the last decade were returned within the Study Area. This included nine species listed in the Nottinghamshire Rare Plant Record (NRPR) and three non-native invasive species. The closest notable plant record was that of large leaved lime, which is listed as nationally scarce and restricted in the county on the Nottinghamshire Rare Plant Register, located 530m south-west of the Site in 2016. The nearest record of an invasive non-native species was that of giant hogweed, located 930m south of the Site in 2017.

3.5.2. There were a number of Schedule 9 non-native invasive species present on Site, as well as some invasive species not included on the Schedule 9 list, but that also outcompete native species. Schedule 9 non-native species present on Site included cotoneaster, Japanese knotweed and montbretia. Other notably problematic/invasive plants on Site include Spanish bluebell, cherry laurel and snowberry. Whilst these species are not included on the Schedule 9 non-native invasive species list, they can outcompete native species. Poison hemlock was also identified on Site. This plant is extremely toxic to humans and animals and can cause painful rash and burning eyes, and can be fatal if injected (Environment Controls, n.d).

3.5.3. There were also six species of plant identified on Site which are listed within Nottinghamshire's Local Biodiversity Action Plan. These species were smooth brome, scarlet pimpernel, orpine, black poplar, night flowering catchfly and early marsh orchid.

Birds

3.5.4. No records of birds were returned during the desk study within the Study Area in the last decade.

3.5.5. A variety of species were identified on Site during the various Site visits, which were either heard, seen or both. Species seen or heard on Site included woodpigeon (*Columba palumbus*), jackdaw (*Corvus monedula*), house sparrow (*Passer domesticus*), chaffinch (*Fringilla coelebs*), raven (*Corvus corax*), stock dove (*Columba oenas*), red-legged partridge (*Alectoris rufa*), carrion crow (*Corvus corone*), pheasant (*Phasianus colchichus*), swallow (*Hirundo rustica*), grey heron (*Ardea cinerea*), robin (*Erithacus rubecula*), kestrels (*Falco tinnunculus*) which were displaying, green sandpiper (*Tringa ochropus*), common snipe (*Gallinago gallinago*), yellowhammer (*Emberiza citrinella*), reed bunting (*Emberiza schoeniclus*), mistle thrush (*Turdus viscivorus*), fieldfare (*Turdus pilaris*), grey wagtail (*Motacilla cinerea*), blackbird (*Turdus merula*), little owl (*Athene noctua*), water rail (*Rallus aquaticus*) and redwing (*Turdus iliacus*). A barn owl (*Tyto alba*) box was also identified on a tree within a hedgerow on the boundaries of the arable fields, and house sparrow nests were identified within buildings on the campus, and jackdaws were seen nesting within a hedge with trees. Of the species above, house sparrow and yellowhammer (which are both also listed within the NERC act) as well as mistle thrush and fieldfare (which is also listed on schedule 1 of the WCA) are listed on the BoCCRed list and woodpigeon, stock dove, kestrel, green sandpiper (which is also listed on schedule 1 of the WCA) and common snipe were listed on the BoCCAmber list. Further species listed on the NERC act which were seen on Site was reed bunting, and redwing and barn owl are listed on schedule 1 of the WCA.

3.5.6. Due to the variety of suitable habitats on Site, ranging from woodland, hedgerows, grasslands, arable land, reedbeds and other wetland habitats and scrub, the Site is suitable for a range of

nesting bird species, including those listed on schedule 1 the WCA, the NERC act and the BoCCAmber and BoCCRed lists.

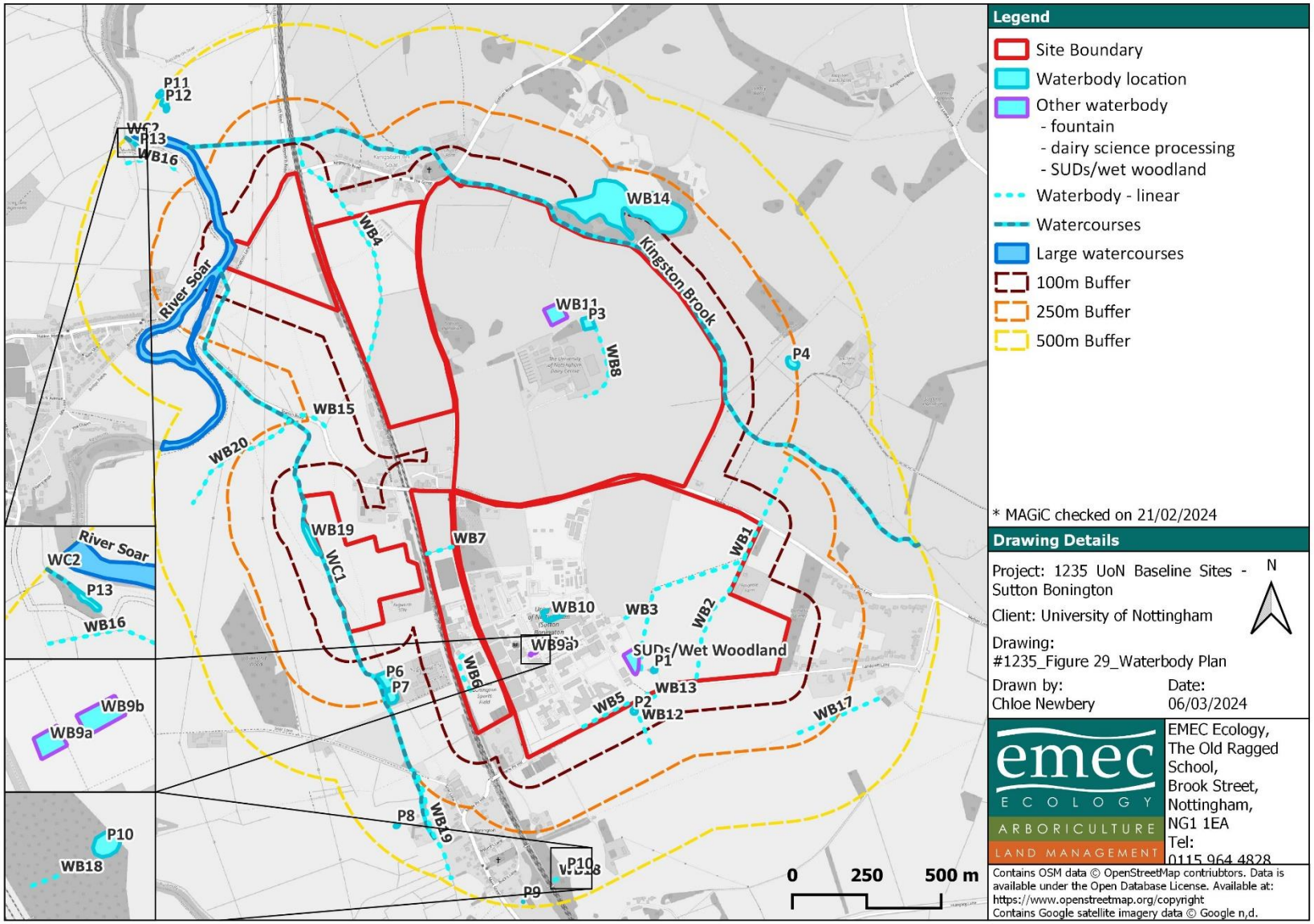
Great crested newt

3.5.7. No records of great crested newt (GCN) were returned from the records centre from within the last ten years, nor were any EPSL for GCN identified using MAGIC from within the Study Area. Three records of common frog were returned, the closest of which was located 1.44km south of the Site in 2022.

3.5.8. There were two ponds and 13 additional waterbodies within the Site and a review of satellite imagery and OS maps identified a further 11 ponds, nine waterbodies and four watercourses within 500 m of the Site. The locations of all identified waterbodies within 500 m of the Site are shown in Figure 29. P13 and WB16 lay beyond the River Soar, and P4, P11, P12 and WB14 lie beyond Kingston Brook. WB2, WB5 and WB6 were ditches that were dry at the time of the Site visit. The River Soar is a wide watercourse and is considered to be a barrier to the dispersal of GCN. Kingston Brook whilst it is a watercourse, may not form a complete barrier to the dispersal of GCN as there are footbridges present. The other waterbodies were not considered to lie beyond barriers to dispersal.

3.5.9. Terrestrial habitat on Site was suitable for GCN, including the woodland, longer areas of grassland, scrub, woodpasture and parkland, reedbed and other wetland areas and hedgerows.

Figure 29: Waterbody location plan



Reptiles

3.5.10. No records of reptiles were returned from the records centre originating from the last ten years from within the Study Area.

3.5.11. Several habitats on Site are suitable for reptiles including woodland, scrub, grasslands, field margins, ponds, ditches, hedgerows, wetland areas and woodpasture and parkland. Some features such as tyre piles were present and suitable for basking and potentially hibernating reptiles. Aquatic habitat on Site was particularly suitable for grass snake (*Natrix natrix*) which hunt in aquatic habitats such as ponds and ditches.

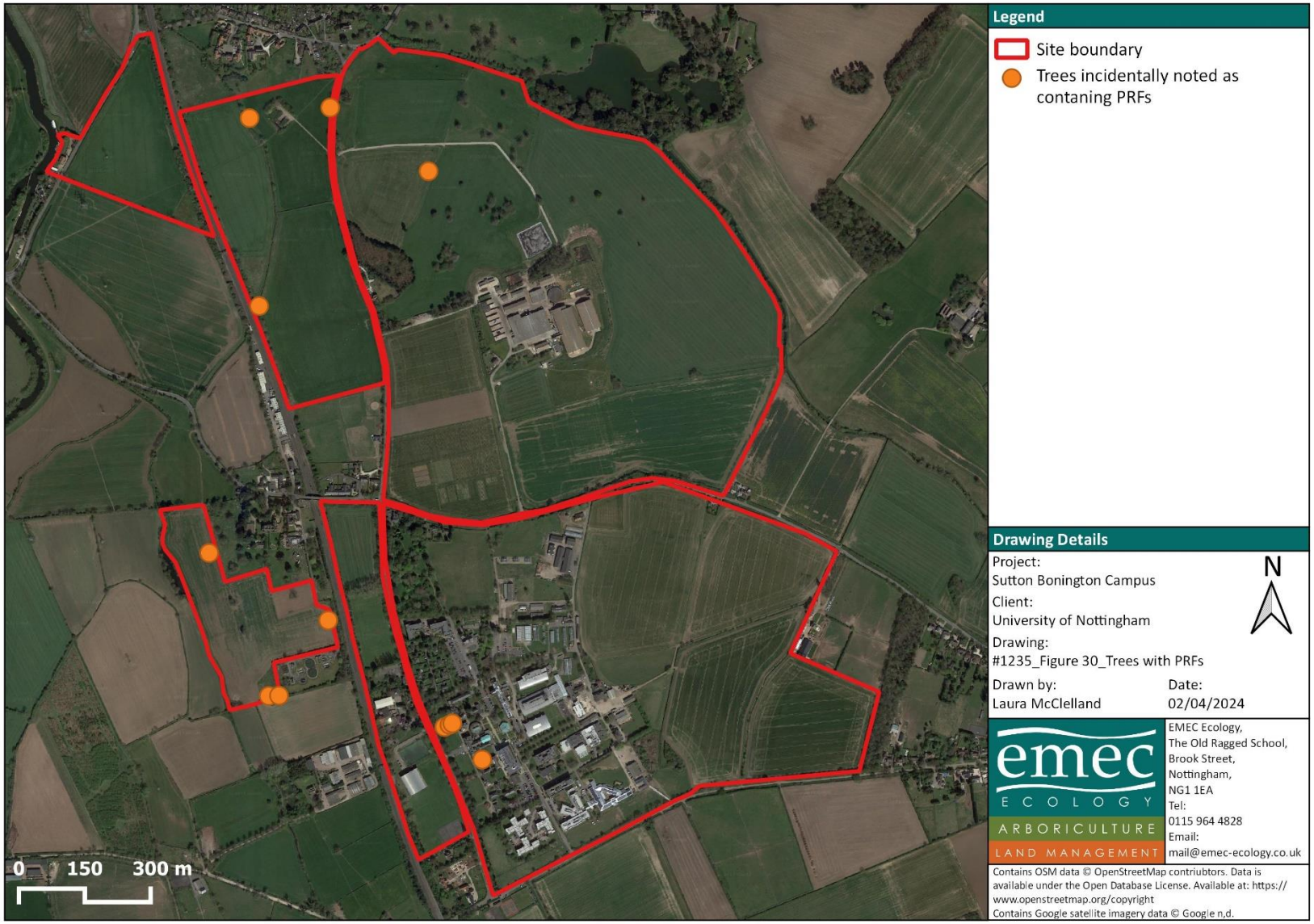
Bats

3.5.12. A total of 40 records of bats across six species were returned during the desk study in the last decade. The closest record was that of common pipistrelle, located 530m south-west in 2015. Common pipistrelle also retuned the greatest number of records at 23. One of the records was that of an unidentified bat species roost, located 700m south-west in 2021. Other species included Daubenton's bat, noctule bat, soprano pipistrelle and whiskered bat.

3.5.13. The Site was assessed as being of High suitability for foraging and commuting bats, in line with best practice guidelines (Bat Conservation Trust, 2023). This was due to the presence of suitable foraging habitat on Site including woodlands, wetland areas, grasslands and scrub, as well at the number of hedgerows and treelines present on the Site, which can be used by bats to commute across the Site, and connect the Site to wider environment.

3.5.14. Whilst buildings, structures and trees were present on Site, a full assessment of the bat roost potential of the Site was beyond the scope of the survey, though some trees were incidentally noted as having features suitable for bat roosting. The trees identified as having features suitable for bat roosting are shown in Figure 30 below. However, these should not be assumed to be the only trees on Site with potential to support roosting bats.

Figure 30: Trees noted to have features suitable for bat roosting

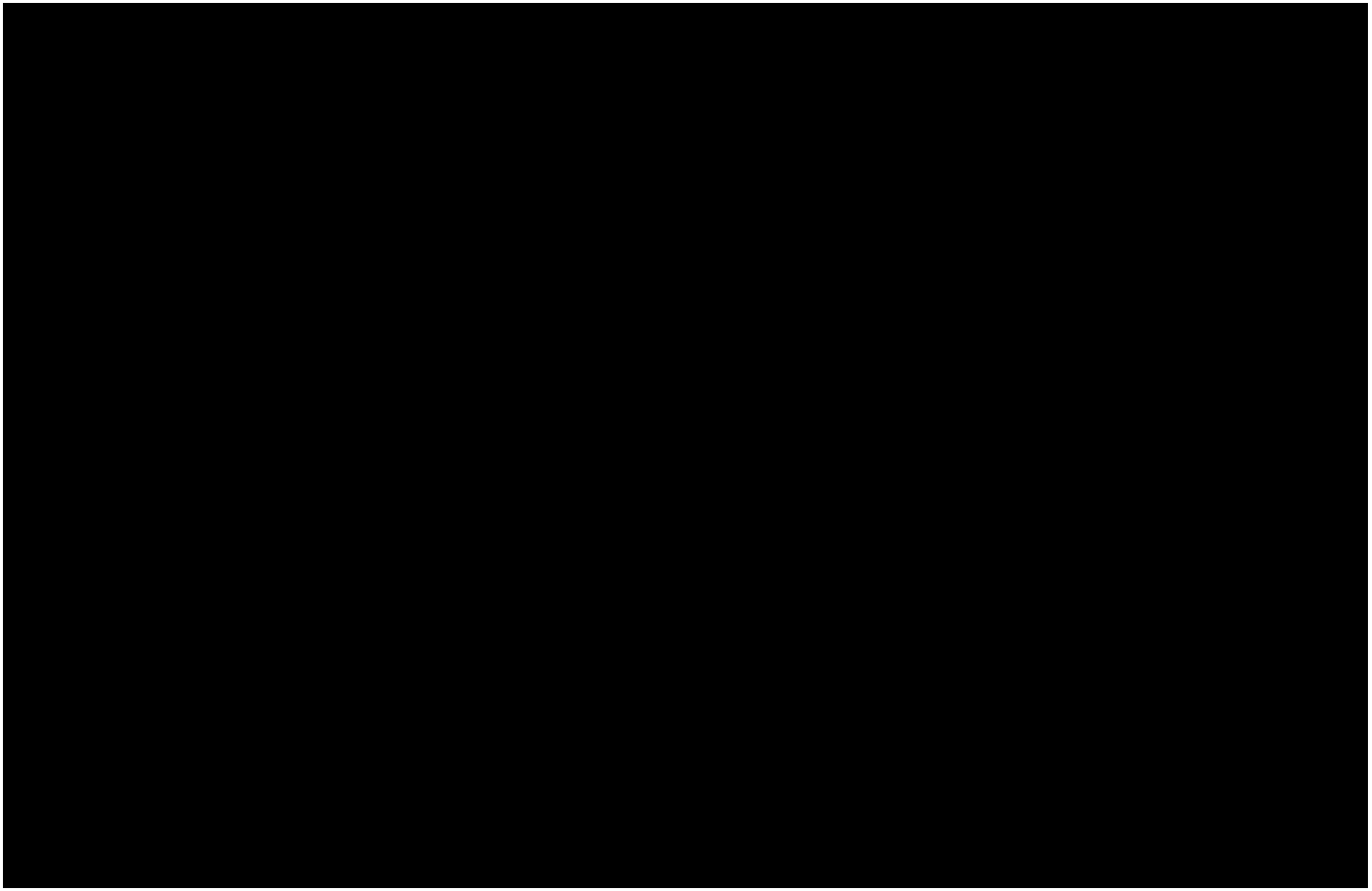


Badger

3.5.15. No records of badgers were returned from the records centre originating from the last ten years from within the Study Area.

3.5.16. [redacted]

3.5.17. A full badger survey was beyond the scope of this assessment and some areas were also inaccessible. [redacted]



Hazel dormouse

3.5.18. No records of hazel dormouse were returned from the records centre originating from the last ten years from within the Study Area.

3.5.19. The last known population of dormice in Nottinghamshire was thought to have become extinct in the 1950's and the species have since been reintroduced to three woodlands in the county and have naturally dispersed to a fourth woodlands adjacent to one of the release sites (Nottinghamshire Dormouse Group, n.d). Hazel dormouse is a Nottinghamshire BAP species. In 2020, dormouse boxes were introduced along Network Rail lines south of the existing woodland sites, and an additional reintroduction site was added, close to one of the existing reintroduction sites (Nottinghamshire Dormouse Group, n.d). The closest of these sites to the Site lies approximately 53.5km NNE of the Site as the crow flies. Whilst there are a number of woodlands present between the Site and the reintroduction sites (including Blidworth Woods and Dukes Wood Nature Reserve), this distance is considered too far for Dormouse to traverse. Therefore, the Site is considered too far from the reintroduction sites and dormouse are highly unlikely to be present on Site. They will therefore not be discussed further in this report.

Invertebrates

3.5.20. A single record of an invertebrate was returned in the Study Area in the last decade. This record was of a scarce chaser (*Libellula fulva*), located 1.52km west in 2020.

3.5.21. The various habitats on Site including the arable land, woodlands, hedgerows, wetland areas, ponds and ditches, grasslands, treelines, woodpasture and parkland, scrubby areas and some of the urban habitats are suitable for a range of invertebrates. A variety of wetland and aquatic habitats were present on Site which would be suitable for aquatic invertebrates, including ponds, ornamental ponds, wet ditches, reedbed and wet woodland.

Otter and water vole

3.5.22. No records of otter or water vole were returned from the records centre originating from the last ten years from within the Study Area.

3.5.23. Three different watercourses were present along the boundaries of the Site. The River Soar lay adjacent to the north-west of the Site, WC1, a tributary of the River Soar, lay adjacent to the western boundary of the Site and Kingston Brook, also a tributary of the River Soar, lay adjacent to the north-western boundary of the Site. These off Site watercourses were not assessed for their potential to support otter and water vole as they were not accessed. Five linear waterbodies were also present within the Site in the form of ditches. No signs of otter or water vole were observed within these ditches. However, a full survey for these species was outside the scope of this survey and as such, lack of signs does not purport to the species being absent from the waterbodies.

Fish

3.5.24. A total of six records across four fish species were returned during the last decade within the Study Area. The closest record was that of minnow, listed as least concern on the IUCN red list, located 0.51km east south-east in 2022. A record of brow-sea trout was also returned, a BAP species also listed on section 41 of the NERC act. It was located 1.75km north-west in 2015.

3.5.25. The River Soar, WC1 and Kingston Brook, lie adjacent to the Site's boundaries. These off Site watercourses and the linear waterbodies present on Site were not assessed for their potential to support notable fish species as they were not accessed.. Whilst no fish were observed within the on Site linear waterbodies, a full survey was outside the scope of this survey and as such, lack of observations does not purport to notable fish species being absent from the waterbodies.

Additional SPI

3.5.26. Records of brown hare and European hedgehog were returned during the desk study originating from the last decade within the Study Area. These comprised six hedgehog records and a single brown hare record. The brown hare record was closest, located 1.3km north-west in 2022, and the closest hedgehog record was located 310m south in 2021.

3.5.27. Brown hare was observed on Site within the woodpasture and parkland with further suitable habitat present in the arable fields. Toads were heard calling within a wet ditch on Site and further suitable habitat for the species is present on Site, including ponds and wetland areas. Furthermore, the Site contained suitable habitat for hedgehog including but not limited to the woodlands, hedgerows, grassland and scrub, as well as gardens.

4. Assessment of Effects and Recommendations

4.1. Proposed scheme design

4.1.1. Currently there are no proposals in place for the Site, so the likely effects on ecological receptors cannot be assessed. However, some general recommendations have been discussed to outline works that may be required should there be any works proposed in the future. It is recommended that the below assessments and recommendations are updated once detailed plans are available. Impacts to the below species as a result of the proposals may constitute an offence under legislation provided in Appendix E.

4.2. Designated sites, HPI and other notable habitats

Statutory and non-statutory designated sites

Recommendations

4.2.1. The closest statutory designated site to Site was Sutton Bonington Spinney and Meadows LNR, located 0.91km south of the Site, and the closest non-statutory designated site was Pithouse Lane Marsh SINC and LWS, located 1.5km east of the Site. Recommendations cannot be provided until the proposals are known and potential impacts to designated sites can then be assessed. Should any work be planned that may result in the impact of these designated sites, then discussion with the Local Planning Authority and Natural England may be required.

HPI

Recommendations

4.2.2. There are a number of habitats of principal importance on Site, including woodpasture and parkland, deciduous woodland, national forest inventory – broadleaved woodland, and national forest inventory (NFI) – mixed mainly conifer woodland. The nest nearest HPI to Site was NFI– mixed mainly broadleaved woodland, located 177m east from the Site.

4.2.3. It is recommended that any on Site HPI's are retained and left free of any impacts to maintain their condition and presence on Site. This includes the woodpasture and parkland, deciduous woodland, broadleaved woodland (NFI) and mixed mainly conifer woodland (NFI).

4.2.4. An impact assessment should be undertaken to inform mitigation and impact avoidance upon these habitats prior to the commencement of any future works.

4.3. Habitats

4.3.1. *Recommendations*

4.3.2. Where feasible, impacts to ecologically valuable habitats should be avoided and habitats should be retained. Where this is not possible, further surveys, mitigation and compensation will be required.

High and very high distinctiveness habitats

4.3.3. The following high distinctiveness habitats were present on Site: priority ponds, reedbeds, wet woodland and woodpasture and parkland (very high distinctiveness). It is highly recommended that these habitats are retained and left free of any impacts, as any removal of

these habitats will have a significant impact on the BIA, and may result in a large loss of on Site units post development. Furthermore, the woodpasture and parkland and woodlands on Site are habitats of principle importance, further raising their importance on Site.

4.3.4. As the neutral grassland, woodpasture and parkland, woodland, individual trees, reedbed, ponds, tree lines and hedgerows are proposed for retention, temporary storage of plant or machinery should be on hardstanding off Site to avoid unnecessary degradation of this habitat or disturbance to protected species that may be present. No storage of materials, equipment and plant will take place under the 'drip-zone' of trees (i.e. under their canopy). Best practice will be followed (i.e. BS5837:2012 Trees in Relation to Construction) to ensure individual mature trees are not adversely affected. It should be noted that arboricultural assessments are beyond the scope of this report and separate arboricultural surveys may be required.

4.4. Biodiversity Net Gain

4.4.1. *Recommendations*

4.4.2. Total on Site baseline habitat units equated to 958.43 habitat units, with a further 94.57 hedgerow units and 19.56 watercourse units. It its deemed that with further enhancement of habitats, the Site's baseline units are likely to be increased, depending on the extent and type of proposals on Site. Further details regarding the existing habitats, including the information inputted to achieve the calculation are provided within the associated Statutory DEFRA Metric document for the Site (EMEC Ecology, 2024).

4.4.3. As this report is a baseline BIA only at this time, a full BIA has not be carried out and full enhancement/mitigation recommendations cannot be given at this time. However, broad habitat recommendations are made below, which will improve biodiversity units/reduce habitat losses on Site:

4.4.4. *MoRPh*

4.4.5. As there were a number of watercourses adjacent to the Site, any adjacent watercourses will need to subject to a Modular River Physical (MoRPh) assessment in order to obtain their baseline data and enable the assessment of any impacts. Adjacent watercourses will require a MoRPh regardless of where or not there are works within the 10m riparian zone, due to the Site boundary itself falling within the 10m riparian zone of the watercourses.

Medium, high and very high distinctiveness habitats

4.4.6. Any loss of medium, high and very high distinctiveness habitats on Site will likely result in a significant loss of units, particularly high and very high distinctiveness habitats. Medium distinctiveness habitats include all woodland (with the exception of other coniferous woodland), all scrub habitat (with the exception of introduced shrub), and other neutral grassland. High distinctiveness habitats include priority ponds, reedbeds and wet woodland. The very high distinctiveness habitat on Site is woodpasture and parkland. It is recommended that these habitats are retained and are kept free of impacts, the woodpasture and parkland in particular.

Modified grassland

4.4.7. Some areas of modified grassland on Site failed criterion A, resulting in a poor condition score. It is recommended that this habitat is enhanced to achieve moderate condition, which could include supplementary seeding using a flowering lawn mix, which can withstand close, regular

mowing. Naturescapes N14 Flowering Lawn Mixture is recommended. Some parcels of this habitat also failed criterion E, with greater than 10% bare ground coverage. Seeding using the aforementioned seed mix of some areas of bare ground would enable this criterion to be passed, provided that between 1 and 10% bare ground is retained across this habitat parcel, as a complete lack of bare ground will also cause this criterion to fail.

Other neutral grassland

4.4.8. Some parcels of other neutral grassland on Site failed criterion A, resulting in a poor condition score. Seeding with a N4 Summer Flowering Butterfly & Bee Meadow Mixture will increase species diversity and, depending on other passed criteria, may allow this habitat to achieve moderate condition. Some habitat parcels also failed criterion E, due to presence of undesirable species. Removal of said species, inclusive but not limited to creeping thistle, spear thistle, dock, nettle and creeping buttercup, would result in the passing of this criterion. Criterion B, relating to sward height, was also failed on some habitat parcels. Maintenance of a varied sward height, maintaining at least 20% of the sward at above 7cm and at least 20% of the sward at below 7cm, would enable the habitat parcels to pass this criterion.

Mixed scrub

4.4.9. Areas of bramble scrub could be supplementarily planted in order to enhance this habitat to mixed scrub, managed in moderate condition if possible. Areas of ornamental scrub could also be removed and replaced with native mixed scrub. In order to be classified as native mixed scrub, the parcels should contain at least 3 woody species with no one species comprising greater than 75% of the parcel. It is recommended that grading the scrub to increase structural and age diversity, whilst ongoing management to maintain a good mixture of saplings, immature and mature shrubs, will likely pass criterion B, whilst ensuring that non-native species do not establish themselves within the habitat will enable a pass of criterion C. It is recommended a well-developed edge is created with scattered scrub and tall grassland present where scrub is present adjacent to these habitats, enabling a pass of criterion D in suitable parcels.

Woodlands

4.4.10. It is advised that any woodlands on Site, are retained and left free of any impacts, as any loss of this habitat will result in a significant loss of units due to its status as a high distinctiveness habitat. The woodlands passed a variety of condition criteria and ranged from poor to good condition. Enhancement of some areas of woodlands which were assessed as poor condition may be possible, targeting condition criteria for which each individual woodland scored low. This may involve increasing the number of native species present within the woodland; increasing the proportion of native to non-native species within the woodland, increasing the diversity of the ground layer within the woodland to create a recognisable NVC ground layer within the woodland; ensuring the absence of invasive plant species in the woodland; veteranisation of mature suitable trees within woodlands and allowing standing and falling deadwood to remain in place.

Hedgerows

4.4.11. There were several hedgerows and hedgerows with trees on Site ranging in condition. Species poor hedgerows (including hedgerows with trees) could be enhanced to species-rich hedgerows by supplementary planting. The number of native species within the hedgerows could be increased to at least 5 native woody species in order to by classified as species-rich.

Any gaps could also be planted up in order to maintain connectivity of the hedgerow and reduce gappiness, therefore passing criterion B2. Hedgerows that do not already pass criteria A1 and A2 could be allowed to reach and subsequently maintained to be at least 1.5m height and width, allowing criteria A1 and A2 to pass. Hedgerows planted within field margins would benefit from the creation of a strip of undisturbed vegetation for at 1m from the outside edge of the hedgerows, where it is not already present, which would pass criterion C1. These undisturbed strips could be planted with a wildflower seed mix and managed sensitively for wildlife.

4.5. Species

Plants - Invasive, protected and notable species

Recommendations

4.5.1. Given the presence of several notable, invasive and toxic plant species on Site, it is recommended that a detailed botanical survey is undertaken, to determine the presence of these species within the works footprint and surrounding area, when this is known.

4.5.2. Any species listed within the Nottingham LBAP (including smooth brome, scarlet pimpernel, orpine, black poplar, night-flowering catchfly and early marsh orchid) should be retained in situ and protected from any damage or removal of surrounding habitat, in order to preserve their condition and presence on Site.

4.5.3. It is recommended to remove all plants on Site which are listed under Schedule 9 of the WCA (including Japanese knotweed, cotoneaster and montbretia), in order to prevent their spread into the wider environment, which would constitute an offence. These species require specific removal methods and techniques to ensure complete removal, minimise recolonisation and prevent the spread of the species as a result or inappropriate removal practices. It is also recommended to remove the three invasive species present on Site which are not included on Schedule 9 of the WCA, to prevent competition with native species and increase native species diversity. The removal techniques for each species differ and the advice of a specialist invasive species removal contractor should be sought, to ensure this is undertaken appropriately. Further details regarding potential removal methods can be provided following the further survey.

4.5.4. It is also recommended that poison hemlock is removed from the Site, due to its extreme toxicity and proximity to areas such as sports fields. Due to this it constitutes a health and safety risk to visitors of the Site. The removal of this species should be carried out by a suitability qualified and trained professional in the removal of such species, due to the hazards associated with its extreme toxicity (Environmental Controls, n.d.).

4.5.5. Care should be taken to ensure that no plant or soil material is tracked from the vicinity of invasive schedule 9 species across the wider Site and off Site. Boots and machinery (including tyres/tracks of Site vehicles) should be cleaned thoroughly on a hard surface in order to prevent spread of infested material into the wider Site and off Site.

Birds

Recommendations

4.5.6. Most of the habitats present on Site are suitable for nesting birds. Furthermore, a range of species were identified on Site during the site visit ranging from birds listed on the BoCC

Amber and Red lists, NERC species and species listed in Schedule 1 of the WCA 1981. Any impacts to suitable habitats on Site have the potential to harm or disturb birds and their nests. Where possible, trees and scrub should be retained within any proposals, or if this is not possible, then compensation of bird nesting and foraging habitat should be undertaken for the loss of this habitat.

4.5.7. Prior to any works on Site, an assessment of potential impacts to birds should be undertaken. Following this, a suite of breeding bird surveys may be required to be completed, utilising vantage points to cover as much of the suitable habitat on Site as possible. These surveys should focus on all the suitable habitats on Site, with habitats of particular interest including woodland, woodpasture and parkland, arable land and wetland areas. Other suitable habitats on Site include but are not limited to scrub, hedgerows and grasslands. Retention of these habitats is highly recommended in order to reduce the loss of suitable nesting and foraging habitat.

4.5.8. Vegetation clearance, including removal, reduction, or pruning of any trees, hedgerows, scrub or shrubs, or works to built structures, should be undertaken outside of the main bird nesting period, taken to be from March until August, inclusive. Should this not be possible, then a nesting bird check should be undertaken immediately (within 24 hours) prior to the clearance by a suitably experienced Ecologist. In the event that an active bird nest is identified; either by the Ecologist during the check or at any point during the works, then works should immediately cease and, if not present, the Ecologist contacted. The Ecologist will advise on a suitable buffer to be established around the nest, within which no works must take place until it is confirmed by the Ecologist that all young have fledged, and the nest is no longer active.

4.5.9. The British Standard BS 42021:2022 came into effect on 31st March 2022 and sets out requirements for the selection and installation of integral nest boxes in new developments. This includes the incorporation of at least one integrated bird nest box for swift (*Apus apus*), starling (*Sternus vulgaris*), great tit (*Parus major*), blue tit (*Cyanistes caeruleus*) or house sparrow (*Passer domesticus*) within each dwelling.

Great crested newt

Recommendations

4.5.10. All waterbodies within 500 m of the Site that are not considered to lie beyond significant barriers to dispersal should be subject to environmental DNA (eDNA) surveys for GCN, to determine the presence or likely absence of this species on Site, prior to the commencement of any future works. This type of survey involves the collection of water samples from the relevant waterbody, before sending the samples to a laboratory for analysis. Surveys for GCN eDNA can only be undertaken between 15th April and 30th June.

4.5.11. Should the waterbodies test positive for GCN eDNA, then a suite of 'traditional' surveys may be required to determine population size class, as this is not possible from eDNA alone. This includes six surveys by suitably licensed ecologists using a range of techniques, such as searching vegetation for newt eggs, searching for newts within the waterbody using torchlight and trapping the waterbody for newts.

Reptiles

Recommendations

4.5.12. Suitable habitat for reptiles; including but not limited to, woodlands, grasslands, field margins, scrub, wetland areas, ditches and ponds, woodpasture and parkland, and hedgerows exist on Site and therefore, there is potential for reptiles to be impacted by any works to suitable habitats. As a result, reptile surveys may be required to determine the presence or likely absence of this species group on Site.

4.5.13. The standard survey methodology involves direct observation and the use of artificial refuges (Froglife, 1999). It is recommended that refuges are concentrated around suitable habitats such as woodland, suitable grasslands, scrub, ditches, ponds, woodpasture and parkland, wetland areas, hedgerows, and arable field margins. The optimal periods for undertaking reptile surveys are between April and May or September, during which seven visits are required in suitable weather conditions, with an additional visit a month before the surveys commence to set the refugia and allow them to 'bed in'.

Bats

Recommendations

4.5.14. The Site was assessed as having high suitability for foraging and commuting bats and therefore, depending on proposals, there is potential for the works to result in the reduction of foraging habitat for bats and/or severance of bat foraging and/or commuting routes

Roosting bats – Built structures

4.5.15. Any buildings/structures to be affected by works on Site, including demolition, direct works to the built structures or from sources such as additional artificial lighting, noise or vibration should be subject to a PRA by a suitably experienced Ecologist to assess their potential to support bat roosts and inform any further survey or mitigation required. The buildings will be categorised into one of five categories: None, negligible, low, moderate or high potential to support roosting bats. They will also be assessed for their potential to support hibernation roosts.

4.5.16. Depending on the results of the PRA survey, further nocturnal surveys of the built structures may be required, to determine the presence or likely absence of roosts and characterise any roosts identified.

4.5.17. In line with best practice guidelines (Bat Conservation Trust, 2023), if any built structures have hibernation potential, winter surveys should take place. Due to the potential disturbance, visits should be limited to the minimum necessary to obtain the necessary information. It is suggested that two hibernation surveys spread four weeks apart during the coldest months of the year in question (generally January and February , but could be December), are recommended to determine whether the building or structure is being used by hibernating bats, and if so, the species and approximate numbers present. Deployment of static bat detectors for structures with a moderate or high likelihood of bats being present should be undertaken over a minimum of two weeks per survey each month from November to March..

Roosting bats - trees

4.5.18. Any trees to be affected by works on Site, including pruning, removal, or disturbance from sources such as additional artificial lighting, noise or vibration should be subject to GLTAs by a suitably experienced Ecologist to assess their potential to support bat roosts and inform any further survey or mitigation required. The trees will be categorised into one of three categories: None (no PRF's [potential roosting features] present or highly unlikely); FAR

(further assessment required to establish if PRF's are present) and PRF (at least one potential roost features present). Once details and the location of any proposed works on Site are known, the advice of a suitably experienced bat Ecologist should be sought, who can advise on the further surveys required.

4.5.19. Any trees that are identified as requiring further survey (either FAR or PRF trees) and will be affected by the proposals will require further aerial assessment between May and August, in line with best practice guidelines (Bat Conservation Trust, 2023) for trees with potential to support roosting bats, to determine the presence or likely absence of roosts. Further nocturnal surveys may be required, depending on whether aerial assessments are possible. Trees will then be assessed as either PRF-I or PRF-M, depending on their potential roost type and amount of bats the roost is suitable for.

4.5.20. If bat roosts are identified within the built structures or trees during the presence/likely absence surveys, then an EPSL issued by Natural England may be required to enable the works to take place lawfully. Licences are usually only issued following the granting of full planning permission and discharge of all relevant planning conditions. EPSLs require survey data from the current or most recent survey season. Natural England generally suggest at least 30 working days for their assessment of a licence application; however this can be longer during busy periods.

Recommendations – Commuting and foraging bats

4.5.21. Depending on the proposals for the Site, further surveys for commuting/foraging bats may be required. In line with best practice guidelines (Bat Conservation Trust, 2023) for sites with High suitability habitat for foraging and commuting bats, this would comprise one survey visit per season (spring – April/May, summer – June/July, autumn – September/October) are recommended (further surveys may be required if these visits, or the results of the static detector surveys, reveal activity of interest that requires more observation on Site). Some of these surveys could comprise a dusk and pre-dawn or dusk to dawn survey, undertaken within one 24-hour period. This should be in combination with the deployment of static bat detectors, set to collect data for a minimum of five consecutive nights per month (April to October) in appropriate (or the best available) weather conditions for bats.

4.5.22. Lighting on Site prior to, during, and on completion of construction and into the operational phase, should be kept to a minimum to reduce the likelihood of disturbance to crepuscular and nocturnal fauna within and adjacent to the Site. Any lighting proposed should be designed sensitively to wildlife, following the guidance set out in Bats and Artificial Lighting in the UK (Bat Conservation Trust and Institute of Lighting Professionals, 2018) and should include (but is not limited to):

- No lighting of or lighting directed at the on Site or off Site built structures, trees or hedgerows.
- No night works during the construction phase.
- Any external security lighting should be set on motion-sensors and short (<1 minute) timers.
- LED luminaires should be used, with a warm white spectrum (<2700 Kelvin) to reduce the blue light component and with wavelengths higher than 550 nm.

- Column heights should be carefully considered to minimise light spill and only luminaires with an upward light ratio of 0% and with good optical control should be used.

Badger

Recommendations

4.5.23. [redacted]

4.5.24. [redacted]

4.5.25. [redacted]

4.5.26. If the survey confirms that an active badger sett is present on Site (or within 30 m of proposed works), a licence from Natural England may be required to close the sett. The licensed closure of badger setts can only be undertaken between July to November inclusive.

Invertebrates

Recommendations

4.5.27. There are several suitable habitats on Site for terrestrial and aquatic invertebrates (including white-clawed crayfish) across a range of habitat types including woodland, wet woodland, grasslands, woodpasture and parkland, wetland areas (including reedbeds), ornamental ponds, ditches, ponds (including priority ponds) and lakes, scrub and arable/urban habitats. The ditches on Site and the off Site adjacent watercourses were not assessed for their suitability for white-clawed crayfish as such assessments were beyond the scope of this particular survey. Habitats suitable for terrestrial and aquatic invertebrates should be retained where possible, including areas used for sheltering such as dead wood and habitats piles or for larval food plants, including ragwort and thistles. As the nature and scale/location of the works is not yet known for the site, it is considered that impacts to invertebrates may occur.

4.5.28. If any works result in the loss of habitat such as those listed above, it may be necessary to undertake surveys for terrestrial and/or aquatic invertebrates. The requirement for further surveys can be determined once detailed plans for the Site are known.

Otter and Water vole

Recommendations

4.5.29. Should any works be undertaken on Site that would result in direct or indirect impacts to the five linear waterbodies on Site, the off Site watercourses River Soar, Kingson Brook or WC1, or within 10 m of the bank tops of these, then further survey of these watercourses and waterbodies for water vole is recommended, to determine presence or likely absence of this species. In accordance with best practice guidance (Dean *et al*., 2016), two surveys would be undertaken: one 'early season' survey (mid-April – June, inclusive) and a second 'late season' survey (July – September, inclusive). The length of watercourse required for survey will vary depending on proposals, whilst we do not yet know what areas of the Site will be impacted, the required length will be considered once this information is received. If presence of water vole is confirmed during the first visit, a second visit may not be required. Surveys for otter and water vole can be undertaken concurrently if required.

4.5.30. Should any works be undertaken on Site that would result in direct or indirect impacts to the waterbodies within or adjacent to the Site or the woodland and scrub close to these waterbodies, further surveys of these waterbodies for otter including a buffer, the size of which would be determined depending on the scale and nature of the proposals, is recommended. Direct impacts include temporary or permanent loss of habitat or damage to habitat and indirect impacts, include noise, vibration and light pollution and pollution from spills or leaks of oil, diesel or petrol, cleaning down of machinery and dust and silt from excavations.

4.5.31. Survey for otter would include a systematic search for signs of otter presence, including spraints, footprints, feeding remains, runs, slides, holts and other resting places. In the absence of guidance specific to England and for the purpose of development, the guidance published by NatureScot (Protected Species Advice for Developers - Otter) and Monitoring the Otter (Chanin, 2003) will be used. The information provided by these resources is considered recognised good practice and the most up to date guidance currently available. If definitive or potential signs of otter are identified during the survey, then additional survey effort, including the deployment of trail cameras may be required.

Fish

Recommendations

4.5.32. If any works are proposed that would result in the impact to or loss of habitat watercourse habitat on or off Site, it may be necessary to undertake surveys for fish. The requirement for further surveys can be determined once detailed plans for the Site are known.

Additional SPI

Recommendations

4.5.33. Contractors will be made aware of the likely potential presence of SPI species, including European hedgehog, brown hare and common toad on Site. Vegetation clearance, reduction or pruning will be undertaken with care to avoid disturbance to sheltering or hibernating animals. Any debris from works will not be left on Site and any holes, trenches or trial pits associated with works will be covered overnight or fitted with egress boards to prevent animals becoming trapped. Any hedgehogs, hares or toads found within the works area during

construction will be carefully relocated to a sheltered location with plenty of vegetation cover, in an area off Site or within the Site away from the works and that will remain undisturbed.

4.5.34. If any new fencing is proposed as a result of future works on Site, hedgehog highways should be installed in these fences. This involves created a 13x13 cm gap at the base of the fence to allow the movement of hedgehogs. This could also be implemented in any existing fencing on Site.

5. Enhancement

5.1. Enhancement proposals

5.1.1. Specific enhancement recommendations on Site can be provided once proposed works are known. However, general enhancements are provided below that would be beneficial to wildlife using the Site. It should be noted that the below measures should still take into account protected species that may already be supported by the Site. For instance, new features should not be added to a tree with BRP via veteranisation without consultation with a suitably qualified Ecologist, as this in itself could disturb, damage or destroy an existing bat roost or an active bird nest.

Habitat boxes

5.1.2. In order to increase bat roosting provision on Site, a range of bat boxes could be placed on the buildings on Site, or onto existing suitably sized trees, preferably within quieter areas of the Site. Bat boxes should not be placed on buildings or trees which are likely to be lit during dusk/dawn and overnight and should instead be placed in unlit areas of the Site. Placement of bat boxes on the buildings or trees will increase bat roosting opportunities. “Eco Bat Box” or “Improved Crevice Bat Box” from NHBS are recommended which can be externally fitted onto buildings and fitted to trees. Bat boxes should be positioned ideally at least 4m in height, in an area where they will be sheltered from strong winds and exposed to sun for part of the day (facing south, south-east or south-west). A mix of orientations is preferable, to provide a range of thermal conditions for roosting. They should not be placed near to any artificial light sources.

5.1.3. Bird boxes could be placed within suitable areas on Site including the woodlands, woodpasture and parkland and tree lines throughout the Site. At least 5 bird boxes could be placed per habitat parcel, and these boxes should be placed at least 15m apart from each other. For smaller habitat parcels, where it would not be possible to fit 5 boxes in at this spacing, less than 5 boxes is acceptable. A variety of different bird boxes (28mm and 32mm openings, as well as open-fronted boxes) should be placed per habitat parcel, in order to provide a range of different nesting opportunities for a variety of species. Open fronted boxes should be placed on trees which provide natural vegetation cover such as trees with ivy cover, in order to provide shelter and make them less likely to be predated. Suitable bird boxes include:

- Vivara Pro Seville 28mm WoodStone Nest Boxes (or similar) are recommended to provide nesting spaces on Site for birds such as blue tits, tree sparrows, great tits, crested tits (*Lophophanes cristatus*), coal tits (*Periparus ater*) and pied flycatchers (*Ficedula hypoleuca*). These boxes should be placed on suitable trees at 1.5-3 m above ground, or higher if there is a high domestic cat population in the area;

- Vivara Pro Seville 32mm WoodStone Nest Box (or similar) are recommended to provide nesting spaces on Site for birds such as blue tits, trees sparrows, house sparrows (*Passer domesticus*), great tits, crested tits, nuthatches (*Sitta europaea*), coal tits and pied flycatchers. These boxes should be placed on suitable trees at 1.5-3 m above ground, or higher if there is a high domestic cat population in the area; and

- Vivara pro Barcelona WoodStone Open Nest Box (or similar) are recommended to provide nesting spaces for birds such as wrens, robins (*Erithacus rubecula*), spotted flycatchers (*Muscicapa striata*), pied wagtails (*Motacilla alba*), grey wagtails, song

thrushes and blackbirds (*Turdus merula*). These boxes should be placed on suitable trees between 1.5 m and 3 m high and sited within cover such as ivy (*Hedera helix*), to prevent predation.

5.1.4. Bird boxes should be cleaned out once a year to prevent spread of diseases and build-up of detritus. Cleaning should take place in winter, to prevent the chance of disturbance to nesting birds..

5.1.5. Hedgehog boxes could be placed within quiet, vegetated areas of the Site, placed under vegetation which will provide shelter from weather and predators. The entrance of the box should be positioned away from prevailing wind and rain. Hedgehog boxes should be sited away from roads as car strikes are one of the causes of hedgehog decline.

5.1.6. Invertebrate habitat boxes could be implemented across the Site, which would provide valuable sheltering, overwintering and nesting spaces for a range of terrestrial invertebrates. Bug Hotel from NHBS, National Trust Apex Insect House, Insect Tower from NHBS are recommended, as well as boxes which would provide nesting spaces for solitary bees. Solitary Bee Hotel from NHBS, Solitary Beehive or National Trust Hexagon Insect House are recommended to provide nesting spaces for solitary bees.

5.1.7. In order to provide further habitat for invertebrates and herptiles on Site post-development, habitat piles could be created in less disturbed and suitable areas of the Site. These consist of piles of material (rubble, rocks, logs etc.) with turf laid over the top. They provide valuable shelter spaces for invertebrates and resting, basking, sheltering and hibernation spaces for amphibians and reptiles.

Habitat enhancements for species

5.1.8. In addition to providing bat boxes and invertebrate boxes on Site, mature trees within the woodlands on Site could be veteranized to improve the trees for roosting bats and invertebrates. This is achieved by the controlled damaging of mature trees to increase the rate at which cavities and other features beneficial to wildlife form on a tree.

5.1.9. Hedgerows on Site can improve biodiversity, provide natural nesting and sheltering spaces for a range of species, provide commuting/foraging routes for bats, and can improve connectivity to the wider environment. Hedgerows could be planted within the Site planted to be species-rich. In order to be classified as species-rich, a hedgerow must contain 5 or more native woody species. Species which can be included within the hedgerow include: hawthorn, field maple, guelder rose, holly, dog rose, dogwood, blackthorn (*Prunus spinosa*), elder, rowan, beech (*Fagus sylvatica*) and hornbeam (*Carpinus betulus*). Planting species which produce berries will provide foraging for birds and invertebrates. A suggestion for placement of new hedgerows include along field boundaries where there is not already a hedgerow or tree line, which will increase the connectivity network across the Site.

5.1.10. If any existing hedgerows are gappy or species-poor, it is recommended to undergo supplementary planting of these hedgerows to increase the number of native species to at least 5 woody species, resulting in their enhancement to species-rich, and increasing the connectivity of the hedge by infilling any gaps.

5.1.11. As a further enhancement for bats and invertebrates on Site, night-flowering plants could be incorporated onto the Site, perhaps in replacement of less desirable ornamental species which do not provide as much value to native wildlife. These night flowering plants will attract

night-flying invertebrates and in turn, provide a food source for bats. These could be placed within existing ornamental areas of the Site replacing non-native species, could be newly created across suitable areas of the Site, or created as a green wall/vertical planting up the sides of buildings or fences. Exact species should be determined by local conditions and soil substrate. However, suitable species include: Native honeysuckle (*Lonicera periclymenum*) (climbing); night-scented jasmine (*Cestrum aurantiacum*) (non-native, but a night scented climbing plant); bramble (climbing), dog rose (climbing); corncockle, cornflower (*Centaurea cyanus*), corn marigold (*Glebionis segetum*), field poppies (*Papaver rhoeas*), English bluebell (Hyacinthoides non-scripta), mallow (*Malva sp.*), ox-eye daisy (*Leucanthemum vulgare*), primrose (*Primula vulgaris*), red campion (*Silene dioica*), scabious (*Scabiosa sp*.), st. john's wort (*Hypericum perforatum*), wood forget-me-not (*Myosotis sylvatica*) or yarrow (Bat Conservation Trust, 2015). Herbs such as angelica (*Angelica archangelica*), bergamot (*Monarda fistulosa*), borage (*Borago officinalis*), coriander (*Coriandrum sativum*), English marigolds (*Calendula officinalis*), fennel (*Foeniculum vulgare*), feverfew (*Tanacetum parthenium*), hyssop (*Hyssopus officinalis*), lavender (*Lavandula angustifolia*), lemon balm (*Melissa officinalis*), marjoram (*Origanum majorana*), rosemary (*Salvia rosmarinus*), sweet cicely (*Myrrhis odorata*) or thyme (*Thymus vulgaris*) also attract night-flying invertebrates and in turn, bats, and could be vertically planted within a green wall (Bat Conservation Trust, 2015).

5.1.12. Areas of non-native ornamental scrub could also be replaced with mixed scrub, consisting of native species, and managing them sensitively for wildlife. This will increase native foraging and sheltering provision for a range of species. Flowering species such as dog wood, dog rose, field rose, guelder rose, elder, hawthorn, rowan or blackthorn will also provide a nectar source for invertebrates and a foraging source for birds. Further areas of native scrub could also be created within habitats with lower value (such as bare ground or urban habitats), to increase the amount of higher distinctiveness habitats on Site.

5.1.13. The planting of additional native berry and fruit-producing trees is recommended in suitable habitats across the Site in order to provide foraging potential for birds and invertebrates, and will provide natural bird nesting habitat. This could include: hawthorn, guelder rose, holly, dog rose, blackthorn, elder, native wild cherry, or fruit trees local to the area, dependant on local conditions and soil substrate.

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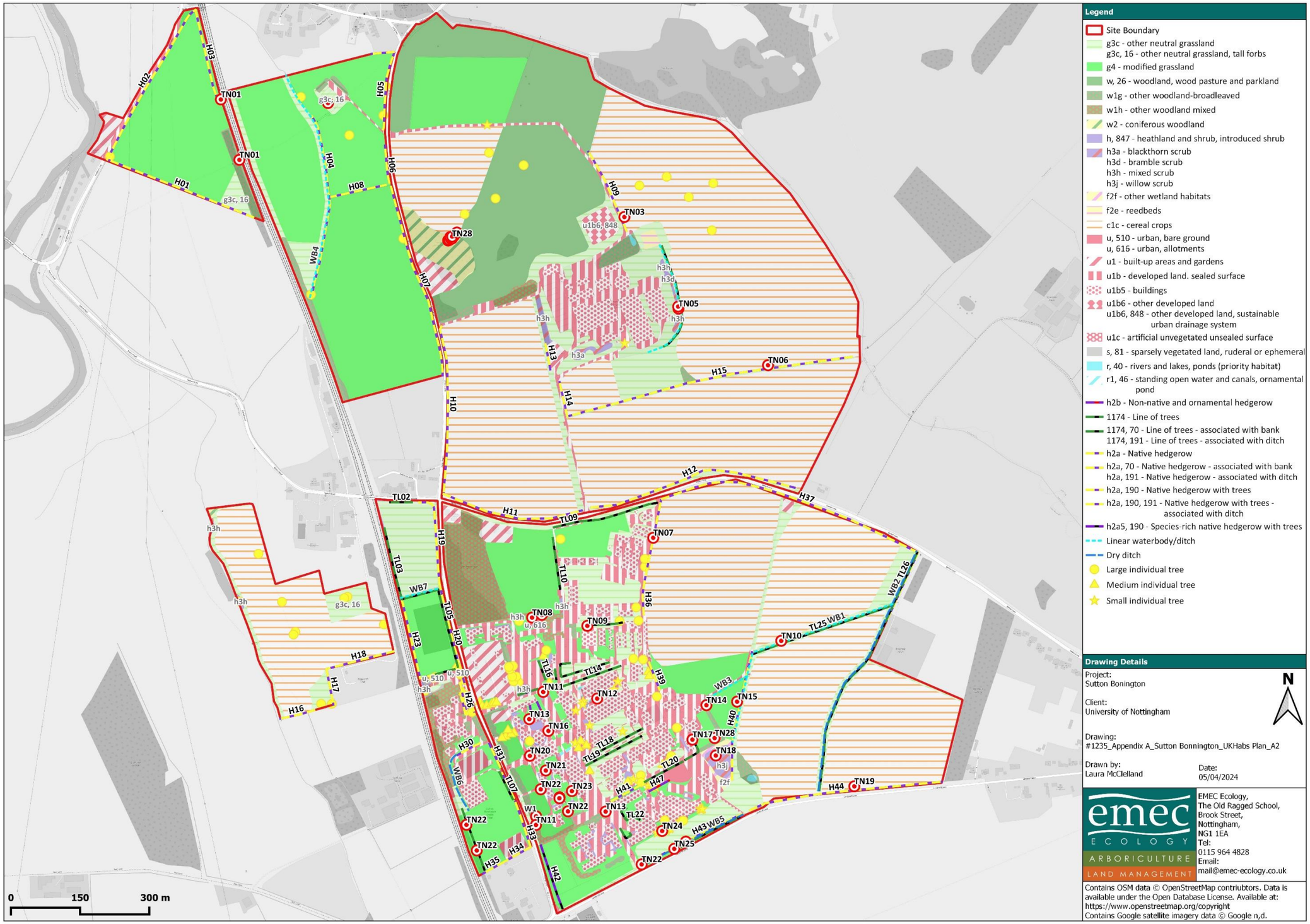
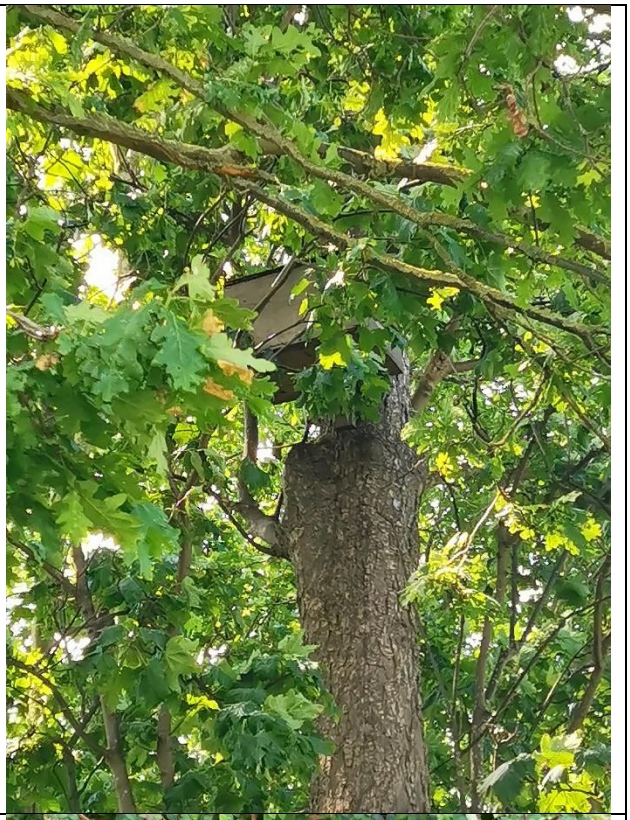
Appendix A: UK Habitat Plan



Appendix B: Target Notes and Photographs

No.	Description	Photograph
1	Railway bridge - bat roost potential inspection required	
2	Pile of tyres	No photograph available
3	Wintering or passage green sandpiper	No photograph available
4	Toad calling	No photograph available
5	Common snipe flushed from wet ditch	No photograph available
6	Kestrels displaying	No photograph available
7	Yellowhammer and reed bunting	No photograph available
8	[redacted]	No photograph available
9	Large rabbit warren	

10	Barn owl box	
11	Snowberry	

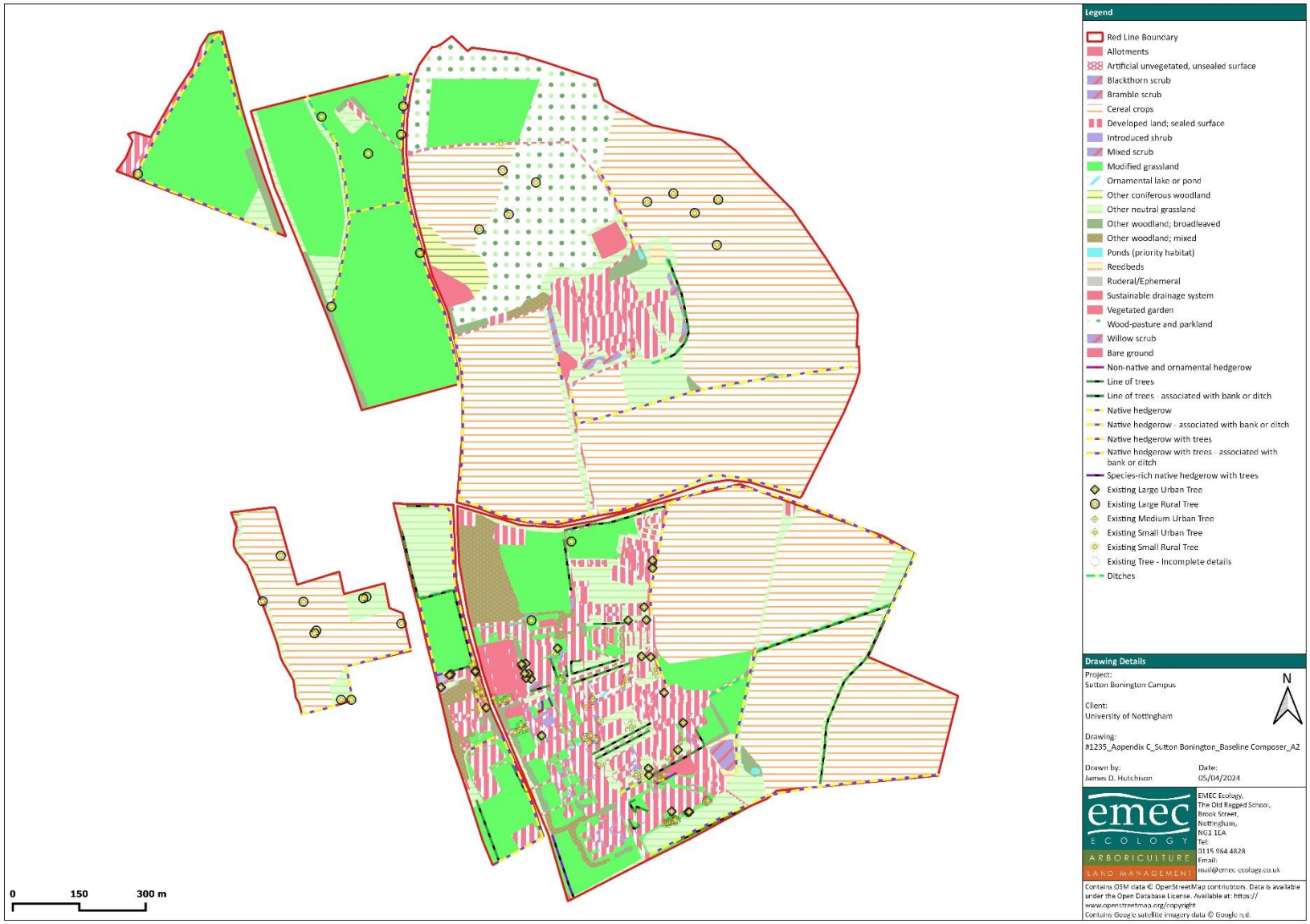
12	Early marsh orchid	
13	Cotoneaster	
14	Little owl calling, likely breeding nearby	No photograph available
15	Mistle thrush, redpoll, fieldfare and grey wagtail	No photograph available

16	Montbretia	
17	Wintering redwing	No photograph available
18	Wintering water rail	No photograph available
19	Japanese knotweed	
20	Several house sparrow nests up towards eaves	No photograph available

21	Tree with bat potential - Tree tag no. 000056	
22	Rabbit warren	No photograph available
23	Mammal hole under tree	
24	Abundant fungi on ground around the trees	No photograph available

25	Mammal trail	
26	[redacted]	
27		
28		

Appendix C: Baseline Habitats Plan



Appendix D: Hedgerow tables

Site hedgerows

Habitat	Condition	Units per condition	Total units for habitat
Line of trees - associated with bank or ditch (1174, 70 or 1174, 191)	Moderate	6.03	6.03
Line of trees (1174)	Moderate	8.07	8.41
Line of trees (1174)	Poor	0.34	
Native hedgerow - associated with bank or ditch (h2a, 70 or h2a, 191)	Good	3.71	7.44
Native hedgerow - associated with bank or ditch (h2a, 70 or h2a, 191)	Moderate	3.73	
Native hedgerow with trees - associated with bank or ditch (h2a, 190, 191)	Good	8.71	8.71
Native hedgerow with trees (h2a, 190)	Good	36.86	41.46
Native hedgerow with trees (h2a, 190)	Moderate	3.71	
Native hedgerow with trees (h2a, 190)	Poor	0.88	
Native hedgerow (h2a)	Good	15.86	20.46
Native hedgerow (h2a)	Moderate	4.60	
Non-native and ornamental hedgerow (h2b)	Poor	0.10	0.10
Species-rich native hedgerow with trees (h2a5, 190)	Moderate	1.97	1.97

Hedgerow conditions

Ref.	Brief description	Condition
H1	H1 was an unmanaged native hedgerow with trees (h2a, 190) 4m in height and 2m in width. The hedgerow was very gappy and poorly managed, and appeared to have been left to grown out. Ash trees were present. Hawthorn was dominant, with frequent elder and occasional bramble and field rose (*Rosa arvensis*). This hedgerow passed all but B2, resulting in a good condition score.	Good
H2	H2 was a native hedgerow with trees (h2a, 190) managed hedgerow at 3m in height and 2m in width with occasional ash trees. Hawthorn was dominant, with frequent elder and blackthorn, with occasional bramble. One gap over 5m wide was present. This hedgerow passed all but B2, resulting in a good condition score.	Good
H3	H3 was a native hedgerow with trees associated with the railway embankment (h2a, 70, 190) behind it and was dominated by hawthorn, with occasional elder. It was 6m in height and 2m in width. Ash and sycamore trees were present. Ground flora included cleavers,	Good

	nettle and bramble, though the ground was bare within the hedgerow itself. One gap over 5m was present. This hedgerow passed all but B2, resulting in a good condition score.	
H4	H4 was a native hedgerow associated with a ditch (h2a, 191) dominated by hawthorn with occasional white bryony (*Bryonia alba*) and dog rose (*Rosa canina*), and frequent bramble. Elder and cleavers were also present. This hedgerow passed A2, B2, C1, D1 and D2, resulting in a moderate condition score.	Moderate
H5	H5 was a native hedgerow with trees (h2a, 190) 1-2m in height and 1.5m in width. Hawthorn , dogwood and blackthorn were frequent, with occasional white bryony and hazel. Trees included black walnut (*Juglans nigra*), field maple and ash. This hedge passed all condition assessment criteria, resulting in a good condition score.	Good
H6	H6 was a native hedgerow with trees (h2a, 190) 2m in height and width, with dominant hawthorn, occasional elder and holly, and rarely occurring white bryony, ash and broadleaved lime. White campion was present at the ground layer. This hedge passed all condition assessment criteria, resulting in a good condition score.	Good
H7	H7 was a native hedgerow with trees (h2a, 190) dominated by hawthorn, with occasional bramble and elder, and rarely occurring gorse (*Ulex europaeus*) and hazel. Ash and oak were present as tree stands. Ground flora included night flowering catchfly (*Silene noctiflora*); which is a Nottinghamshire LBAP species, and mugwort. It was 2m in height and 1.5m in width. This hedge passed all condition assessment criteria, resulting in a good condition score.	Good
H8	H8 was a native hedgerow (h2a) dominated by hawthorn with frequent elder. Ground flora consisted of ruderal vegetation including hogweed. It was 2m in height and width. This hedge passed all condition assessment criteria, resulting in a good condition score.	Good
H9	H9 was a native hedgerow with trees (h2a, 190) 2m in height and 1.5m in width. Mature hornbeam and lime were present, as well as abundant hawthorn and frequent dog rose, field maple and blackthorn. Somewhat patchy with large gaps filled in by newly planted whips. H9 passed A1, A2, B1,D1 and D2, resulting in a poor condition score.	Poor
H10	H10 was a native hedgerow (h2a) dominated by blackthorn with abundant oak, field maple and hazel. It was 1.8m in height and 2m in width. H10 passed A1, A2, B1, B2, D1 and D2, resulting in a moderate condition score.	Moderate
H11	H11 was a native hedgerow (h2a) dominated by blackthorn with abundant oak, field maple and hazel. It was 1.8m in height and 2m in width. H11 passed A1, A2, B1, B2, D1 and D2, resulting in a moderate condition score.	Moderate
H12	H12 was a native hedgerow with trees (h2a, 190) 4m in height and 3m in width and was dominated by hawthorn, with abundant oak and frequent field maple. H12 passed A1, A2, B1, B2, C1, D1, E1 and E2, resulting in a good condition score.	Good
H13	H13 was a native hedgerow (h2a) dominated by hornbeam and was 3.5m in height and 2m in width. H13 passed A1, A2, B1, B2, C1, D1 and D2, resulting in a good condition score.	Good
H14	H14 was a native hedgerow (h2a) dominated by hawthorn with abundant field maple, frequent hazel and occasional blackthorn. It was 1.5m in height and width. H14 passed A1, A2, B1, B2, C1, D1 and D2, resulting in a good condition score.	Good
H15	H15 was a native hedgerow (h2a) dominated by hawthorn with abundant field maple, frequent hazel and occasional blackthorn. It was 1.5m in height and width. H15 passed A1, A2, B1, B2, C1, D1 and D2, resulting in a good condition score.	Good
H16	H16 was a native hedgerow with trees (h2a, 190) 2m in height and width and contained abundant hawthorn, field maple and elder, as well as occasional ash trees. Ground flora included frequent cleavers and Yorkshire fog, occasional curled dock, common hogweed, bramble and common nettle. Greater burdock was rarely occurring. The hedgerow was	Good

	gappy, though did not contain gaps bigger than 5m, with no gap between the canopy and the base of the ground. This hedge passed all condition assessment criteria, resulting in a good condition score.	
H17	H17 was a native hedgerow with trees (h2a, 190) dominated by hawthorn with frequent elder and occasional white bryony and purple plum (*Prunus cerasifera*). Silver birch trees were present. It was at least 6m in height and 2m in width. Ground flora included nettle, perennial ryegrass and cleavers. This hedgerow passed all condition criteria, resulting in a good condition score.	Good
H18	H18 was a native hedgerow with trees (h2a, 190) dominated by hawthorn with frequent elder and occasional white bryony and purple plum. Silver birch trees were present. It was at least 6m in height and 2m in width. Ground flora included nettle, perennial ryegrass and cleavers. H18 was dominated by hawthorn with frequent elder and occasional white bryony and purple plum. Silver birch trees were present. It was at least 6m in height and 2m in width. Ground flora included nettle, perennial ryegrass and cleavers. This hedgerow passed all condition criteria, resulting in a good condition score.	Good
H19	H19 was a native hedgerow with trees (h2a, 190) containing dominant hawthorn and abundant elder, with frequent lime, pedunculate oak and elder. Beech and maple were occasionally occurring. Ground flora included dominant nettles, frequent ivy, occasional burdock and rarely occurring hedge mustard and hemlock. The hedgerow was 5m in height and 3m in width. This hedgerow passed all condition criteria, resulting in a good condition score.	Good
H20	H20 was a native hedgerow (h2a) dominated by alder with frequent privet (*Ligustrum vulgare*) and occasional hawthorn, bramble, wood avens and cleavers. The hedgerow was 1.5m in height and width, with no gap between the base of the canopy and the ground. This hedgerow passed all condition criteria, resulting in a good condition score.	Good
H21	H21 was a native hedgerow (h2a) entirely dominated by privet and was 1.5m in height and width. This hedgerow passed all condition criteria, resulting in a good condition score.	Good
H22	H22 was a native hedgerow (h2a) dominated by privet and contained frequent horse chestnut. It was 5m in height and 4m in width. This hedgerow passed all condition criteria, resulting in a good condition score.	Good
H23	H23 was a native hedgerow with trees (h2a, 190) 6m in height and 4m in width and was dominated by hawthorn, elder and lime. Nettles, creeping thistle, creeping buttercup and curled dock were frequent, with occasional cleavers, hedge mustard and poplar (*Populus* species). A nightshade species, spear thistle, a speedwell species, burdock and horse chestnut were rarely occurring. This hedgerow appeared to be over the fence on the railway footprint, with ground flora extending into the field. This hedgerow passed all condition criteria, resulting in a good condition score.	Good
H24	H24 was a native hedgerow (h2a) dominated by privet and was 2m in height and 1.5m in width. There was no gap at the base and a hardstanding verge was present to the west and a grass verge to the east. This hedgerow passed all condition criteria, resulting in a good condition score.	Good
H25	H25 was a native hedgerow (h2a) dominated by privet and was 1.5m in height and 0.5m in width. A gap was present containing a gate, and the rest had been allowed to grow. Mesh was present at the base and a gap of 20cm was present between the base of the canopy and the ground. This hedgerow passed A1, B1, B2, D1 and D3, resulting in a moderate condition score.	Moderate
H26	H26 was a native hedgerow (h2a) dominated by privet, with occasional cypress, honeysuckle and holly. It was 1.5 -2m in height and 1-1.5m in width. There was a minimal gap at the base, a path to the west and a garden and hardstanding to the east. This hedgerow passed A1, A2, B1, B2, D1 and D3, resulting in a moderate condition score.	Moderate

H27	H27 was a native hedgerow (h2a) dominated by beech with abundant ivy at base. Holly and cotoneaster were occasional throughout the hedgerow. The hedgerow was 1.3m in height and 1.2m in width. No gap was present at the base. This hedgerow passed A1, A2, B1, B2 and D2, resulting in a moderate condition score.	Moderate
H28	H28 was a native hedgerow (h2a) dominated by holly with frequent nettles. Hawthorn, privet, cleavers, elm (*Ulmus procera*), green alkanet and hedge bindweed (*Calystegia sepium*) were occasional throughout the hedgerow and white bryony and greater celandine (*Chelidonium majus*) were rarely occurring. Silver birch was also present. The hedgerow was 1.5m in height and 1m in width. A gap was present for a gate. This hedgerow passed A1, B1, B2, D1 and D2, resulting in a moderate condition score.	Moderate
H29	H29 was a native hedgerow (h2a) 1.2m in height and 1m in width and was dominated by privet, with frequent honeysuckle. This hedgerow passed B1, B2, C1, C2, D1 and D2 resulting in a moderate condition score.	Moderate
H30	H30 was a native hedgerow (h2a) dominated by hornbeam with occasional ragwort and cleavers. It was 1.5m in height and 1m in width. There was no gap at the base and the hedgerow looked regularly managed, though did not appear to have been recently cut. This hedgerow passed A1, B1, B2, D1 and D2, resulting in a moderate condition score.	Moderate
H31	H31 was a native hedgerow with trees (h2a, 190) dominated by beech, with occasional holly, cleavers, garlic mustard (*Alliaria petiolata*), nettles, curled dock and *Cotoneaster* species (suspected to be willow-leaved cotoneaster [*Cotoneaster salicifolius*]). This hedgerow passed all criteria except for D1, resulting in a good condition score.	Good
H32	H32 was a native hedgerow with trees (h2a, 190) dominated by beech and pine, some of which were mature stands. The hedgerow was 1.2m in width and 2m in height, though the tree stands reached up to 10m in height. This hedgerow passed all criteria except for A2, resulting in a good condition score.	Good
H33	H33 was a native hedgerow (h2a) dominated by hawthorn with frequent common nettle and hemlock, and occasional privet, white bryony, hedge mustard, cleavers and bramble. The hedgerow was 2.5m in height and 1.2m in width. This hedgerow passed A1, B1, B2, D1 and D2, resulting in a moderate condition score.	Moderate
H34	H34 a native hedgerow (h2a) was dominated by hawthorn with frequent nettles and rarely occurring horse chestnut. The hedgerow was 2.5m in height and 1.2m in width. It was mostly vegetated at the base, except for the section next to the sports court, where hard surface was adjacent. No gap was present at the base of the hedgerow. This hedgerow passed A1, B1, B2, D1 and D2, resulting in a moderate condition score.	Moderate
H35	H35 was a native hedgerow (h2a) dominated by hawthorn with abundant nettles and occasional white bryony, horse chestnut, black walnut, cleavers, bramble and maple. The hedgerow was 2.5m in height and 1.5m width. This hedgerow passed all condition criteria, resulting in a good condition score.	Good
H36	H36 was a native hedgerow (h2a) dominated by hawthorn with abundant field maple, hazel and ash, and rarely occurring guelder rose (*Viburnum opulus*). It was 2m in height and width. This hedgerow passed A1, A2, B1, B2, C1 and D1, resulting in a good condition score.	Good
H37	H37 was a native hedgerow (h2a) dominated by hawthorn with abundant field maple, hazel and ash, and rarely occurring guelder rose. It was 2m in height and width. This hedgerow passed A1, A2, B1, B2, C1 and D1, resulting in a good condition score.	Good
H38	H38 was a native hedgerow (h2a) dominated by hawthorn with abundant field maple, hazel and ash, and rarely occurring guelder rose. It was 2m in height and width. This hedgerow passed A1, A2, B1, B2, C1 and D1, resulting in a good condition score.	Good

H39	H39 was a native hedgerow (h2a) dominated by hawthorn with abundant nettle and bramble. Elder was frequent with occasional white bryony and rarely occurring wych elm (*Ulmus glabra*). The hedgerow was 2.5m in height and 1.5m in width. This hedgerow passed A1, A2, B1, B2 and D1, resulting in a moderate condition score.	Moderate
H40	H40 was a native hedgerow associated with a ditch (h2a, 191) dominated by hawthorn with abundant dogwood. Bramble and hedge bindweed were frequent throughout. It was 2.3m in height and 2m in width. This hedgerow passed all condition criteria except C2, resulting in a good condition score.	Good
H41	H41 was a native hedgerow (h2a) dominated by hawthorn and was 2m in height and width. This hedgerow passed all condition criteria except C2, resulting in a good condition score.	Good
H42	H42 was a species-rich native hedgerow with trees (h2a5, 190) dominated by hawthorn with frequent sycamore and blackthorn and occasional elder, hazel, white bryony, midland hawthorn (*Crataegus laevigata*) and bramble with rarely occurring ivy. Nettles were also present. This hedgerow was 1.5m in height and 0.75m in width. Some gaps were present but canopy was overall intact and the gap between the ground and the base of the canopy was less than 30cm. This hedgerow with trees passed A1, B1, B2, C1, D1, E1 and E2, resulting in a moderate condition score.	Moderate
H43	H43 was a native hedgerow with trees, associated with a ditch (h2a, 190, 191) dominated by hawthorn, with abundant nettles, cleavers, brambles, cock's foot and yarrow, as well as occasional elder and creeping thistle. Hazel was also rarely occurring. One mature multi-stemmed ash tree was present within the hedgerow. The hedgerow was 1.5m in height and 1m in width. This hedgerow passed A1, B1, B2, C1, C2, D1, D2 and E2, resulting in a good condition score.	Good
H44	H44 was a native hedgerow with trees (h2a, 190) containing abundant hawthorn, hazel and field and field maple, frequent *Malus* species and sycamore, and occasional bramble and *Prunus* species. The hedgerow was 3.5m in height and 2m in width. This hedgerow passed A1, A2, B1, B2, C1, D2 and E2, resulting in a moderate condition score.	Moderate
H45	H45 was a non-native ornamental hedgerow (h2b) and did not require a condition assessment.	N/A
H46	H46 was a non-native ornamental hedgerow (h2b) and did not require a condition assessment.	N/A
H47	H47 was a non-native ornamental hedgerow (h2b) dominated by laurel (*Laurus*) species and was 1.4m in height and 1m in width. A condition assessment was not required for this habitat.	N/A
TL1	Immature osier willow (*Salix viminalis*) growing in wet ditch (1174, 191) to a height of 5m. The tree line passed criteria A, B and E, resulting in a moderate condition score.	Moderate
TL2	A tree line (1174) consisting of lime trees. This tree line passed all condition assessment criteria, resulting in a good condition score.	Good
TL3	A line of maple trees containing a single lime tree (1174). This tree line passed all condition assessment criteria, resulting in a good condition score.	Good
TL4	A tree line associated with the adjacent ditch (1174, 191), consisting of ash and lime trees. This tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL5	A tree line (1174) consisting of mature ash, lime and maple trees. This tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate

TL6	A tree line (1174) consisting entirely of black poplar (*Populus nigra*), which is a Nottinghamshire LBAP species. This tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL7	A tree line (1174) consisting of mature walnut (*Juglans* species), lime and beech trees. This tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL8	A mature tree (1174) line containing hawthorn, ash, poplar, lime and horse chestnut. This tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL9	A tree line (1174) consisting of elm, lime, field maple, crab apple (*Malus sylvestris*), hawthorn and birch. This habitat passed all condition assessment criteria, resulting in a good condition score.	Good
TL10	A tree line (1174) present to the north of the university campus near the centre of the Site. This tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL11	A tree line (1174) present to the north of the university campus entirely consisting of Leyland cypress. The tree line passed criteria B and C, resulting in a poor condition score.	Poor
TL12	A tree line (1174) present within the university campus consisting of medium and small Norway maple and sycamore. This tree line passed criteria B, C and E, resulting in a moderate condition score.	Moderate
TL13	A tree line (1174) present within the university campus consisting of medium and small trees. The tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL14	A tree line (1174) present within the university campus consisting of medium and small trees. One recently planted young stand was present. The tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL15	A tree line (1174) consisting entirely of small and medium sized lime trees. This tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL16	A line of trees (1174) present within the university campus. This hedgerow passed three condition assessment criteria: A, B and E, resulting in a moderate condition score.	Moderate
TL17	A line of trees (1174) present within the university campus. The tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL18	A line of trees (1174) present within the university campus dominated entirely by small and medium sized lime trees. The tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL19	A line of trees (1174) present within the university campus dominated entirely by small and medium sized lime trees. The tree line passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL20	A line of introduced trees and shrubs (1174) present within the university campus, consisting of snowberry, *Viburnum* species, spotted laurel (*Aucuba japonica*), walnut, holly species, wrinkled viburnum (*Viburnum rhytidophyllum*), Portuguese laurel (*Prunus lusitanica*), red cluster berry (*Cotoneaster lacteus*), elder, white bryony, Leyland cypress, bramble and hawthorn. Ground layer was largely bare ground with sparse flora. Passed B, C and E, resulting in a moderate condition score.	Moderate
TL21	A mature tree line (1174) consisting of crack willow, London plane, a cypress species and silver birch. This habitat passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate

TL22	An immature tree line (1174) at least 6m in height containing a mix of native and ornamental species including aspen, ornamental pear (*Prunus* species) and small leaved lime. This tree line passed criteria A and E, resulting in a poor condition score.	Moderate
TL23	An immature tree line (1174) consisting entirely of lime trees. This habitat passed criteria A, B, C and E, resulting in a moderate condition score.	Moderate
TL24	A tree line associated with a ditch (1174, 191) present adjacent to the southern boundary, consisting of mature sycamore, lime, willow species and one stand of pedunculate oak. This habitat passed all condition assessment criteria, resulting in a good condition score.	Good
TL25	A tree line present associated with a ditch (1174, 191) within the arable fields in the east of the Site. Lime dominated, with ash and rarely occurring silver birch. The habitat passed criteria A, D and E, resulting in a moderate condition score.	Moderate
TL26	A tree line present associated with a ditch (1174, 191) within the arable fields in the east of the Site. Silver birch was dominant, with abundant oak species and field maple and frequent willow species. The habitat passed criteria A, C and E, resulting in a moderate condition score.	Moderate

Appendix E: Legislative Information

Receptor	Legislation	Offences
Badger	Protection of Badgers Act 1992	Wilfully kill, injure or take a badger. Intentionally or recklessly damage, destroy or obstruct access to a badger sett. Disturb a badger in its sett. It is not illegal to carry out disturbance activities in the vicinity of setts that are not occupied.
Bats	Conservation of Habitats and Species Regulations, 2017 (as amended)	Deliberately capture, injure or kill a bat. Deliberate disturbance of bats. Damage or destroy a breeding site or resting place used by a bat. The protection of bat roosts is considered to apply regardless of whether bats are present.
	Wildlife and Countryside Act 1981 (as amended)[4] S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place.
Birds	Wildlife and Countryside Act 1981 (as amended)[4]	Intentionally kill, injure or take any wild bird. Intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built. Intentionally take or destroy the nest or eggs of any wild bird. **Schedule 1 species** Special penalties are liable for these offences involving birds on Schedule 1 (e.g. most birds of prey, kingfisher, barn owl, black redstart, little ringed plover). Intentionally or recklessly disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species.
Great Crested Newt	Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	Deliberately capture, injure or kill a great crested newt. Deliberate disturbance of a great crested newt. Deliberately take or destroy its eggs. Damage or destroy a breeding site or resting place used by a great crested newt.
	Wildlife and Countryside Act 1981 (as amended)[4]	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a great crested newt in such a place.

Receptor	Legislation	Offences
Hedgerows	Hedgerows Regulations 1997	Intentionally or recklessly remove or permits another person to remove an important hedgerow.
Natterjack Toad	Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	Deliberately capture, injure or kill a natterjack toad. Deliberate disturbance of a toad. Deliberately take or destroy a natterjack toad's eggs. Damage or destroy a breeding site or resting place used by natterjack toads.
	Wildlife and Countryside Act 1981 (as amended)[4]	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb[3] it in such a place.
Non-native Invasive Plants	Wildlife and Countryside Act 1981 (as amended)	Allow to grow or spread in the wild, any plant included in Part II of Schedule 9 of the Act.
Otter	Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	Deliberately capture, injure or kill an otter. Deliberate disturbance of otters. Damage or destroy a breeding site or resting place used by an otter.
	Wildlife and Countryside Act 1981 (as amended)[4]	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb an otter in such a place.
Protected Plants	Wildlife and Countryside Act 1981 (as amended)	Intentionally pick, uproot or destroy the wild plant.
Reptiles	Wildlife and Countryside Act 1981 (as amended)[4]	Intentionally kill or injure any common reptile species.
Water Vole	Wildlife and Countryside Act 1981 (as amended)[4]	Intentionally kill, injure or take water voles. Intentionally or recklessly damage, destroy or obstruct access to any structure or place used by a water vole for shelter or protection. Disturb a water vole in such a place.
White-clawed Crayfish	Wildlife and Countryside Act 1981 (as amended)[4]	Intentionally take a white-clawed crayfish from the wild.

Receptor	Legislation	Offences
Wild Mammals	Wild Mammals (Protection) Act 1996	Intentionally inflict unnecessary suffering to any wild mammal.
Species and Habitats of Principal Importance	Natural Environment & Rural Communities Act 2006 S.40 (which superseded S.74 of the Countryside & Rights of Way Act 2000).	N/A, however public bodies have a duty to regard species and habitats of principal importance in their policy or decision making.

Site Designation	Legislation	Protection
Special Area of Conservation (SAC) **Special Protection Area (SPA)** **Wetland of International Importance (Ramsar site)**	Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. EC Directive on the conservation of natural habitats and of wild fauna and flora (92/42/EEC). EC Directive on the conservation of wild birds (79/409/EEC). Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (the Ramsar Convention).	Planning controls are effected through Part 2 of the Conservation of Habitats and Species regulations 2017 (Reg 21) and Part 6 (Regs 61- 67). The legislation for the Site of Special Scientific Interest which will underpin each designation also applies. These sites are given protection through policies in Local Development Plans.
National Nature Reserve	National Parks and Access to the Countryside Act 1949. Wildlife and Countryside Act 1981.	It is an offence to carry any potentially damaging operation.
Site of Special Scientific Interest (SSSI)	Wildlife and Countryside Act 1981 (as amended)	It is an offence to carry out or permit to be carried out any potentially damaging operation. SSSIs are given protection through policies in Local Development Plans.
Local Nature Reserve (LNR)	National Parks and Access to the Countryside Act 1949	LNRs are given protection through policies in Local Development Plans.
Local Sites	There is no statutory designation for Local Sites.	Local Sites are given protection through policies in Local Development Plans.