University of Nottingham – Jubilee Campus

Preliminary Ecological Appraisal and Baseline Biodiversity Impact Assessment

August 2023

For:

University of Nottingham
University Park,
Nottingham,
NG7 2RD

Control sheet

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Client:	University of Nottingham
Job reference:	#1235
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Date of issue	02/08/2023 (Draft Version)
Status	Final

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Version History

Version	Version date of issue	Modified by	1st QA by	2nd QA	Comments
Rev1	13/12/23	Sarah Spotswood	Jake Hill	Vicky Philpott	BIA results added
Rev2	15/03/24	Sarah Spotswood	Vicky Philpott	N/A	Updated numbers of hedgerows in paragraph 3.4.4
Rev3	10/04/24	Sarah Spotswood	Vicky Philpott	N/A	Amended Appendix A to show missing hedgerow labels

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Summary

A Preliminary Ecological Appraisal (PEA) of University of Nottingham – Jubilee Campus, Nottingham, Nottinghamshire (NGR: SK 54925 39622, hereafter referred to as 'the Site') was undertaken during May to July 2023, alongside a baseline Biodiversity Impact Assessment (BIA), to provide baseline information to inform future proposals and ecological enhancement of the campus.

The Site comprised a diverse variety of habitats including university and office buildings, hardstanding carparks and footpaths, other neutral grassland meadows and modified grassland, mixed woodland, scrub, native hedgerows, scattered trees, lakes, wetlands and ditches as well as ornamental planting. The site was situated within an urban context, within the city of Nottingham, with residential, business and university buildings dominating the surroundings. Wollaton Park was situated 600 m to the west of the Site.

Important ecological features, impacts, recommendations, further survey requirements and survey timings are detailed in Table 1 below.

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

Ecological feature	Recommendations	Recommendations section(s)
Designated sites	Further assessment and liaison with Local Planning Authority (LPA) or Natural England (NE) may be required if any future development might impact on nearby designated Sites.	4.2.1 & 4.2.2
Habitats of Principal Importance (HPIs)	Impact assessments for any works that could impact on HPIs.	4.2.4
Habitats	Temporary storage of plant or machinery will be on hard standing or off site. Implementation of RAMs to avoid pollution. Additional recommendations in relation to Biodiversity Units will be provided in a separate Biodiversity Enhancement Plan.	4.3.1 & 4.3.2
Protected/notable plants	Further botanical surveys including invasive species surveys prior to any proposed works. To be undertaken during plant growing season (April – September inclusive).	4.5.1
Birds	Vegetation removal works should be undertaken outside of bird nesting season; considered to be March to August inclusive, or if not possible, immediately preceded be supervised by a check of suitable habitats by a suitably experienced Ecologist.	4.5.2 & 4.5.3
Amphibians, including great crested newt (*Triturus cristatus*)	Further survey work, including eDNA (undertaken between April and the end of June) and HSI and Precautionary Working Methods may be required, depending on the nature and location of any proposed works.	4.5.4 & 4.5.5

Ecological feature	Recommendations	Recommendations section(s)
Reptiles	Further survey work, including deployment of artificial refugia, followed by seven survey visits during April and May or September, and Precautionary Working Methods may be required for any future proposals impacting suitable reptile habitat within the Site, including woodland, scrub, grassland, hedgerows and waterbodies.	4.5.6 & 4.5.7
Bats	Further surveys including Preliminary Roost Assessment, (undertaken between May and August) and activity transects (undertaken between April and October), depending on nature and location of proposed works. Sensitive lighting scheme to be developed for any future works.	4.5.8 – 4.5.12
Badger (*Meles meles*)	Badger survey of areas impacted by any proposed works and a 30 m buffer, and habitat retention may be required for any future works planned within 30 m of woodland, other neutral grassland, hedgerows or scrub.	4.5.13 – 4.5.15
Terrestrial invertebrates	Further survey work and Precautionary Working Methods may be required for any works resulting in the loss of other neutral grassland, scrub, woodland, scattered trees, tree lines or hedgerows.	4.5.16 & 4.5.17
Otter (*Lutra lutra*)	Otter survey of any impacted waterbodies, including a 200 m buffer, may be required for any future works that would result in impacts to the waterbodies within or adjacent to the Site or the woodland and scrub close to these waterbodies.	4.5.18
Water vole (*Arvicola amphibius*)	Two water vole surveys of impacted waterbodies, one 'early season' survey (mid-April – June, inclusive) and a second 'late season' survey (July – September, inclusive) may be required, for any future works that would result in impacts to the waterbodies within or adjacent to the Site or the habitat within 10 m of the bank top. The length of watercourse required for survey will vary depending on proposals.	4.5.19
Aquatic invertebrates including white-clawed crayfish (*Austropotamobius pallipes*)	Aquatic invertebrate surveys may be required for any future works that would result in impacts to the waterbodies within or adjacent to the Site. Any required aquatic invertebrate surveys to be completed between May and August and white-clawed crayfish survey of River Leen between July and September.	4.5.20
Additional Species of Principal Importance	Hedgehog highways should be installed in any new fencing. Precautionary Working Methods may be required, depending on nature and location of any proposed works.	4.5.21 & 4.5.22

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:

- Installation of a variety of bat boxes.
- Installation of a variety of bird boxes.
- Installation of hedgehog boxes.
- Creation of hedgehog highways.
- Veteranisation of mature trees within the woodlands.
- In-filling of gaps in hedgerows.
- Creation of habitat piles and hibernacula.
- Planting of night flowering plant species.
- Installation of a variety of invertebrate hotels.

1. Introduction

1.1. Purpose and Scope of the Report

1.1.1. EMEC Ecology was commissioned by University of Nottingham to undertake a Preliminary Ecological Appraisal (PEA) and Biodiversity Baseline Impact Assessment (BIA) of their Jubilee Campus, Nottingham, Nottinghamshire (NGR, taken from the centre of the Site: SK 54925 39622), hereafter referred to as 'the Site', location shown in Figure 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 baseline 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.
- To contribute to a baseline data set for protected or notable habitats and species, in addition to any associated constraints to the proposals in line with current ecological legislation, that can inform future proposals.
- 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

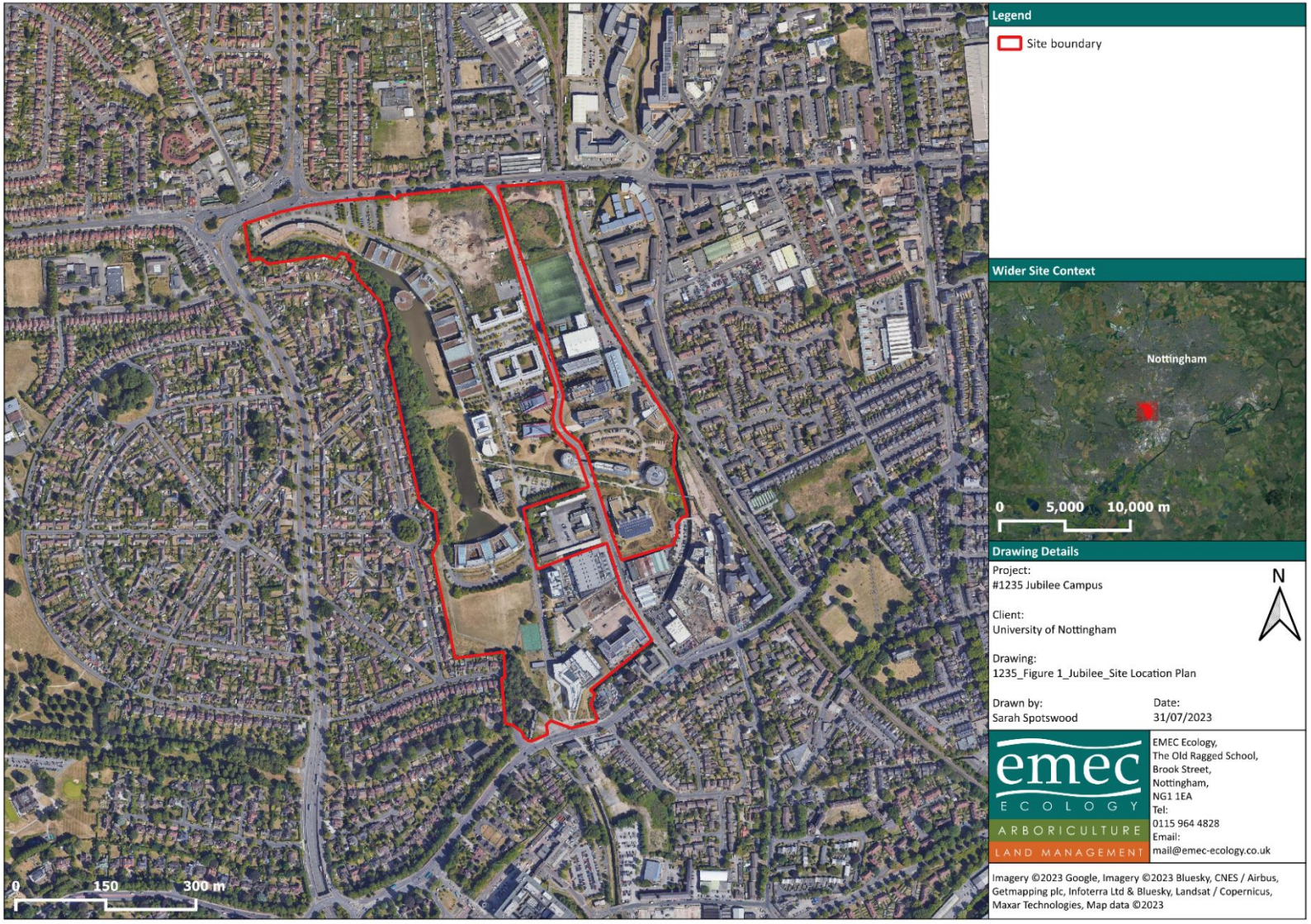
1.2.1. The Site consisted of university and office buildings and associated grounds, including grassland, woodland, scrub, lakes and wetlands as well as ornamental planting, at the time of survey. The Site lay either side of Triumph Road, with the River Leen running along the southeast boundary, a train line running along the east boundary, Wollaton Road immediately to the north, the A6200 to the south and residential properties immediately to the west. The boundary of the Site was formed by a combination of brick walls, timber fencing, chain-link fencing, palisade fencing and wrought iron fencing. The site was situated within an urban context, within the city of Nottingham, with residential, business and university buildings dominating the surroundings. Wollaton Park was situated 600 m to the west of the Site.

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 baseline BIA is provided in Appendix C.

- 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 Biodiversity Action Plan (Nottinghamshire BAG, 1998).
- Taxa-specific conservation lists (e.g. Bird Species of Conservation Concern, Stanbury *et al*., 2021).

Figure 1. Jubilee 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 24/07/23

2.1.5. The Nottinghamshire Biodiversity Action Plan (Nottinghamshire BAG, 1998) 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. Only the mandatory secondary codes (UKHab, 2020) were used to map the habitats on Site.

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 (Biodiversity Metric 4.0 – Technical Annex 1: Condition Assessment Sheets and Methodology, 2023). The new Statutory Biodiversity Metric was released on 30th November 2023; however, Biodiversity Metric 4.0 was used as this was the current version at the time of the assessment.

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, 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. Baseline BIA

DEFRA Metric 4.0

2.3.1. Using the condition assessment of habitats undertaken during the field survey, a baseline BIA was completed using the DEFRA Metric 4.0. This involves inputting baseline data for existing habitats (habitats shown in Appendix A) including their assessed conditions. The metric then calculates the biodiversity units on Site for area habitats (such as grassland) in addition to a separate unit calculation for linear habitats such as hedgerows.

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. 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.

2.4.3. The list of non-native plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (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.

2.4.4. 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 (HIS) 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.

2.4.5. Modular River Physical (MoRPh) surveys and a river condition assessment of the neighbouring River Lean 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.

2.4.6. Security fencing prevented access to some areas of the Site and some courtyard areas enclosed by locked buildings were also not accessible at time of the survey (see target notes 3 - 7). These areas have been assessed based on the view available through the fencing. This is noted within the results where applicable.

2.4.7. 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 works are not undertaken on Site within 12 months of the date of survey upon which this appraisal is based, 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 four 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
Locally important sites		
Wollaton Park LNR[3]	0.4 km west	A deer park incorporating important wetland, grassland and aquatic plant communities.
Harrison Plantation LNR	1.2 km northwest	An old mixed deciduous plantation.
Beeston Sidings LNR	1.2 km south	Two remnants of a once extensive system of railway sidings with an uncommon but characteristic tall herb community.
Martin's Pond LNR	1.7 km west	A site comprising a wide range of aquatic habitats.

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), 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:

- **Infrastructure** – Airports, helipads and other aviation proposals.
- **Air Pollution** – Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t.

3.1.3. There were 13 non-statutory designated nature conservation sites identified within the Study Area. These are summarised in Table 4 below.

[2] A copy of the full desk study data can be provided upon request.

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

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
River Leen (Part) LWS[4] 5/1501	0 km east	City section of a river with important plant communities.
Wollaton Park LWS 1/26	0.4 km west	A deer park incorporating important wetland, grassland and aquatic plant communities.
Lenton Methodist Church Walls LWS 5/1277	0.5 km east	Several walls supporting notable plant communities.
Beeston Canal LWS 2/57	0.7 km southeast	A valuable aquatic habitat in an urban setting with local species on walls.
Lenton Triangle LWS 2/60	1 km southeast	An excised marsh and grassland site with a good range of species.
Nottingham University Downs LWS 5/975	1 km southwest	A group of acid and neutral grasslands with characteristic species.
Central Studio's Grassland LWS 5/3399	1.1 km southeast	A notable neutral grassland.
King's Meadow Grassland LWS 2/989	1.1 km southeast	An ex-industrial site with a variety of habitats.
Harrison Plantation LWS 2/983	1.2 km northwest	An old mixed deciduous plantation.
Robin's Wood LWS 2/981	1.4 km northwest	Coppice woodland.
Tinker's Leen LWS 2/243	1.4 km southeast	A drain.
Nottingham General Cemetery LWS 5/2105	1.5 km east	Well established cemetery with notable grassland communities and species.
Martin’s Pond LWS 1/33	1.7 km west	A site comprising a wide range of aquatic habitats.

3.1.4. There were four Habitats of Principal Importance (HPI) identified within the Study Area and these are summarised in Table 5 below. The closest parcel of HPI was deciduous woodland, approximately 0.4 km west of the Site. This was disconnected from the Site by a dual carriageway, Middleton Boulevard.

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
Deciduous woodland	400 m west	139
Ancient & Semi-natural Woodland	1.4 km northwest	1
Traditional Orchard	1.4 km southwest	7
Lowland Fen	1.7 km west	4

[4] Local Wildlife Site

3.1.5. There were 17 waterbodies identified within the Study Area. These are discussed further with regard to species in the following section.

Species

3.1.6. Records of protected, priority and notable species were received from Nottinghamshire Biological & Geological Records Centre. A summary of these records is provided in Table 6 below. 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					
Japanese knotweed	*Reynoutria japonica*	6	On-Site	2020, On-Site	WCA 9[5]
Large thyme	*Thymus pulegioides*	1	On-Site	2019, On-Site	Nottinghamshire Rare Plant Register (NRPR)[6]
Giant hogweed	*Heracleum mantegazzianum*	3	200 m northeast	2022, 800 m south	WCA 9
Himalayan balsam	*Impatiens glandulifera*	10	300 m northeast	2022, 700 m south	WCA 9
Musk stork's-bill	*Erodium moschatum*	2	400 m east	2019, 400 m east	NRPR
New Zealand pygmyweed	*Crassula helmsii*	1	600 m southeast	2018, 600 m southeast	WCA 9
Field pepperwort	*Lepidium campestre*	1	700 m northeast	2019, 700 m east	NRPR
Common cudweed	*Filago germanica*	1	1.1 km southwest	2019, 1.1 km southwest	NRPR
Field scabious	*Knautia arvensis*	1	1.1 km southwest	2017, 1.1 km southwest	NRPR
Dittander	*Lepidium latifolium*	7	1.3 km south	2019, 1.3 km south	NRPR
Toothed medick	*Medicago polymorpha*	1	1.4 km south	2019, 1.4 km south	NRPR
Ivy broom-rape	*Orobanche hederae*	2	1.5 km southwest	2020, 1.5 km west	NRPR
Maple-leaved goosefoot	*Chenopodiastrum hybridum*	1	1.8 km south	2019, 1.8 km south	NRPR
Nettle-leaved goosefoot	*Chenopodiastrum murale*	1	1.8 km south	2019, 1.8 km south	NRPR
Lyme-grass	*Leymus arenarius*	1	2 km south	2019, 2 km south	NRPR

[5] Wildlife and Countryside Act, 1981 (as amended) – Schedule 9 invasive species.

[6] The Rare and Scarce Vascular Plants of Nottinghamshire Vice County 56 (Wood and Woods, 2021)

Common name	Scientific name	Total no. records	Closest record	Most recent record	Conservation status/protection
Water whorl-grass	*Catabrosa aquatic*	1	2 km southwest	2019, 2 km southwest	NRPR
Birds					
Kestrel	*Falco Tinnunculus*	14	400 m east	2019, 1.9 km southwest	BoCC5 Amber[7]
Pink-footed goose	*Anser brachyrhynchus*	2	400 m east	2019, 400 m east	BoCC5 Amber
Grey wagtail	*Motacilla cinerea*	11	1.1 km southwest	2018, 1.9 km southwest	BoCC5 Amber
Peregrine falcon	*Falco peregrinus*	21	1.1 km southwest	2019, 1.1 km southwest	WCA 1[8]
Red kite	*Milvus milvus*	2	1.1 km southwest	2019, 1.9 km southwest	WCA 1
Sparrowhawk	*Accipiter nisus*	10	1.1 km southwest	2019, 1.9 km southwest	BoCC5 Amber
Redwing	*Turdus iliacus*	23	1.4 km east	2018, 1.9 km southwest	BoCC5 Amber, WCA 1
Black-headed gull	*Chroicocephalus ridibundus*	42	1.5 km west	2019, 1.9 km southwest	BoCC5 Amber
Bullfinch	*Pyrrhula pyrrhula*	5	1.5 km west	2018, 1.9 km southwest	BoCC5 Amber, SPI
Common gull	*Larus canus*	9	1.5 km west	2018, 1.9k m southwest	BoCC5 Amber
Kingfisher	*Alcedo atthis*	2	1.5 km southeast	2016, 1.5 km southeast	SPI
Pochard	*Aythya ferina*	36	1.5 km west	2019, 1.9 km southwest	BoCC5 Red
Common redstart	*Phoenicurus phoenicurus*	2	1.5 km west	2018, 1.5 km west	BoCC5 Amber
Common scoter	*Melanitta nigra*	2	1.5 km west	2016, 1.5 km west	BoCC5 Red, WCA 1, SPI
Fieldfare	*Turdus pilaris*	2	1.5 km west	2018, 1.5 km west	BoCC5 Red
Gadwall	*Mareca strepera*	23	1.5 km west	2019, 1.9 km southwest	BoCC5 Amber
Great black-backed gull	*Larus marinus*	1	1.5 km west	2015, 1.5 km west	BoCC5 Amber
Great white egret	*Ardea alba*	1	1.5 km west	2019, 1.5 km west	BoCC5 Amber
Greenfinch	*Chloris chloris*	3	1.5 km west	2015, 1.5 km west	BoCC5 Red
Greylag goose	*Anser anser*	2	1.5 km west	2019, 1.9 km southwest	BoCC5 Amber, WCA 1

[7] Birds of Conservation Concern 5, 2021.

[8] Species of Principal Importance under Section 41 of the Natural Environment Rural Communities Act (NERC Act, 2006).

Common name	Scientific name	Total no. records	Closest record	Most recent record	Conservation status/protection
Hawfinch	*Coccothraustes coccothraustes*	2	1.5 km west	2018, 1.9 km southwest	BoCC5 Red, SPI
House martin	*Delichon urbicum*	5	1.5 km west	2019, 1.9 km southwest	BoCC5 Red
Lesser black-backed gull	*Larus fuscus*	4	1.5 km west	2018, 1.9 km southwest	BoCC5 Amber
Lesser spotted woodpecker	*Dryobates minor*	32	1.5 km west	2018, 1.9 km southwest	BoCC5 Red, SPI
Mallard	*Anas platyrhynchos*	44	1.5 km west	2019, 1.7 km southeast	BoCC5 Amber
Mistle thrush	*Turdus viscivorus*	35	1.5 km west	2019, 1.9 km southwest	BoCC5 Red
Moorhen	*Gallinula chloropus*	18	1.5 km west	2018, 1.9 km southwest	BoCC5 Amber
Osprey	*Pandion haliaetus*	1	1.5 km west	2017, 1.5 km west	BoCC5 Amber, WCA 1
Rook	*Corvus frugilegus*	6	1.5 km west	2018, 1.9 km southwest	BoCC5 Amber
Shoveler	*Anas clypeata*	15	1.5 km west	2016, 1.5 km west	BoCC5 Amber
Starling	*Sturnus vulgaris*	4	1.5 km west	2018, 1.9 km southwest	BoCC5 Red
Swift	*Apus Apus*	5	1.5 km west	2018, 1.5 km west	BoCC5 Red
Dunnock	*Prunella modularis*	4	1.5 km west	2015, 1.5 km west	BoCC5 Amber, SPI
Song thrush	*Turdus philomelos*	13	1.5 km west	2019, 1.9 km southwest	BoCC5 Amber, SPI
Spotted flycatcher	*Muscicapa striata*	2	1.5 km west	2015, 1.5 km southwest	BoCC5 Red, SPI
Stock dove	*Columba oenas*	16	1.5 km west	2018, 1.9 km southwest	BoCC5 Amber
Tawny owl	*Strix aluco*	14	1.5 km west	2018, 1.9 km southwest	BoCC5 Amber
Teal	*Anas crecca*	4	1.5 km west	2018, 1.9 km southwest	BoCC5 Amber
Wood pigeon	*Columba palumbus*	16	1.5 km west	2018, 1.9 km southwest	BoCC5 Amber
Marsh tit	*Poecile palustris*	5	1.6 km west	2019, 1.9 km southwest	BoCC5 Red, SPI
Brambling	*Fringilla montifringilla*	1	1.7 km southeast	2016, 1.7 km southeast	WCA 1
Lesser redpoll	*Acanthis cabaret*	1	1.8 km northeast	2017, 1.8 km northeast	BoCC5 Red, SPI
Woodcock	*Scolopax Rusticola*	1	1.8 km northeast	2017, 1.8 km northeast	BoCC5 Red
Black redstart	*Phoenicurus ochruros*	1	1.9 km southwest	2016, 1.9 km southwest	BoCC5 Amber, WCA 1
Herring gull	*Larus argentatus*	3	1.9 km southwest	2019, 1.9 km southwest	BoCC5 Red, SPI

Common name	Scientific name	Total no. records	Closest record	Most recent record	Conservation status/protection
Wigeon	*Anas penelope*	2	1.9 km southwest	2019, 1.9 km southwest	BoCC5 Amber
Wood warbler	*Phylloscopus sibilatrix*	1	1.9 km southwest	2018, 1.9 km southwest	BoCC5 Red, SPI
Amphibians					
Common toad	*Bufo bufo*	6	On-Site	2022, On-Site	SPI, Partial protection under WCA 5[9]
Smooth newt	*Lissotriton vulgaris*	1	700 m west	2021, 700 m west	Partial protection under WCA 5
Common frog	*Rana temporaria*	4	900 m west	2023, 1.6 km west	Partial protection under WCA 5
Mammals					
European hedgehog	*Erinaceus europaeus*	70	200 m northeast	2023, 400 m south	SPI, WMA[10]
Badger	*Meles meles*	[redacted]			PBA[11]
Nathusius's pipistrelle bat	*Pipistrellus nathusii*	5	900 m east	2017, 1.5 km west	EPS, WCA 5
Brown long-eared bat	*Plecotus auritus*	7	1 km east	2021, 2 km west	EPS[12], WCA 5
Common pipistrelle bat	*Pipistrellus pipistrellus*	56	1.3 km northwest	2021, 1.3 km southeast	EPS, WCA 5
Noctule bat	*Nyctalus noctula*	9	1.3 km northwest	2021, 2 km west	EPS, WCA 5
Leisler's bat	*Nyctalus leisleri*	2	1.4 km west	2021, 2 km west	
Soprano pipistrelle bat	*Pipistrellus pygmaeus*	10	1.5 km northwest	2021, 1.3 km southeast	EPS, WCA 5
Reeve's muntjac	*Muntiacus reevesi*	1	1.7km southeast	2020, 1.7 km southeast	WCA 9
Bechstein's bat	*Myotis bechsteinii*	1	2 km west	2021, 2 km west	EPS, WCA 5
Brandt's bat	*Myotis brandti*	1	2 km west	2021, 2 km west	EPS, WCA 5
Daubenton's bat	*Myotis daubentonii*	3	2 km southwest	2021, 2 km southwest	EPS, WCA 5
Natterer's bat	*Myotis nattereri*	1	2 km west	2021, 2 km west	EPS, WCA 5

[9] Wildlife and Countryside Act, 1981 (as amended) – Schedule 5 protected animal species.

[10] Wild Mammals (Protection) Act, 1996

[11] Protection of Badgers Act, 1992.

[12] European Protected Species

Common name	Scientific name	Total no. records	Closest record	Most recent record	Conservation status/protection
Invertebrates					
Hornet moth	*Sesia apiformis*	3	1.3 km south	2022, 1.3km south	Nationally scarce, Notts BAP
Fish					
Common carp	*Cyprinus carpio*	1	400 m south	2021, 400 m south	N/A
Brown trout	*Salmo trutta*	2	500 m east	2020, 500 m east	UKBAP
Chub	Squalius cephalus	2	500 m east	2022, 500 m east	N/A
Bullhead	Cottus gobio	1	1.3 km north	2013, 1.3 km north	Notts BAP

3.1.7. Records of EPSLs identified from within the Study Area included:

- An EPSL for bats granting the destruction of a common pipistrelle resting place, approximately 1.1 km east of the Site. The licence was granted from 19/11/2012 to 30/08/2015 – EPSM2012-5180

- An EPSL for bats granting the destruction of a common pipistrelle resting place, approximately 1.3 km east of the Site. The licence was granted from 01/07/2014 to 30/09/2016 – 2014-1696-EPS-MIT

- An EPSL for bats granting the destruction of a Noctule resting place, approximately 1.5 km west of the Site. The licence was granted from 13/02/2020 to 12/02/2025 – 2020-45161-EPS-MIT

- An EPSL for bats granting the destruction of a common pipistrelle resting place, approximately 1.6 km east of the Site. The licence was granted from 06/05/2011 to 30/09/2013 – EPSM2011-3056

3.2. Field Survey Details

3.2.1. The field survey was carried out by Sarah Spotswood BSc (Hons) (Natural England Level 1 great crested newt licence no. 2021-10001-CL08-GCN; Natural England Level 1 bat licence 2021-55192-CLS-CLS) and Jake Hills BSc (Hons) ACIEEM (Natural England Level 1 great crested newt licence no. 2022-10626-CL08-GCN; Natural England Level 1 bat licence 2022-10609-CL17-BAT; Natural England barn owl licence no. CL29/00529) on 4th May 2023. The survey was undertaken in suitable weather conditions, as shown in Table 7 below.

Table 7 – Weather conditions

Weather conditions	Survey 1 – PEA field survey and condition assessment
Temperature (°C)	16
Wind (Beaufort scale)	3
Cloud cover (%)	40-80
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.

3.3.2. The topography of the Site was generally flat, with occasional small hillocks and slopes within the grassland areas.

Modified grassland g4

3.3.3. Modified grassland was found across the Site, particularly alongside buildings and hardstanding and in sports fields and recreational areas. The sward was generally short-mown with a sward height of less than 10 cm, but mowing had been relaxed on banks and in some areas of low footfall where the sward height varied between 20 – 50 cm. Coverage of herb species was sparse, but continuous. Species present included dominant perennial ryegrass; frequent annual meadow grass, red fescue, daisy, yarrow, dandelion and common mouse-ear; occasional cat's-ear, white clover, ribwort plantain, cut-leaved crane's-bill, spear thistle (*Cirsium vulgare*), cranesbill species (*Geranium* sp.), red dead-nettle, crane's-bill species (*Geranium sp.*), creeping buttercup, cock's-foot, greater plantain (*Plantago major*), and rare thyme-leaved speedwell and sheep's sorrel.

Figure 2 – Short-mown areas of modified grassland

3.3.4. The Site included 75 parcels of modified grassland. Three of these parcels passed six of the seven condition criteria, while the other 72 passed five condition criteria; however, they all failed the essential Criterion 1, which prevents the grassland from achieving above poor condition:

- Criterion 1, all parcels failed: There were fewer than six species present per m^2.
- Criterion 2, three parcels passed, 72 failed: The sward height was only varied, with at least 20% less than 7 cm and at least 20% over 7 cm, in three parcels.
- Criterion 3, all parcels passed: Cover of scrub accounted for less than 20% of the total grassland area.

- Criterion 4, all parcels passed: Evidence of minor poaching was present, however physical damage was evident in less than 5% of the total grassland area.
- Criterion 5, all parcels passed: Cover of bare ground was not over 10%.
- Criterion 6, all parcels passed: Cover of bracken was less than 20%.
- Criterion 7, all parcels passed: No invasive non-native species (as listed on Schedule 9 of the Wildlife and Countryside Act [as amended], 1981) were present.

3.3.5. This habitat was of low distinctiveness, but had high strategic significance, as it was listed as a Habitat of Conservation Concern within the Nottinghamshire Biodiversity Action Plan. It contributed 10.19 habitat units to the on-Site baseline biodiversity value.

Other neutral grassland g3c

3.3.6. A number of areas of other neutral grassland were located around the centre and southeast corner on the east side of the Site, between the woodland and the lakes and sports field on the west side of the Site, and adjacent to the River Leen at the southern end of the Site. The sward in these areas was approximately 30 cm in height, with paths mown through the grasslands.

3.3.7. The area with the greatest species diversity was located to the south of the Glaxo Smith Kline building to the south-east of the Site. Species comprised abundant Yorkshire fog (*Holcus lanatus*), cock's-foot (*Dactylis glomerata*), dandelion (*Taraxacum agg.*), ribwort plantain (*Plantago lanceolata*), red campion (*Silene dioica*), daisy (*Bellis perennis*), and yarrow (*Achillea millefolium*); frequent annual meadow-grass (*Poa annua*); false oat grass (*Arrhenatherum elatius*), creeping buttercup (*Ranunculus repens*), creeping thistle (*Cirsium arvense*), and red fescue (*Festuca rubra*); occasional groundsel (*Senecio vulgaris*), bristly oxtongue (*Picris echioides*), cat's-ear (*Hypochaeris radicata*), common mouse-ear (*Cerastium fontanum*), white clover (*Trifolium repens*), poppy species (*Papaver sp.*), wall barley (*Hordeum murinum*), teasel (*Dipsacus fullonum*),'%^0 broad-leaved dock (*Rumex obtusifolius*), pineappleweed (*Matricaria matricarioides*), ragwort (*Senecio jacobaea*), thyme-leaved speedwell (*Veronica serpyllifolia*), lesser trelfoil (*Trifolium dubium*), cut-leaved crane's-bill (*Geranium dissectum*), bramble (*Rubus fruticosus agg*.), creeping cinquefoil (*Potentilla reptans*), cowslip (*Primula veris*), bush vetch (*Vicia sepium*), greater knapweed (*Centaurea scabiosa*), and cleavers (*Galium aparine*), rare bulbous buttercup (*Ranunculus bulbosus*), cuckoo flower (*Cardamine pratensis*), hoary plantain (*Plantago media*), primrose (*Primula sp.*), sheep's sorrel (*Rumex acetosella*), cow parsley (*Anthriscus sylvestris*), and common nettle (*Urtica dioica*). Butterfly bush (*Buddleia sp.*) and bramble were present along the fence line to the east. Small mammal holes, most likely belonging to brown rat (*Rattus norvegicus*) were found within the grassland in this area (see target notes 1 and 2).

Figure 3 – Other neutral grassland to south of the Glaxo Smith Kline building

3.3.8. Additional areas of other neutral grassland comprised dominant crested dog's-tail (*Cynosurus cristatus*) and timothy (*Phleum pratense*); abundant red fescue cow parsley, red campion, red dead-nettle (*Lamium purpureum*), perennial ryegrass, forget-me-not species (*Myosotis sp.*), and cowslip; frequent false oat grass, daisy, common field speedwell (*Veronica persica*), cinquefoil, knapweed species (*Centaurea sp*.), cleavers, dandelion, ribwort plantain, common mouse-ear, and common sorrel (*Rumex acetosa*); occasional bristly oxtongue, cut-leaved crane's-bill, bedstraw species (*Galium* sp.), white dead-nettle (*Lamium album*) vetch species (*Vicia* sp.), burnet species (*Sanguisorba* sp.) cock's-foot, Yorkshire fog, annual meadow grass, yarrow, broad-leaved dock, common stork's-bill (*Erodium cicutarium*), and meadow buttercup (*Ranunculus acris*).

3.3.9. The Site included 23 parcels of other neutral grassland. Four of these parcels achieved a condition score of good, with two passing 5 condition criteria and two passing six condition criteria. The remaining 19 parcels achieved a condition score of moderate, passing four condition criteria:

- Criterion 1, all parcels passed: The grassland was considered a good representation of other neutral grassland, based on its UKHab description.
- Criterion 2, three parcels passed, 20 failed: The sward height was only varied, with at least 20% less than 7 cm and at least 20% over 7 cm, in two parcels.
- Criterion 3, all parcels passed: Cover of bare ground was between 1% and 5%.
- Criterion 4, all parcels passed: Cover of bracken was less than 20% and cover of scrub was less than 5%.
- Criterion 5, all parcels passed: Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounted for less than 5% of total area and no invasive non-native species (as listed on Schedule 9 of the Wildlife and Countryside Act [as amended], 1981) were present.

- Criterion 6, three parcels passed, 20 failed: There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type in only three parcels.

This habitat was of medium distinctiveness and had medium strategic significance, as it was not included in the local strategy, but was considered to be ecologically valuable. It contributed 24.67 habitat units to the on-Site baseline biodiversity value.

Mixed scrub h3h

3.3.10. A large area of mixed scrub was located to the north of the Astro-turf sports field in the north-eastern section of the Site and around the perimeter of the brownfield area in the northwest corner of the Site. These areas were not accessible as they were enclosed by security fencing, so they could only be assessed from the fence line (see target notes 3 and 5). The scrub in the northeast area was dominated by bramble and butterfly bush to the south, east and centre and by immature silver birch (*Betula pendula*), willow (*Salix* sp.) and field maple (*Acer campestre*) to the north and west, with ground flora including dominant common nettle; occasional dock (*Rumex sp.*), red valerian (*Centranthus ruber*), ragwort, dandelion and rare pampas grass (*Cortaderia selloana*); and honeysuckle (*Lonicera periclymenum*) climbing up the fencing along the east boundary. The area to the northwest was dominated by butterfly bush, with frequent birch and sycamore (*Acer pseudoplatanus*)and ground flora comprising ribwort plantain, dandelion, yarrow, sow thistle, mugwort (*Artemisia vulgaris*) and Yorkshire fog.

Figure 4 – Mixed scrub in the northeast corner of the Site

3.3.11. The Site included 13 parcels of mixed scrub. Two of these parcels achieved a condition score of good, passing all five condition criteria. Six parcels achieved a condition score of moderate, with three passing three condition criteria and three passing four condition criteria. The remaining five parcels achieved a condition score of poor with four passing two condition criteria and one passing only one condition criterion:

- Criterion 1, eleven parcels passed, two failed: The habitat in eleven parcels was considered a good representation of mixed scrub, based on its UKHab description.

- Criterion 2, seven parcels passed, six failed: Seedlings, saplings, young shrubs and mature (or ancient or veteran2) shrubs were all present in seven parcels.

- Criterion 3, all parcels passed: There was an absence of invasive non-native plant species (as listed on Schedule 9 of WCA4) and species indicative of sub-optimal condition made up less than 5% of ground cover in all parcels.

- Criterion 4, six parcels passed, seven failed: The scrub had a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat in six parcels.

- Criterion 5, two parcels passed, nine failed: There were only clearings, glades or rides present within the scrub, providing sheltered edges in two parcels. The limited extent of the other nine parcels did not allow space for such features.

3.3.12. This habitat was of medium distinctiveness and had medium strategic significance, as it was not included in the local strategy, but was considered to be ecologically valuable. It contributed 21.92 habitat units to the on-Site baseline biodiversity value.

Ditches r(191)

3.3.13. Wet ditched ran along the west and east sides of Triumph Road, down the centre of the Site. The bank angle of the ditch was approximately 45°. Marginal vegetation included abundant marsh marigold (*Caltha palustris*), occasional skunk cabbage (*Lysichiton americanus*) and Watercress (*Rorippa nasturtium-aquaticum*). The sections of ditch on the east side of the road were dry at the time of the survey and marginal vegetation cover was more sparse in these ditches.

Figure 5 – Wet ditch running to the west of Triumph Road

3.3.14. The Site included 15 parcels of ditch, all of which achieved a condition score of poor, with three passing four condition criteria and 12 passing five condition criteria:

- Criterion 1, all parcels failed: The ditches were not of good water quality, with water appearing turbid and dominated by filamentous algae, where water was present.

- Criterion 2, all parcels failed: The range of emergent, submerged and floating-leaved plants was limited.

- Criterion 3, three parcels passed (these were dry at the time of the survey), 12 parcels failed: Where water was present, it was dominated by filamentous algae and or duckweed *Lemna* spp..

- Criterion 4, 12 parcels passed, three failed: A fringe of marginal vegetation was present along more than 75% of the 12 parcels of ditch to the west of Triumph Road, but not along the three sections to the east.

- Criterion 5, all parcels passed: There was not evidence of physical damage to more than 5% of any of the ditch parcels.

- Criterion 6, 12 parcels passed, three failed: three parcels were dry at the time of the survey, the remaining 12 parcels were considered likely to maintain sufficient water levels.

- Criterion 7, all parcels passed: Less than 10% of the ditch was heavily shaded in all cases.

- Criterion 8, all parcels passed: There was an absence of non-native plant and animal species.

3.3.15. This habitat was of medium distinctiveness and had high strategic significance, as it was listed as a Habitat of Conservation Concern within the Nottinghamshire Biodiversity Action Plan. It contributed 1.89 habitat units to the on-Site baseline biodiversity value.

Lakes/standing open water r1

3.3.16. There were several standing waterbodies within the Site, comprising two lakes within the western half of the Site, with a smaller pond to the north and a lake on the south-eastern boundary of the Site beside the River Leen, as well as a number of small, shallow ornamental ponds set within the hardstanding.

3.3.17. The lake beside the River Leen featured a bed of common reed (*Phragmites australis*) at the northwest margin and abundant fringed water lily (*Nymphoides peltata*) within the waterbody. A pebble bank was present, vegetated by dominant ribwort plantain. To the east the lake was bound by a wall of steel pilings separating it from the neighbouring river Leen. The lake was stocked with fish (a carp [*Cyprinus sp.*] was observed).

3.3.18. The two lakes to the west featured marginal wetland areas with beds of common reed and pebble beaches.

3.3.19. Twelve shallow, linear ornamental ponds were set into the hardstanding between pathways. These were of low ecological value, lacking any natural substrate or vegetation and having shear sides.

Figure 6 – Lake on south-eastern Site boundary.

3.3.20. The Site included three parcels of lake habitat, one of which achieved a condition score of moderate and two of which achieved a condition score of poor. The lakes were assessed scores out of five on four naturalness classes, with one being most natural and five least natural:

- Physical naturalness: All parcels scored 4 as between 1/3 and 2/3 of the riparian land around the margins of the lakes could be classed as semi-natural.
- Hydrological naturalness: All parcels scored 3 as the water levels are controlled by artificial inflow from ditches created to drain hardstanding and artificial outflows supply water to campus buildings and water features.
- Chemical naturalness: All parcels scored 3 as the greatest depth as which lake substrate was visible was between 0.5 – 1 m.
- Biological naturalness: The lake to the east scored 3 while the lakes to the west scored 4, this was due to the presence of non-native carp within the lakes, multiple of which were observed in the lakes to the west.

3.3.21. The Site included 14 ornamental ponds, all of which achieved a condition score of poor, passing five condition criteria:

- Criterion 1, all parcels passed: The ponds were of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.
- Criterion 2, all parcels failed: There was not semi-natural habitat (moderate distinctiveness or above) completely surrounding the pond, for at least 10 m from the pond edge for its entire perimeter.
- Criterion 3, all parcels passed: Less than 10% of the water surface was covered with duckweed Lemna spp. or filamentous algae.
- Criterion 4, all parcels failed: The ponds were artificially connected to other waterbodies.
- Criterion 5, all parcels failed: Water levels were not able to fluctuate naturally.

- Criterion 6, all parcels passed: There was an absence of listed non-native plant and animal species.
- Criterion 7, all parcels passed: The ponds were not artificially stocked with fish.
- Criterion 8, all parcels failed: Emergent, submerged or floating plants did not cover at least 50% of the pond area which is less than 3 m deep.
- Criterion 9, all parcels passed: The pond surface was no more than 50% shaded by adjacent trees and scrub.

3.3.22. This habitat was of low distinctiveness, but had high strategic significance, as it was listed as a Habitat of Conservation Concern within the Nottinghamshire Biodiversity Action Plan. It contributed 4.47 habitat units to the on-Site baseline biodiversity value.

River r2

3.3.23. The River Leen ran adjacent to the south-east Site boundary. Where the river abutted the Site, it was approximately 9-10 m wide. The banks had been re-enforced with concrete walls and metal piling. Stones were present at the base of the piling, and the banks were vegetated by ragwort, bramble, common nettle, cow parsley and hogweed (*Heracleum sphondylium*). Ash (*Fraxinus excelsior*) saplings were also scattered along the bank. Filamentous algae (*Spirogyra* sp.) dominated the channel, although the pebble and boulder substrate was visible beneath. This section of the River Leen is a designated LWS.

Figure 7 – River Leen adjacent to south-eastern Site boundary.

3.3.24. A MoRPh 5 river assessment was beyond the scope of this report. This habitat has not, therefore, been included in the BNG baseline for the Site (See Limitations, 2.4.6).

Urban - Green roof u(1110)

3.3.25. The green roof of the GSK Carbon Neutral Laboratories for Sustainable Chemistry building was visible during the field survey and appeared to be in good condition; however, the species composition and could not be determined from ground-level. It is understood that the Energies Technology Building, Romax Building and the buildings along the east bank of the northwest lake also have green roofs, but these were not accessible during the survey.

Figure 8 – Roof of GSK Carbon Neutral Laboratories for Sustainable Chemistry building

3.3.26. This habitat was of low distinctiveness and had medium strategic significance, as it was not included in the local strategy, but was considered to be ecologically desirable. Condition assessments are not applicable to this habitat type. It contributed 2.18 habitat units to the on-Site baseline biodiversity value.

Urban - Flower beds u(1150)

3.3.27. Flower beds formed part of the soft landscaping on Site, comprising flowering species such as lavender (*Lavandula sp.*), rose (*Rosa* sp.) and elephant's ears (*Bergenia* sp.) as well as pampas grass.

Figure 9 – Flower beds

3.3.28. This habitat was of low distinctiveness and had low strategic significance, as it was not included in the local strategy, or considered to be ecologically desirable. Condition assessments are not applicable to this habitat type. It contributed 0.20 habitat units to the on-Site baseline biodiversity value.

Urban - Introduced shrub u(1160)

3.3.29. Various areas of introduced shrub formed part of the soft landscaping across the Site. A range of ornamental shrub species were present, including butterfly bush, barberry (*Berberis sp*.), variegated privet (*Ligustrum sinense*), and spurge species (*Euphorbia sp.*). The shrubs varied in size from low lying to approximately 2 m tall. They appeared to be well managed and regularly pruned.

Figure 10 – Introduced shrub

3.3.30. This habitat was of low distinctiveness and had low strategic significance, as it was not included in the local strategy, or considered to be ecologically desirable. Condition assessments are not applicable to this habitat type. It contributed 1.37 habitat units to the on-Site baseline biodiversity value.

Developed land; sealed surface u1b

3.3.31. A network of buildings and sealed hardstanding roads, paths, and carparks covered the Site. This habitat has very limited ecological value.

Figure 11 – Buildings, paths, and carparks throughout Site

3.3.32. This habitat was of very low distinctiveness and had low strategic significance, as it was not included in the local strategy, or considered to be ecologically desirable. Condition

assessments are not applicable to this habitat type. It did not contribute any habitat units to the on-Site baseline biodiversity value.

Artificial unvegetated, unsealed surface u1c

3.3.33. Various areas of unvegetated, unsealed surface were present on Site, including an Astroturf sports pitch, gravel car parking bays, brownfield areas of the Site where buildings have been cleared and a gravelled area to the east of the astroturf sports pitch. This habitat has very limited ecological value.

Figure 12 – Astroturf sports pitch and gravel surface

3.3.34. This habitat was of very low distinctiveness and had low strategic significance, as it was not included in the local strategy, or considered to be ecologically desirable. Condition assessments are not applicable to this habitat type. It did not contribute any habitat units to the on-Site baseline biodiversity value.

Other broadleaved woodland w1g and other woodland; mixed w1h

3.3.35. A strip of mature woodland ran along the western boundary of the Site from the northwest corner to the southern end of the lakes, with paved and mown paths running through it. A further patch of woodland was situated in the southwest corner. The canopy of the woodland was dominated by alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*) and sycamore, with occasional larch (*Larix* sp.), lime (*Tilia* sp.), plane (*Platanus* sp.), whitebeam (*Sorbus aria*) and willow (*Salix* sp.).

Figure 13 – Woodland to the west of the lake

3.3.36. The Site included two parcels of other broadleaved woodland and one parcel of mixed woodland all of which achieved condition scores of moderate, with condition assessment results of 27 for the two parcels of other broadleaved woodland and 31 for the parcel of mixed woodland:

- Criterion 1: One parcel of other broadleaved woodland scoring 1, with one age-class present and the other two parcels scoring 2 with two age-classes present.
- Criterion 2: All parcels scoring 3 with no significant browsing damage evident in woodland.
- Criterion 3: All parcels scoring 3 with no invasive species present.
- Criterion 4: One parcel of other broadleaved woodland scoring 1, with two or less native tree or shrub species present and the other two parcels scoring 3, with greater than five native tree species across the woodland.
- Criterion 5: One parcel of other broadleaved woodland scoring 2, with 50% to 80% of canopy and understory being native species and the other two parcels scoring 3, with over 80% of canopy and understory being native species.
- Criterion 6: All parcels scoring 3, being <10ha in area and having between 0-20% temporary open spaces.
- Criterion 7: All parcels scoring 2, with two classes of regeneration present.
- Criterion 8: All parcels scoring 3, with tree mortality less than 10%, with no evidence of pests, disease or crown dieback.
- Criterion 9: All parcels scoring 2, with recognisable woodland National Vegetation Classification (NVC) plant community at ground layer present.
- Criterion 10: One parcel of other broadleaved woodland and the parcel of mixed woodland scoring 3 with three or more storeys present across all survey plots and the other parcel scoring 2, with two storeys present across all survey plots.

- Criterion 11: All parcels scoring 1, with no veteran trees present within the woodlands.

- Criterion 12: One parcel of other broadleaved woodland scoring 1, with less than 25% of survey plots having deadwood and the other two parcels scoring 2, with between 25% and 50% deadwood present within woodland.

- Criterion 13: One parcel of other broadleaved woodland scoring 3 with no nutrient enrichment or damaged ground evident and the other two parcels scoring 2, with less than 1 hectare in total of nutrient enrichment across woodland and less than 20% of woodland has damaged ground.

3.3.37. These habitats were of medium distinctiveness and had medium strategic significance, as they were not included in the local strategy, but were considered to be ecologically desirable. The other broadleaved wood contributed 18.20 habitat units and the other woodland; mixed contributed 4.72 habitat units to the on-Site baseline biodiversity value.

Scattered trees (11)

3.3.38. A variety of mostly native tree species were scattered across the Site. Species observed comprised small-leaved lime (*Tilia cordata*), silver birch, conifers, aspen (*Populus tremula*), ash, Scots pine (*Pinus sylvestris*), lime species (*Tilia sp.*), prunus species (*Prunus* spp.), horse chestnut (*Aesculus hippocastanum*), beech (*Fagus sylvatica*) and whitebeam. Most of the scattered trees were young or semi-mature, however; a large mature sycamore and birch tree were present along Triumph Road to the north of the café and sport centre.

Figure 14 – Scattered trees to the north of the Sir Colin Campbell building

3.3.39. The Site included 249 individual trees, 219 of which achieved a condition score of moderate and 30 of which achieved a condition score of good. The trees were condition assessed as 14 groups of trees and 168 individual trees as follows:

- Criterion 1: 175 of the groups and individual trees passed, being native species to the UK, with the remaining seven being non-native species.

- Criterion 2: All trees passed, as individual trees automatically pass this criterion. All groups of individual trees also passed with the tree canopy being predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.

- Criterion 3: Only six trees passed this criterion, with most scattered trees on site not yet having reached maturity.

- Criterion 4: All but one tree passed this criterion, with little or no evidence of an adverse impact on tree health by human activities and no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.

- Criterion 5: Only 17 trees and groups of trees passed this criterion, having natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark. The remaining 165 trees generally failed this criterion due to their age range. As these trees mature, more will develop the features to provide ecological niches for invertebrates.

- Criterion 6: 165 trees passed, with more than 20% of the tree canopy area is oversailing vegetation beneath, being planted within grassland or vegetated borders. As some of the trees planted in car park areas mature and their canopies increase in size, they may fail this criterion.

3.3.40. This habitat is of medium distinctiveness and has medium strategic significance, as it is not included in the local strategy, but is considered to be ecologically desirable. It contributes 12.47 habitat units to the on-Site baseline biodiversity value.

3.4. Habitats (Linear)

Line of trees w1g6

3.4.1. A variety of mostly native tree species occurred in lines along footpaths and around the scrub area to the north. Species observed comprised small-leaved lime (*Tilia cordata*), silver birch, ash, oak (*Quercus sp.*), lime species (*Tilia sp.*), horse chestnut (*Aesculus hippocastanum*), beech, Japanese Pagoda Tree (*Sophora japonica*) and whitebeam. All trees were considered young or semi-mature.

Figure 15 – Line of trees to the west of the GSK Carbon Neutral Laboratories for Sustainable Chemistry

3.4.2. The Site included 63 lines of trees, 25 of which achieved a condition score of moderate and 38 of which achieved a condition score of poor:

- Criterion 1: 54 lines of trees passed, with At least 70% of trees are native species.

- Criterion 2: 33 lines of trees passed, with the tree canopy being predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.

- Criterion 3: Only eleven lines of trees passed this criterion, with one or more trees having veteran features and or natural ecological niches for vertebrates and invertebrates, such as presence of standing and attached deadwood, cavities, ivy or loose bark.

- Criterion 4: All lines of trees failed this criterion, not having an undisturbed naturally-vegetated strip of at least 6 m on both sides.

- Criterion 5: 59 lines of trees passed, with At least 95% of the trees in a healthy condition and little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.

3.4.3. This habitat is of low distinctiveness and has medium strategic significance, as it is not included in the local strategy, but is considered to be ecologically desirable. It contributes 6.42 hedgerow units to the on-Site baseline biodiversity value.

Native hedgerow (h2a)

Seventeen hedgerows were recorded on Site. Photographs and descriptions of the hedgerows are provided in Table 8 below and their locations are shown in Appendix A.

Table 8 – Site hedgerows

Reference	Photograph	Approximate location	Brief description
H1	No photograph available (See Limitations, 2.4.7).	South of the Dearing Building	A native beech hedgerow, approximately 1 m high and 1 m wide surrounding a cycle parking area, with short mown amenity grassland on all other sides. The hedge appeared evenly shaped and regularly managed.
H2	No photograph available (See Limitations, 2.4.7).	Northeast of The Exchange	A cotoneaster hedgerow, approximately 1 m high and 1 m wide, dividing hardstanding and amenity grassland. The hedge appeared evenly shaped and regularly managed.
H3	No photograph available (See Limitations, 2.4.7).	Northeast of The Exchange	A cotoneaster hedgerow, approximately 1 m high and 1 m wide, dividing hardstanding and amenity grassland. The hedge appeared evenly shaped and regularly managed.
H4		West of Melton Hall	A viburnum (V*iburnum* sp.) hedgerow, approximately 1 m high and 1 m wide, surrounding and single storey building and surrounded by hardstanding. The hedge appeared evenly shaped and regularly managed.

H5		West of the Estates Operation Facility	An overgrown species-rich native hedgerow, up to 5 m high and 4 m wide, comprising field maple, hawthorn, hazel, elder, holly and salix sp. The hedgerow was bounded by hardstanding to the west and a single storey building to the east. The west face of the hedgerow showed evidence of management in the recent past, but the remained of the hedgerow appeared unmanaged.
H6		Northeast of the Advanced Manufacturing Building	A yew (*Taxus baccata*) hedgerow, approximatey 0.5 m high and 0.5 m wide, running between the Advanced Manufacturing Building and neighbouring footpath. The hedge appeared evenly shaped and regularly managed.

H7		East of the Advanced Manufacturing Building	A yew (*Taxus baccata*) hedgerow, approximatey 0.5 m high and 0.5 m wide, running between the Advanced Manufacturing Building and neighbouring footpath. The hedge appeared evenly shaped and regularly managed.
H8 & 9		Northern boundary of a car park at the centre of the eastern half of the Site	A low native hedge of privet (*Ligustrum* sp.), up to 1 m tall and 1 m wide. The hedge appeared evenly shaped regularly managed. Gaps of up to 2 m occurred where footpaths provided access to the car park and a gap of 4 m was present at the car park entrance.

H10		South of the Jubilee Hotel and Conference Centre	A species-rich native hedgerow up to 2 m high, with trees up to 10 m high, comprising field maple, Corsican pine (*Pinus nigra*), willow, rowan (*Sorbus aucuparia*), lime and hawthorn (*Crataegus monogyna*). The hedgerow did not appear to have been recently managed. The hedgerow was bounded by a playing field to the south and a carpark to the north with a narrow strip of grass at the base of the hedgerow on the north side.
H11	No photograph available (See Limitations, 2.4.7).	Northeast of The Exchange, bordering a brownfield area of the Site to the west of Triumph Road	An overgrown native hedgerow, up to 4 m tall and 4.5 m wide with species including hawthorn, guelder rose (*Viburnum opulus*) and cotoneaster. Ground flora was dominated by ivy (*Hedera helix*).
H12 & H13		South of the Yang Fujia Building	Two beech hedges, approximately 2 m high and 1 m wide, surrounded by amenity grassland. The hedge appeared evenly shaped regularly managed.

H14		Western boundary of the northeast corner of the Site, to the east of Triumph Road	A hedgerow of Leyland cypress (*Cupressus* × *leylandii*), approximately 2 m high and 1.5 m wide. The hedgerow appeared to be regularly managed on the west side, where in some areas, limbs had been entirely removed from the west face of the trees. The east side of the hedgerow could not be clearly seen, but appeared to be less regularly managed and bordered hardstanding.
H15		Eastern Site boundary	A species-rich native hedgerow, up to 3 m tall, comprising hawthorn, field maple, elder, oak, bramble and lime ran along the eastern boundary between the university grounds and the railway line. The hedge was divided from the Site by a chain-link fence along most of its length and by a brick wall up to 2 m high at its southern end. At the northern end, ivy covered the ground and large parts of the fence. The west side of the hedge appeared regularly managed, having been trimmed back level with the fence-line. The hedge line was largely continuous, with only two significant gaps of approximately 5 m.

H16		Surrounding a small carpark north of the Ingenuity Centre	A species-rich native hedgerow, approximately 1.5 – 2.5 m high and 2 m wide. The hedgerow was comprised of hawthorn, blackthorn (*Prunus spinosa*), hazel (*Corylus avellana*), willow, field maple, beech. The hedge showed no evidence of recent management.
H17		East of the Advanced Manufacturing Building	A yew (*Taxus baccata*) hedgerow, approximately 0.5 m high and 0.5 m wide, running between the footpath and grassland. The hedge appeared evenly shaped and regularly managed.

H18, H19 & H20		West of the Research Acceleration and Demonstration Building	Native hedgerows, approximately 1.5 m high and 1 m wide. Species included field maple, willow, lime and hawthorn. The hedgerow showed evidence appeared well managed and was bounded by hardstanding to the west and ornamental planting to the east.

3.4.4. The Site included 20 hedgerows. Three of these were non-native ornamental hedgerows and therefore automatically achieved a condition score of poor. Eleven hedgerows were classified as native hedgerows, of which eight achieved a condition score of moderate and three achieved a condition score of good. Six hedgerows were classified as native hedgerows with trees, five of which achieved a condition score of good and one a condition score of moderate.

- Criterion 1: Seven hedgerows passed, with >1.5 m average height along length.
- Criterion 2: Seven hedgerows passed, with >1.5 m average width along length.
- Criterion 3: All hedgerows passed, with the gap between ground and base of canopy being <0.5 m for >90% of length.
- Criterion 4: 16 hedgerows passed, with gaps make up <10% of total length; and no canopy gaps >5 m.
- Criterion 5: No hedgerows passed, with none having >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length.
- Criterion 6: All hedgerows passed, with plant species indicative of nutrient enrichment of soils dominating <20% cover of the area of undisturbed ground.
- Criterion 7: All hedgerows passed, with >90% of the hedgerow and undisturbed ground being free of invasive non-native plant species and recently introduced species.
- Criterion 8: 13 hedgerows passed, with >90% of the hedgerow or undisturbed ground being free of damage caused by human activities.
- Criterion 9 (applicable to the six hedgerows with trees only): All six hedgerows with trees passed, with more than one age-class (or morphology) of tree present and at least one mature tree present per 20 – 50 m of hedgerow.
- Criterion 10 (applicable to the six hedgerows with trees only): Five hedgerows passed, with at least 95% of hedgerow trees being in a healthy condition with little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.

3.4.5. Non-native and ornamental hedgerow is of very low distinctiveness and low strategic significance, as it is not identified in the local strategy or considered ecologically desirable. It contributes 0.07 hedgerow units to the on-Site baseline biodiversity value.

3.4.6. Native hedgerow is of low distinctiveness and has medium strategic significance, as it is not included in the local strategy, but is considered to be ecologically desirable. It contributes 1.70 hedgerow units to the on-Site baseline biodiversity value.

3.4.7. Native hedgerow with trees is of medium distinctiveness and has medium strategic significance, as it is not included in the local strategy, but is considered to be ecologically desirable. It contributes 0.70 hedgerow units to the on-Site baseline biodiversity value.

3.4.8. Species-rich native hedgerow is of medium distinctiveness and has high strategic significance, as it is included in the Nottinghamshire Biodiversity Action Plan. It contributes 4.02 hedgerow units to the on-Site baseline biodiversity value.

3.4.9. Species-rich native hedgerow with trees is of high distinctiveness and has high strategic significance, as it is included in the Nottinghamshire Biodiversity Action Plan. It contributes 9.87 hedgerow units to the on-Site baseline biodiversity value.

3.5. Species

Plants - Invasive, protected and notable species

3.5.1. Desk study records included records of four invasive plant species, including six records of Japanese knotweed, three of which occurred within the Site, close to the lakes, and Himalayan Balsam and Giant Hogweed within 300 m and 200 m of the Site respectively.

3.5.2. Twelve notable plant species were recorded within the desk study area, including Large Thyme, which is listed in the Nottinghamshire Rare Plant Register and was recorded within the Site in 2019.

3.5.3. No invasive or protected plant species were observed during the field survey; however, an in-depth botanical or invasive plant survey was beyond the scope of the survey. Some vegetated areas within the Site, such as the fenced off brownfield areas to the north and the area of construction work to the north or Triumph House were also inaccessible, such that invasive or protected plants may have been present but obscured or inaccessible.

Birds

3.5.4. The desk study returned records of 46 notable bird species including eight WCA Schedule 1 species: peregrine falcon, red kite, redwing, common scoter, greylag goose, osprey, brambling, black redstart. The following red listed birds of BoCC were also recorded between 1.5 and 2 km from the Site: pochard, common scoter, fieldfare, greenfinch, hawfinch, house martin, lesser spotted woodpecker, mistle thrush, starling, swift, spotted flycatcher, marsh tit, lesser redpoll, herring gull and woodcock and wood warbler.

3.5.5. Birds observed foraging on Site during the survey comprised magpie (*Pica pica*), feral pigeon (*Columba livia*), grey heron (*Ardea cinerea*), carrion crow (*Corvus corone*), mallard, chiffchaff (*Phylloscopus collybita*), wood pigeon and Canada geese (*Branta canadensis*). A pair of moorhen and chicks were observed nesting close to the lake, while a mallard with ducklings was observed in an ornamental pond. Moorhen, mallard and wood pigeon are amber listed BoCC.

3.5.6. The woodland, scrub, scattered trees, hedgerows, other neutral grassland and wetland habitats and the eaves of the buildings within the Site provide suitable nesting and foraging habitat for a wide variety of bird species, including many of the WCA Schedule 1 and red listed species listed above. Bird boxes were located on walls and buildings across the campus as well as a number of integrated bird boxes within some buildings, providing habitat for common passerine bird species as well as specialised boxes for house sparrow (*Passer domesticus*), swift and black redstart. It was noted that some of the timber bird boxes, such as those behind the Romax building had fallen into a state of disrepair.

Amphibians, including great crested newt

3.5.7. No records of great crested newt were returned from the records centre from within the last ten years, nor were any EPSL for great crested newt identified using MAGIC from within the Study Area. No evidence of great crested newt was observed during the field survey.

3.5.8. The desk study returned six records of common toad (a species of principal importance) including one record on Site, one record of smooth newt and four of common frog.

3.5.9. There were 16 waterbodies within the Site and a review of satellite imagery and OS maps identified one further waterbody within 500 m of the Site, in the form of the River Leen. The locations of all identified waterbodies within 500 m of the Site are shown in Figure 17.

3.5.10. HSI assessments of the waterbodies were not undertaken during the field survey, as this was outside the scope of the works at this time.

3.5.11. The lakes within the Site offered good marginal vegetation and gently sloping banks. The grassland, scrub and woodland in close proximity to these lakes also provided good quality habitat for foraging and sheltering amphibians, including great crested newts. These water bodies are larger than optimal for great crested newt breeding ponds; however, each being over 1000 m^2, and the presence of waterfowl and fish which will predate great crested newts also reduces their suitability.

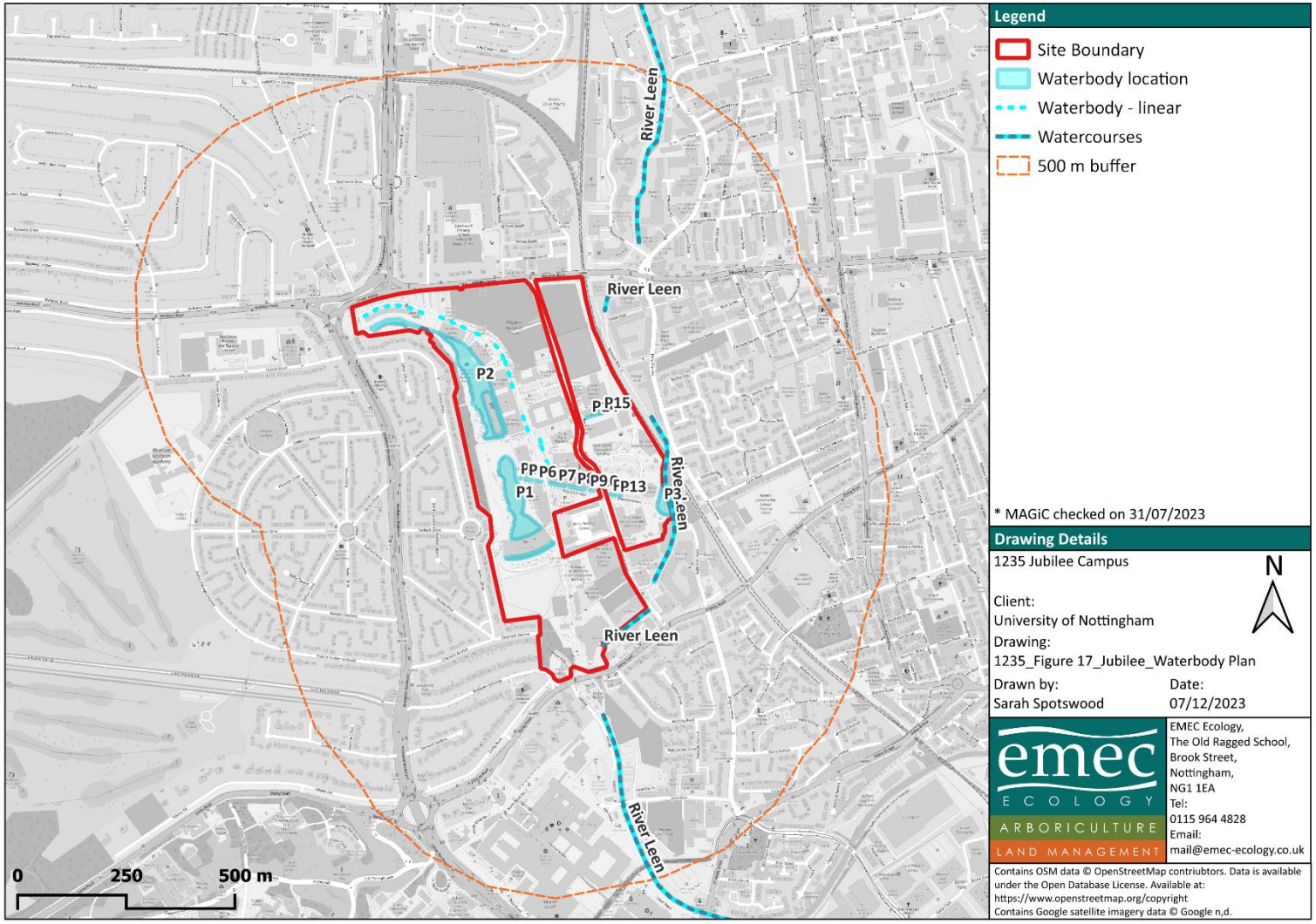
3.5.12. The twelve small ornamental ponds were considered unsuitable for amphibians, being shallow, with sheer, smooth sides, set within hardstanding in busy areas and lacking any aquatic or marginal vegetation. A mallard and ducklings were also observed within one of these ponds.

3.5.13. The wet ditches were considered to provide suitable habitat for amphibians, with good marginal vegetation and good water quality, but lacked open water for great crested newt breeding displays. The narrow strips of short-mown grassland and hardstanding which comprised the majority oof the surrounding terrestrial habitat was also considered to represent suboptimal habitat.

3.5.14. The brownfield areas at the northern and southern ends of the Site also provided potential sheltering habitat for amphibians, including great crested newt in the form of trees and scrub, brash piles, loose, rocky ground and rubble.

3.5.15. The Site is isolated from other suitable great crested newt habitat by the major roads immediately to the north and south and by residential properties followed by a major road to the west. The railway line to the east could provide a commuting route onto the Site, but did not connect with any areas containing potential breeding ponds within 500 m. While the River Lee runs along the Site boundary, it sits approximately 3 m below ground level with sheer sides, preventing newts from moving between the river and the Site.

Figure 18. Waterbody location plan



Reptiles

3.5.16. No records of reptiles were returned from the records centre originating from the last ten years from within the Study Area and no evidence of reptiles was observed during the field survey.

3.5.17. The woodland, scrub, grassland, hedgerows and water bodies within the Site provide foraging and sheltering opportunities for reptiles, and the bare ground and short-mown amenity grassland provided suitable habitat for basking. Brash piles and loose earth mounds observed in the brownfield area of the Site to the north-east also provided potential habitat for hibernating reptiles, if present. The adjacent train line provided a suitable commuting route to the Site from further suitable reptile habitat to the south-east. Therefore, while no reptiles were identified by the desk study, the Site is considered to offer suitable habitat for reptiles.

Bats

3.5.18. The desk study found 88 records of ten different bat species within the study area, the closest of which lay 900 m to the east of the Site. These records included one noctule roost, five common pipistrelle roosts and two roosts on unknown bat species, the closest of which was located 1.36 km from the Site. Three EPSL licences were granted for destruction of common pipistrelle resting places between 1.1 km and 1.6 km east of the site and one licence for destruction of a noctule resting place 1.5 km to the west of the site. While most records occurred within the urban environment with relatively poor connectivity to the Site, 17 records for bats including Common Pipistrelle, Soprano Pipistrelle, Nathusius's Pipistrelle, Noctule and Daubenton's bats were located within Wollaton Park, which is connected to the southeast corner of the Site via a tree line.

3.5.19. The Site was assessed as being of High suitability for foraging and commuting bats, in line with best practice guidelines (Bat Conservation Trust, 2016). New best practice guidelines have since been issues by the Bat Conservation Trust, but this assessment was made using the current guidelines at the time. This assessment was due to the good quality foraging habitat provided by the woodland, tree lines and hedgerow habitat within the Site and the connectivity with other good quality habitat and known roost locations via the treeline from the southwest corner and the tree-lined railway line running along the eastern boundary of the Site. The lakes also provided suitable foraging habitat for Daubenton's bats.

3.5.20. A large number of buildings, structures and mature trees were present on Site at the time of survey and these features may be suitable for roosting bats; however, a full PRA to assess their suitability to support roosting bats was not conducted as part of the field survey at this stage.

Badger

3.5.21. [redacted]

3.5.22.

3.5.23.

3.5.24. [redacted]

3.5.25. [redacted]

Hazel dormouse (*Muscardinus avellanarius*)

3.5.26. There were no records of hazel dormouse within the study area and, while the Site did contain suitable habitat for Hazel dormice in the form of woodland, scrub and hedgerows, the Site does not lie within the known range of the hazel dormouse. Hazel dormice are therefore not considered further within this report.

Terrestrial invertebrates

3.5.27. Three records of the nationally scarce hornet moth, which is also listed as a species of conservation concern in the Nottinghamshire BAP, were returned by the desk study. The closest of these records was located 1.3 km south in 2022. The caterpillars of this species feed on poplar trees, which were not noted on the campus during the field survey. It is therefore considered unlikely that the Site provides important habitat for this species.

3.5.28. EMEC Ecology previously conducted an invertebrate survey of the Site in 2018, at which point two nationally notable species (*Longitarsus dorsalis* and *Rhinocyllus conicus*) and one nationally scarce species (*Chaetarthria simillima*) were recorded within the Site (EMEC Ecology, 2018). These species are associated with ragwort and other Asteraceae, thistles, and damp edges or mossy habitat respectively. The Site therefore still provided suitable habitat for these species. The previous report noted that the first two species had increased in range since their designation and the third is likely under-recorded.

3.5.29. No notable invertebrate species were incidentally noted during the field survey. The mosaic of habitats and varied vegetation structure within the Site, together with the mature trees and the native wildflowers present within the other neutral grassland provide valuable habitat for invertebrates.

Otter

3.5.30. No records of otter were returned from the records centre originating from the last ten years from within the Study Area and no evidence of otter was observed during the field survey.

3.5.31. The lakes within the Site were considered to offer suitable foraging habitat for otter and the woodland and scrub close to these water bodies offered potential for laying up or holt building. The Site was considered to have poor connectivity to other good otter habitat though, with the River Leen being situated at the base of tall, vertical, concrete and steel reinforced banks. Otter are therefore unlikely to leave the adjoining sections of the River Leen to use the Site, however, it is possible that otter could pass through or forage within the Site.

Water vole

3.5.32. No records of water vole were returned from the records centre originating from the last ten years from within the Study Area and no evidence of water vole was observed during the field survey. There were also no records of American Mink (a voracious predator of water vole and considered a factor in the decline of this species, nor was evidence of mink identified during the field survey. It should however be noted, that a full water vole survey was beyond the scope of the field survey at this stage.

3.5.33. The wet ditches and lakes within the Site provided potential habitat for water vole, having good marginal vegetation and steep banks for burrowing. As with otter, the Site was considered to have poor connectivity to other, off-Site suitable water vole habitat.

Aquatic invertebrates including white-clawed crayfish

3.5.34. No records of notable aquatic invertebrates, including white-clawed crayfish, were returned from the records centre originating from the last ten years from within the Study Area and no aquatic invertebrates, including white-clawed crayfish, were incidentally observed during the field survey.

3.5.35. The lakes and ditches within the Site and the River Leen immediately to the southeast of the Site, with their emergent vegetation and gravel beds in the case of the lakes, offer suitable habitat for a range of aquatic invertebrates, including white-clawed crayfish; however, the waterbodies within the Site lacked connectivity to other suitable white-clawed crayfish habitat. Although the carp within the lakes will reduce aquatic invertebrate numbers through predation, the emergent vegetation within the water bodies will offer cover from predation.

Fish

3.5.36. The desk study returned two records of brown trout, a UK BAP species, the closest of which was 500 m from the Site, and one record of bullhead, 1.3 km from the Site. Carp were observed within the lakes during the field survey.

3.5.37. While the water bodies within the Site provided suitable habitat for a variety of fish species, they are artificially created and lack connectivity to external waterbodies, so it is considered unlikely that any notable species would be present with the Site. Fish are therefore not considered further within this report.

Additional SPI

3.5.38. The desk study returned 70 records of European hedgehog (an SPI), the closest of which was recorded 200 m from the Site. While no evidence of hedgehog was observed during the field survey, the woodland, scrub, hedgerows, ornamental shrubs and grassland provided suitable foraging habitat and shelter and the proximity of woodland to well vegetated urban gardens to the west offered connectivity to other suitable habitat.

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.

4.2. Designated sites, HPI and other notable habitats

Statutory and non-statutory designated sites

Recommendations

4.2.1. Four statutory and 13 non-statutory designated nature conservation sites were identified by the desk study, the closest of these being River Leen LWS which ran immediately along the southeast boundary of the Site.

4.2.2. As no specific proposals are currently in place, it cannot be discussed if there would be any impacts to these sites as a result of any future proposed work. However, should any significant 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

4.2.3. The desk study did not identify any HPIs within the Site; however, the hedgerows within the Site were considered HPI based on the Site survey. The closest HPI identified outside of the Site was deciduous woodland habitat identified 400 m to the west. Any future works proposed on Site should avoid any impact upon HPI habitats. A further impact assessment be required to inform mitigation and recommendations of impact avoidance upon these habitats prior to the commencement of any future works.

4.3. Habitats

Recommendations

4.3.1. 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.

4.3.2. Temporary storage of plant or machinery should be on hardstanding off-site to avoid unnecessary degradation of habitats 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. Full arboriculture assessments may be required where trees could become impacted from works.

4.4. Biodiversity Net Gain (Baseline BIA)

4.4.1. Total on-Site baseline habitat units equate to 101.17 with a further 22.76 hedgerow units and 1.89 watercourse units, excluding the River Lean, which was not assessed as part of this BIA (See Limitations, 2.4.6). It is deemed that with further enhancement of habitats, the Site's baseline units are likely to be increased.

Recommendations

4.4.2. As no current plans for development are proposed on-Site, only a BNG baseline is provided within this report. Broad enhancement/retention recommendations will be made within a separate Biodiversity Enhancement Plan, which will improve biodiversity units/reduce habitat unit loss on Site.

4.5. Species

Plants – Invasive, protected and notable species

Recommendations

4.5.1. Prior to the commencement of any proposed works on Site, a detailed botany survey may be required to determine the presence of any invasive, protected or notable plant species. If invasive species are noted within the working footprint, these will need to be removed and disposed of in an appropriate manner according to the species, prior to any works commencing to prevent the spread of this species. If protected or notable plants are identified, these will be retained and protected from any direct or indirect impacts from the works. Where the plants cannot be retained in situ, translocation to another area of suitable habitat within the Site will be required.

Birds

Recommendations

4.5.2. Vegetation clearance, including removal, reduction, or pruning of any trees, hedgerows, scrub or shrubs, 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.

4.5.3. 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.

4.5.4. Bird boxes erected within the Site should be checked for lost or damaged boxes and repaired or replaced as appropriate. Where the existing box is functional, this should be done outside the main bird nesting period.

Amphibians, including great crested newt

Recommendations

4.5.5. All ponds within 500 m of the Site, that are not considered to lie beyond significant barriers to dispersal, should be subject to Habitat Suitability Index (HSI) assessments prior to the commencement of any future works. Dependant on the results of these assessments, environmental DNA (eDNA) surveys for great crested newt, to determine the presence or likely absence of this species on Site may be required. 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 great crested newt eDNA can only be undertaken between 15th April and 30th June.

4.5.6. Should the waterbodies test positive for great crested newt 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.

4.5.7. If the HSI assessments and eDNA surveys demonstrate the likely absence of GCN from Site, then the following Precautionary Method of Works (PMW) should be adhered to, to reduce the risk of killing or injury of individual great crested newts that may pass through the Site.

- The works should take place during the great crested newt breeding period (generally March – June, depending on local temperatures), when the species is most likely to be present within aquatic habitat, as opposed to terrestrial habitats such as those provided by the Site.
- Before works commence, all contractors will be made aware of the potential for great crested newt to be encountered during works.
- The working footprint will be kept to a minimum.
- If great crested newt are encountered at any time during works then all works must cease immediately until further advice is provided by a suitably licensed ecologist.
- In advance of works, habitats and potential refugia will be checked by a suitably licensed ecologist for great crested newt.
- Following the check, habitat degradation within working footprint will take place, to deter great crested newt from moving on to the Site. This must be maintained to prevent the Site becoming attractive to great crested newt during the works.
- Any brash or log piles will be dismantled methodically and by hand, taken out of the working area and used to create habitat piles in an undisturbed area of the Site.
- If vegetation clearance is undertaken during the active season, no more than two weeks prior to works commencing on Site, all vegetation within any working areas, where required, will be cut or removed using handheld machinery (i.e. strimmer, brush cutter, chainsaw) to a height of no less than 150 mm.

- The working area must be left for a minimum of two days to allow any newts that may be present to move out of the immediate area. A second cut using hand-held machinery (such as a strimmer or brush cutter) will be then carried out, to a height of 50 mm.

- The area will then be will then be subject to hand searches for newts within the cleared areas. This must be completed by the suitably licensed ecologist, after vegetation strimming is completed and immediately prior to the commencement of works.

- Other amphibians encountered at any time during works will be moved to a safe location away from the works and placed within a similar habitat to which they were found.

- Any holes or trial pits associated with works will be covered overnight to prevent amphibians from becoming trapped within them. If holes must be left open, a means of escape, such as plank will be provided.

Reptiles

Recommendations

4.5.8. If future proposals will impact suitable reptile habitat within the Site, including the woodland, scrub, grassland, hedgerows and water bodies, reptile surveys may be required to determine the presence or likely absence of widespread species of reptiles on Site. The standard survey methodology involves direct observation and the use of artificial refuges (Froglife, 1999). 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'.

4.5.9. When available, the proposals for the Site will determine whether reptile surveys are required. However, if following assessment of the impact, reptile surveys are not required, to reduce the risk of harm to individuals of widespread reptile species that may pass through the Site during the works, Precautionary Methods of Working (PMW) should still be implemented. These should include:

- Works within areas suitable for reptiles should take place when reptiles are likely to be active, outside of the hibernation period (taken to be from October to March, depending on local temperatures), to enable individuals to be able to move out of harm's way if present.

- Before works commence, all contractors will be made aware of the potential for reptiles to be encountered during works.

- The working footprint will be kept to a minimum.

- If reptiles are encountered at any time during works, then all works must cease immediately until further advice is provided by a suitably experienced ecologist.

- In advance of works, potential reptile habitat and potential refugia to be affected will be checked by a suitably experienced ecologist for reptiles.

- Following the check, habitat degradation within working footprint will take place, to deter reptiles from moving on to the Site. This must be maintained to prevent the Site becoming attractive to reptiles during the works.

- Any brash, log or rubble piles will be dismantled methodically and by hand, taken out of the working area and used to create habitat piles in an undisturbed area of the Site.

- No more than two weeks prior to works commencing on Site, suitable vegetation within any working areas, where required, will be cut or removed using handheld machinery (i.e. strimmer, brush cutter, chainsaw) to a height of no less than 150 mm.

- The working area must be left for a minimum of two days to allow any reptiles that may be present to move out of the immediate area. A second cut using hand-held machinery (such as a strimmer or brush cutter) will be then carried out, to a height of 50 mm.

- The area will then be will then be subject to hand searches for reptiles within the cleared areas. This must be completed by the suitably experienced ecologist, after vegetation strimming is completed and immediately prior to the commencement of works.

- Any holes or trial pits associated with works will be covered overnight to prevent reptiles from becoming trapped within them. If holes must be left open, a means of escape, such as plank will be provided.

Bats

Recommendations – Roosting bats

4.5.10. Should any works be undertaken on Site to buildings or trees, or should additional lighting be proposed, a Preliminary Roost Assessment (PRA) for bats will need to be undertaken of all the trees, buildings and structures that may be impacted. The PRA will be undertaken both internally and externally, where access is permitted, and include the identification and assessment of the Bat Roost Potential (BRP) of any Potential Roost Features (PRFs) present, in addition to a systematic search for any evidence of bats. Evidence looked for included live or dead bats, droppings, feeding remains, staining from fur oils and urine and scratch marks. Dependent on the BRP assigned to the PRFs, further nocturnal surveys will be required to determine the presence or likely absence of roosting bats, according to the Bat Conservation Trust Guidelines (Collins, 2016).

4.5.11. If bat roosts are identified 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

4.5.12. Should any works be undertaken on Site that could result in the direct or indirect impact of foraging and commuting habitat for bats, including any works to hedgerows, woodland and tree lines or an increase of artificial lighting near these features, it may be necessary to complete a suite of bat activity transects.

4.5.13. In line with best practice guidelines (Bat Conservation Trust, 2016) for sites with High suitability habitat for foraging and commuting bats, up to two survey visits per month (April to October) are recommended. At least one of the surveys should 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 a static bat detector at three locations per transect, set to collect data on five consecutive nights per month.

4.5.14. 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 buildings, woodland, scattered trees, treelines, hedgerows or waterbodies.
- 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.

<u>Badger</u>

Recommendations

4.5.15. Should any works be planned within 30 m of woodland, other neutral grassland, hedgerows and scrub areas, a survey for badger should be undertaken prior to the commencement of any proposed works, to determine the location of any badger setts that may be present. High impact works causing heavy ground vibration, such as pile driving, will require a larger buffer. An ecologist should be consulted to determine whether a badger survey is required before any such works are conducted on Site. The survey will ideally be undertaken during winter/spring before herbaceous vegetation has grown tall and may potentially obscure evidence of badger activity.

4.5.16. If the survey confirms that an active badger sett is present within 30 m of any 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.

4.5.17. The following Precautionary Methods of Working (PMW) below are also recommended to avoid risk of entrapment or injury of badgers that may pass through the Site during the construction phase, even if the works can avoid the above distances from suitable habitat:

- Contractors will be made aware of the potential presence of badger on Site.
- No open trenches, pits, holes or any other excavation which has the capacity to entrap badgers or other wildlife will be left open overnight. Excavations will be backfilled or completely covered at the end of each day.
- If it is not possible to backfill or cover any excavations and they must be left open, a means of escape must be provided to allow any animals which may fall in to escape on their own. This can be achieved by placing a suitably sized plank of wood in the hole, ensuring that the top of the plank extends out of the hole, which will allow animals to climb out.
- If a mammal hole is identified within 30 m of the works, works must cease and the hole must be inspected by a suitably experienced ecologist to assess the likelihood of impacts to badger prior to works continuing.
- Cutting tools will not be left in on Site where they might injure animals.
- If badgers are encountered during works, all works must cease immediately until the badgers have left the area of their own accord.

Terrestrial invertebrates

Recommendations

4.5.18. If any works result in the loss of other neutral grassland, scrub, woodland, scattered trees, tree lines or hedgerows, an assessment by an ecologist will be undertaken to determine whether terrestrial invertebrate surveys are required.

4.5.19. Habitats suitable for terrestrial 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.

Otter

Recommendations

4.5.20. 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. The survey 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.

Water vole

Recommendations

4.5.21. Should any works be undertaken on Site that would result in direct or indirect impacts (as defined in section 4.5.19) to the waterbodies within or adjacent to the Site or the habitat within 10 m of the bank top, further survey for water vole are recommended, to determine presence or likely absence of this species on or adjacent to the Site. 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). 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.

Aquatic invertebrates, including white-clawed crayfish

Recommendations

4.5.22. Should any works be undertaken on Site that would result in the direct or indirect impacts (as defined in section 4.5.19) to the River Leen, it is recommended that a survey for white-clawed crayfish is undertaken of the waterbodies to be affected. Surveys for white-clawed crayfish can be undertaken from July to September, inclusive, and involve assessing the suitability of habitat from within the watercourse and a manual search of potential refuges. A modification of the standard methodology (Peay and Hirst 2003) would be used.

Additional SPI

Recommendations

4.5.23. 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.

4.5.24. Contractors will be made aware of the likely potential presence of European hedgehog on Site. Vegetation clearance/reduction/pruning will be undertaken with care to avoid disturbance to sheltering/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 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.

5. Enhancement

5.1. Enhancement proposals

5.1.1. Specific enhancement recommendations on Site will be provided within the Biodiversity Enhancement Plan (BEP). 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 suitable qualified Ecologist, as this in itself could disturb, damage or destroy an existing bat roost or an active bird nest.

- A variety of bat boxes could be installed on mature trees and buildings throughout the Site. These could include the Beaumaris Woodstone Bat Box for buildings or the Improved Crevice Bat Box for trees, both of which can be found at www.nhbs.com. These should be installed at a height of 4 m, on south and west facing aspects, with a clear line of flight to the box, this is especially important on trees. The boxes should be placed in groups of two or three on different aspects and away from any artificial lighting.

- A variety of bird boxes could be installed on mature trees and buildings throughout the Site. These could include Vivara Pro Seville 28mm and 32mm WoodStone Nest Boxes on trees and Vivara Pro WoodStone House Sparrow and Swift boxes on buildings, all of which can be found at www.nhbs.com. The standard nest boxes should be placed on trees at height of 3 m on north and east facing aspects with a clear line of sight to the box. These boxes should be placed at least 20 m apart. The house sparrow boxes should be placed at a height of 4 m on buildings on north and east facing aspects and close to woodland or scrub. Two or three of these boxes can be placed in close proximity. The swift boxes should be placed at the eaves of buildings at a minimum height of 4 m on north and east facing aspects. Three or four of these boxes should be placed in close proximity.

- Hedgehog boxes, such as the Hedgehog Nest Box from www.nhbs.com could be installed across the Site. These should be placed in the bottom of hedgerows and scrub and in woodland margins, away from busy roads, at least 50 m apart.

- 'Hedgehog highways', 13 cm by 13 cm holes created at the base of fences to allow hedgehogs to pass through and increase their dispersal through the landscape. These are recommended within the eastern boundary fence.

- Some of the mature trees within the woodlands could be veteranised to improve the trees for roosting for bats and invertebrates. This is done by the controlled damaging of mature trees to increase the rate at which cavities and other features beneficial to wildlife form on a tree.

- A variety of invertebrate hotels such as the National Trust Apex Insect House from www.nhbs.com could be installed across the Site. These should be placed on south facing aspects that receive full sunlight throughout the year and are close to a variety of habitats including wildflower meadows, woodland and scrub.

- In-filling planting of gaps in the hedgerow along the eastern boundary. Species that may be used include hawthorn, blackthorn, hazel, elder, guelder rose, hornbeam (*Carpinus betulus*) and dog rose (*Rosa canina*).

- Timber and brash from any vegetation clearance or pruning Site could to be used to create habitat piles or hibernacula within the Site to offer refuge to amphibians, reptiles, invertebrates and small mammals such as hedgehog. Hibernacula for amphibians are particularly recommended in the meadow adjacent to the two lakes to the west.

- Night flowering plant species could be planted in areas proposed for soft landscaping, to improve bat foraging opportunities. Species to include; honeysuckle (*Lonicera periclymenum*), and native catchfly species such as white campion (*Silene latifolia*) will be included in the plant mix to attract night flying insects for foraging bats. Further planting suggestions for bats can be found in the Bat Conservation Trust leaflet, Encouraging Bats (Bat Conservation Trust, 2015), which can be downloaded here: https://www.bats.org.uk/advice/gardening-for-bats, but not all will be suitable for every site.

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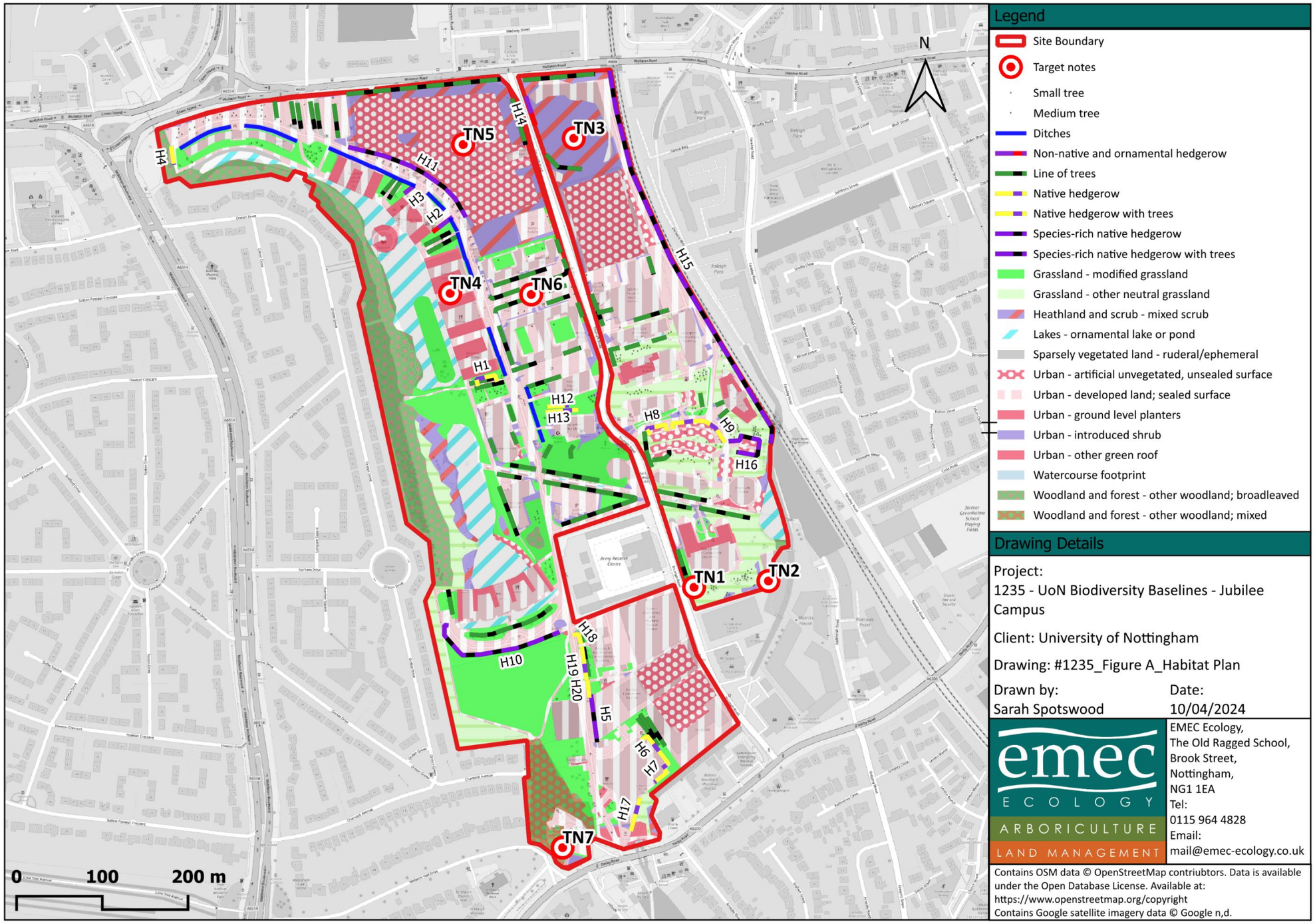
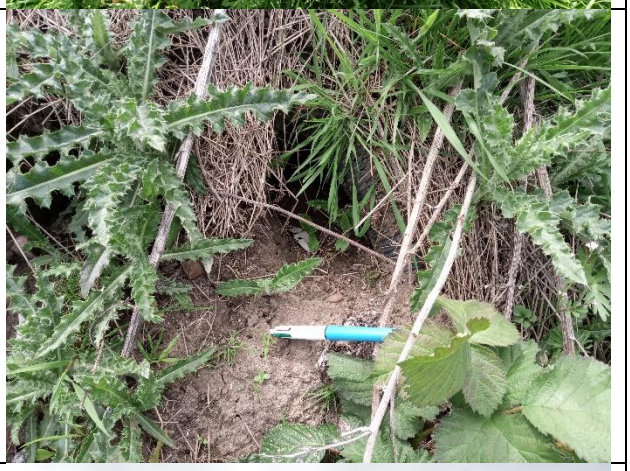
Appendix A: UK Habitat Plan



Appendix B: Target Notes and Photographs

No.	Description	Photograph
1	Mammal holes approximately 7 – 10 cm diameter	
2	Two mammal holes approximately 7cm in diameter	
3	The area of the Site north of the sports pitch, between Triumph Road and the railway line was enclosed behind fencing with locked gates and was not accessible during the survey. Habitat types and condition assessed by view from fence and from satellite imagery	
4	Areas between buildings could not be accessed during the survey or clearly seen from outside arial suggests ornamental planting and trees in hard standing, but this could not be accurately mapped	Photo not available

5	Area of hardstanding, scrub and trees enclosed behind fencing and locked gates. View from gates and satellite imagery used to determine habitat.	
6	Courtyards of Southwell and Newark Hall were not accessible, habitat classified from satellite imagery	Photo not available
7	The area behind the closed gates of Lenton Lodge was not accessible during the survey. Habitat types and condition assumed from satellite image.	

Appendix C: 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.
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.
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.
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.