brindle& green | ecological consultants

ECOLOGICAL IMPACT ASSESSMENT

Former MSD Facility, Breakspear Road South, Ickenham, Uxbridge

Report Reference: BG22.113.7 REV1

September 2022

Brindle & Green Ecological Consultants specialise in delivering high quality and affordable ecological surveys and reports-tailored for their suitability for informing planning applications.

Brindle & Green surveyors have the necessary experience, technical ability, qualifications and accreditations to meet the high demands increasingly enforced by Local Authorities and Natural England.

Projects are undertaken against the recognised guidelines for the species or habitats being studied. Brindle & Green reports are uniquely designed to provide the reader with the best possible understanding of our client's proposals and to ensure that the information requested by the Local Planning Authority is easily found and understood.

This report has been prepared in accordance with the CIEEM (2017) **Guidance on Ecological Report Writing.** Chartered Institute of Ecology and Environmental Management, Winchester and CIEEM (2018) Technical guidance series, **Guidelines for Ecological Impact Assessment in the UK and Ireland.** Chartered Institute of Ecology and Environmental Management, Winchester

www.brindlegreen.co.uk

Sheffield Office
Brindle & Green Limited
Horizon House
Whiting Street
Sheffield S8 9QR

Barnsley Office
Brindle & Green Limited
Sergeants House
36 Edderthorpe Lane
Barnsley S73 9AT

Head Office
Brindle & Green Limited
Unit 3 Silverhill Court
Radbourne
Derby DE6 4LY
Tel: 0800 222 9105

London Office
Brindle & Green Limited
Nutter Lane
Wanstead
London E11 2HZ

Kent Office
Brindle & Green Limited
Sandy Lane
Sevenoaks
Kent TN13 3TP

brindle& green

DOES YOUR REPORT MAKE RECOMMENDATIONS FOR

FURTHER SURVEY WORK, MITIGATION, MONITORING OR ENHANCEMENT?

Our consultancy services include specialist species surveys, landscape and mitigation, including European Protected Species Development Licences, on site supervision and monitoring.

Our contracting team deliver on site mitigation including exclusion fencing, badger sett construction and closure, tree climbing and soft landscaping.

For further information on consultancy or from our construction team please contact us on...

0800 222 9105

info@brindlegreen.co.uk

www.brindlegreen.co.uk

DID YOU KNOW BRINDLE & GREEN ALSO OFFER...

brindle& green ecological consultants

Our ecology team provide extended habitat, botanical and species survey including bat work. We also specialise in obtaining European Protected Species Licences.

brindle& green arboriculture

Our arboriculture team deliver industry standard tree surveys, root impact assessment and tree protection plans.

brindle& green marine

Our marine team deliver shoreline surveys, marine mammal surveys, coral reef impact assessments and more within an ever diversifying division.

brindle& green environmental contractors

Our in house contracting team deliver GCN / Reptile fencing, badger sett exclusion and closure and habitat creation services.

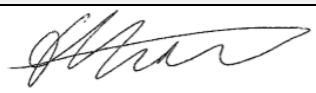
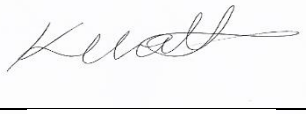
brindle& green science

Our science team offer GCN eDNA analysis & sample training, Bat eDNA analysis and can now provide White Clawed Crayfish eDNA analysis too.

brindle& green landscape consultants

Our Landscape consultants provide bespoke design schemes for commercial and private projects to satisfy a range of briefs. We can assess the potential scope of a proposed scheme from the earliest concept stage.

Document Control

Report	Name	Signature	Date
Prepared by	Ellen Marshall Head of Ecology		08/09/2022
1st Check by	Lucinda Sweet MCIEEM Director		26/09/2022
2nd Check by	Kinzie Watts Senior Ecologist		26/09/2022
Issued by (PDF)	Nikki Scott		26/09/2022
Rev1	Ellen Marshall Head of Ecology		03/10/2022

Liability

Brindle & Green has prepared this report for the sole use of:

Keltbray Management Services

The report is in accordance with the agreement under which our services were performed. No warranty, express or implied, is made as to the advice in this report or any other service provided by us. This report may not be relied upon by any other party except the person, company, agent or any third party for whom the report is intended without the prior written permission of Brindle & Green.

The content of this report is, at least in part, based upon information provided by others and on the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from any third party has not been independently verified by Brindle & Green unless otherwise stated in the report.

Project Details

Project carried out by:

Brindle and Green
Unit 3, Silverhill Court
Radbourne
Derby.
DE6 4LY
Head Office: 01332 825771
Email: info@brindlegreen.co.uk
Website: www.brindlegreen.co.uk

Project carried out for:

Keltbray Development Ltd
38-40 Bank Street,
Belfast,
BT1 1HL

Project site:

Former MSD Facility
Breakspear Road South,
Ickenham,
Uxbridge,
UB9 6LS

Grid reference: TQ 06960 87378

Contents

1 Summary 7
2 Introduction 10
3 Methodology 12
3.1 Desk Study 12
3.2 Extended Phase 1 Habitat Survey 12
3.3 Phase 2 Surveys 13
3.4 Limitations 15
3.5 Report Lifespan 16
3.6 Evaluation Methodology 16
4 Site Context 18
5 Baseline Ecological Conditions 20
5.1 Desk Study 20
5.2 Extended Phase One Habitat Survey 21
5.3 Protected and Notable Species 30
5.3.1 Notable Plants 30
5.3.2 Amphibians 30
5.3.3 Breeding Birds 32
5.3.4 Bats 32
5.3.5 Reptiles 34
5.3.6 Badger 35
5.3.7 Mammal Species of Principle Importance 36
6 Assessment of effects and mitigation measures 37
6.2.2 Habitats 38
6.2.4 Breeding Birds 38
6.2.5 Roosting Bats 39
6.2.6 Foraging and Commuting Bats 41
6.2.7 Reptiles 42
6.2.8 Badgers 43
6.2.9 Mammal Species of Principle Importance 44
7 Compensation, Enhancement and Monitoring 46
8 Conclusions 48

Appendix 1. Phase 1 Habitat Plan 49
Appendix 2. Phase 1 Target Notes and species list 50
Appendix 3. General References 52
Appendix 4. Legislation, Policy and Guidance 54
Appendix 5. Legislation, Guidance and Methodology 55
Appendix 6. Proposed Plans 60
Appendix 7. Magic Data 61
Appendix 8. Ecological Data Search Information 64
Appendix 9 Phase 2 Survey Data 65
Appendix 10. Map of Key Enhancements 86

1 Summary

1.1 The production of an Ecological Impact Assessment (EcIA) is considered the best practice methodology (by the Chartered Institute of Ecology and Environmental Management (CIEEM)) for documenting all ecological issues associated with proposed development and supersedes the more out of date method of preparing individual reports for differing species and habitats. The aim is to consider any impacts alongside each other, to provide a coordinated solution when considering mitigation, and to set out clear and well-defined enhancement prescriptions that work in line with the plans for development. Through assessing the scale of impact (Page 25) the aim is to result in a scheme that is assessed as making a positive contribution to biodiversity at a local level at the very least.

1.2 This EcIA draws upon the results of the Preliminary Ecological Appraisal (PEA) undertaken and reported upon previously (BG22.113, March 2022) and adds the results of additional protected species and/or habitat surveys that have been completed since. In the case of this site, the PEA identified habitats suitable for supporting breeding birds, roosting bats, amphibians, reptiles and badgers (*Meles meles*) as well as considering the usual impacts associated with other species of principle importance listed under section 41 of The Natural Environment and Rural Communities (NERC) Act 2006.

1.3 Further protected species surveys undertaken during the active season of 2022 failed to identify the presence of resident populations of reptiles within the application boundary.

1.3.1 A single roost of an individual common pipistrelle was identified within an external feature of Building 1. Consequently, a Natural England Bat Mitigation Class Licence or Natural England EPS Development will be required in order to proceed with the demolition of the building. No other bat roosts were identified within buildings on site.

1.4 Bat roosting surveys identified low levels of foraging and commuting activity within, or adjacent, to the application boundary.

1.5 Additional desk study information obtained in relation to great crested newt distribution within the zone of influence indicates that a small population was present in 2012, approximately 300m to the east of the site. Due to intervening construction undertaken by HS2 and the distance of the site from this population, it is considered highly unlikely that this species is present within suboptimal habitat onsite. Reasonable Avoidance Measures are recommended to mitigate residual risk.

1.6 This report was compiled following the revised Guidelines for EcIA in the UK and Ireland (CIEEM, 2018) and highlights and addresses the following ecological constraints as shown in (Table A) overleaf.

Table A: Summary of ecological constraint assessment for Former MSD Facility, Uxbridge and proposed mitigation

Ecological constraint	Value	Effect	Significance prior to mitigation	Mitigation / precautionary measures	Significance of residual effect	Securing mitigation
Habitat	Site	Loss of grassland, tree and scrub habitat of low value	Likely Negative (Not Significant)	Biodiverse landscaping supported by net gain assessment	Positive (Significant)	Mitigation secured through planning condition
Birds	Local	Disturbance/ Injury to individuals	Likely Negative (Not Significant)	Pre-works check. Demolition of buildings & clearance of vegetation outside of breeding season	Neutral (Not Significant)	Mitigation / precautionary measures secured through planning condition
Roosting Bats	Local	Disturbance / loss of roosting habitat	Likely Negative (Not Significant)	NE BMCL or NE EPS Development Licence required prior to building demolition.	Neutral (Not Significant)	Mitigation / precautionary measures secured through planning condition
Foraging & Commuting Bats	Local	Disturbance / loss of foraging and commuting habitat	Likely Negative (Not Significant)	Habitat creation and sensitive lighting	Neutral (Not significant)	Mitigation / precautionary measures secured through planning condition
Reptiles	Local	Disturbance/ Injury to individuals	Unlikely Negative (Not Significant)	Reasonable Avoidance Methods	Neutral (Not significant)	Mitigation secured through planning condition
Badger	Local	Injury to individual	Unlikely Negative (Not Significant)	Pre-works walkover assessment Reasonable Avoidance Methods	Neutral (Not significant)	Precautionary measures secured through planning condition
MSPI Hedgehog	Local	Disturbance/ Injury to individual	Likely Negative (Not Significant)	Creation of new habitat Reasonable Avoidance Methods	Neutral (Not significant)	Mitigation secured through planning condition

2 Introduction

2.1 Brindle and Green Ltd were commissioned by Keltbray Development Ltd to provide an Ecological Impact Assessment (EcIA) of the site known as the Former MSD Facility, Breakspear Road South, Ickenham (Figure 1). This EcIA report documents the constraints identified within the Preliminary Ecological Appraisal undertaken by Brindle and Green Ltd (BG22.113 March 2022) and adds the results of additional protected species and habitat surveys undertaken during the active season of 2022. The EcIA includes the following sections:

- Baseline Ecological Conditions
- Assessment of effects and mitigation measures
- Enhancement strategy
- Summary of residual effects

2.2 The application site is approximately 5.5 ha in extent and is situated within the northern outskirts of Ickenham, Uxbridge. The site comprises nineteen disused former office buildings, warehouses and laboratories, with amenity grassland, scattered trees and hardstanding access roads and pathways. The immediate surroundings comprised pastoral farmland to the north and scrubland and woodland parcels to the west. The active construction site for High Speed 2 is located immediately adjacent to the south boundary.

2.3 The site is the subject of a full application seeking to facilitate the re-development of the site to provide a series of storage yards and warehouses. It is understood that the proposals will involve significant ground clearance as well as the demolition of all existing structures on site. Detailed design proposals are presented within Appendix 6 of this report.

2.4 The layout and design of the development has been informed by the content of this report which prescribes additional mitigation measures during construction and post- construction phases to avoid, reduce or reverse adverse impacts and prevent biodiversity loss.

2.5 Results presented within this report have been prepared by an experienced ecologist and are therefore the view of Brindle & Green Limited. The survey is based on information provided by our client, the development proposals, and

the results of the desk study and our survey of the site. This report pertains to this information only.

3 Methodology

3.1 Desk Study

Table 1 below lists organisations and/or resources used as part of the desk study process. Data regarding any known statutory or non-statutory sites in addition to any records for protected species were requested from the following sources:

Table 1. Ecological Data Resources

Consultant	Requested Data	Search Radius	Date Requested
Local Ecological Records Centre Greenspace Information for Greater London CIC	Protected and notable species records Local, National and International Site Designations	2km	10/02/2022
MAGIC Maps	National and International Site Designations Granted EPS Development Licences	2km	09/03/2022
Brindle & Green Ecological Consultants	Preliminary Ecological Appraisal (BG22.113)	N/A	N/A

3.2 Extended Phase 1 Habitat Survey

3.2.1 A Phase 1 habitat survey was undertaken following survey guidance (JNCC 2007) to establish the presence and distribution of habitat types within the site and potential ecological constraints to development. A Phase 1 Habitat Map was produced (Appendix 1) and where additional details were required Target Notes have been provided (Appendix 2). A plant species list (Appendix 2) summarising all plants identified on site was produced during the survey and all scientific nomenclature was produced according to Stace (2010).

3.2.2 This survey was extended to note the potential for habitats on-site to support protected and/or notable species and for evidence of any such species. The habitats on site were assessed for their suitability to support protected species in relation to the habitat types found at the site. Any incidental sightings of field signs were noted at the time of survey. Where evidence of, or the confirmed

presence of a protected species was identified, further, species specific surveys are recommended to ensure that the presence or otherwise of a legally protected species is fully considered prior to the determination of any planning approval or to guide an EPS development licence.

3.2.3 Hedgerows on site were assessed following the Hedgerow Survey Handbook (DEFRA 2007) and defined as species-rich if the structural species making up a surveyed 30m section of hedgerow included at least four native woody species. Results were compiled and assessed against qualifying criteria within the Hedgerow Regulations (1997) and also the UK Biodiversity Action Plan.

3.2.4 Legislation, guidance and methodology for species relevant to this site are presented in full within Appendix 3 of this report.

3.2.5 The survey was carried out on 10/02/2022 by Adrian Cox BSc (Hons) QualCIEEM, Natural England Bat Licence Class 2 (2019-43340-CLS-CLS), Great Crested Newt Licence Class 1 (2019-42545-CLS-CLS), Consultant Ecologist and Holly Fowler BSc (Hons), Assistant Ecologist.

3.2.6 The survey was overseen by Lucinda Sweet PhD, MCIEEM, Natural England Bat Licence Class 2 (2019-39122-CLS-CLS), Great Crested Newt licence (2016-22852-CLS-CLS), Director.

3.3 Phase 2 Surveys

Within the Preliminary Ecological Appraisal (PEA), The following ecological phase 2 surveys have been recommended and undertaken to allow a full impact assessment on the ecological value of the application site.

i) Bat Roost Presence/Absence Surveys
ii) Reptile Survey

3.3.1 Bat Roost Presence/Absence Surveys

3.3.1.1 Bat activity surveys were carried out following the guidelines outlined within Natural England's Bat Mitigation Guidelines (Mitchell-Jones, 2004) and the Bat Conservation Trust Good Practice Guidelines (Colins, 2016). Where deviation from best practice has been required, details have been provided within the limitations section of the report.

3.3.1.2 14 buildings within the site provided suitability for roosting bats. Buildings B1, B2, B6, B10 and B15 provided 'Moderate suitability', and B3, B5, B7, B8, B12, B13, B16, B17 and B19 provided 'Low' suitability.

3.3.1.3 The dusk survey began 15 minutes before sunset and lasted for one and a half hours following sunset. The dawn survey began 1.5 hours before sunrise and lasted until 15 minutes after sunrise.

3.3.1.4 Each surveyor operated an Echo Meter Touch detector connected to an iPad. Where possible, species were identified using information from visual and audio cues, all sonograms were recorded on to the iPad and were analysed using Analook software to confirm species identification.

3.3.1.5 All bat passes, including time and species, were recorded on to field maps, noting direction of flight and emergence. Where possible, the number of individuals observed, and behaviour of the bat was also recorded, including foraging, commuting and social calling behaviours.

3.3.1.6 Surveys were only carried out in dry and calm conditions, when bats are most likely to be active.

3.3.1.7 The surveys were undertaken on 07/07/2022, 08/07/2022 19/07/2022, 20/07/2022, 27/07/2022, 28/07/2022 03/08/2022, 10/08/2022, 11/08/2022 and 18/08/2022 by Ellen Marshall BSc (Hons) MRes Natural England Bat Licence Class 1 (2017-28407-CLS-CLS) Head of Ecology, Kinzie Watts MSC (Hons) Senior Ecologist, Tom Hough MSc, QualCIEEM, Natural England Bat Licence Class 1 (2020-50050-CLS-CLS) Consultant Ecologist, Victoria Halford BSc (Hons), Consultant Ecologist, Matthew Norris BSc (Hons.) MRSB, Consultant Ecologist, Holly Fowler BSc (Hons), Assistant Ecologist, Charlotte Bright MBiolSci (Hons), Assistant Ecologist, Joe Hall BSc (Hons), Graduate Ecologist, Sammy Harcourt BA (Hons), Graduate Ecologist, Laura Saunders MSci (Hons.), Graduate Ecologist, Lloyd Wyatt QualCIEEM, Graduate Ecologist and Joseph Smith BSc (Hons), Seasonal Ecologist. With assistance from trained seasonal surveyors Phil Hanlin, Christina Johnson, Sarah Jennison, and Megan Blank.

3.3.1.8 Due to the significant number of individual surveys undertaken on site all survey conditions and results have not been reproduced within this report. Survey

dates are given and detailed results for Building B1 which contained a roost are reproduced in Appendix 9B. Detailed results for remaining buildings are available on request.

3.3.2 Reptile Survey

3.3.2.1 A seven-visit, presence or likely absence survey was undertaken during suitable conditions between April and May 2022. Reptiles are considered to be active between March and October with optimal survey conditions during April and May or September**.** Surveys were undertaken during suitable weather conditions when the air temperature was between 9 - 18^{o}C (Froglife, 1999).

3.3.2.2 Reptile refugia (1m x 1m) constructed from roofing felt were used to observe basking and sheltering reptiles. Refugia were laid at a density of between 5 and 10 per hectare of suitable habitat (Froglife, 1999).

3.3.2.3 Forty-two mats were laid on 12/04/2022 and were left to embed for a minimum period of two weeks, with a series of seven visits undertaken on: 09/05/2022, 14/05/2022, 20/05/2022, 22/05/2022, 24/05/2022, 26/05/2022, 30/05/2022 by Molly Dailide, Ecologist.

3.3.2.4 A refugia map can be found within Appendix 9C

3.4 Limitations

3.4.1 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment.

3.4.2 The initial assessment was undertaken outside of the optimal survey period for phase 1 survey. However, follow up visits allowed confirmation that the habitat assessment of this site is representative of the flora year-round.

3.4.3 During the dusk survey of B1 on 27/07/2022 light rain was experienced in the first 15 minutes of the survey. Bat emergence was recorded from Building 1, therefore this is not considered to have constituted a limitation to this survey.

3.4.4 During the dusk survey of B8 on 19/07/2022 the commencement of the survey was delayed by heavy rain. The survey commenced 15 minutes late, however

bat activity was recorded indicating that the conditions were favourable for bat foraging and commuting and therefore this is not considered to have constituted a limitation to this survey.

3.5 Report Lifespan

Given the transient nature of the subject we would consider the survey results contained to be accurate for 12 months

3.6 Evaluation Methodology

3.6.1 The site and protected and notable species within the zone of influence were classified into one of the following 6 groups (Table 2) following the Guidelines for Ecological Impact Assessment (CIEEM, 2016), depending on the size, rarity, diversity and fragility for a species population. The evaluation also considers County and nationally prepared documents such as LBAP and Red Data books.

3.6.2 **Ecological Impact Assessment**

The Ecological impacts of a development were assessed using data collected from historic records and current field surveys to and were categorised following EcIA guidelines (CIEEM, 2016) as follows:

i) Highlight Protected or notable species which could be impacted as part of the development (Section 5).

ii) Determine the severity of the impact and effect without specific mitigation measures (Section 6).

iii) Outline a mitigation strategy highlighting areas of potential environmental improvement, which upon implementation aims to avoid or reduce negative impacts and effects (Section 6).

iv) Assess the feasibility and likelihood of success of the mitigation strategy (Section 7).

v) Assess the residual impact of the development assessing that the mitigation has been successfully implemented and all prescriptions have been implemented (Section 7).

3.6.3 Classifying the extent of impacts and effects

The extent of impacts and effects need to be described in an unambiguous, consistent manner. The direction of change 'Positive' or 'Negative' should be assessed in relation to the overall biodiversity outcome, and should consider the duration, timing and reversibility of the constraint and be classified into one of the following five categories:

i)	**Positive (Significant)**	Activity will create a beneficial effect over a long term, created a valued ecological feature
ii)	**Positive (Not Significant)**	Activity will create a beneficial effect without markedly improving the conservation status
iii)	**Neutral (Not Significant)**	Effects or neutral or no net change will occur
iv)	**Negative (Not Significant)**	Negative effect without causing long-term irreversible damage
v)	**Negative (Significant)**	Significant Negative effect including loss or long-term irreversible damage to integrity or status of a valued ecological feature

Table 2. Definitions of each of the six evaluation brackets, indicating the importance of each habitat type and an example of their possible habitat status.

Evaluation Value	Example of Habitat or species
International	An internationally designated site or candidate site, including habitat or species included within Special Protection Areas (SPA) / Special Areas of Conservation (SAC), Ramsar Sites, listed under Annex 1 of the Habitats Directive.
National	Sites designated at UK level, e.g. Sites of Special Scientific Interest (SSSI), supporting species considered nationally threatened or rare. A regularly occurring regionally or county significant population/number of any nationally important species A feature identified as of critical importance within Section 41 of the NERC Act (2006).
Regional	Key Habitat type included within BAP. A regularly occurring, locally significant number of a regionally important species.
County	Designated sites, such as Sites of Biological Importance (SBIs) or viable habitat / species populations of value at a county level (LBAP).
District	District level designated sites, such as Local Wildlife Sites (LWS) or habitats / species populations of value at a district (Which have features qualifying for LWS status). Sites/features that are scarce within the district or which appreciably enrich the district habitat resource.
Local / Site	Habitats or species populations of value in a local (i.e. within ~ 5km of the site) context. Habitats of poor to moderate biological diversity

4 Site Context

4.1 Site Description

4.1.1 The application site can be found at TQ 06960 87378, located northwest of Ickenham, Uxbridge. The site comprised mostly buildings, hardstanding and amenity grassland, and had a parcel of plantation woodland in the northern corner and a strip of semi-natural woodland along the northeast boundary. An area of unmanaged rough grassland with scrub was located in the north of the site. The site was well-connected to the surrounding semi-rural landscape to the north, with hedgerows and open pastoral land providing good connectivity to parcels of woodland within the vicinity of the site. To the south, connectivity was more limited due to the presence of a large active construction site associated with HS2, and to the east connectivity was restricted by Breakspear Road.

4.2 Zone of Influence

The zone of influence is used to describe the geographic extent of potential impacts of a proposed development. This is determined by the type of development proposed in relation to individual species and described within each of the species assessments within section 5 of this report. Maps, aerial photographs, historic data records and field survey results were examined to assess the relationship of the location and its connection to the surrounding environment and habitats beyond the site boundaries.

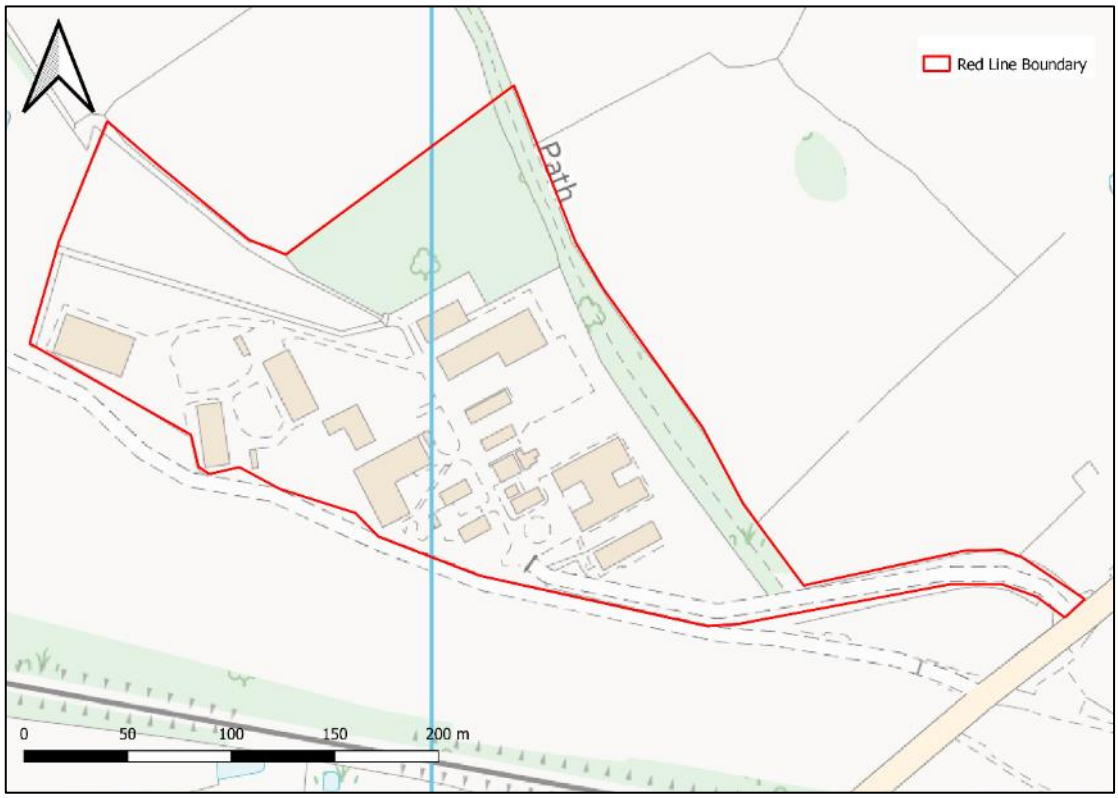


Figure 1. OS map of the project site and surrounding area.

Red line boundary depicts application site.

5 Baseline Ecological Conditions

5.1 Desk Study

5.1.1 **Designated Sites**

The site was subjected to a search for designated sites within a 2km radius of the site using data supplied by the Local Records Centre (Greenspace Information for Greater London (GIGL)) and the online desk-based resource MAGIC.

5.1.2 The data supplied by GIGL was received on the 10th February 2022 and is summarised within Table 3. The search revealed eight statutory and sixteen non-statutory sites within a 2km radius of the site, Including Site of Importance for Nature Conservation (SINC), National Nature Reserves (NNR) and Site of Special scientific interest (SSSI).

5.1.3 A search of the online resource Magic Maps found no additional sites with Statutory designations within the 2km radius search.

Table 3. Summary of Designated Sites within a 1km radius of the application site

Site Name	Grid Ref	Status	Reason for Designation	Distance from site
West Ruislip Golf Course and Old Priory Meadows	TQ 078 874	SINC	Old meadows, wetland, woodland and green lanes	70m W
Newyears Green	TQ 065 878	SINC	Native woodland surrounded by trees and hedges, unimproved pasture	185m N
Brackenbury Railway Cutting	TQ 064 873	SINC	Wooded railway cutting with dense tree and scrub cover and areas of grassland.	200m SW
Mad Field Covert, Railway Mead and the River Pinn	TQ 073 864	SINC	Covert, grassland and the shallow, slow-flowing River Pinn.	220m SE
Breakspear Road South Pond	TQ 076 877	SINC	Good quality pond with marshy edges, emergent and marginal vegetation with adjacent areas of grassland, scrub and woodland.	480m NE
Dew's Dell	TQ 059 882	SINC	Former quarry with woodland, pond and grassland habitat	0.9km NW
Ruislip Woods	TQ 068 889	NNR & SSSI	Broadleaved, mixed, yew woodland and calcareous, neutral grassland and scrub mosaic	0.9km N
Denham Lock Wood	TQ 055863	SSSI	Open mire and wet woodland	1.2km SW

5.1.4 **Evaluation**

Nearby designated sites are considered to have 'County value' following evaluation (Table 2), with those SSSIs and LNR located further afield considered to have 'National value'. Direct impacts on nearby designated sites as a result of the proposed development are considered unlikely. The extent of the development proposals are contained within the site boundary. Due to the industrial nature of the proposals, no increase in recreational pressure on nearby sites is considered likely. The site does lie within the Impact Risk Zone (IRZ) for Ruislip Wood SSSI, Denham Lock Wood SSSI and Fray's Farm Meadows SSSI. However, the proposals are not considered to fulfil any of the IRZ criteria. While the site may be considered a large infrastructure project, due to the previous use of the site, the net additional floorspace over the current site condition will not exceed 1000m^2.

5.2 Extended Phase One Habitat Survey

5.2.1 A Phase 1 Habitat Survey Map is presented in Appendix 1 of this report. The habitat descriptions below should be read in conjunction with the Phase 1 plan and the Target Notes in Appendix 2.

5.2.2 A plant species list for those plants identified during the field survey is provided in the Target notes within Appendix 2.

5.2.3 Table 4 below provides a list of habitat types present on site along with their inclusion (or otherwise) as a National and / or Local Habitat of Principle Importance (HPI) (Previously referred to as Biodiversity Action Plan (BAP)).

Table 4. JNCC Habitat Types found on site and inclusion within UK BAP / HPI

Habitat Type	N HPI	L HPI	N/A
Broadleaved woodland – semi-natural	✔		
Broadleaved woodland - plantation	✔		
Scrub – dense/continuous			✔
Poor semi-improved grassland			✔
Cultivated/disturbed land – amenity grassland			✔
Cultivated/disturbed land – ephemeral/short perennial			✔
Introduced shrub			✔
Buildings			✔
Hard Standing			✔
Wet ditch/dry ditch			✔

5.2.4 **Broadleaved woodland – semi-natural**

5.2.4.1 A narrow strip of semi-natural broadleaved woodland was present along a public bridleway along the length of the site's north-east boundary (Figure 2). There was no evidence of active management except for in one small area where scrub had been cleared to facilitate maintenance of electricity pylons into the site.

5.2.4.2 The age range of the vegetation varied from young saplings and native scrub species in the shrub layer, to mature trees. The canopy featured primarily ash (*Fraxinus excelsior*), pedunculate oak (*Quercus robur*) and sycamore (*Acer pseudoplanatus).* The shrub layer was well-developed, with frequent holly (Ilex aquifolium), elder (*Sambucus nigra*) bramble (*Rubus fruticosus aggr.)* and occasional hawthorn (*Crataegus monogyna*), dog rose (*Rosa canina*) and ash saplings. Ground flora species noted included abundant ivy (*Hedera helix*), frequent cow parsley (*Anthriscus sylvestris*) and occasional nettle (*Urtica dioica)* and bluebell (*Hyacinthoides sp*.).

Figure 2. Semi-natural broadleaved woodland along the north-east boundary.

5.2.5 **Broadleaved woodland - plantation**

5.2.5.1 A parcel of plantation woodland approximately 0.6ha in size was present in the north of the site (Figure 3). The trees within the woodland were all the same age (approx. 30 years) and tree guards and stakes were still present in places. Generally, there were very few shrub layer species and the ground layer was predominantly bare ground/leaf litter. Tree species noted in the canopy were frequent ash with occasional oak, alder (*Alnus glutinosa*), cherry (*Prunus* sp.) and maple (*Acer* sp.). Hazel (*Corylus avellana*) and hawthorn were rarely present.

5.2.5.2 Where ground flora was present, cow parsley was abundant, with occasional ivy and cleavers (*Galium aparine*). Where the plantation woodland bordered the semi-natural woodland in the north-east, early colonisation by a more diverse ground flora was evident including bluebell and lords and ladies (*Arum maculatum*).

Figure 3. Plantation woodland in the north of the site, typified by a lack of shrub and ground-level vegetation

5.2.6 **Scrub – dense/continuous**

5.2.6.1 The edges of the plantation woodland and the semi-natural woodland in the east and north were dominated by dense bramble scrub present between a

double wire fence line which defined the boundary of the former facility. Dense bramble scrub was also present adjacent to the northern boundary fence.

5.2.6.2 In the north of the site, a more diverse area of scrub was present along a drainage ditch which ran from north to south into the site (Figure 4). This scrub was typified by a mixture of shrub species such as abundant bramble, occasional hawthorn, dogwood (*Cornus sanguinea*) and locally frequent blackthorn (*Prunus spinosa*), and young tree species within the scrub including frequent oak and cherry and occasional ash.

Figure 4. Mixed scrub along the dry ditch in the northern area of the site

5.2.7 **Poor semi-improved grassland**

5.2.7.1 Two areas of rank, unmanaged grassland were present in the north of the site either side of the drainage ditch/scrub. These areas measured approximately 0.24ha in total and were tussocky and uncut, with an average sward height of 30 – 50cm (Figure 5).

5.2.7.2 Grasses dominated the sward composition and made up >95% of species. Species noted included frequent cock's foot (*Dactylus glomerata*), perennial rye grass (*Lolium perenne*) and false oat grass (*Arrhenatherum elatius*) and occasional Yorkshire fog (*Holcus lanatus*). Undesirable herb species indicative

of high nutrient levels in the soil were present in places including occasional mugwort (*Artemesia vulgaris*), creeping thistle (*Cirsium arvense*), broadleaved dock (*Rumex obtusifolius*) and locally frequent nettle. Present rarely was teasel (*Dipsacus fullonum*), burdock (*Arctium* sp.) and creeping buttercup (*Ranunculus repens*). Areas of bare ground associated with rabbit burrows were present in places and species noted here included occasional silverweed (*Potentilla anserina*), cleavers and selfheal (*Prunella vulgaris*).

Figure 5. Unmanaged poor semi-improved grassland in the north of the site

5.2.8 **Cultivated/disturbed land – amenity grassland**

5.2.8.1 Several large open areas of regularly mown amenity grassland (sward height <5cm) were present within the landscaped areas around the buildings (Figure 6). Perennial ryegrass was abundant, common daisy (*Bellis perennis*) and white clover (*Trifolium repens*) were present occasionally and other species rarely noted included yarrow (*Achillea millefolium*), mallow (*Malva sylvestris*) and daffodil (*Narcissus* sp.).

Figure 6. The majority of the site featured large areas of regularly mown amenity grassland, some of which contained scattered trees

5.2.9 **Cultivated/disturbed land – ephemeral/short perennial**

Some areas of former landscaped areas which were covered in gravel (Figure 7) substrate around the buildings had been colonised by ephemeral vegetation, presumably due to a lack of management since site has become disused. Species noted in these areas included bramble, mugwort, ragwort (*Senecio jacobea*), ivy and spear thistle (*Cirsium vulgare*).

5.2.10 **Introduced shrub**

Former areas of formal shrub landscaping were present around the buildings and driveways (Figure 8). Species noted here included *Leylandii*, laurel (*Prunus laurocerasus), Pinus* sp. and in several places bramble had colonised these areas due to lack of management.

Figure 7. Areas of gravel and soft landscaping which had been colonised by ephemeral vegetation in some places through general lack of management since the site's abandonment

Figure 8. Areas of former formal shrub planting which were now unmanaged and overgrown with bramble.

5.2.11 **Buildings & Hard Standing**

Much of the site was given over to hard landscaping, including concrete and tarmac access roads and pathways, paved pathways, and gravel. A total of nineteen buildings were present within the site. These are described in more detail in section 5.3.2 pertaining to roosting bats.

5.2.12 **Dry Ditch**

A shallow (<0.5m) drainage ditch was present which ran from the unmanaged grassland in the north of the site through the areas of amenity grassland in the middle of the site. The banks of the ditch were heavily scrubbed over in the northern area (species recorded in section 5.2.5 above) and were grassy and maintained short as per the amenity grassland described in section 5.2.8.

Figure 9. A dry drainage ditch ran north-south through the site.

5.2.13 **Invasive Weeds Assessment**

An assessment of the site was made to establish the presence of invasive weeds included on schedule 9 of the Wildlife and Countryside Act 1981 (as amended). No invasive weed species noted under Schedule 9 were found within or adjacent to the application area.

Cherry laurel was noted within some of the formal former shrub planting around the buildings. Although not listed under Schedule 9, it is a non-native species and can behave in an invasive manner in some situations.

5.2.14 **Site Evaluation**

The habitats on site have been evaluated as being of low ecological value in relation to the local surroundings and assessed to have 'Site' value in a regional context (Table 2). The site was dominated by buildings and hardstanding, with amenity grassland. An area of semi-natural broadleaved woodland to the west of the site was considered of higher botanical value and qualifies as a habitat of principle importance (HPI) under the provisions of the NERC Act 2006.

5.3 Protected and Notable Species

5.3.1 Notable Plants

5.3.1.1 The site was dominated by buildings and hardstanding, with amenity grassland. An area of semi-natural broadleaved woodland to the west of the site was considered of higher botanical value and qualifies as a habitat of principle importance (HPI) under the provisions of the NERC Act 2006.

5.3.1.4 **Evaluation**

The habitat types recorded on site are considered to be of low ecological value and represent habitats which are common and widespread within the local area. The woodland is considered to be of higher value. The habitats and plants onsite were considered to hold 'Site Value'. No notable plants were recorded within the application site and as such, this ecological receptor is not considered further within this report.

5.3.2 Amphibians

5.3.2.1 The zone of influence for great crested newts (*Triturus cristatus*) and other amphibians was determined following the desk study. A radius of 500 metres was searched for the presence of suitable waterbodies to support great crested newts using 4 different methods (OS Mapping via Pro Map, Google Earth Pro, Google Maps and an On-Site Walkover).

5.3.2.2 Sixteen ponds were identified within 500 metres of the site. Of these, six were separated from the site by significant barriers to dispersal, which includes Breakspear road immediately to the east of the site, and the active construction site of the HS2 railway line immediately to the south of the site. (Appendix 9D). The desk study showed records of GCN within 1.2km of the application site, and an expired GCN European protected species development licence associated with the existing railway immediately to the south of the site. (Appendix 9D). Access was applied for to ponds within the 500m radius, however, no access was permitted by landowners for further assessment or survey.

5.3.2.3 Given the lack of access obtained to these ponds, further desk based investigation was made into the status of GCN within the zone of influence. A freedom of information request (FOI) was made to Natural England in May 2022

requesting details of the GCN development licence reference EPSM2012-5295 (Appendix 9D). The FOI request retuned a GCN survey report dating from 2012 with which the licence was supported. The report indicated that a small population of GCN was present within Pond 16 located 290m east of the site (Appendix 9D and Table 4 below) The licence was applied for to support embankment works immediately south of this pond.

5.3.2.4 While it is acknowledged that railway lines can in some cases provide suitable commuting habitat for GCN, the potential for the small GCN population present in Pond 16 to have commuted 290m from this waterbody onto the site is considered extremely low. The unvegetated railway bridge that carries the railway over the River Pinn, the River Pinn itself and Breakspear road are all considered barriers to GCN dispersal from this location.

5.3.2.5 Personal communication from HS2 (Pers.comm Laura Cobden, Ecology Technical Lead Integrated Project Team HS2, September 2022) indicates that due to a lack of records, a population of GCN was assumed present within Pond 6 to the south of the site, to inform their works. Clearance works have been undertaken at the HS2 site under a method statement for the past 5 years with no individual GCN identified. It is therefore considered unlikely that this pond supports a population of GCN, and the actively cleared construction site of HS2 additionally presents a barrier to terrestrial dispersal for this species into the site from the southern direction.

Table 4. Pond Locations and Suitability for Great Crested Newts.

Pond No.	Grid Ref.	Distance from Site
P1	TQ 06789 87540	50m NW
P2	TQ 06786 87562	70m NW
P3	TQ 06764 87562	90m NW
P4	TQ 06761 87586	110m NW
P5	TQ 06999 87271	30m S
P6	TQ 06947 87225	120m S
P7	TQ 06908 87227	120m S
P8	TQ 06979 87132	190m S
P9	TQ 07088 87045	250m S
P10	TQ 07344 87525	190m S
P11	TQ 07273 87750	310m N
P12	TQ 07520 87690	470m NE
P13	TQ 06955 87993	460m N
P14	TQ 06836 87995	460m N
P15	TQ 07659 87706	500m NE
P16	TQ 07577 87309	290m E

5.3.2.6 **Evaluation**

Some habitats within the application boundary, primarily semi-improved grassland and broadleaved woodland to the north-west, are considered suitable to support the terrestrial phase of the great crested newt lifecycle. The remainder of the site is dominated by hardstanding and amenity grassland which are considered sub-optimal. Evidence indicates that a low population of GCN is present within a pond located 290m to the east of the site, however this is considered effectively barriered from the site and GCN are not expected to present on site. The application site was considered to have 'Site value' for this species.

5.3.3 **Breeding Birds**

5.3.3.1 The zone of influence for breeding birds pertains to the suitable habitats located within the application site and immediately adjacent to its boundary.

5.3.3.2 The areas of semi-improved grassland, scattered trees, broadleaved woodland, and buildings both within the application boundary and adjacent to the site supported suitable nesting and foraging habitat for a wide range of bird species. Buildings on site were particularly noted to support nesting feral pigeon (*Columba livia domstica)*.

5.3.3.3 **Evaluation**.

The site was considered to have 'Local Value' to breeding birds. While, not uncommon within the wider landscape, the areas of semi-improved grassland, woodland and scattered trees, in addition to the buildings within the application boundary hold value for nesting birds.

5.3.4 **Bats**

5.3.4.1 Habitats within the application boundary were considered suitable for roosting, foraging and commuting bats. The zone of influence for bats is considered to be within the redline boundary and connective adjacent habitats. The data search highlighted 215 records of bats within a 2km radius of the application site. The closest record pertained to a soprano pipistrelle (*Pipistrellus pipistrellus)* located 450m to the south-east of the site. Other species within the area included common pipistrelle (*Pipistrellus pipistrellus*), brown long-eared (*Plecotus auritus*), noctule (*Nyctalus noctula*) and serotine (*Eptesicus serotinus)* as well as generic records of other *Myotis* species.

5.3.4.2 Following BCT guidance (Appendix 5), the site was assessed as providing low suitability habitat for commuting and foraging bats, with the site dominated by buildings and hardstanding which was subject to levels of light pollution. Areas of mixed woodland and mature treelines, located along the boundaries of the application site, offered higher value habitat and connectivity with the wider landscape.

5.3.4.3 Nineteen buildings were recorded within the application boundary. Of these, five buildings were considered to offer roosting features of moderate suitability, and nine were considered to offer low suitability. Further emergence/re-entry surveys were recommended to establish the presence/likely absence of roosting bats within these features (Appendix 9A for building suitability and survey effort). All remaining structures lacked any features capable of supporting roosting bats and were assessed as offering negligible suitability.

5.3.4.4 Scattered trees were recorded throughout the application site. Visible trees were assessed and categorised based upon Bat Conservation Trust guidance (Appendix 5). Two trees located on site were considered to offer moderate suitability for roosting bats (Appendix 9A). Plans indicate that these trees are to be retained within the proposals and are not considered further within the report.

5.3.4.5 *Roost characterisation surveys / Presence / absence surveys*

A series of dusk emergence and dawn re-entry surveys were undertaken in July and August 2022 (Appendix 9B). Surveys identified a soprano pipistrelle (*Pipistrellus pygmaeus)* and common pipistrelle (*Pipistrellus pipistrellus*) day roost pertaining to single individuals of each species within lead flashing on Building B1 (Appendix 9B). This roost is of common species in low numbers and is therefore of low conservation value. The site is assessed as providing “local” value for roosting bats. No roosts were identified in any other buildings surveyed on site.

5.3.4.6 *Foraging and Commuting Bats*

The data search highlighted bat activity within the zone of influence, and a low conservation value roost within the red line boundary. The site supported features considered suitable for commuting and foraging bats, particularly along the north-eastern boundaries where woodland and scattered trees were

located. The southern boundary adjacent to the HS2 site featured no vegetation and was subject to high levels of light pollution. The habitat features on and adjacent to the site were awarded low potential to support foraging and commuting bat populations. As the boundary and woodland vegetated habitats are to be retained, no further surveys were undertaken.

5.3.4.6.1 Observations of bats made during presence/absence surveys undertaken throughout the site indicated that common pipistrelle and soprano pipistrelle were the dominant species recorded throughout the suite of surveys supporting a mixture of foraging and commuting behaviours across the site, with peak foraging associated with treelines located at the north-eastern boundaries and with darker sections of the site where light pollution was minimal (Appendix 9B). Infrequent commuting passes of common noctule *(Nyctalus noctula*), brown long-eared (*Plecotus auritus*) and *Myotis sp.* were also noted.

5.3.4.6.7 **Evaluation**

The site has been assessed as being of 'Local Value' for roosting bats following assessment (Wray et al 2010). Building 1 was found to support a day (non-breeding) roost of two locally common species.

The foraging and commuting habitat within the application site was assessed to be of 'Local Value' following assessment (Wray et al 2010). The activity within the application boundary pertained to low numbers of locally frequent bat species, of low conservation concern.

5.3.5 Reptiles

5.3.5.1 The zone of influence for reptiles was considered to be within the site and 500metres of connective habitat. A small area of semi-improved grassland at the northwestern aspect of the site provided suitable basking and foraging habitat. The remainder of the site was dominated by hardstanding and short mown amenity grassland which was considered sub-optimal for this species. The site was well connected to the surrounding landscape by woodland to the north, particularly to rural areas to the west and the north.

5.3.5.2 Although no evidence of reptiles was found onsite at the time of the PEA, the data search returned several records of reptiles within 2km of the site and the site supported some areas of suitable habitat for reptile species, particularly grass snake (*Natrix helvetica*) and slow-worm (*Anguis fragilis*). Therefore, the

decision was made to carry out reptile surveys to determine the presence or likely absence of these species onsite.

5.3.5.3 The reptile survey showed no evidence to suggest that there was a permanent population of reptiles onsite. The survey results are presented within Table 6 below:

Table 5: Results of the seven visits undertaken during May 2022 (Refugia Locations can be found within Appendix 9C)

Survey Date / Time	Temp ºC	Cloud Cover	Wind Speed	Rain	Findings
09/05/2022 08:30	13	5	BF1	0	No Reptiles
14/05/2022 10:15	17	3	BF1	0	No Reptiles
20/05/2022 08:30	13	6	BF0	0	No Reptiles
22/05/2022 9.00	17	2	BF1	0	No Reptiles
24/05/2022 17:45	17	5	BF1	0	No Reptiles
26/05/2022 17:30	17	7	BF2	0	No Reptiles
30/05/2022 08:15	13	7	BF1	0	No Reptiles

5.3.5.4 **Evaluation**

Following seven survey visits no reptiles were recorded within the suitable habitat onsite, confirming that the optimal habitat on site provides 'Site Value' for this protected species group, following evaluation criteria (Table 2). The lack of survey findings suggests that it is highly unlikely that a population of reptiles exists within the application boundary or within connective habitat adjacent to the site.

5.3.6 **Badger**

5.3.6.1 The zone of influence relating to badgers was considered to be within the application site and the immediate connective habitat.

5.3.6.2 No evidence of badger setts, or activity such as mammal runs, snuffle holes and latrines were found during the ecological appraisal of the site and the zone of influence. The application site supported habitat features such as woodland and semi-improved grassland which provide suitable commuting habitat for this transient species. As a result of the site extent and the location within an

agricultural dominated landscape to the north, it is considered that badgers could use the site for foraging and commuting purposes on an episodic basis, but are not dependant on the site.

5.3.6.3 **Evaluation**

The site supports suitable connective and foraging habitat for badgers of 'site value'. Badgers are considered to be absent from the site, however the transient nature of this species could result in individuals foraging or commuting through the zone of influence of the proposed development.

5.3.7 **Mammal Species of Principle Importance**

5.3.7.1 The NERC Act 2006, Section 41 highlights 17 species of principle importance within England. Although these species were not surveyed directly as a result of their distribution and habitat preferences, evidence for activity by these species was searched for during the Phase 1 habitat and Phase 2 protected species surveys.

5.3.7.2 The zone of influence was considered to be within ecological connective habitat along the boundaries of the site, within 30 metres of the boundary.

5.3.7.3 Common pipistrelle, soprano pipistrelle, common noctule and brown long eared bat, species of principal importance, were found to be commuting and foraging on site, predominately along the treelines defining the boundaries (Appendix 9D).

5.3.7.4 The site also offered habitat capable of supporting foraging and commuting West European hedgehog. However, no evidence of activity was found during the initial PEA or the subsequent phase two surveys.

5.3.9.3 **Evaluation**

An evaluation of common pipistrelle, soprano pipistrelle, Daubenton's and noctule distribution on site can be found within Section 5.3.4. The habitats considered suitable for foraging West European Hedgehog pertained to areas of woodland edge, semi-improved grassland and scub, which were present to the north-western aspect of the site. Overall the habitats within the application boundary offered 'Local' value to this species group.

6 Assessment of effects and mitigation measures

6.1 The proposed development

6.1.1 The site is the subject of a full application seeking the retention and demolition of existing buildings, construction of new buildings, all within Use Class B8 with ancillary uses, hardstanding, widening of vehicular access off Breakspear Road South, associated car and cycle parking, enhanced landscaping and ancillary works. It is understood that the proposals will involve significant ground clearance as well as the demolition of the existing buildings on site. Detailed design proposals are presented within Appendix 6 of this report.

6.1.2 The indicative plan (Appendix 6). suggests that several of the scattered trees on site and the area of woodland which borders the site will remain intact and will be retained and enhanced within the development. There are significant opportunities for habitat enhancement with two SUDs features proposed, a pond, swales, and areas of meadow grassland expected to achieve over 10% biodiversity net gain following the proposed landscape for the site (BG22.113.8, September 2022)

6.2 Potential Impacts to habitats and notable species on site

Where evaluations within Section 5 have highlighted potential constraints to protected and notable species or habitats further assessment has been made to quantify the effect of the potential constraints. Plants are not considered further within this section as they not considered to be a constraint to the application.

6.2.1 Designated sites

6.2.1.1 The site lies within the impact risk zone of Ruislip Wood SSSI, Denham Lock Wood SSSI and Fray's Farm Meadows SSSI. However, the proposals are not considered to fulfil any of the IRZ criteria. While the site may be considered a large infrastructure project, due to the previous use of the site, the net additional floorspace over the current site condition will not exceed 1000m^2. There are no direct pathways through which the proposals may impact these sites, and therefore no impact is expected to these designated sites.

6.2.2 **Habitats**

6.2.2.1 The treelines around the north-western periphery of the site, and more importantly the broadleaved woodland at the northern boundary are to be retained in the majority within the development. However, significant ground clearance will be required within the application boundary to facilitate the proposals which will result in the loss of semi-improved grassland. Whilst the majority of the remaining habitats on the rest of the site were considered to be of low value, the overall matrix of habitats consisting of scrub, semi-improved grassland, broadleaved woodland and scattered trees holds intrinsic value to local biodiversity. Given the scale of the proposed ground clearance within the application boundary, in the absence of mitigation, a Minor Negative (Not Significant) effect on habitat quality within the site is anticipated.

6.2.2.2 **Mitigation Measures**

To mitigate for the loss of a small area of semi-improved grassland, significant areas of open space within the north western area of the site will be developed and managed for biodiversity net-gain, with enhancements, including the creation of two SUDs and one pond, tree planting, areas of meadow grassland and enhancement of retained woodland (Appendix 6). These areas of open space should be managed following the recommendations within the Landscape and Environmental Management and Maintenance Plan (Ref :211723_OP_Ick-R001) and Biodiversity Impact Assessment (BG22.113.8) to ensure establishment to target condition, prevent the encroachment of pernicious species and to benefit local wildlife. These actions will ensure that the residual effect on habitats as a result of ground clearance is resolved with Positive (Significant) results.

Appendix 10 highlights areas where habitat will be created, retained and enhanced.

6.2.4 **Breeding Birds**

6.2.4.1 The areas of semi-improved grassland, scrub, scattered trees, woodland and buildings both within the application boundary and adjacent to it have been identified as being suitable for use by breeding birds. A Likely Negative (Not significant) effect is anticipated as a result of the development through the loss of suitable nesting habitat across the site. This impact is considered to be short term and reversible with the following mitigation in place.

6.2.4.2 **Mitigation Measures**

Given their protection, development must be sympathetic to the value of this habitat and potential impacts on breeding birds, their eggs, nests and young. The breeding bird season is generally accepted as being between March and September, works should be avoided during this period where possible, and developers should consider and implement the options (below) appropriate to their scheme to reduce the effect to Neutral (Not significant):

- Undertake demolition works to buildings and any vegetation clearance between the months of October and February where possible (Outside of the breeding season);
- Any vegetation proposed for removal between the months of March and September should be subjected to a search for active birds' nests 24 hours prior to commencement of works. This should confirm whether all or some clearance is achievable.
- If the demolition of buildings are to be undertaken between the months of March and September, the buildings should be subjected to a search for active birds' nests 24 hours prior to commencement of works. If birds are found to be nesting, works will need to be delayed in those areas until it is confirmed that nesting has been completed. This should confirm whether all or some clearance is achievable.
- In addition to a pre-works check the clearance of vegetation between the months of March and September should be supervised by a suitably qualified ecologist;
- Should bird nesting activity occur within the application site during any works then activity in that area will cease until the bird(s) have vacated the site (a minimum of 4 weeks). Such measures should be adhered to so as to prevent unnecessary disturbance to breeding birds or their young;

6.2.5 **Roosting Bats**

6.2.5.1 Building B1 was found to support a summer day roost, beneath lifted lead flashing at the south-western gable (Appendix 9B). The roost was occupied by a single common pipistrelle and a single soprano pipistrelle on two separate occasions. Building B1 is to be demolished in order to facilitate the development. In the absence of appropriate mitigation, the demolition of Building 1 would result in the destruction of a known roost supporting a low

number of non-breeding bats of a low conservation value resulting in a Negative (Not Significant) effect upon local bat populations.

6.2.5.3 **Mitigation Measures**

As the proposed development will involve the destruction of a summer day bat roost within the external roof features of Building 1, a Natural England Bat Mitigation Class Licence or Natural England EPS Development Licence must be secured in order to continue with development works. The recommendations below outline suggested mitigation work to be included within the method statement to support the application and it is considered that this will reduce the effect to Neutral (Not significant). These works can take place at any time, however, should ideally take place within the transitional period when bat species such as common and soprano pipistrelle are likely to be absent from buildings.

- Install 1 x temporary bat box, such as the Improved Crevice Bat Box or similar, on the southern face of a nearby tree or building. Any bats found during the following exclusion and/or soft stripping works to be transferred to this box by hand.
- Depending on the timing of works, a pre-dawn emergence survey may be undertaken on the day of soft stripping to confirm absence of bats within the building.
- On the day of soft stripping the ecologist will provide a toolbox talk to contractors prior to works. Bat roosting features including the lifted lead flashing should be soft stripped under the supervision of the Named Ecologist. Should bats be encountered during soft stripping then they will be captured by hand and relocated to pre-installed temporary bat box. Once all bat roosting features have been stripped, checked and structures made unsuitable for roosting bats the buildings can be declared free of bats. Development works can then proceed without ecological supervision. Temporary bat boxes are to remain in place during this period, and post construction for enhancement purposes.
- Permanent compensatory bat roosting habitat to be agreed with the client. This would comprise a single integrated wall box (such as a Habibat 001, Schweglar 1FR bat tube, or similar approved) on unit 2 located in the north-

west of the new development. Placement and type of box will be confirmed by an ecologist on submission of the licence.

- Bats are highly mobile and can change roost sites throughout the year and from season to season. If the development of the site does not begin within twelve months of this initial survey it will be necessary to conduct an additional survey to determine if the extent of any changes to roosts within Building B1.
- **It must be noted that the failure of the client, or anyone working under the client's direction, to follow the method statement may result in a breach of legislation.**

6.2.6 **Foraging and Commuting Bats**

6.2.6.1 The bat activity on site was considered to be low, pertaining to a low number of common species, repeatedly using similar areas and features recorded on site. While the detailed development plans suggest that the linear features located along the site boundaries, as well as the onsite woodland, are to be retained following the development, some areas of grassland, scrub and scattered trees on site will be lost. The clearance of these grassland habitats along with the significant levels of disturbance likely to occur both during and post construction constitute a Likely Negative (Not Significant) impact upon foraging and commuting bats. However, post construction landscaping is considered to provide improved foraging habitat for locally frequent species, particularly through the inclusion of some aquatic features.

6.2.6.2 In the absence of appropriate mitigation, a net loss of suitable foraging habitat is anticipated. Furthermore, the behaviours of foraging and commuting bats could be adversely affected by disturbance as a result of artificial lighting used during the construction phase as well as post construction security lighting schemes. The potential indirect disturbance by light pollution is considered a Probable Negative (Not significant) effect. Given the high mobility of bat species the impacts associated with the development are not considered to be long-term.

6.2.6.3 **Mitigation Measures**

To mitigate effects to commuting and foraging bats to Neutral (Not significant), the physical characteristics and current management of the boundary features should be maintained and where possible enhanced. Where vegetation has

been proposed for removal, compensatory planting should be undertaken. The details of planting and enhancements should be secured within the Landscape and Environmental Management and Maintenance Plan (Ref :211723_OP_Ick-R001) which seeks retention and enhancement of locally prevalent features.

6.2.6.4 The extent of disturbance to bat commuting lines should be reduced where possible by removing vegetation outside of the bat activity season and employing a sensitive lighting scheme during construction works. Post construction, artificial security lighting should not be installed on the elevations of buildings in close proximity to hedgerows and woodland, particularly avoiding the north and western boundaries and areas of new habitat including waterbodies located to the western aspect (See Appendix 6, Appendix 10), preventing long-term disturbance to commuting lines. If flood lighting is required, this should be directed away from notable habitat for bats and overspill into dark corridors and woodland should not exceed 1lux.

6.2.7 Amphibians and Reptiles

6.2.7.1 Whilst no reptiles were recorded during the survey undertaken in 2022, and no GCN are anticipated to be within the zone of influence, the suitability and proximity to suitable habitats on and adjacent to the site provide some scope for foraging and refuge-seeking individuals. In the absence of mitigation, direct harm or injury could be sustained to individuals during ground clearance posing a Possible Negative (not significant) effect.

6.2.7.2 **Mitigation Measures**

A site specific method statement either as a standalone document or part of a Construction Environmental Management Plan (Biodiversity) should be compiled to safeguard herptiles during site clearance and construction. Reasonable Avoidance Measures (RAMs) should be utilised (as outlined below) during the pre-construction clearance of the vegetative habitats on site to safeguard any reptiles present on site. The steps for (RAMs) are as follows:

- Following a pre-commencement survey, the ground should be cleared following a systematic approach allowing potential fauna to disperse. An EcOW will be present to search the area and to relocate any reptiles/ fauna found during the working procedure.

- A toolbox talk will be provided to site staff prior to works on site to ensure that contractors are aware of legislation and protection afforded to herptile species and how to identify different species if fond when the ecologist is not present.
- All works should take place during daylight hours.
- Any open trenches should be checked daily to ensure individuals are not trapped.
- Where individuals are encountered, the ecologist will identify the species and place the individuals in a container for transportation to an area of suitable terrestrial habitat. Should individuals be found when an ecologist is not present, the ecologist should be contacted to confirm the species identity and provide advice.
- If Great crested newts are found during the site clearance or construction work, works should stop immediately and the advice of the supervising ecologist sought.

6.2.8 **Badgers**

6.2.8.1 Although no setts were present on site, the site supported habitats suitable for foraging badgers and it is possible individuals may pass through the site during construction phase. The development could therefore result in an Unlikely Negative (not significant) effect such as injury or death to individual badgers during the construction phase on site. The recommended mitigation measures will reduce the effects to neutral (Not significant) and primarily involve adhering to safe working practices and reasonable avoidance measures during the construction phase.

6.2.8.2 **Mitigation Measures**

The following appropriate precautions should be employed during construction works to prevent harm to this protected species.

- A walkover survey should be conducted within the zone of influence (the site and 30 metres perimeter of boundary) prior to the commencement of works to identify if badgers have become active within the proposed development.
- An ecological ‘toolbox talk’ should be provided to all site personnel prior to development works commencing. The ‘toolbox talk’ should include information pertaining to the ecology and protection of badgers, a brief

description of field signs and who to contact should badgers be encountered during development works.

- Any excavations left overnight are to be covered at the end of each working day, or include a means of escape, such as wood planks. In addition, any temporarily exposed open pipe systems are to be capped in such a way as to prevent badgers gaining access.
- Do not store spoil heaps or brash piles on site. These should be removed to prevent the opportunistic use by badgers.
- Should badgers or any evidence of badgers be encountered during the walkover or construction phase, all works should cease, and the advice of an ecologist sought.
-

6.2.9 **Mammal Species of Principle Importance**

6.2.9.1 Impacts and mitigation relating to common pipistrelle, soprano pipistrelle, daubentons bat and noctule have been detailed within Section 6.2.5 of this report.

6.2.9.2 The application site is likely to support foraging West European Hedgehog particularly along the woodland edge to the north and within pockets of dense scrub. The ground clearance works necessary to prepare the site could result in injury or death of these species of principle importance, presenting a Likely Negative (Not significant) effect. The development proposals suggest that the woodland and treelines around the periphery of the site are to be retained following the development reducing the likelihood of a significant effect to this species, however further mitigation should be implemented to safeguard this species.

6.2.9.3 **Mitigation Measures**

Habitat considered suitable for supporting west European hedgehogs will be retained within the woodland on-site and vegetative connectivity through the site will be maintained at boundaries (Appendix 6). If individuals are found during ground clearance works, works should cease until the individual has been moved into the open space within the south-western corner of the site (Appendix 6). Once removed, the area should be searched, and works can recommence.

6.3 **Residual effects of proposed Development**

The measures proposed within the above sections will mitigate all Negative effects to a level where the constraint is not considered significant or negative in terms of Ecological Impact Assessment. Upon completion there should be no adverse residual effects as a result of the development.

6.4 **Cumulative effects**

The mitigation and impact avoidance measures proposed for each ecological receptor should be secured through planning condition or obligation. The construction of the new HS2 trainline at the southern boundary of the site has already progressed significantly. New habitat creation is to be associated with this development which is subject to high levels of mitigation. At the time of writing there are no further consented developments expected to come forward within the local area, so a cumulative effect is not predicted, and upon successful implementation of these measures the site will increase the value of the site in terms of local biodiversity.

6.5 **Biodiversity Impact Assessment to determine Net Gain**

A Biodiversity Impact Assessment has been compiled to assess whether a biodiversity net gain can be achieved within the current design plans. The assessment indicates that the proposals will result in over a 10% gain for the site exceeding the targets set out within The Environment Act 2021. Full results and discussion will be outlined within the relevant report (BG22.113.5, September 2022).

7 Compensation, Enhancement and Monitoring

7.1 Compensation

Compensatory measures are not required within this scheme of works, because no significant residual or cumulative effects are anticipated as a result of the development.

7.2 Enhancement

In light of the National Planning Policy Framework (NPPF) that seeks net biodiversity gain within developments and the Natural Environment and Rural Communities (NERC) act that stipulates an authorities duty to conserve and enhance biodiversity the following enhancements are suggested (All enhancements should be overseen by an appropriate experienced ecologist):

7.2.1 Habitats

The construction of a Landscape and Environmental Management and Maintenance Plan (Ref:211723_OP_Ick-R001) for the site will secure enhancements and appropriate landscaping to enhance biodiversity within areas of open space. Landscaping carried out on site is to undertaken using locally abundant, native species which can tolerate a range of climatic conditions. Open space should be managed to benefit local biodiversity following an appropriate management plan and seek to compensate for loss of habitats on site. Loss of vegetative features should be compensated for by planting native scrub, the transplantation or reseeding of grassland and the planting of native trees within an appropriate landscape and enhancement zone identified within the site master plan.

7.2.2 Bats

7.2.2.1 Post construction landscaping should be sympathetic to bat species and seek to enhance woodland edge and open space for bat species. Mitigation should be secured within the above-mentioned management plan.

7.2.2.2 Provide roosting provisions upon retained trees and woodland features (Appendix 10). During construction eight bat roosting features such as improved crevice bat boxes or schwegler 2F boxes should be positioned on

suitable mature tree specimens facing a south – south easterly direction at a height of above 2 metres.

7.2.3 **Birds**

7.2.3.1 During the construction phase six No. 16S Schwegler swift boxes or similar approved should be installed across the retained building (Building 18) and newly created units. Integrated boxes such as the woodstone build in swift box are preferable however boxes affixed to the exterior of buildings would also be considered suitable. In addition, 5 vivara pro Seville 32mm boxes and 5 vivara pro Seville 28mm boxes should be installed upon retained trees and within retained woodland on site (Appendix 13). The Bird boxes should be positioned at a height of between 2 and 4 metres, with entrance holes directed towards the north and east to avoid strong sunlight and driving rain with an unobstructed flight line to and from the boxes during the Autumn.

7.2.3.3 The site is secured with the inclusion of soft landscaping in the form of native trees and vegetation, planted across the site to offset any loss of vegetation and to provide supplementary habitat for overwintering and breeding birds within the area.

7.2.4 **Herptiles**

7.2.4.1 Construction of suitable hibernacula within the open space positioned within the south-western corner of the application site (Appendix 10) is recommended. The hibernacula consist of an excavated hollow infilled with materials such as building rubble and/or tree roots. Small drainage pipes are placed around the edges of the hollow that lead from the surface into voids and spaces within the building rubble and/or tree roots. This allows access for reptiles into the voids within the material used. The hollow is then covered over with loose turfs of soil and allowed to revegetate naturally.

7.3 **Monitoring**

7.3.1 As a result of the low impact of the proposed development, no post construction monitoring is required.

7.3.2 If works do not commence within two years of the Phase 1 habitat survey, and 1 year of the phase 2 surveys the baseline conditions may need to be reassessed.

8 Conclusions

8.1 The application site at Former MSD Facility, Breakspear Road, Ickenham, Uxbridge has been the subject of a series of habitat and protected species surveys undertaken following best practice guidelines. The site was found to support habitats ranging between 'site' and 'local' value at an ecological level (Table 2).

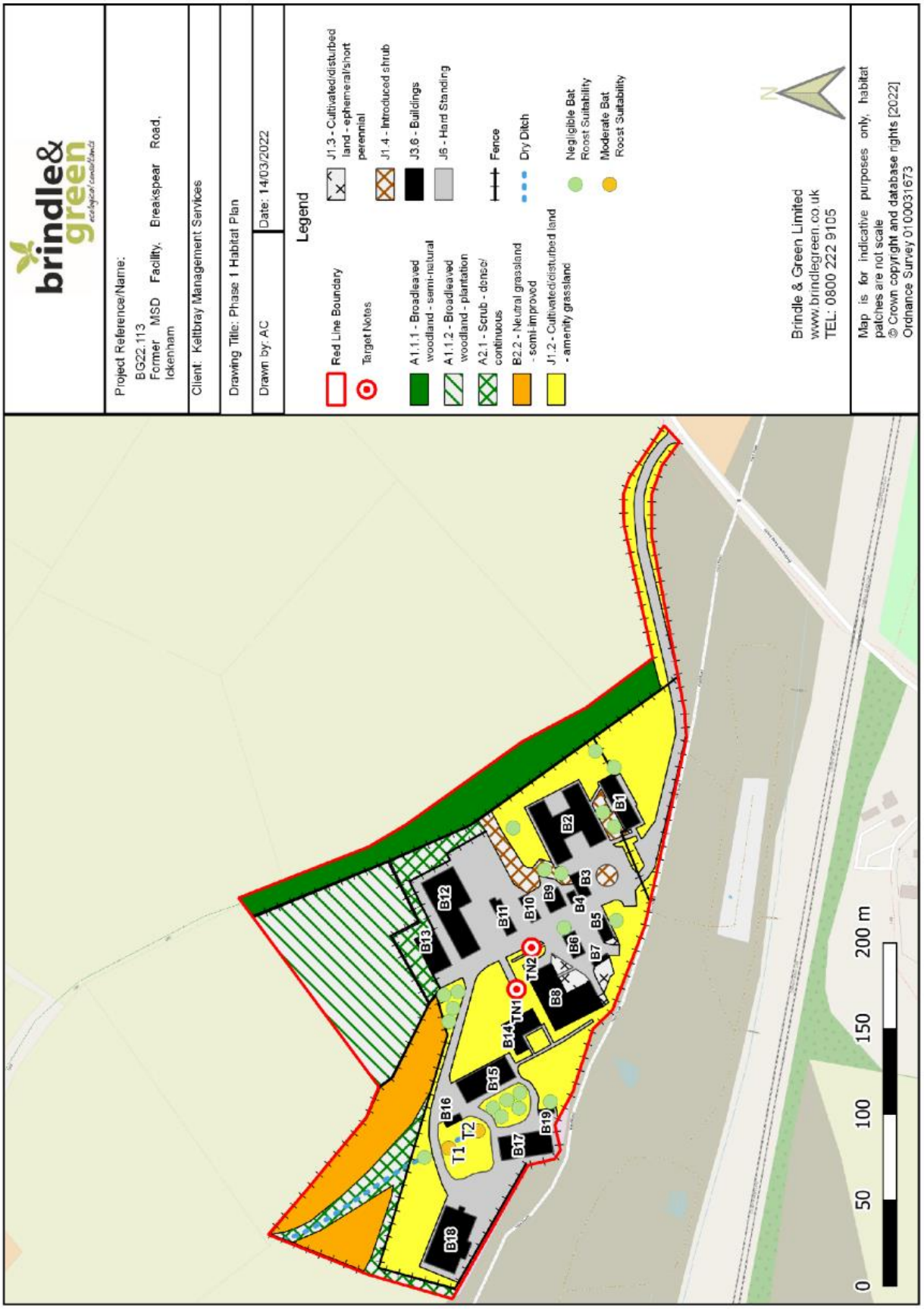
8.2 The Phase 1 habitat survey and Phase 2 surveys confirmed that habitats, bats, breeding birds, reptiles, badgers, and hedgehog had the potential to be negatively affected by the proposed development and as such mitigation measures have been created to safeguard the status of these protected and notable species, reducing the effect to neutral or a positive effect.

8.3 The mitigation strategies outlined above should be secured through planning condition or obligation, to ensure that a negative effect for local wildlife populations and biodiversity is avoided and potentially enhanced through the landscaping plan and prevent residual effects. The habitats recorded during the baseline survey were locally frequent and of low ecological value. As a result, the loss of these habitats is not considered to be significant. The construction of SUDs, waterbodies and open space onsite will improve the structural and botanical diversity on site enhancing the application site for a number of local species populations.

8.4 The implementation of enhancements listed within Section 7.2 would secure positive gains to local biodiversity when compared to the baseline ecological conditions of the application site.

8.5 The mitigation proposals detailed in Section 6 successfully address the potential impacts from the development to comply with both wildlife legislation and policy.

Appendix 1. Phase 1 Habitat Plan



Appendix 2. Phase 1 Target Notes and species list

Target Note Number	Description
TN1	Mammal path through amenity grassland
TN2	Deer droppings

Plant Species List with DAFOR Scale

Scientific nomenclature follows Stace (2010) for vascular plant species and common names follow BSBI List of British & Irish Vascular Plants and Stoneworts.

Please note that this plant species list was generated as part of a Phase 1 Habitat survey, and does not constitute a full botanical survey.

Abundance was estimated using the DAFOR scale as follows: D = dominant, A = abundant, F = frequent, O = occasional, R = rare, LF = locally frequent

Common Name	Scientific Name	Estimated Abundance (DAFOR)
Alder	*Alnus glutinosa*	O
Annual Meadow Grass	*Poa annua*	F
Ash	*Fraxinus excelsior*	F
Bluebell	*Hyacinthoides* sp.	O
Bramble	*Rubus fruticosus*	LF
Broad-leaved dock	*Rumex obtusifolius*	O
Bristly Ox-tongue	*Helminthotheca echioides*	R
Burdock sp.	*Arctium sp.*	R
Cherry Laurel	*Prunus laurocerasus*	LF
Cherry	*Prunus* sp.	O
Cleavers	*Galium aparine*	O
Cock's-foot	*Dactylis glomerata*	F
Common Daisy	*Bellis perennis*	R
Common Nettle	*Urtica dioica*	LF
Common Ragwort	*Jacobaea vulgaris*	R
Cow parsley	*Anthriscus sylvestris*	F
Creeping Buttercup	*Rannunculus repens*	R
Creeping thistle	*Cirsium arvense*	O
Daffodil	*Narcissus* sp.	R
Dock	*Rumex sp.*	O
Dog-rose	*Rosa canina*	R
Dovesfoot Cranesbill	*Geranium molle*	R
Elder	*Sambucus nigra*	R
False-oat grass	*Arrhenatherum elatius*	A
Fescue sp.	*Festuca* sp.	O
Fleabane sp.	*Erigeron sp.*	R
Forget-me-not sp.	*Myosotis sp.*	O
Foxglove	*Digitalis purpurea*	R
Ground Ivy	*Glechoma hederacea*	O
Hawthorn	*Crataegus monogyna*	R
Hogweed	*Heracleum sphondylium*	R
Holly	*Ilex aquifolium*	O
Ivy	*Hedera helix*	LF
Leylandii	*Leylandii x cypressus*	R
Lords-and-ladies	*Arum maculatum*	R
Mallow	*Malva* sp.	R
Maple	*Acer sp.*	R

Mugwort	*Artemisia vulgaris*	F
Oak	*Quercus robur*	O
Perennial Ryegrass	*Lolium perenne*	F
Pine	*Pinus* sp.	R
Selfheal	*Prunella vulgaris*	R
Silver Birch	*Betula pendula*	R
Silverweed	*Potentilla anserina*	R
Sow thistle	*Sonchus* sp.	R
Sycamore	*Acer pseudoplatanus*	O
Teasel	*Dipsacus fullonum*	R
White Clover	*Trifolium repens*	R
Willowherb sp.	*Epilobium sp.*	O
Wood Avens	*Geum urbanum*	R
Yarrow	*Achillea millefolium*	O
Yorkshire Fog	*Holcus lanatus*	O

Appendix 3. General References

Bell, S. McGillivary, D. (2006) *Environmental Law*. 6th ed. Oxford University Press.

British Standards Institution (2013) BS 42020: Biodiversity – Code of practice for planning and development, British Standards Institution London

Byron, H (2000) *Biodiversity and Environmental Impact Assessment: A Good Practice Guide for Road Schemes*. The RSPB, WWF-UK, English Nature and the Wildlife Trusts, Sandy.

CIEEM (2017) Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester

CIEEM (2020) Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management. Winchester, UK.

Collins, J (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines, (3rd edition), Bat Conservation Trust, London

Defra (2007) Hedgerow Survey Handbook; A standard procedure for local surveys in the UK. Defra, London

Edgar P., Foster J. & Baker J. (2010) *Reptile Habitat Management Handbook*, Amphibian and Reptile Conservation, Bournemouth

Froglife (1999). *Froglife Advice Sheet 10: reptile survey*, Froglife, London.

Gent T. & Gibson S. (2003) *Herpetofauna Workers Manual*.

Gilbert G, Gibbons DW, Evans J. (1998) *Bird Monitoring Methods: Breeding Bird Survey* (pages 389-393). RSPB.

Harris S, Cresswell P and Jefferies D (1989). *Surveying Badgers*.

Joint Nature Conservation Committee (JNCC) *Handbook for Phase 1 habitat survey* (2003). JNCC.

Langton T, Beckett C and Foster J (2001) Great Crested Newt Conservation Handbook. Froglife, Halesworth

Mitchell-Jones A.J. McLeish, A.P. (2004) *Bat Workers Manual* (3rd Edition). Joint Nature Conservation Committee.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155

Rodwell, J.S. Joint Nature Conservation Committee (JNCC). National Vegetation Classification: Users' handbook (2006). JNCC.

Strachan R. MoorHouse T, and Gelling M (2011) *Water Vole Conservation Handbook*.(3rd Edition) Wildlife Conservation Research Unit.

Rose, F. (2006). The Wild Flower Key (Revised edition). Penguin books ltd, London

Stace, C. (2010). Field Flora of the British Isles. Cambridge University Press

Sutherland, W.J. (1996) *Ecological Census Techniques*. Cambridge University Press.

Treweek, J. (1999) *Ecological Impact Assessment*. Blackwell Science.

Williams, C. (2010) *Biodiversity for Low and Zero Carbon Buildings, A Technical Guide for New Build*. Riba Publishing.

Appendix 4. Legislation, Policy and Guidance

Articles of British wildlife and countryside legislation, policy guidance and both Local and National Biodiversity Action Plans (BAPs) are referred to. The articles of legislation are:

- The Wildlife and Countryside Act 1981 (as amended)
- The Conservation of Habitats and Species Regulations 2017 (as amended)
- Department for Communities and Local Government. National Planning Policy Framework. March 2021
- EC Council Directive on the Conservation of Wild Birds 79/409/EEC
- The Protection of Badgers Act 1992
- The Natural Environment and Rural Communities Act 2006
- The United Kingdom Biodiversity Action Plan 2006
- Hedgerow Regulations 1997
- Local Biodiversity Action Plan (LBAP).
- The Environment Act 2021

Appendix 5. Legislation, Guidance and Methodology in Relation to the Identified Constraints

Legislation, Guidance and Methodology

Breeding Birds

All nesting birds are protected under the Wildlife and Countryside Act 1981, which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition, for species listed on Schedule 1 of the Wildlife and Countryside Act 1981 it is an offence to intentionally or recklessly cause disturbance at, on or near an 'active' nest.

The bird breeding season is typically accepted to start in February/March and continue through until September/October, however breeding birds can be found all year round depending on the given species and climatic conditions.

A sites habitat composition, locality, association to designated sites as well as current usage and management are all considered in the decision as to whether further bird related surveys are required. In addition, surveys may be recommended based on incidental bird records collected during a Preliminary Ecological Appraisal, species identified within an ecological data search or target species listed within a local biodiversity action plan.

Bird surveys are carried out in accordance with:
Gilbert G, Gibbons DW, Evans J. (1998) *Bird Monitoring Methods*. RSPB.

Bats

Roosting Bats

All bats in the United Kingdom and their habitats are fully protected under the Wildlife and Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations 2017 (as amended). It is an offence to damage or destroy any bat roost, intentionally or recklessly obstruct a bat roost, deliberately, intentionally or recklessly disturb a bat or intentionally kill, injure or take any bat.
Areas of concern; can be encountered in many types of structure and care should therefore be taken when undertaking maintenance or demolition of suitable structures and trees.

Site assessments of buildings, commuting and foraging habitat and trees are undertaken in accordance with: Collins, J (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines*, (3rd edition), Bat Conservation Trust, London. (Table 1 & 2 Below).

Preliminary Ecological Surveys look for evidence of bat presence such as feeding remains, bat droppings, roosting individuals and staining around potential access points. The suitability of site features are also assessed because absence of bat evidence, is not confirmation of a negative result.

Within trees, features searched for include; natural holes, woodpecker holes, cracks/splits in major limbs, loose bark, hollows, and dense cover of ivy over the tree. If evidence is found, or a building supports features conducive to supporting roosting bats then further presence / absence bat surveys and/or roost characterisation surveys will be recommended.

Foraging and Commuting bats

Habitat features on site are assessed for their suitability to support foraging and commuting bat populations. This assessment is independent from the suitability of the site to support roosting bats, and provides information on the likeliness of bat foraging activity within the local environment, and the dependence of individuals on these features for commuting to alternative roosting sites, foraging and migration.

Table 1: Guideline for assessing the suitability of a structure to support roosting habitat (Buildings and Trees), amended from Collins, J (2016)

Category	Description of roosting habitat	Number of additional presence / absence surveys required
Negligible Suitability	Suitable cavities may exist, but these are less than ideal.	None
Low Suitability	A structure with one or more potential roost sites that could be used by individual bats opportunistically. The feature and surrounding habitat do not provide enough shelter, conditions* space for larger roost types such as a maternity or hibernation roost. A tree of sufficient size and age to support roosting bats, but with no features observed from the ground, or the features only have a limited potential to support roosting bats.	One survey between May and August Trees – No further surveys required
Moderate Suitability	A structure or tree considered to have one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions* and surrounding habitat but are unlikely to support a roost of high conservation status (With regard to roost type only – assessments are made irrespective of species conservation status, which is established after presence is confirmed).	Two surveys between May and September (with at least one survey undertaken between May and August) One Dusk emergence and One Dawn re-entry survey to ideally be undertaken at least two weeks apart.
High Suitability	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions* and surrounding habitat.	Three surveys between May and September (with at least two surveys undertaken between May and August) One Dusk emergence and One Dawn re-entry survey to be undertaken. The third survey can be either Dusk or Dawn, undertaken at least two weeks apart.
Confirmed	This category is where positive evidence of bats has been recorded. For example, bats are found; bat droppings may be present at a suitable location for roosting bats; existing bat records may be associated with the structure.	

(* in this context conditions refers to the level of disturbance, light, height above ground, temperature, and humidity etc)

Table 2: Potential suitability of foraging and commuting habitat within an application boundary. Features should be assessed following this guide and professional judgement. Adapted from Collins J (2016)

Category	**Description of commuting and foraging habitat**	**Survey effort to establish the value of commuting and foraging habitat****
Negligible Suitability	Negligible habitat features on site likely to be used by commuting or foraging bats.	None
Low Suitability	Habitat which could be used by low numbers of commuting bats such as an isolated gappy hedgerow, or an unvegetated stream unconnected to suitable habitat in the wider environment.	**Transect /spot count/ timed search survey:** One survey visit per active season **AND** **Static automated surveys:** One location per transect, over a five-night period, per season.

	Suitable, yet isolated habitat that could be used by foraging bats such as individual trees, or a patch of scrub.	
Moderate Suitability	Continuous habitat connected to the wider landscape that could be used by commuting bats, notably tree lines, hedgerows or linked back gardens. Habitat that is connected to the wider landscape which could be used by bats for foraging such as trees, open water, scrub or grassland.	**Transect /spot count/ timed search survey** One survey visit per month At least one survey should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period. **AND** **Static automated surveys:** Two locations per transect, over a five-night period, per month (April to October)
High Suitability	Continuous, High-quality habitat that is well connected to the wider landscape which is considered to be highly conducive to commuting bats including river valleys, stream, hedgerows, and woodland edge High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree lined watercourses, and grazed parkland. Site is close to and connected to known roosts.	**Transect /spot count/ timed search survey** Up to two survey visit per month (April to October) At least one survey should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period. **AND** **Static automated surveys:** Three locations per transect, over a five-night period, per month (April to October)

*(** This is only a guide for survey effort required, the complexity of the site and the proposed disturbance / loss of features will determine the extent of works required on a site by site basis).*

Badgers (*Meles meles*)

Badgers are protected under the Protection of Badgers Act 1992. It is illegal to wilfully kill, injure, disturb or take any badger, or attempt to do so and it is an offence to intentionally or recklessly damage, destroy, or obstruct access to any part of a badger sett.

Site assessments are undertaken in accordance with:
Harris S, Cresswell P and Jefferies D (1989). *Surveying Badgers*.

During the PEA, the site and the 30 metre zone of Influence considered for this species are searched for evidence of badger activity. The surveyor will identify evidence of activity, or habitat suitability for this protected species. Even If no evidence of badger activity is found, if local conditions suggest that the habitat may be suitable for badger, further surveys will be recommended.

Amphibians

The great crested newt and natterjack toad are fully protected under Schedule 5 of the wildlife and countryside Act 1981. The legislation protects these amphibians and their place of shelter or protection which may extend 500m from the breeding pond.

Great Crested Newt (*Triturus cristatus*)

The great crested newt, is fully protected under the Habitat regulations 2017, making it an offence to intentionally or recklessly kill, injure, disturb or take great crested newts, intentionally or recklessly damage destroy or obstruct access to any place used by the animal for shelter or protection.

The legislation protects these amphibians and their place of shelter or protection which may extend 500m from the breeding pond. Sites should be considered suitable to support great crested newts if distribution and historical records suggest newts may be present, there is a pond within 500m of the development or the development site includes suitable terrestrial habitat refuges.

Great crested newt site assessments are undertaken in accordance with:
English Nature. (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough. and
Langton T, Beckett C and Foster J (2001) *Great Crested Newt Conservation Handbook*. Froglife, Halesworth.

Prior to a site visit, a desk study pond search is undertaken. When searching for ponds, Brindle & Green apply a total of 4 sources to establish their location. The following online sources are used:
OS MAPPING VIA PRO MAP, GOOGLE EARTH PRO, GOOGLE MAPS and MAGIC MAPS

Each identified pond (Access permitting) is subjected to a Habitat Suitability Index (HSI) assessment providing a score for each pond. This survey should be undertaken during the summer period to be fully accurate, however assumptions can be made out of season to guide survey recommendations.

Reptiles

Two species of reptile, the sand lizard and smooth snake, and their habitats are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981. All other native British reptiles are protected against intentional killing and injury.

British reptiles are found in exposed, undisturbed areas, such as areas without cultivation with differing areas of grassland sward length. Suitable areas include abandoned sand quarries, fallow farmland land, heathland, post-industrial land, railway corridors etc. If these types of suitable features are found then further reptile surveys are recommended.

Edgar P, Foster J and Baker J (2010) *Reptile Habitat Management Handbook*. Amphibian and Reptile Conservation, Bournemouth.
Gent T and Gibson S (2003) *Herpetofauna Workers Manual*. JNCC, Peterborough.

Invasive non-native weeds

Plant species such as Japanese knotweed (*Fallopia japonica),* Himalayan balsam *(Impatiens glandulifera)* and giant hogweed (*Heracleum mantegazzianum*) are examples of invasive non-native weeds classified under Part II of Schedule 9 of the Wildlife and Countryside act 1981. Any person who causes these species to grow or spread in the wild by dumping or other means is guilty of an offence. The plant and the soil these species are found growing in are classified as waste material and should be treated as such.

A simple walk over survey of the site to determine if these species are present was carried out during the PEA. A full list of Schedule 9 species can be found at Plantlife.org

Botanical Value

There are 60 plant species listed under Schedule 8 of the Wildlife and Countryside Act 1981 where it is an offence to intentionally pick or uproot or destroy any of these plant species.

During the PEA, a phase one habitat survey was undertaken following JNCC guidance. Further assessments are made to determine whether habitats comprise those identified as Habitats of principle Importance under S42 of NERC Act 2006.

Surveys can be undertaken year-round, however, if species or site conditions suggest higher botanical interest a full botanical survey will be recommended.

Ecological Enhancement

In March 2021 the Department for Communities and Local Government published the National Planning Policy Framework. This sets out planning policies on protection of biodiversity through the planning system. The document states - *opportunities to incorporate biodiversity in and around developments should be encouraged*.

For new buildings guidance such as in the following will be used:
Williams, C. (2010) *Biodiversity for Low and Zero Carbon Buildings, A Technical Guide for New Build*. Riba Publishing.

Designated Sites

Designated areas are Sites of Special Scientific Interest (SSSI) while others have been designated as having European protection status. Local authorities can also designate areas for nature conservation and in doing so may impose local authority byelaws to support local nature conservation objectives.
European designated status includes Special Protection Areas (SPAs) that preserve areas for birds and Special Areas of Conservation (SACs) which provides protection for habitats and the species which these habitats supports.

Information of Designated Protected Areas is received through Ecological Data Searches and Magic Map searches.

Appendix 6. Proposed Plans

Appendix 7. Magic Data

Two kilometre radius search of the project site.

09/03/2022, 14:40

Site Check Report Report generated on Wed Mar 09 2022
You selected the location: Centroid Grid Ref: TQ07038740
The following features have been found in your search area:

Granted European Protected Species Applications (England)

Case reference of granted application	2019-43429-EPS-MIT
Species group to which licence relates	Bat
Species on the licence	S-PIP
Site county of licence	Buckinghamshire
Licence Start Date	13/11/2019
Licence End Date	13/12/2019
Does licence impact on a breeding site	N
Does licence allow damage of breeding site	N
Does licence allow damage of a resting place	N
Does licence allow destruction of breeding site	N
Does licence allow destruction of a resting place	N
Does licence impact on a hibernation site	Unknown
NERC agreement reference	Unknown

Case reference of granted application	2019-43429-EPS-MIT-1
Species group to which licence relates	Bat
Species on the licence	S-PIP
Site county of licence	Buckinghamshire
Licence Start Date	13/11/2019
Licence End Date	13/12/2019
Does licence impact on a breeding site	N
Does licence allow damage of breeding site	N
Does licence allow damage of a resting place	N
Does licence allow destruction of breeding site	N
Does licence allow destruction of a resting place	N
Does licence impact on a hibernation site	Unknown
NERC agreement reference	Unknown

Case reference of granted application	2019-43429-EPS-MIT-2
Species group to which licence relates	Bat
Species on the licence	S-PIP
Site county of licence	Buckinghamshire
Licence Start Date	20/04/2020
Licence End Date	31/12/2030
Does licence impact on a breeding site	N
Does licence allow damage of breeding site	N
Does licence allow damage of a resting place	N
Does licence allow destruction of breeding site	N
Does licence allow destruction of a resting place	N
Does licence impact on a hibernation site	Unknown
NERC agreement reference	Unknown

Case reference of granted application	2019-43429-EPS-MIT-3
Species group to which licence relates	Bat
Species on the licence	S-PIP
Site county of licence	Buckinghamshire
Licence Start Date	30/07/2020
Licence End Date	31/12/2030
Does licence impact on a breeding site	N
Does licence allow damage of breeding site	N
Does licence allow damage of a resting place	N
Does licence allow destruction of breeding site	N
Does licence allow destruction of a resting place	N
Does licence impact on a hibernation site	Unknown
NERC agreement reference	Unknown

Case reference of granted application	2019-43429-EPS-MIT-4
Species group to which licence relates	Bat
Species on the licence	S-PIP
Site county of licence	Buckinghamshire
Licence Start Date	20/04/2020
Licence End Date	31/12/2030
Does licence impact on a breeding site	N
Does licence allow damage of breeding site	N
Does licence allow damage of a resting place	N
Does licence allow destruction of breeding site	N
Does licence allow destruction of a resting place	N
Does licence impact on a hibernation site	Unknown
NERC agreement reference	Unknown

1/15

Case reference of granted application	2020-46680-EPS-NSIP1-1
Species group to which licence relates	Bat
Species on the licence	DAUB
Site county of licence	Buckinghamshire
Licence Start Date	20/07/2020
Licence End Date	31/12/2030
Does licence impact on a breeding site	N
Does licence allow damage of breeding site	N
Does licence allow damage of a resting place	N
Does licence allow destruction of breeding site	N
Does licence allow destruction of a resting place	N
Does licence impact on a hibernation site	Unknown
NERC agreement reference	Unknown

Case reference of granted application	2020-49580-EPS-NSIP1
Species group to which licence relates	Bat
Species on the licence	BLE,S-PIP
Site county of licence	Greater London
Licence Start Date	06/10/2020
Licence End Date	31/12/2030
Does licence impact on a breeding site	Y
Does licence allow damage of breeding site	N
Does licence allow damage of a resting place	N
Does licence allow destruction of breeding site	Y
Does licence allow destruction of a resting place	Y
Does licence impact on a hibernation site	Unknown
NERC agreement reference	Unknown

Case reference of granted application	EPSM2012-5295
Species group to which licence relates	Amphibian
Species on the licence	Great Crested Newt
Site county of licence	London
Licence Start Date	25/02/2013
Licence End Date	01/12/2013
Does licence impact on a breeding site	N
Does licence allow damage of breeding site	
Does licence allow damage of a resting place	
Does licence allow destruction of breeding site	N
Does licence allow destruction of a resting place	Y
Does licence impact on a hibernation site	Unknown
NERC agreement reference	Unknown

Case reference of granted application	EPSM2010-1919
Species group to which licence relates	Bat
Species on the licence	C-PIP
Site county of licence	London
Licence Start Date	28/06/2010
Licence End Date	30/11/2010
Does licence impact on a breeding site	N
Does licence allow damage of breeding site	
Does licence allow damage of a resting place	
Does licence allow destruction of breeding site	N
Does licence allow destruction of a resting place	Y
Does licence impact on a hibernation site	Unknown
NERC agreement reference	Unknown

Case reference of granted application	2020-46680-EPS-NSIP1
Species group to which licence relates	Bat
Species on the licence	DAUB
Site county of licence	Buckinghamshire
Licence Start Date	20/07/2020
Licence End Date	31/12/2030
Does licence impact on a breeding site	N
Does licence allow damage of breeding site	N
Does licence allow damage of a resting place	N
Does licence allow destruction of breeding site	N
Does licence allow destruction of a resting place	N
Does licence impact on a hibernation site	Unknown
NERC agreement reference	Unknown

Local Nature Reserves (England) - points

Reference	1009351
Name	FRAYS VALLEY
Hectares	71.87
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1009351

Reference	1009276
Name	DENHAM COUNTRY PARK (MAPPED BOUNDARY NOT VERIFIED)
Hectares	19.82
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1009276

Local Nature Reserves (England)

Reference	1009351
Name	FRAYS VALLEY
Hectares	71.87
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1009351

Reference	1083176
Name	DENHAM QUARRY PARK (MAPPED BOUNDARY NOT VERIFIED)
Hectares	29.61
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1083176

Reference	1009276
Name	DENHAM COUNTRY PARK (MAPPED BOUNDARY NOT VERIFIED)
Hectares	19.82
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1009276

National Nature Reserves (England)

Name	RUISLIP WOODS
Reference	1006764
Hectares	295.06
Hyperlink	https://www.gov.uk/government/publications/greater-londons-national-nature-reserves/londons-national-nature-reserves#ruislip-woods

Sites of Special Scientific Interest (England) - points

Name	Denham Lock Wood SSSI
Reference	1000381
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	6.82
Citation	1001883
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001883

Name	Fray's Farm Meadows SSSI
Reference	1000333
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	26.3
Citation	1002024
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1002024

Sites of Special Scientific Interest (England)

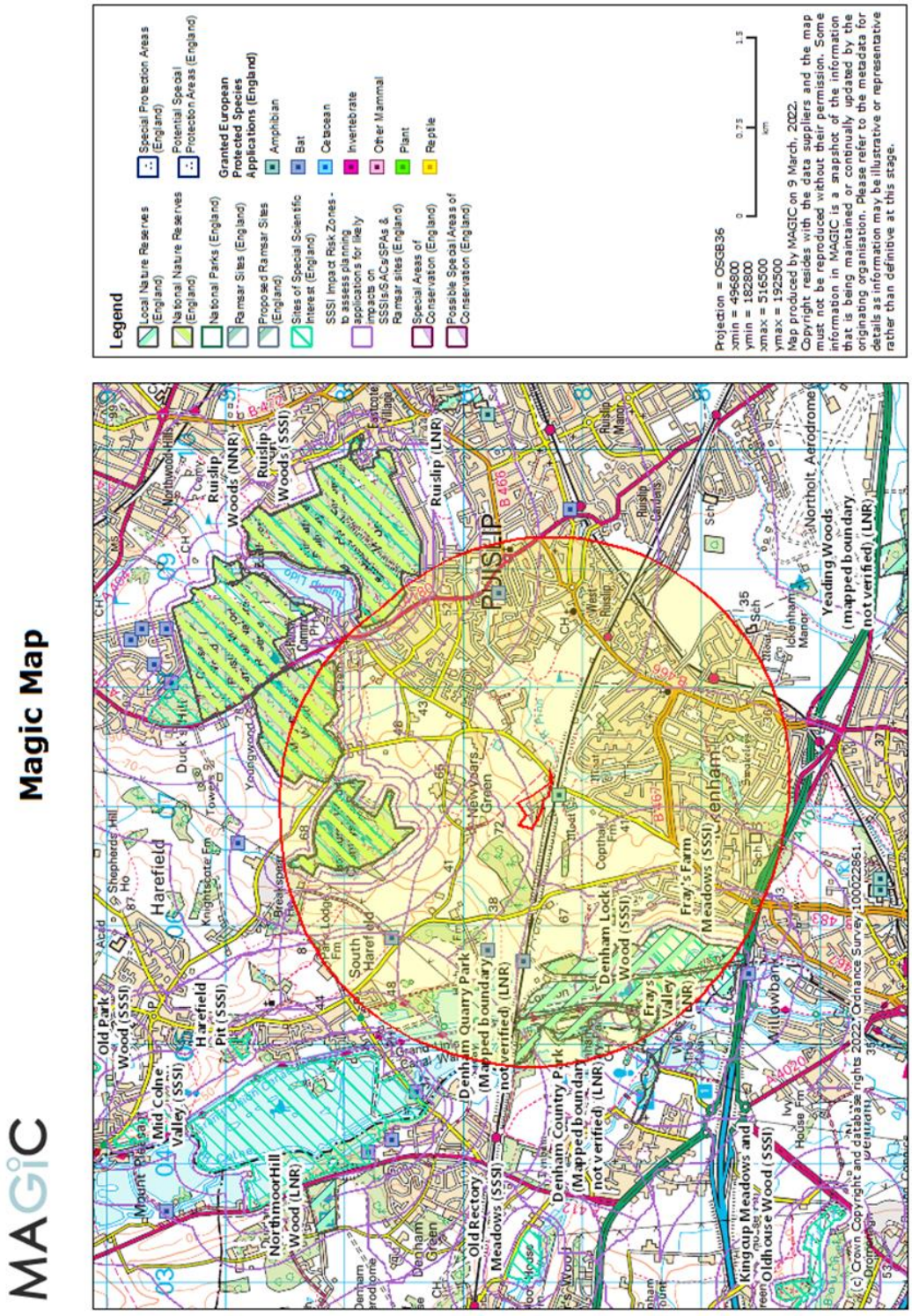
Name	Denham Lock Wood SSSI
Reference	1000381
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	6.82
Citation	1001883
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001883

Name	Fray's Farm Meadows SSSI
Reference	1000333
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	26.3
Citation	1002024
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1002024

Name	Ruislip Woods SSSI
Reference	1000131
Natural England Contact	Conservation Delivery Team
Natural England Phone Number	0845 600 3078
Hectares	307.45
Citation	1003633
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1003633

Appendix 8. Ecological Data Search Information

The project site can be found at Grid Ref. SK 53320 59508



Appendix 9 Phase 2 Survey Data

Appendix 9A– Building assessment photographs and Bat Emergence Surveys

Table A. Summary of bat roost suitability and evidence found within each of the buildings/structures on site (Supporting Figures within Table B).

High/Confirmed Roost	Moderate	Low	Negligible	None

Building Number	Description	Bat evidence / Potential Roosting Features (PRFs)	Roost Suitability
B1 (Figure A)	Single storey, brick cavity walls, mortar and brickwork in good condition with no gaps noted. Currently disused. UPVC window and doorframes, pitched roof finished with concrete tiles and soffits absent. Hanging tiles present on southern elevation. Interior – roof supported by concrete frame and lined with bitumen felt. Evidence of water ingress in places indicating roof is not intact in some places. Access to loft only possible at south end of building.	• Gaps at wall top, S elevation • Missing hanging tile, S elevation (Figure 10B) • Missing mortar at the E roof verge • Missing roof tile on S elevation • Sections of lifted lead flashing on SW gable end **No evidence of bat activity was identified during the survey.**	Moderate
B2 (Figure C)	Single storey, brick cavity walls with mortar and brickwork in generally good condition. UPVC window and doorframes. Two pitched roof structures finished with concrete tiles in good condition, no obvious gaps or missing tiles. Roof verges in good condition. Wooden soffits present in good condition. Flat roofed section linked the two pitched roof sections. Flat roofed section finished with bitumen felt in good condition. Internally – entire building disused. Large mostly dark loft voids, roof supported by steel trusses and underlined with asbestos panelling.	• Wooden hay-loft style loading door on SE gable, poorly sealed with gaps providing potential access to loft void • Vents present but sealed with wire mesh preventing potential bat access. • Slipped tiles behind roof vent, N elevation. **No evidence of bat activity was identified during the survey.**	Moderate

Building Number	Description	Bat evidence / Potential Roosting Features (PRFs)	Roost Suitability
B3 (Figure D)	Single storey, brick cavity walls with mortar and brickwork in generally good condition. UPVC window and doorframes. Pitched roof, part corrugated steel, part corrugated asbestos fibre panelling. Wooden porch on S elevation supported by wooden frame with pitched roof of concrete tiles. Soffits absent, UPVC fascias present at roof eaves and gable end roof verges. *Internal access to this building was not possible.*	• Gap between MDF ceiling and wall on porch, S facing elevation. Evidence of historic bird nesting (droppings, nest material) • Missing mortar on W facing gable end. **No evidence of bat activity was identified during the survey.**	Low
B4 (Figure E)	Single storey outbuilding housing generator, walls of single-skin steel panels, pitched roof of single-skin steel panels.	Gaps at wall top may permit internal access. However, due to the entirely metal construction of this building, it is highly unlikely to be suitable for roosting bats as internally it will be subject to large temperature fluctuations and due to single skin nature it lacks suitable crevices and niches which could be utilised for roosting.	Negligible
B5 (Figure F)	Single storey, brick-built building with cavity walls and wooden-framed windows and doors. One metal-framed door on E elevation. Wooden soffits in good condition with no gaps noted. Vents were present and sealed with wire mesh. Roof was pitched and of concrete tiles. Brickwork and roof in generally good condition with no gaps/missing mortar noted on walls. *Internal access to this building was not possible.*	• Missing mortar at SE roof verge approx. 2.5m high • Lifted tiles on N roof pitch.	Low

Building Number	Description	Bat evidence / Potential Roosting Features (PRFs)	Roost Suitability
B6 (Figure G)	Construction as per B5 (see above) with the exception of soffits. B6 lacked soffits and featured overhanging eaves, with timber rafters visible at eaves. Roof was lined with bitumen felt. Mortar at roof verges in good condition, with no missing sections. *Internal access to this building was not possible.*	• Gaps at the eaves between the wall top and the roof may provide potential access to loft void. • Gaps under lifted roof tiles – northern elevation.	Moderate
B7 (Figure H)	Single storey bike shed, solid brick walls. Open-fronted in sections with wire mesh, other sections featured wooden sliding doors. Roof was mono-pitched and of corrugated asbestos fibre panels. No loft void was present.	• Gaps at wall top between brickwork and roof panelling. • Evidence of historic bird nesting inside at wall top. **No evidence of bat activity was identified during the survey.**	Low
B8 (Figure I)	Two storey, brick cavity walls, with brickwork and mortar all in apparently good condition. UPVC soffits all tightly finished, metal window frames and wooden doors and doorframes all tightly finished. Hipped roof of concrete tiles supported by rolled steel joists (RSJ) and concrete frame. Single-skin steel panelled structure on with vents sealed with wire mesh internally. Wooden loading door on northern gable, shuttered with no mesh on behind thus providing potential ingress to roof void. Roof void was light throughout due to presence of vents.	• Gaps in shuttered door on northern gable • Occasional gaps between concrete lintels and brickwork • Missing bricks southern gable for cables provided loft ingress **No evidence of bat activity was identified during the survey.**	Low
B9 (Figure J)	Single storey warehouse with part prefabricated concrete-panelled walls, part corrugated steel-panelled walls. Internally, walls were lined with asbestos panelling. Roof of corrugated steel metal panelling supported by steel frame, no loft void and skylights present, thus interior was brightly lit. UPVC windows, broken window to rear.	• Open windows and gaps around door permits potential internal access. However the interior of the building was bright and did not provide secluded niches and crevices for roosting bats. **No evidence of bat activity was identified during the survey.**	Negligible

Building Number	Description	Bat evidence / Potential Roosting Features (PRFs)	Roost Suitability
B10 Figure K)	Single storey, brick cavity walls with mortar and brickwork in generally good condition. UPVC window and doorframes tightly sealed. Hipped roof with clay tiles. Bonnet tiles present on hip ridges. Soffits absent, overhanging eaves with bitumen felt underlining visible in places. Eaves tightly sealed, no access to loft at wall top. *Internal access was not possible*.	• Multiple gaps present beneath lifted bonnet tiles on western elevation provided potential ingress between roof tiles and underlining/loft.	Moderate
B11 (Figure L)	Single storey brick cavity walls in good condition with no missing mortar or bricks. Wooden framed window frames, tightly finished. Flat roof lined with bitumen felt. Wooden fascias present on all elevations, tightly finished. Concrete lintels present above windows, no gaps present.	• No features permitting internal access. Exterior of building in good condition, no PRFs noted.	Negligible
B12 (Figure M)	Open fronted barn/storage building. Walls part breezeblock, part timber panelled. Roof supported by concrete frame. Roof of corrugated asbestos panelling. Section in centre of building was two-storey, breezeblock walls to the roof. Wooden doors to north and south elevation, gappy around edges. Internally, dark open section with wooden ceiling supported by wooden beams.	• One section in centre with dark open space. Internal access provided by gaps around wooden doors • Gaps inside open barn to SE provided potential internal access. • Extensive evidence of bird nesting (woodpigeon) inside. **No evidence of bat activity was identified during the survey.**	Low
B13 (Figure N)	Open sided barn/storage building. Walls part breezeblock, part single-skin timber panelling with some sections of single-skin corrugated asbestos panelling. Pitched roof of corrugated asbestos panelling supported by concrete frame. *No internal access was possible*	• Wooden hay-loft door on W gable end with MDF panelling and gaps where timber has rotten providing potential crevice. • Gaps where asbestos panelling overlaps top of breezeblock wall.	Low

Building Number	Description	Bat evidence / Potential Roosting Features (PRFs)	Roost Suitability
B14 (Figure O)	Single-storey, prefabricated composite walls with UPVC window and doorframes tightly sealed. Pitched corrugated steel panel roof supported by steel frame.	• Building considered unsuitable for bats due to metal panelled roof which would result in large temperature fluctuations unlikely to be favoured by roosting bats.	Negligible
B15 (Figure P)	Single-storey, brick cavity walls with brickwork and mortar in generally good condition. UPVC windows and doors in good condition, tightly sealed. Hipped roof finished with concrete tiles. Soffits absent, overhanging eaves revealing bitumen felt underlining and roof supported by timber rafters. Bonnet tiles present on hip ridges. *Internal access not possible*.	• Gaps at eaves between wall top and roof provided potential access to loft void – E elevation. • Gaps beneath bonnet tiles on all elevations. • Lifted lead flashing **No evidence of bat activity was identified during the survey.**	Moderate
B16 (Figure Q)	Single storey, open fronted building housing disused refrigeration unit. Solid brick walls, flat roofed lined with bitumen felt. Wooden fascia boarding to north and south walls, tightly sealed.	• Gaps in brickwork beneath fascia at the wall top, S elevation. • Extensive evidence of nesting/roosting woodpigeon.	Low
B17 (Figure R)	Single storey brick building with cavity walls, UPVC window and doorframes tightly sealed. Concrete lintels, brickwork and mortar all in good condition no gaps/crevices. Shallow pitched roof, finished with bitumen felt and UPVC fascias on all aspects. *Internal access to this building was not possible*	• Gaps in brickwork above concrete lintel.	Low
B18 (Figure S)	Two-storey warehouse. Walls partly brick cavity walls, from approximately 2m high, panelled with corrugated steel panelling. Building in good condition with all brickwork and mortar tightly finished. UPVC windows and doors all well-sealed. Roof with a shallow pitch of corrugated steel panelling.	• No viable PRFs for bats identified. *Internal access to this building was not possible.*	Negligible

Building Number	Description	Bat evidence / Potential Roosting Features (PRFs)	Roost Suitability
B19 (Figure T)	Single storey, open-fronted building housing disused refrigeration unit. Solid brick walls with all brickwork and mortar in good condition. Flat roof finished with bitumen felt. Wooden fascias on north, south and east elevations.	• Wooden fascia to rear on E elevation with shallow crevice • Open fronted section housing bins W elevation. Extensive evidence of bird roosting – likely woodpigeon. • Possible cavity above refrigeration unit however likely occupied by woodpigeon. **No evidence of bat activity was identified during the survey.**	Low

Table B. Photographs from bat roost assessment of buildings and trees

Figure A. B1 southwest gable and southeast elevation showing hanging tiles	

Figure B. B1 missing hanging tiles and lifted lead flashing, southeast elevation	
Figure C. B2 view of southwest facing gables, showing hay-loft style door and flat-roofed section connecting the two sections of the building.	
Figure D. B3, south elevation. Porch with PRF indicated by red circle.	

Figure E. B4, west elevation	
Figure F. B5, north-west elevation. Lifted roof tiles and gaps in roof verge mortar indicated	
Figure G. B6, north elevation. Photo showing overhanging eaves with gap at wall top providing potential ingress to loft	

Figure H. B7, east elevation. Gap between roof and wall top indicated	
Figure I. B8, southeast elevations. Red circle indicates door to loft	
Figure J. B9, west elevation	

Figure K. B10, north elevation, lifted bonnet tiles highlighted	
Figure L. B11, north elevation	
Figure M. B12, south elevation. Red outline indicates enclosed section of building with low BRP	

Figure N. B13, west elevation. Red outline indicating door with low BRP	
Figure O. B14, eastern elevation	
Figure P. B15, east elevation. Gaps at eaves and lifted bonnet tiles indicated	

Figure Q. B16, southwest elevation. Fascia with gap indicated.	
Figure R. B17, south elevation. Gaps above lintel indicated	
Figure S. B18, east elevation	

Figure T. B19, west elevation	
Figure U. Tree T1 (PRF circled) photo taken facing southeast	
Figure V. Tree T2 (PRF circled) photo taken facing east	

Appendix 9B Bat Presence Absence Surveys

Table A. Survey Dates – survey conditions available on request.

Building No	Potential	Survey 1	Survey 2	Survey 3
B1	Roost Confirmed	27/07/2022 Dusk	11/08/2022 Dawn	18/08/2022 Dusk
B2	Moderate	28/07/2022 Dawn	10/08/2022 Dusk	N/A
B3	Low	27/07/2022 Dusk	N/A	N/A
B5	Low	03/08/2022 Dusk	N/A	N/A
B6	Moderate	07/07/2022 Dusk	11/08/2022 Dawn	N/A
B7	Low	20/07/2022 Dawn	N/A	N/A
B8	Low	19/07/2022 Dusk	N/A	N/A
B10	Moderate	20/07/2022 Dawn	03/08/2022 Dusk	N/A
B12	Low	07/07/2022 Dusk	N/A	N/A
B13	Low	03/08/2022 Dusk	N/A	N/A
B15	Moderate	08/07/2022 Dawn	18/08/2022 Dusk	N/A
B17	Low	27/07/2022 Dusk	N/A	N/A
B19	Low	27/07/2022 Dusk	N/A	N/A

Survey Results and Conditions – B1

Table A. Survey Conditions – Dusk 27/07/2022

Sunset time:	20:58	Cloud Cover:	8/8	Wind speed:	BF0
Start time:	20:43	Start temp:	19°C	Start humidity:	52%
Finish time:	22:28	Finish temp:	18°C	Finish humidity:	55%

Time	Activity
20:34 – 20:45	No activity
20:45 – 21:00	No activity
21:00 – 21:15	At 21:13 a CP was HNS associated with adjacent treeline to the north.
21:15 – 21:30	**At 21:22 an SP was observed emerging from a gap in lead flashing at the SE aspect of the buildings south gable end . The bat flew north and was observed foraging at the woodland edge to the north for 3 minutes before commuting south.** At 21:24 an NOC was HNS assumed commuting above.
21:30 – 21:45	At 21:31 an SP was observed foraging over the northern aspect of B1 close to boundary trees. At 21:33 an SP was observed commuting from the south to the northern treeline. At 21:36 a CP was observed foraging along the northern treeline. At 21:37 an SP was HNS At 21:43 a CP was seen commuting north to the treeline.

21:45 – 22:00	At 21:56 a CP was seen commuting south.
22:00 – 22:15	At 22:05 a CP was seen foraging along the treeline for several minutes until 22:11. At 22:06 an SP was HNS At 22:08 and 22:11 a CP was observed commuting from the south to the north along the eastern aspect of the building. At 22:15 a CP was HNS
22:15 – 22:28	At 22:18 a CP and SP were HNS At 22:22 a CP was HNS At 22:19 a CP was heard foraging at the south-west aspect. At 22:27 a CP was HNS at the southern aspect, with social calls heard. From 22:27 to 22:30 a CP was observed foraging within the open area to the south of the building.
Key: CP – Common pipistrelle | SP – Soprano pipistrelle | NOC – Noctule | HNS – Heard Not Seen	

A single soprano pipistrelle (*Pipistrellus pygmaeus)* was observed emerging from beneath lifted lead flashing at the south facing gable of building B1. Activity during the survey was dominated by pipistrelle species, with individuals foraging at the treeline to the north of the building. A single pass by a noctule (*Nyctalus noctula)* was observed. Activity was considered to be moderate with over 15 passes by pipistrelle species.

Table B. Survey Conditions – Dawn 11/08/2022

Sunrise time:	05:40	Cloud Cover:	0/8	Wind speed:	BF0
Start time:	04:10	Start temp:	16°C	Start humidity:	67%
Finish time:	05:55	Finish temp:	12°C	Finish humidity:	93%

Time	Activity
04:10 – 04:30	**At 04:11 a CP emerged from lifted lead flashing at the southern gable end and commuted north east to the treeline.** At 04:12 a NOC was HNS. At 04:13 an SP was HNS At 04:24 a CP was HNS At 04:28 a CP was observed commuting from the south east, north west towards the treeline on the eastern aspect of the building.
04:30 – 04:45	At 04:34 a CP commuted west along the adjacent treeline At 04:41 an SP and CP were HNS
04:45 – 05:00	At 04:47 an SP was HNS next to the treeline At 04:52 a CP was HNS next to the treeline At 04:57 a CP was observed foraging along the treeline.
05:00 – 05:15	At 05:05 a CP was observed commuting south west. At 05:11 a CP flew close to the ridge over the building and returned north east, however it was not seen entering the building.
05:15 – 05:30	No activity
05:30 – 05:45	No activity
05:45 – 05:55	No activity
Key: CP – Common pipistrelle | SP – Soprano pipistrelle | NOC – Noctule | HNS – Heard Not Seen	

Table C. Survey Conditions – Dusk 18/08/2022

Sunset time:	20:19	Cloud Cover:	4/8	Wind speed:	BF0
Start time:	20:04	Start temp:	22°C	Start humidity:	62%
Finish time:	21:49	Finish temp:	21°C	Finish humidity:	70%

Time	Activity
20:04 – 20:15	No activity
20:15 - 20:30	No activity
20:30 – 20:45	At 20:42 a CP was HNS
20:45 - 21:00	At 20:45 an SP was observed foraging at the treeline to the north of the building until 20:50. At 20:55 a NOC was HNS At 20:49 a CP was observed commuting west to east along the north-western aspect of the building.
21:00 – 21:15	At 21:00 a CP was observed commuting north east to south west along the north western aspect of the building At 21:01 a CP and SP were HNS At 21:14 a CP was HNS
21:15 – 21:30	At 21:15 a NOC was HNS At 21:16 a pipistrelle species social calling was observed commuting from north to south at the eastern aspect of the building. At21:18 a CP was observed foraging at the southern aspect of B1 until 21:22. At 21:22 a CP was HNS
21:30 - 21:49	At 21:30 a CP was HNS At 21:31 a CP was observed commuting from the south to the north east on the eastern aspect.
Key: CP – Common pipistrelle | SP – Soprano pipistrelle | NOC – Noctule | HNS – Heard Not Seen	

Figure A: Summary of Bat Activity recorded at Building B1

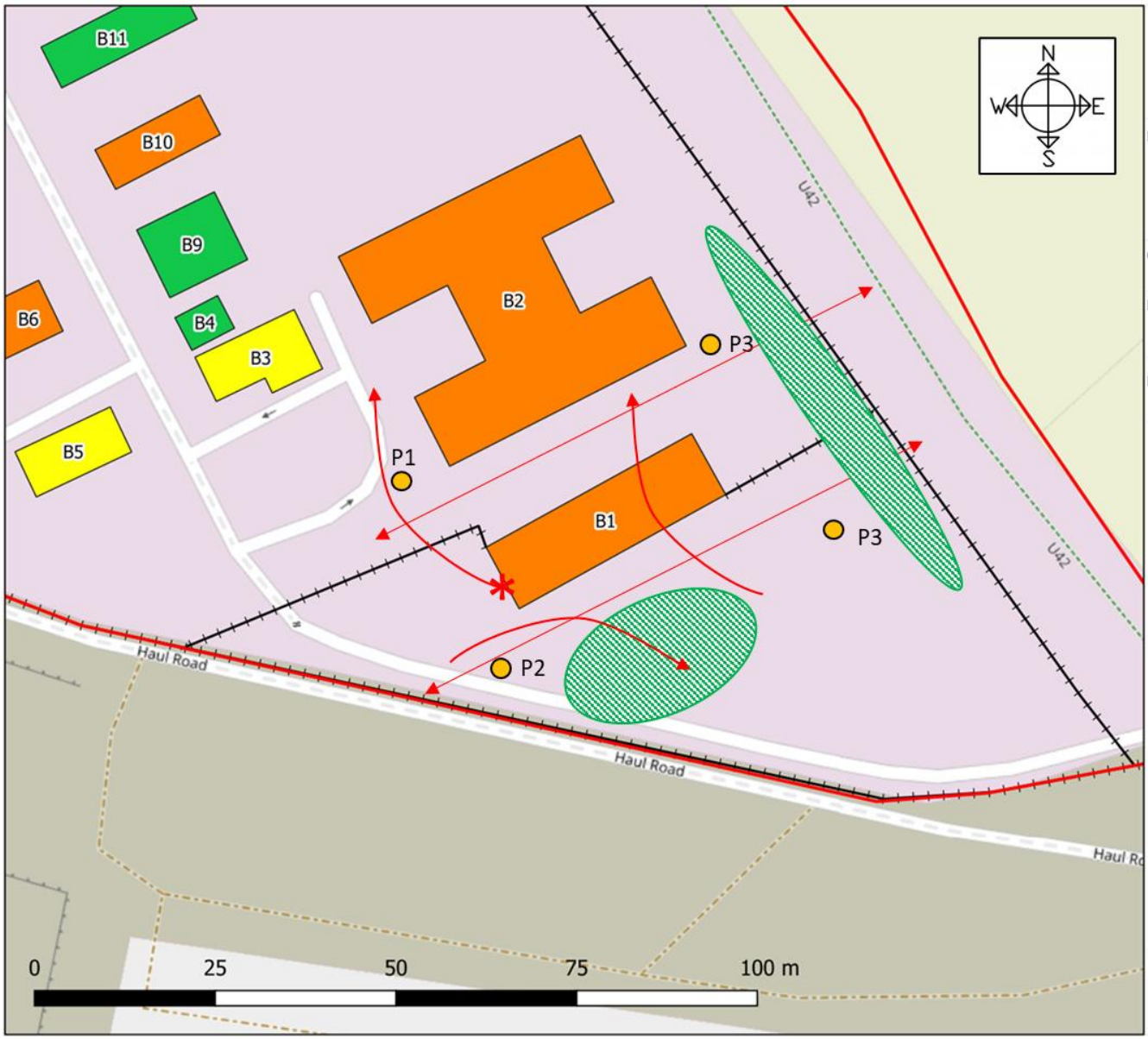


Figure A. Summary of Bat Activity recorded at Building B1	
Key:	
●	Surveyor Position
*	Roost location – x1 common pipistrelle and x1 soprano pipistrelle
→	Commuting Line
⬭	Areas of dominant foraging behaviour

Figure B: Summary of Bat Activity recorded on site during presence absence surveys.

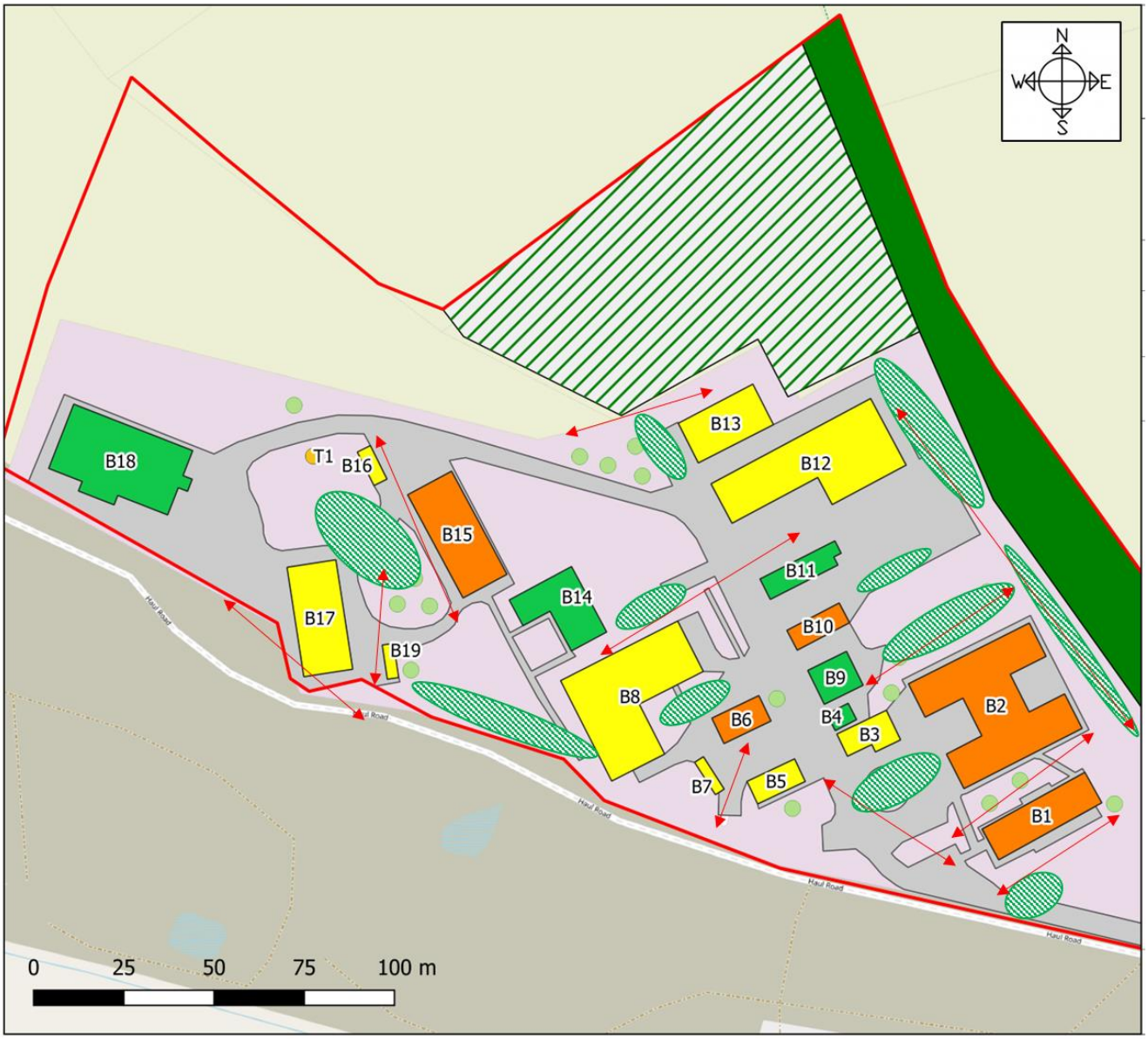


Figure B. Dominant commuting and foraging activity identified during the emergence / re-entry surveys.

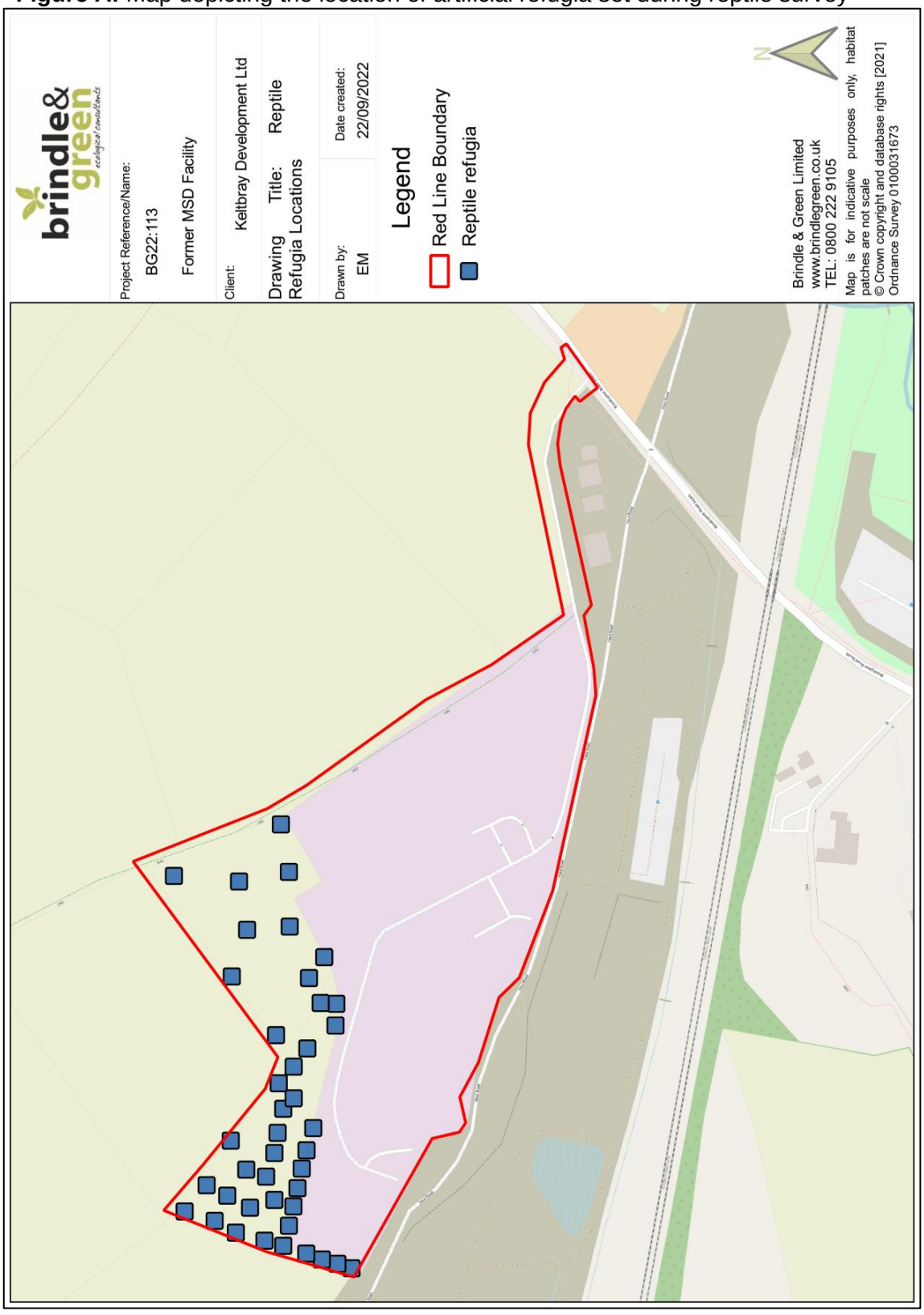
Key:	
	Negligible Suitability Building
	Low Suitability Building
	Moderate Suitability Building
	Dominant Commuting Line
	Areas of dominant foraging behaviour

Figure C: Roost location, Building B1

Figure C. Roost Location, Building B1

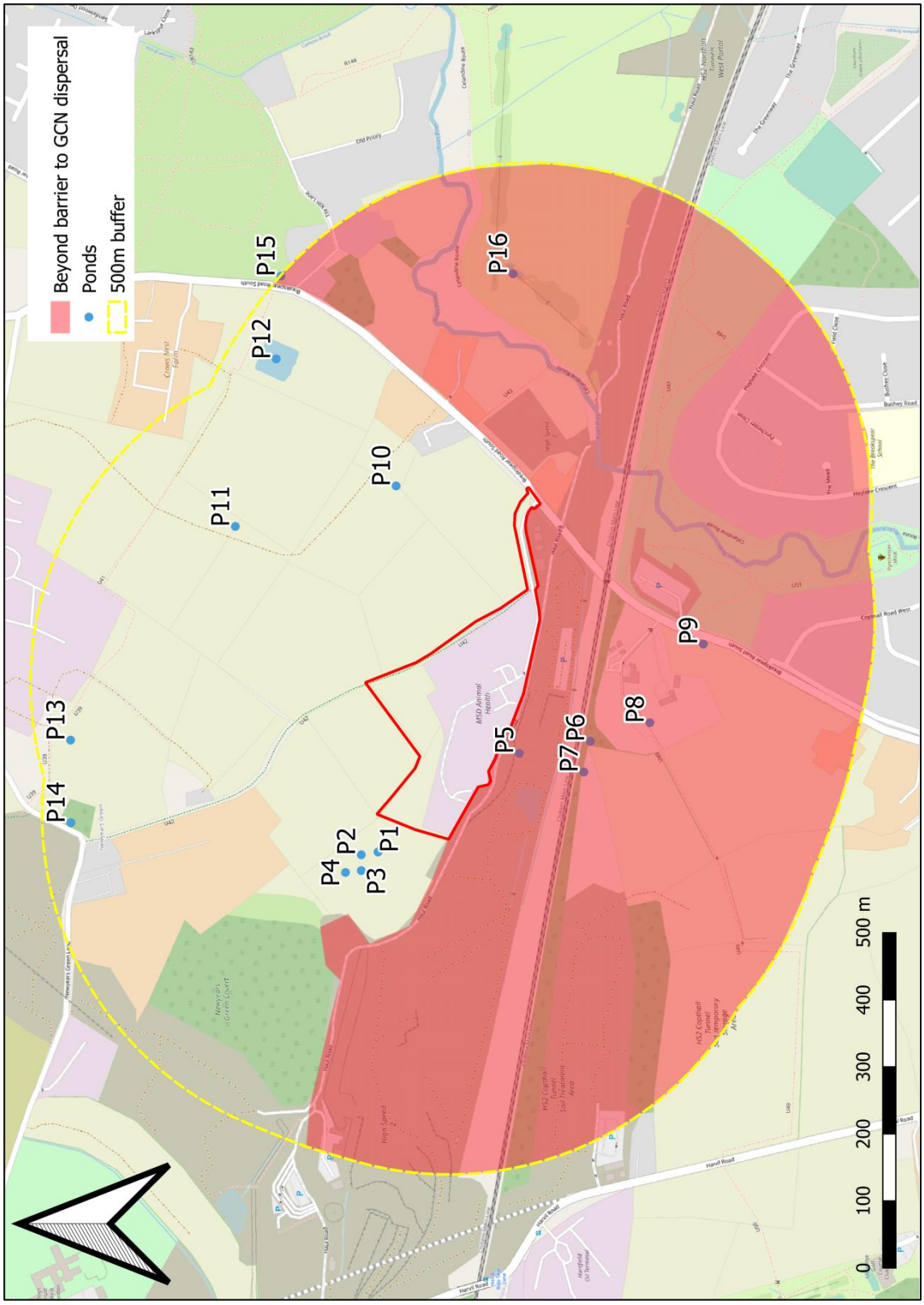
Appendix 9C Reptile Refugia Plan

Figure A: Map depicting the location of artificial refugia set during reptile survey



Appendix 9D Pond Data

Figure A: Map depicting the location of ponds within 500m



Appendix 10. Map of Key Enhancements