Preliminary Ecological Appraisal

Land adjacent Rye road
Hoddesdon
Hertfordshire
EN11 0EG

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This report has been prepared by

PJC Consultancy Ltd

on behalf of

E&J Properties

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EXECUTIVE SUMMARY

PJC Consultancy Ltd was commissioned by E&J Properties to provide a Preliminary Ecological Appraisal for a parcel of land adjacent Rye Road, Hoddesdon, Hertfordshire. The purpose was to classify the habitats present, highlight the potential of the site to support protected species, and recommend suitable ecological enhancements and/or mitigation methods where appropriate. When implemented successfully, these recommendations will ensure that the development proceeds in line with all relevant laws pertaining protected species and their habitats, as well as contributing to an increase in site biodiversity. This report has been produced in accordance with NPPF – more specifically *Chapter* 15 '*Conserving and Enhancing the Natural Environment*' as well as the Borough of Broxbourne Draft Local Plan 2018 – 2033.

Based on current proposals, the results of the Preliminary Ecological Appraisal can be summarised in the following table:

Designated Sites and Protected Species/Habitats	Suitable Habitat Present	Recommended Further Surveys	Avoidance, Mitigation & Compensation Recommendations
Lee Valley SPA and Ramsar and Rye Meads SSSI are situated approximately 40m east of the Site.	These designated sites support internationally important numbers of water birds.	None.	Best practice construction measures including a strict pollution prevention protocol must be adhered to during the demolition and construction phase of the proposed development in order to avoid pollution incidents on the neighbouring designated sites and noise and visual disturbance to water birds residing within the designated sites. Access to sufficient areas of on-site recreational open space and amenity space should be provided and incorporated into the proposed development designs.
Bats (Roosting)	Tree T6 within the north-east corner of the Site was identified as having low potential to support roosting bats.	None.	Tree T6 should be inspected for roosting bats immediately prior to any felling/pruning works commencing. Although unlikely, requirements for further surveys, mitigation, compensation and/or licences may be required for bats depending on the results of this inspection.
Bats (Foraging and Commuting)	The Site, notably the treeline along the eastern Site boundary, was identified as	None.	In the first instance, it is recommended that this treeline be retained as part of the proposed development. A sensitive lighting strategy should

	having suitability to support commuting and foraging bats.		be implemented during both the construction and operational phase of the proposed development.
Reptiles	The Site was identified as having some limited potential to support reptiles providing foraging, commuting, basking and hibernating opportunities	None.	A sensitive habitat clearance strategy should be implemented during the construction phase of the proposed development.
Nesting Birds	The Site was identified as having potential to support nesting birds.	None.	Habitat clearance works should be undertaken outside the main nesting bird season. Should this not be possible, all trees and buildings must be inspected by an ecologist to determine the presence/absence of any nesting birds immediately prior to clearance.

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1 INTRODUCTION

1.1 INSTRUCTION

1.1.1 PJC Consultancy Ltd was commissioned by E&J Properties to provide a preliminary ecological appraisal (PEA) which includes an extended phase 1 habitat survey and a preliminary bat roost assessment (PBRA) of a parcel of land at adjacent Rye Road, Hoddesdon, Hertfordshire, EN11 0EG (hereafter referred to as the 'Site').

1.2 DOCUMENTS AND INFORMATION PROVIDED

1.2.1 An initial PEA report was issued by PJC Ecology in June 2014. This updated PEA report is provided as an update to the initial PEA report. This initial report identified the Site as supporting common and widespread habitats which are overall considered to be of very limited ecological value.

1.3 SURVEY OBJECTIVES

1.3.1 The aim of this PEA is to identify potential ecological constraints and opportunities associated with the Site by undertaking both an extended Phase 1 Habitat survey, ecological desk study and PBRA. The objectives were to:

- Identify the habitat types present on the Site;
- Identify the potential of the Site to support protected and notable habitats and/or species;
- Identify the potential of any trees and buildings within the Site to support roosting bats;
- Highlight known or potential legal or planning policy constraints in relation to ecology and recommend avoidance, mitigation and enhancement measures to satisfy legal and planning policy requirements where appropriate; and
- Identify, where necessary, the requirement for further survey.

1.4 SCOPE OF THIS REPORT

1.4.1 This PEA is only concerned with the habitats and features within the property boundaries of the Site, or in areas that have the potential to be affected by the proposed new development.

1.5 PROPOSAL

1.5.1 The current proposal is for the construction of residential dwellings comprising 13 town houses and 89 flats with associated access and private amenity space and communal green space.

1.6 SITE DESCRIPTION

1.6.1 The Site is situated on the north-eastern boundary of the town of Hoddesdon (OS central grid reference: TL 3843 0989), with mixed-use urban development dominating the landscape to the south and west, and largely wetland and rural habitat to the north and east.

1.6.2 An active railway line is present adjacent the western Site boundary, beyond which lies a small strip of grassland and New River, a canalised waterway, to the west. The River Lee is present adjacent the eastern Site boundary. Rye Road is located along the southern site boundary beyond which is an area of medium density mixed-use urban development. An area of semi-natural, deciduous woodland is situated adjacent the northern Site boundary and extends northwards into scattered scrub, grassland an area of mature trees that form the buffer zone around the River Lee.

1.6.3 The Site itself comprises a thin strip of former industrial land consisting of hardstanding, areas of encroaching scrub. The location of the Site within its environs can be seen in Figure 1 below.

Figure 1: Site Location Plan

1.7 LEGISLATION AND PLANNING POLICY

1.7.1 This PEA has been compiled with reference to relevant wildlife and countryside legislation, planning policy and the UK Biodiversity Framework. Their context and applicability is explained as appropriate in the relevant sections of the report and additional details are presented in Appendix I.

1.7.2 The key articles of relevance are:

- The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations);
- The Wildlife and Countryside Act 1981, as amended (WCA);
- The Countryside and Rights of Way (CRoW) Act 2000;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- National Planning Policy Framework (NPPF) 2018 (Ministry of Housing, Communities and Local Government, 2019);
- The Protection of Badgers Act 1992;
- The UK Post-2010 Biodiversity Framework (2011-2020);
- Borough of Broxbourne Draft Local Plan 2018 – 2033 (Broxbourne Borough, 2017); and
- Broxbourne Local Plan (saved policies) (Broxbourne Borough, 2005).

2 METHODOLOGY

2.1 DESK STUDY

2.1.1 An updated desk study was undertaken in July 2019 with the objective of collating and reviewing existing ecological information, and obtaining data and information held by relevant third parties. Biological records were requested from Hertfordshire Environmental Records Centre, which included records of non-statutory sites designated for nature conservation value and records of legally protected and notable species within the zone of influence.

2.1.2 In addition, datasets from Natural England (MAGIC, 2019) were reviewed to identify the presence of UK statutory designated sites and notable habitats within the zone of influence including woodlands listed on the ancient woodland inventory, habitats of principal importance (HPI) listed on the priority habitat inventory and statutory designated for their nature conservation value at the European and/or international scale namely: special areas of conservation (SACs), special protection areas (SPAs) and internationally designated wetland (Ramsar) sites. These sites collectively are hereafter referred to as 'European Sites'. Where measurements are included with the record, these provide the distance of the designated site from the closest point of the Site.

2.1.3 The zone of influence is the area over which ecological features, such as designated sites of nature conservation importance and protected and notable habitats and species, may be affected by the biophysical changes caused by the proposed development and associated activities. Due to the size of the Site and nature of the proposed development it is considered that a zone of 1km from the centre of the Site is appropriate for the gathering of information for the desk study.

2.2 EXTENDED PHASE 1 HABITAT SURVEY

2.2.1 An extended phase 1 habitat survey was undertaken on the 23rd July 2019 by Thomas Knight BSc(Hons) MSc MCIEEM following the standard 'Phase 1 Habitat survey' auditing method developed by the Joint Nature Conservancy Council (JNCC, 2010) and extended to include consideration of protected species in accordance with good practice guidance for preliminary ecological appraisal (CIEEM, 2017). The Site was surveyed on foot and the existing habitats and land uses were recorded on an appropriately scaled map (Appendix II). In addition, the dominant plant species in each habitat were recorded, as were any evidence of protected and notable species. The potential for the Site to support protected and notable species was also assessed. Those ecological features not classified as a habitat are denoted using a target note.

2.3 PRELIMINARY BAT ROOST ASSESSMENT

2.3.1 All trees within the Site were also subject to a preliminary bat roost assessment (PBRA). The ground inspection of trees was to assess potential roosting features (PRFs) such as those presented in Table 1. The PBRA was undertaken in accordance with best practice survey standards (BCT, 2016).

Table 1: Features of trees commonly used by bats

Features of trees used as bat roosts	Signs indicating possible use by bats
Natural holes. Woodpecker holes. Cracks/splits in major limbs. Loose bark. Hollows/cavities. Dense epicormic growth (bats may roost within it). Bird and bat boxes.	Tiny scratches around entry point. Staining around entry point. Bat droppings in, around or below entrance. Audible squeaking at dusk or in warm weather. Flies around entry point. Distinctive smell of bats. Smoothing of surfaces around cavity

2.3.2 The trees were assessed in accordance with the criteria listed above and assigned to one of five categories as listed in Table 2 below.

Table 2: Categorisation system for visual inspection of structures and trees.

Category	Description
Confirmed roost	Bats discovered roosting within tree or recorded emerging from/entering tree at dusk and/or dawn. Tree found to contain conclusive evidence of occupation by bats, such as bat droppings. A confirmed record (as supplied by an established source such as the local bat group) would also apply to this category.
High potential	A 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.
Moderate potential	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
Low potential	A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Negligible potential	A tree with no features capable of supporting roosting bats.

2.4 SURVEY LIMITATIONS

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

2.4.2 The protected species assessment provides a preliminary view of the likelihood of protected species occurring on Site, based on the suitability of the habitat and any direct evidence on Site. It should not be taken as providing a full and definitive survey of any protected species group. Additional surveys may be recommended if, on the basis of this assessment it is considered reasonably likely that protected species may be present.

2.4.3 The habitats present, and their management are likely to change over time, thus the findings of the Extended Phase 1 Habitat survey are only considered valid for a period of up to two years.

2.4.4 This document has been prepared for the stated proposal (1.5.1) and should not be relied upon or used for any other project without an additional check being carried out by the author as to its suitability in relation to any updated proposals. PJC Consultancy accepts no responsibility or liability for the consequence of this document being used for a purpose other than the purposes for which it was commissioned. PJC Consultancy accepts no responsibility or liability for this document to any party other than the person by whom it was commissioned.

3 RESULTS

3.1 DESK STUDY

Statutory Designated Sites

3.1.1 Two statutory designated site of international nature conservation importance are present within the zone of influence. These are Lee Valley SPA and Ramsar, both located approximately 40m east of the Site.

3.1.2 The Lee Valley SPA and Ramsar comprises embanked water supply reservoirs, sewage treatment lagoons and former gravel pits that support a range of man-made, semi-natural and valley bottom habitats. These wetland habitats support wintering wildfowl, in particular gadwall *Anas Strepera*, shoveler *Anas clypeata* and bittern *Botaurus stellaris* for which it is primarily designated for.

3.1.3 A single statutory designated site of national nature conservation importance is present within the zone of influence. Rye Meads Site of Special Scientific Interest (SSSI) is situated approximately 40m east of the Site. The Rye Meads meadows are the last substantial remnants of ancient flood-meadows on the rich alluvial soils of the Lea Valley. The site supports one of the largest areas of tall fen vegetation in the county and provides a valuable habitat for locally uncommon plants and for birds. This habitat has been reduced in extent significantly, both locally and nationally, by drainage and agricultural improvements, and it is now a rare habitat in Hertfordshire.

3.1.4 The site is important for breeding and wintering birds. In hard weather the lagoons support concentrations of tufted duck *Aythya fuligula*, shoveler and gadwall of national importance. The tall fen areas are used by wintering birds, notably snipe *Gallinago gallinago*, water rail *Rallus aquaticus*, bittern and bearded tit *Panurus biarmicus*, the last three species occurring here at their highest concentrations in the London basin. The lagoons support the region's largest colony of common tern *Sterna hirundo*. The lagoon banks hold a nationally important breeding concentration of tufted ducks.

Non-Statutory Designated Sites

3.1.5 Overall, four non-statutory designated sites of nature conservation importance are present within the zone of influence. These are summarised in Table 3 below.

Table 3: Non-statutory designated sites within the zone of influence

Site Name	Designation	Distance and aspect from Site	Description/reasons for designation
Stanstead Abbots Gravel Pit	Local Wildlife Site (LWS)	710m north	Flooded former gravel pit consisting of a large lake with rough grassland, marshy areas and willow *Salix* spp. scrub/carr. There are extensive fringes of wet grassland, swamp and reed species along the lake margin. The site is good for dragonflies and is also an important bird site for wintering waterfowl, cetti's warbler *Cettia cetti*, water rail and occasional wintering bittern.

Senior's Lake	LWS	600m north	Former gravel pit restored to a large lake which supports extensive emergent marginal stands which grade gradually into the adjacent land. There are remnant reed-swamp/fen areas to the north, some along the south-east side and an extensive area in the west. Water vole *Arvicola amphibius*, common lizard *Lacerta vivipara* and grass snake *Natrix natrix* have been recorded from the site.
Rye House Power Station	LWS	980m south	Former power station site supporting a mosaic of habitats providing diverse wildlife interest. The site includes rough marshy ground, remnant old pasture, fly-ash tips, pools, fen and scrub. Species of note recorded from the site include common spotted-orchid *Dactylorhiza fuchsii*, southern marsh-orchid *Dactylorhiza praetermissa*, early marsh-orchid *Dactylorhiza incarnata,* ragged robin *Lychnis flos-cuculi,* wild angelica *Angelica sylvestris*, tufted hair-grass *Deschampsia cespitosa* and lady's bedstraw *Galium verum*. Great crested newts *Triturus cristatus* have been recorded on the site. The site is important for birds and there are past records for water vole.
Lee Valley North	LWS	800m south-east	The main feature of interest within this complex is the series of lakes, which provide breeding and/or over-wintering grounds for a wide range of wildfowl and other wetland birds. Aquatic habitats also support a diverse population of dragonflies and damselflies, other aquatic invertebrates and water voles. Secondary habitats include areas of scrub and rough grassland, which add to the habitat diversity and help support an equally diverse range of birds, invertebrates and mammals.

Protected and Notable Habitats

3.1.6 No parcels of ancient woodland listed on the ancient woodland inventory were identified within the zone of influence as part of the desk study.

3.1.7 Overall, 76 parcels of HPI listed on the priority habitat inventory were identified within the zone of influence. These habitats included:

- Coastal and floodplain grazing marsh;
- Reedbeds; and
- Deciduous woodland.

3.1.8 The closest parcel of HPI was an extensive area of reedbed located approximately 50m east of the Site, on the opposite side of the River Lee.

Protected and Notable Species

3.1.9 Records of protected and notable species identified within the zone of influence are summarised in Table 4 below. For the purposes of the desk study, only records dated within the last 10 years have been considered.

Table 4: Summary of protected and notable species within the zone of influence

Taxon Name	Common name	Legal Status	No. of Records	Distance of Nearest Record	Date of Most Recent Record
Bats					
Pipistrellus pygmaeus	Soprano pipstrelle	Habitat Regs (2017), W&CA Sch5, NERC S41	1	860m	2013
Other mammal species					
Lutra lutra	European otter	Habitat Regs (2017), W&CA Sch5, NERC S41	5	640m	2018
Arvicola amphibious	Water vole	W&CA Sch5, NERC S41	16	170m	2016
Meles meles	Eurasian badger	Protection of badgers act (1992)	6	Within 1km grid square	2018
Erinaceus europaeus	West European hedgehog	NERC S41	1	890m	2014
Amphibians					
Triturus cristatus	Great crested newt	Habitat Regs (2017), W&CA Sch5, NERC S41	2	Within 1km grid square	2014
Reptiles					
Natrix helvetica	Grass snake	W&CA Sch5, NERC S41	3	510m	2016
Birds (including only protected bird species listed on Schedule 1 (Part 1) of the Wildlife and Countryside Act 1981 (as amended).					
Recurvirostra avosetta	Avocet	W&CA Sch1	2	Within 1km grid square	2016
Tyto alba	Barn Owl	W&CA Sch1	54	Within 1km grid square	2015
Panurus biarmicus	Bearded Tit	W&CA Sch1	21	Within 1km grid square	2016
Cygnus columbianus	Bewick's Swan	W&CA Sch1	1	Within 1km grid square	2014
Botaurus stellaris	Bittern	W&CA Sch1	100	Within 1km grid square	2016
Phoenicurus ochruros	Black Redstart	W&CA Sch1	3	Within 1km grid square	2016
Chlidonias niger	Black Tern	W&CA Sch1	5	Within 1km grid square	2015
Podiceps nigricollis	Black-necked Grebe	W&CA Sch1	142	Within 1km grid square	2015

Limosa limosa	Black-tailed Godwit	W&CA Sch1	58	Within 1km grid square	2016
Fringilla montifringilla	Brambling	W&CA Sch1	56	Within 1km grid square	2016
Cettia cetti	Cetti's Warbler	W&CA Sch1	980	Within 1km grid square	2016
Crex crex	Corncrake	W&CA Sch1	1	Within 1km grid square	2014
Turdus pilaris	Fieldfare	W&CA Sch1	275	Within 1km grid square	2016
Regulus ignicapilla	Firecrest	W&CA Sch1	11	Within 1km grid square	2016
Anas querquedula	Garganey	W&CA Sch1	396	Within 1km grid square	2016
Accipiter gentilis	Goshawk	W&CA Sch1	1	Within 1km grid square	2015
Tringa ochropus	Green Sandpiper	W&CA Sch1	1206	Within 1km grid square	2016
Tringa nebularia	Greenshank	W&CA Sch1	62	Within 1km grid square	2016
Anser anser	Greylag Goose	W&CA Sch1	237	Within 1km grid square	2016
Falco subbuteo	Hobby	W&CA Sch1	298	Within 1km grid square	2016
Alcedo atthis	Kingfisher	W&CA Sch1	925	Within 1km grid square	2016
Hydrocoloeus minutus	Little Gull	W&CA Sch1	6	Within 1km grid square	2015
Charadrius dubius	Little Ringed Plover	W&CA Sch1	262	Within 1km grid square	2016
Circus aeruginosus	Marsh Harrier	W&CA Sch1	104	Within 1km grid square	2016
Larus melanocephalus	Mediterranean Gull	W&CA Sch1	27	Within 1km grid square	2016
Falco columbarius	Merlin	W&CA Sch1	2	Within 1km grid square	2015
Pandion haliaetus	Osprey	W&CA Sch1	28	Within 1km grid square	2016
Falco peregrinus	Peregrine	W&CA Sch1	251	Within 1km grid square	2016
Anas acuta	Pintail	W&CA Sch1	142	Within 1km grid square	2015
Ardea purpurea	Purple Heron	W&CA Sch1	10	Within 1km grid square	2016
Milvus milvus	Red Kite	W&CA Sch1	153	Within 1km grid square	2016
Turdus iliacus	Redwing	W&CA Sch1	414	Within 1km grid square	2016

Calidris pugnax	Ruff	W&CA Sch1	34	Within 1km grid square	2015
Porzana porzana	Spotted Crake	W&CA Sch1	6	Within 1km grid square	2014
Numenius phaeopus	Whimbrel	W&CA Sch1	12	Within 1km grid square	2016
Cygnus cygnus	Whooper Swan	W&CA Sch1	4	Within 1km grid square	2013
Tringa glareola	Wood Sandpiper	W&CA Sch1	30	Within 1km grid square	2016
Invertebrates (including only protected invertebrate species listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).					
None identified.					
Plants (including only protected plant species listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended).					
None identified.					

3.2 EXTENDED PHASE 1 HABITAT SURVEY

3.2.1 Overall the Site comprises predominantly hardstanding with areas of scrub and ruderal vegetation. Habitat descriptions are provided below in accordance with the relevant JNCC phase 1 habitat survey handbook code. The distribution of these are shown in Appendix II, together with Site photographs, which are presented in Appendix III.

3.2.2 **Dense/continuous scrub (A2.1)**

3.2.3 An area of dense scrub habitat was recorded along the eastern Site boundary. Species recorded included mature bramble *Rubus fruticosus* agg, common sorrel *Rumex acetocella*, ragwort *Jacobaea vulgaris*, ivy *Hedera helix* and common nettle *Urtica dioca*.

3.2.4 **Scattered broadleaved trees (A3.1)**

3.2.5 Multiple scattered broadleaved trees were recorded on the western and northern Site boundary. The trees along the northern Site boundary comprised mature sycamore *Acer pseudoplatanus*, hawthorn *Crataegous monogyna* and willow *Salix* spp.

3.2.6 **Hardstanding (J3.6)**

3.2.7 The majority of the Site comprises hardstanding.

3.3 PRELIMINARY BAT ROOST ASSESSMENT

3.3.1 A description of the trees and any potential roosting features (PRF) are detailed in Table 5 below:

Table 5: PBRA results of trees within or immediately adjacent the Site

T6
Description

Mature willow.
Evidence of Bats
None.
Potential Roost Features
Loose bark at base of trunk and deadwood in upper canopy.
Potential to Support Roosting Bats
Low.

4 DISCUSSION AND RECOMMENDATIONS

4.1 STATUTORY DESIGNATED SITES

4.1.1 Two statutory designated site of international nature conservation importance are present within the zone of influence. These are Lee Valley SPA and Ramsar, both located approximately 40m east of the Site. Rye Meadows SSSI is also located approximately 40m east of the Site.

4.1.2 Both sites are primarily designated for the wetland habitats and associated waterfowl populations they support.

4.1.3 The proposed development will claim no land from the designate sites. Furthermore, the development does not isolate or fragment the local landscape, or from significant habitats which are protected. Therefore, no direct impacts on the designated sites for example from habitat loss or fragmentation are anticipated.

4.1.4 With regards to indirect impacts, the proposed development is replacing an industrial/light industrial warehouse with residential development. Therefore, it is considered that there will only be a slight increase in traffic levels as the Site is already operational and therefore there is unlikely to be a change in pollution levels in and around the proposed development site. On this basis, indirect impacts such as increased risk of pollution incidents and increased levels of noise and visual disturbance on the designated site and their qualifying features for designation are not anticipated, providing the mitigation measures relating to birds detailed below, are adhered to and implemented during demolition and construction activities.

4.1.5 A strict pollution prevention protocol must be adhered to during the demolition and construction phase of the proposed development, to ensure that dust and particulate pollution of the surrounding habitats, including the River Lee, New River and those habitats within the designated sites, is avoided. In practice it is likely that a Construction and Environmental Management Plan (CEMP) (or similar) will be prepared prior to any works to set out how the risk of pollution incidents will be reduced or avoided. It is recommended that this makes reference to established good practice guidance. The Environment Agency no longer provides good practice guidance (www.gov.uk) although a range of documents are available via the national archives. Given that construction works will be undertaken in close proximity to a main river, the Environment Agency should be consulted, and permission sought prior to any works commencing.

4.1.6 Other best practice construction measures which must be adhered to during the demolition and construction phase of the proposed development, to ensure that indirect disturbance of wetland birds within the designated sites is avoided, include:

- Avoidance of unnecessary revving of engines and switch off equipment when not required;
- Plant and vehicles should be properly maintained to meet the manufacturers' noise rating levels. Any silencers or bearings which become defective would be replaced as soon as possible;
- Use enclosures for noisy plant such as pumps or generators;

- Minimise the use of particularly noisy plant or vehicles where practicable; and
- Erect visual barriers such as hoarding between the construction site and areas known to be used by foraging or loafing waterbirds.

4.1.7 Other indirect impacts associated with residential developments, notably increased recreational pressure, should also be considered in terms of their effects on the integrity of the Lee Valley SPA and Ramsar and Rye Meadows SSSI.

4.1.8 Given the size of the Site and scale of the proposed development, a significant increase in the recreational use of Lee Valley SPA and Ramsar and Rye Meadows SSSI as a result of the proposed development is considered highly unlikely. Furthermore, opportunities for local recreation in the area are not limited to Lee Valley SPA and Ramsar and Rye Meadows SSSI as there are a large number of public open spaces including parks and gardens which can be easily accessed from the Site.

4.1.9 In addition to this, it is recommended that access to sufficient on-site recreational open space and amenity space to meet the day to day needs of residents be provided and incorporated into the proposed development designs.

4.1.10 Given the above and providing sufficient on-site recreational open space and amenity space is provided, further Habitat Regulations Assessment, including an 'appropriate assessment' is not considered necessary. However, given the close proximity of the Site to Lee Valley SPA and Ramsar and Rye Meadows SSSI, the Local Planning Authority may seek advice from Natural England, who will assess the likely impacts of the proposals on all relevant designated sites within the zone of influence.

4.2 NON-STATUTORY DESIGNATED SITES

4.2.1 Overall, four non-statutory designated sites of nature conservation importance are present within the zone of influence, the nearest being Senior's Lake LWS situated 600m north of the Site.

4.2.2 However, given the distance between the Site and the identified non-statutory designated sites, and the size of the Site and nature of the proposed development, adverse effects upon the non-statutory designated sites and their qualifying criteria for designation are not considered likely. Non-statutory designated sites are therefore not considered an ecological constraint and are not considered further in this report.

4.3 PROTECTED AND NOTABLE HABITATS

4.3.1 No parcels of ancient woodland listed on the ancient woodland inventory are present within the zone of influence.

4.3.2 Overall, 76 parcels of HPI listed on the priority habitat inventory are present within the zone of influence, the nearest being an extensive area of reedbed located approximately 50m east of the Site.

4.3.3 Given the distance between the Site and the nearest parcel of HPI and given the size of the Site and nature of the proposed development, adverse effects upon these protected and

notable habitats are not considered likely. Protected and notable habitats are therefore not considered an ecological constraint and are not considered further in this report.

4.4 PROTECTED AND NOTABLE SPECIES

4.4.1 The Site provides some opportunity for protected and notable species. The suitability of habitat on Site to support species is considered below.

Bats

4.4.2 All bats are European protected species (EPS) and both individual animals and their roosts are afforded protection under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act, 1981 (as amended). Certain bat species are also listed as Species of Principal Importance (SPI) under the NERC Act 2006.

4.4.3 A single record comprising a soprano pipistrelle in flight was identified within the zone of influence, approximately 860m from the Site.

4.4.4 As part of the PBRA, tree T6 (see Arboricultural Impact Assessment (Open Spaces, 2019) located within the north-east corner of the Site was identified as exhibiting features with potential to support roosting bats (i.e. loose bark and deadwood). Tree T6 was identified as having low suitability to support roosting bats.

4.4.5 It should be noted that the PBRA was undertaken from the ground and therefore it was not possible to accurately determine the characteristics of the feature, for example the depth of the feature within the tree. The above classification therefore follows a precautionary approach using professional judgement.

4.4.6 Tree T6 requires felling; therefore, the proposed development could result in the damage or destruction of a potential bat roost site.

4.4.7 No further surveys are considered necessary on tree T6. However, as a precaution it is recommended that an inspection of tree T6 be undertaken immediately prior to felling to determine whether bats are roosting within the tree, which can be undertaken by the tree surgery contractor under the instruction and supervision of a suitably licenced ecologist.

4.4.8 Other precautionary mitigation measures to be implemented may include soft-felling sections of the tree that contain potential roost features. This involves gradually sectioning the trunk and/or limbs and lowering sections to the ground by hand or by using ropes. As a further precaution, the felling/pruning of the tree should be undertaken outside the core hibernation period (between mid-November and February).

4.4.9 It should be noted that in the highly unlikely event that a bat roost or roosts be found, a European protected species licence (EPSL) may be required to permit works that would potentially cause disturbance. An EPSL for development are issued by Natural England under Regulation 53(2)(e) of The Conservation of Habitats and Species Regulations (2017). This application process can take up to six weeks.

4.4.10 The Site was considered to provide suitable commuting and foraging habitat for bats primarily along the treeline along the eastern Site boundary. However, this ecological

feature is not considered to function as an important corridor for bats given the existing mature treeline along the eastern embankment of the River Lee which is connected to a complex network of suitable bat foraging and commuting habitats within the Lee Valley SPA and Ramsar and Rye Meads SSSI located to the east of the River Lee.

4.4.11 In the first instance, it is recommended that this treeline be retained as part of the proposed development. However, should this not be possible, the removal of this treeline is not anticipated to adversely impact the function of the River Lee as a potentially important corridor for bats.

4.4.12 The proposed development is therefore considered unlikely to result in the loss or degradation of bat foraging and commuting habitat or sever important commuting routes and obstruct access between potential bat roosts and important foraging habitats, providing the mitigation measures in relation to lighting described below are implemented during the construction and operational phase of the proposed development.

4.4.13 It is recommended that any new artificial lighting associated with the proposed development aims to:

- Use minimum light levels necessary. For example, there should be times throughout the evening (when bats are most active) when all outdoor security lights are unlit to avoid affecting bat activity. Lighting can also be installed using a timer or movement sensor to avoid long periods of an area being lit at night. This is particularly important for any lighting required on the eastern aspect of the proposed development as illumination of the River Lee must be avoided;

- Lighting should be a warm white spectrum and feature peak wavelengths higher than 550nm to lower the range of species affected by lighting. Using LED luminaires where possible and avoid luminaires with UV elements, specifically avoiding metal halide and fluorescent sources (Institute of Lighting Professionals, 2018); and

- Internal luminaries can be recessed where installed in proximity to windows to reduce glare (Institute of Lighting Professionals, 2018) and light spill and use hoods, louvres or other similar design features to avoid light spill and direct light away from the River Lee and mature treeline along its eastern embankment.

Hazel Dormice

4.4.14 Hazel dormice *Muscardinus avellanarius* are EPS and are afforded protection under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act, 1981 (as amended). Dormice are also listed as SPI under the NERC Act 2006.

4.4.15 The treeline along the eastern Site boundary was considered to provide some shelter and foraging opportunities to dormice although the suitability of these habitats to support dormice is limited when considering the isolation of the Site between a network of significant watercourses and a railway line and absence of preferred floral species (such as hazel *Corylus avellana* and honeysuckle *Lonicera periclymenum*).

4.4.16 On this basis and given the absence of dormouse records identified within the zone of influence as part of the desks study, dormice are considered highly likely absent from the Site and are therefore not considered an ecological constraint and are not considered further in this report.

Great Crested Newts and other Amphibians

4.4.17 Great crested newts (GCN) are EPS and are afforded protection under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act, 1981 (as amended). GCN and common toad *Bufo bufo* are also listed as SPI under the NERC Act 2006.

4.4.18 No waterbodies were identified within the Site. Two waterbodies were identified within a 250m radius of the Site. This included the River Lee immediately east of the Site and New River immediately west of the Site. The River Lee and New River provided a regular and fast flow of water and was therefore considered unsuitable for breeding GCN. In addition, the canalised banks also likely act as significant barrier to GCN dispersal to the Site.

4.4.19 On this basis, and despite the presence of GCN records within the zone of influence, GCN are considered likely absent from the Site during both their aquatic and terrestrial lifecycle phases. The proposed development is therefore considered highly unlikely to result in the death or injury, or disturbance to GCN or result in the damage or destruction of a GCN breeding site or resting place given the absence of both suitable aquatic and terrestrial habitat within the Site and GCN records identified as part of the desk study. On this basis, GCN are not considered an ecological constraint and are not considered further in this report.

Reptiles

4.4.20 Native, widespread reptile species (common or viviparous lizard *Zootoca vivipara*, adder *Vipera berus*, grass snake and slow worm *Anguis fragilis*) are protected under Schedule 5 of The Wildlife and Countryside Act 1981 (as amended), making it an offence to kill or injure individual animals. All widespread reptile species are also listed as SPI under the NERC Act 2006.

4.4.21 Overall the majority of the Site comprised hardstanding which was considered to provide negligible commuting, basking, and foraging and hibernation opportunities for reptiles. However, the treeline along the eastern Site boundary which was positioned above a raised earth bank and exhibited an understorey of scrub and ruderal vegetation was considered to provide some foraging, commuting, basking and hibernation opportunities to reptiles.

4.4.22 However, providing the avoidance and mitigation measures detailed below are adhered to, the proposed development is considered unlikely to result in the death or injury of any reptiles present within the Site.

4.4.23 It is recommended that clearance of the vegetation along the raised earth bund along the eastern Site boundary be undertaken using a sensitive vegetation clearance approach whereby a two phased cut is undertaken, firstly reducing the vegetation to 150mm above ground level, and then after a 24hr period, reducing the vegetation to ground level. Vegetation clearance should be undertaken in a south to north direction, making these areas unsuitable for reptiles. This will encourage them to disperse into retained semi-natural habitats immediately north of the Site along either the railway corridor and/or woodland to the north. The timing of these works should coincide with reptiles being active (generally in dry, warm weather and greater than 9°C air temperature).

4.4.24 As a further precaution, any excavation works to the raised earth bund that would impact upon potential reptile hibernation features should be carried out outside the reptile hibernation season (i.e. between April – November inclusive) when reptiles are considered active (generally greater than 9°C air temperature).

Birds

4.4.25 All birds, their nests and eggs are protected from killing and injury of individuals, damage and destruction of nests and destruction of eggs under the Wildlife and Countryside Act 1981 (as amended). Species listed in Schedule 1 (Part 1) of the Act are also protected from disturbance whilst nesting or whilst with dependent young, by special penalties. Many bird species are also listed as SPI under the NERC Act 2006.

4.4.26 A large number of bird species listed on Schedule 1 (Part 1) of the Wildlife and Countryside Act 1981 (as amended) were identified within the zone of influence. Many other notable bird species listed as SPIs were also identified within the zone of influence. The majority of these records are waterfowl species which are likely associated with the Lee Valley SPA and Ramsar and Rye Meadows SSSI located to the east of the River Lee.

4.4.27 The Site supported trees and scrub, which were considered to provide good nesting and foraging opportunities to a wide range of common bird species.

4.4.28 Works associated with any proposed development of the Site, for example habitat clearance, could therefore result in direct adverse impacts on nesting birds. On this basis nesting birds are therefore considered a potential ecological constraint. In order to comply with legislation protecting nesting birds the mitigation measures detailed below should be adhered to.

4.4.29 It is recommended that habitat clearance works be undertaken outside the main nesting bird season. The nesting bird season for most British bird species is between March and August (inclusive).

4.4.30 Should this not be possible, all suitable nesting habitat must be inspected by an ecologist to determine the presence/absence of any nesting birds prior to clearance. In the event of an active nest being identified, a temporary exclusion zone would need to be placed around the nest and development paused until the dependent young have fledged which may be several weeks. The ecologist will determine safe working distances and the distances will be dependent upon the bird species present.

4.4.31 The permanent loss of suitable foraging and nesting habitat for birds should be compensated for by incorporating new suitable foraging and nesting habitat into the landscape designs. Habitat creation examples including planting a variety of native fruit and nut bearing tree and shrub species such as birch *Betula* spp., holly, rowan *Sorbus aucuparia,* elder *Sambucus nigra* and crab apple *Malus sylvestris*.

4.4.32 Artificial bird nest boxes should also be installed onto any retained trees along the site boundaries and onto proposed buildings within the Site. Given their designation as SPI, particular consideration should be given to the installation of starling (i.e. Schwegler 3S or similar) nest boxes, swift nest boxes (i.e. Schwegler 1, 17 or similar) and/or general bird nest boxes used by house sparrow (i.e. Schwegler 1B, 2HW, 2GR or similar).

Badgers

4.4.33 Badgers and their setts are protected under The Badger Act (1992).

4.4.34 No evidence of badger field signs (for example hairs, latrines, dung pits, snuffle holes, mammal paths or scratching posts) or setts were recorded within the Site.

4.4.35 Habitats throughout the Site were considered to provide very limited sett building and foraging and commuting opportunities for badgers given the flat topography, isolation of the Site with limited connectivity to other parcels of semi-natural habitat (i.e. large woodland blocks) within the wider landscape.

4.4.36 On this basis, the proposed development is considered highly unlikely to result in the damage or destruction of a sett, or obstructing access to a sett, and disturbance to a badger whilst it is occupying a sett. Badgers are therefore not considered an ecological constraint and are not considered further in this report.

Other Mammal Species

4.4.37 Water voles and their places of shelter are protected under the Wildlife and Countryside Act, 1981 (as amended) which makes it an offence to kill, injure or take any water vole, damage, destroy or obstruct access to any place of shelter or protection that the animals are using, or disturb voles while they are using such a place.

4.4.38 Otters are protected under the Conservation of Habitats and Species Regulations (2017) as amended and under the Wildlife and Countryside Act, 1981 (as amended) which makes it an offence to kill, injure or capture an otter, intentionally or recklessly disturb otters; or to

damage, destroy or intentionally or recklessly obstruct access to a holt or other resting places. Both water voles and otters are also listed as SPI under the NERC Act 2006.

4.4.39 Multiple water vole and otter records were identified within the zone of influence indicating they are likely present across suitable aquatic and terrestrial habitat within the wider landscape.

4.4.40 The Site was identified as having negligible potential to support otter and water vole given the absence of suitable aquatic, riparian and terrestrial habitat and absence of potential holt features and likely levels of disturbance associated with the Site being used as a car parking/storage area.

4.4.41 The River Lee and New River are located immediately east and west of the Site respectively. Given the presence of otter and water records within the zone of influence, otters and water voles are considered potentially present within these two watercourses. The watercourses are considered limited to providing only potential foraging and commuting opportunities for otters. It should be noted that New River is separated from the River Lee by a busy railway corridor and the Site which comprises predominantly hardstanding. Therefore, otters are considered highly unlikely to use the Site whilst moving between the River Lee and New River.

4.4.42 Overall the proposed development is considered unlikely to result in the loss or degradation of otter and water vole foraging and commuting habitat including their places of shelter or severance of important commuting routes and obstruction of access between an otter holt or other resting place and important foraging habitats providing the sensitive lighting strategy and pollution prevention mitigation measures previously mentioned above are adhered to.

4.4.43 The European hedgehog is classified as an SPI under the NERC Act 2006. Therefore, the presence of this species on site would be a material consideration in the planning process.

4.4.44 Multiple European hedgehog records were identified within the zone of influence indicating that they are very likely present within the wider landscape.

4.4.45 The Site supported suitable semi-natural habitat for hedgehogs. On this basis the Site was identified as having high potential to support European hedgehogs. However, the proposed development is considered unlikely to result in impacts on European hedgehogs given the size and nature of the Site and presence of other suitable habitat within the wider surroundings and providing mitigation measures detailed below are adhered to.

4.4.46 Hedgehogs should be specifically watched for during the removal of features considered to provide potential sheltering habitat (i.e. dense scrub and brash piles). If any hedgehogs are found, they should be carefully moved to retained areas of vegetation outside of the Site.

4.4.47 Furthermore, any new boundaries required as part of the proposed development should be permeable to hedgehogs in order to main habitat connectivity across the Site and wider surroundings. This can be achieved by creating ground-level boundary holes (approximately 13cm x 13cm) which should link as many neighbouring land parcels as possible.

Invertebrates

4.4.48 A number of invertebrate species such as stag beetles *Lucanus cervus* are afforded protection under the Conservation of Habitats and Species Regulations 2017 (as amended) and under Schedule 5 of the Wildlife and Countryside Act, 1981 (as amended). Many invertebrate species including the stag beetle are also listed as SPI under the NERC Act 2006.

4.4.49 Overall the Site was considered to provide very limited opportunities for protected and notable invertebrate species given the Site comprised predominantly hardstanding and given the absence of invertebrate microhabitats such as woodland edge, herb-rich grassland habitats and deadwood. Protected and notable invertebrate species are therefore not considered an ecological constraint and are not considered further in this report.

Plants

4.4.50 Wild plants are protected under the Wildlife and Countryside Act 1981 (as amended) which prohibits the unauthorised intentional uprooting of any wild plant species and forbids any picking, uprooting or destruction of plants listed on Schedule 8 of which there are over 150 species. In addition, nine plant species are afforded protection under the Conservation of Habitats and Species Regulations 2017 (as amended). Many plant species are also listed as SPI under the NERC Act 2006.

4.4.51 The habitats on Site were common and widespread and therefore provided limited potential to support protected and notable and rare plant species.

4.4.52 Section 14(1) of the Wildlife and Countryside Act 1981 (as amended) makes it illegal to plant or otherwise cause to grow in the wild any plant listed in Schedule 9 of the Act including Japanese knotweed *Fallopia japonica*.

4.4.53 No Schedule 9 non-native invasive plant species were recorded within the Site.

4.4.54 On this basis, protected and notable plants including non-native invasive plant species are not considered an ecological constraint and are not considered further in this report.

4.5 ECOLOGICAL ENHANCEMENTS

4.5.1 Under Section 40 of the NERC Act 2006 there is a duty to have regard to biodiversity conservation. In addition, the National Planning Policy Framework and the Broxbourne Draft Local Plan 2018 – 2033 encourages ecological enhancement to be integrated into development projects in order to achieve an overall net-gain in biodiversity.

4.5.2 In the first instance consideration should be given to the installation and maintenance of artificial bat bricks or bat tubes (i.e. Schwegler 1FR and 2FR bat tubes and Schwegler 1GS bat brick or similar) into any new buildings and installation of bat boxes (i.e. Schwegler 2FN or similar) on to suitable retained trees within the land ownership boundary to increase the roosting opportunities for bats within the Site. Any artificial roosting features should be placed between 3m and 6m above ground in a variety of locations at slightly different heights and preferably positioned facing a southerly or southeasterly direction.

4.5.3 It is recommended that areas be set aside for ecological landscaping to develop the green infrastructure across the Site and to increase the biodiversity value of the Site. All enhancement measures detailed below would benefit a wide variety of protected and notable species such as bats, reptiles and many bird species.

4.5.4 It is recommended that a hedgerow along the western Site boundary be created. Approximately five woody plants should be planted per metre of hedgerow, in double staggered rows. The hedgerow should be managed on an annual rotation, whereby half of each hedgerow is cut in any one year. This will encourage a diverse structure to produce both a wide and dense hedgerow. Woody species planted could include the following species:

- Yew *Taxus baccatta*;
- Oak *Quercus* sp;
- Hazel;
- Field maple *Acer campestre*;
- Holly *Ilex aquifolium*; and
- Crab apple *Malus sylvestris*.

4.5.5 The creation of a hedgerow along the western Site boundary would improve the ecological connectivity across the Site and also enhance the adjacent railway corridors function as a potentially important wildlife corridor within the landscape.

4.5.6 It is also recommended that standard trees be planted across the Site, particularly along the eastern Site boundary. All planted trees should be native and sourced from local provenance. The planting of trees, particularly along the eastern Site boundary along the rivers edge, would improve ecological connectivity across the Site and also enhance the River Lee's existing function as a potentially important wildlife corridor within the landscape.

4.5.7 Consideration should also be given to planting areas of meadow grassland within the Site. These areas could provide additional foraging and shelter opportunities for a wide variety of invertebrates, reptiles, amphibians and bird and bat species. Plant species to be included within the wildflower seed mix should be appropriate for the Site and wider area. A wildflower seed mixture (i.e. meadow grass mixture) should be sown on the site in March, April or September. Once established, the grassland should be maintained via annual seed cutting in the autumn, following seed setting and use of pesticides, fertilizers or other chemicals, avoided.

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6 APPENDICES

APPENDIX I: LEGISLATION AND PLANNING POLICY

Legislation

The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (which consolidate and update the Conservation of Habitats and Species Regulations 2017) is the UK transposition of the European Council Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, 1992, or the 'Habitats Directive'. The directive provides protection of key habitats and species of European importance. Those key habitats and species are listed in Annexes II and IV of the directive.

Those species protected under the regulations and most likely encountered during development include:

- All bat species
- Hazel dormouse
- Great crested newt
- Common otter

The Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended) is the primary legislation for the protection of wildlife in Great Britain. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Natural Habitats and Wild Fauna and Flora (92/43/FFC) are implemented in Great Britain. All breeding birds, their nests, eggs and young are protected under the Act, which makes it illegal to knowingly destroy or disturb the nest site during nesting season. Schedules 1, 5 and 8 afford protection to individual birds, other animals and plants respectively. The Countryside and Rights of Way (CRoW) Act 2000 makes it an offence to 'recklessly' disturb a protected animal whilst it is using a place of rest or shelter or breeding/nest site

Those species protected under the act and most likely encountered during development include:

- All bat species
- All nesting birds
- Hazel dormouse
- Great crested newt
- Common otter
- Water vole
- All native reptile species
- White-clawed crayfish

The Protection of Badgers Act 1992

The Protection of Badgers Act 1992 consolidates and strengthens previous legislation (including the Badgers (Further Protection) Act 1991). Under the act, it is an offence to:

- Wilfully kill, injure or take a badger (or attempt to do so).
- Cruelly ill-treat a badger.

- Dig for a badger.
- Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it.
- Cause a dog to enter a badger sett.
- Disturb a badger when it is occupying a sett.

The Natural Environment and Rural Communities Act (NERC) 2006

Section 40 of the Act requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'. Section 41 of the Act provides a list of habitats and species, which are of 'principal importance for the conservation of biodiversity.' This list aids decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications.

Hedgerows Regulations 1997

These regulations were produced to protect important countryside hedges from removal. The regulations only cover hedgerows that are at least 20m long or, if shorter, connected to other hedgerows at both ends or part of a longer hedgerow. They must be in or adjacent to common land, village greens, site of special scientific interest, local nature reserves, or land used for agriculture, forestry or breeding or keeping of horses, ponies or donkeys.

Wild Mammals (Protection) Act 1996

All wild mammals are protected against intentional acts of cruelty under the above legislation. This makes it an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

This legislation is of relevance when undertaking works with potential to affect wild mammals e.g. works near burrows, warrens or dens, regardless of other legislative protection.

Species and Habitat Specific Legislation

Plants

Wild plants are protected under Section 13 of the Wildlife and Countryside Act 1981 (as amended). It prohibits the unauthorised intentional uprooting of any wild plant species and forbids any picking, uprooting or destruction of plants listed on Schedule 8 of which there are over 150.

The Conservation of Habitats and Species Regulations 2017 (as amended) have nine plants listed within Annex IV these are; creeping marshwort *Apium repens*, early gentian *Gentianella anglica*, fen orchid *Liparis loeselii*, floating-leaved water plantain *Luronium natans*, killarney fern *Trichomanes speciosum*, lady's slipper *Cypripedium calceolus*, shore dock *Rumex rupestris*, slender naiad *Najas flexilis*, and yellow marsh saxifrage *Saxifraga hirculus*. It is an offence to deliberately pick, collect cut, uproot or destroy any protected plant, or keep, transport, sell, or exchange, any live or dead such plant species, this applies to all stages of its life cycle.

Invasive Species

Schedule 9, Section 14 of the Wildlife and Countryside Act (1981, as amended) prohibits the introduction into the wild of any species that is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state, or any species of the 69 plants listed on Schedule 9.

The frequently encountered invasive species within proposed development sites include floating pennywort *Hydrocotyle ranunculoides*, giant hogweed *Heracleum mantegazzianum*, Himalayan balsam *Impatiens glandulifera*, Japanese knotweed *Fallopia japonica*, New Zealand *pygmyweed Crassula helmsi*, rhododendron *Rhododendron ponticum* and certain hybrids of the above, some species may be native yet are listed for conservation purposes.

Plant or soil material contaminated by Japanese knotweed that is to be discarded is considered to be a 'controlled waste' under the Environmental Protection Act 1990 (EPA 1990). It is an offence to deposit, treat, keep, or dispose of controlled waste without a licence. Furthermore knotweed that has been cut down and removed must be received by an authorised person to be disposed of correctly. A licence can be obtained from the Environment Agency (EA). The release or planting of a listed species in the wild can be permitted under a licence granted by the relevant statutory body.

Invertebrates

A number of invertebrates such as silver studded blue butterfly *Plebejus argus*, stag beetles *Lucanus cervus* and white letter hairstreak *Stymondia w-album* are fully protected under Schedule 5 of the Wildlife and Countryside Act (1981, as amended). This legislation makes it illegal to intentionally kill, injure, or take a protected invertebrate, or to damage, destroy, or obstruct access to any structure or place used for shelter or protection by such a species; and disturb any protected species occupying such a structure or place.

Three invertebrates are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2017, fisher's estuarine moth *Gortyna borelii lunata*, the large blue butterfly *Maculinea arion* and lesser whirlpool ram's-horn snail *Anisus vorticulus*. It is an offence deliberately to kill, capture, or disturb a listed species, or to damage or destroy the breeding site or resting place of such an animal.

Amphibians

There are four widespread amphibian species, common frog *Rana temporaria*, common toad *Bufo bufo*, palmate newt *Lissotriton helveticus* and smooth newt *Lissotriton vulgaris*. All of the four widespread species receive partial protection under Schedule 5 of the Wildlife and Countryside Act (1981, as amended) making it an offence to offer them for sale or trade.

Great crested newts *Triturus cristatus* and natterjack toads *Epidalea calamita* are fully protected under Schedule 5 (in respect of section 9(4)(b) and (c) and (5) only) of the Wildlife and Countryside Act (1981, as amended) and the Conservation of Habitats and Species Regulations 2017. Reintroduced populations of 'native' pool frogs *Pelophylax lessonae* also receive the same protection. It is illegal to possess a protected species (alive or dead), deliberately capture, injure or kill, to intentionally or recklessly disturb, or to deliberately take or destroy the eggs of these protected species. It is also illegal to

damage, destroy or intentionally or recklessly obstruct access to breeding or resting place used by these protected species'. All life stages of each species' are afforded the same level of protection.

In order to undertake any activity, which would, otherwise result in any of the above offences being committed, it may be necessary to obtain a European Protected Species (EPS) licence from the relevant statutory body (Natural England (NE), Countryside Council for Wales (CCW) or Scottish natural Heritage (SNH)). It is possible to undertake surveys which would otherwise involve unlawful acts, such as disturbance, by obtaining a survey license which provides authorisation for scientific and educational purposes

Reptiles

The four common reptile species, adder *Vipera berus*, grass snake *Natrix helvatica*, common lizard *Zootoca vivipara* and slow worm *Anguis fragilis* are protected under Schedule 5 of the Wildlife and Countryside Act (1981, as amended) against deliberate and/or intentional killing, injuring and trade.

If common reptile species are found to be present or considered potentially present within a proposed development site. To ensure that no subsequent offence will be committed a precautionary method of working (written by a suitably qualified ecologist) and submitted to the relevant authority may be required to enable works to proceed with limited risks of offences being caused.

Birds

All birds, their nests and eggs are protected by the Wildlife and Countryside Act (1981, as amended). It is an offence to intentionally kill, injure, or take any wild bird, or take or destroy an egg of any wild bird. It is also an offence to damage or destroy the nest of any wild bird (whilst being built, or in use). Therefore, clearance of vegetation within the site boundary, or immediately adjacent to the site during the nesting season could result in an offence occurring under the Act. The bird breeding season can be taken to run between the 1 February and 31 August and is subject to geographical and seasonal factors. There are 79 species of birds listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Barn owls *Tyto alba* are listed as 'Amber' status under the Birds of Conservation Concern (BoCC) and are categorised as a species of European Conservation Concern. The Barn Owl is given the highest level of legal protection possible under Schedule 1 of the Wildlife and Countryside Act 1981. It is therefore illegal to kill, injure or take a barn owl, or to take or destroy its eggs. It is also illegal to intentionally or recklessly take, damage, or destroy the nest of any wild bird while it is in use or being built, release or allow the escape of a barn owl into the wild or possess any bird (dead or alive) or part of bird without a licence which is obtainable through the country agencies (EN, SNH, and CCW).

Badgers

Badgers *Meles meles* are protected under the Protection of Badgers Act (1992) and the Wildlife and Countryside Act (1981, as amended). As such it is an offence to wilfully take, kill, injure or ill-treat a badger, or possess a dead badger or any part of a badger. Under

the Act their setts are also protected against obstruction, destruction, or damage in any part.

Sett interference includes damaging or destroying a sett, obstructing access to a sett, and disturbing a badger whilst it is occupying a sett. The Act defines a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and Natural England takes this definition to include seasonally used setts.

Work that may disturb badgers or their setts is illegal without a development licence from the relevant statutory body (NE, CCW, SNH). As a precautionary principle, a buffer distance between a badger sett and the works will be determined, based upon guidance from an appropriately experienced ecologist. This buffer distance should be based upon the size and activity levels at the sett, the topography between the sett and the works and the nature of the works.

Bats

All native UK bat species are fully protected by UK law under Schedule 5 (in respect of section 9(4)(b) and (c) and (5) only) and Schedule 6 of the Wildlife and Countryside Act (1981, as amended), and under Schedule 2 of the Conservation of Habitats and Species Regulations 2017. It is illegal to deliberately capture, injure or kill a bat or to intentionally or recklessly disturb bats. It is also illegal to damage, destroy or intentionally or recklessly obstruct access to a breeding or resting place used by a bat.

Any activity that would result in a contravention of the above legislation would likely require an EPS licence from the relevant statutory body (NE, CCW or SNH). Works or mitigation activities involving interference with bats or bat shelters must be carried out by a licensed bat worker.

Dormice

Dormice *Muscardinus avellanarius* are protected under Schedule 5 (in respect of section 9(4)(b) and (c) and (5) only) of the Wildlife and Countryside Act (1981, as amended) and are listed in Schedule 2 of the Conservation of Habitats and Species Regulations 2017. Under the current legislation it is illegal to intentionally or deliberately kill, injure or capture dormice, deliberately disturb dormice (whether in a nest or not); or to damage, or destroy dormouse breeding sites or resting places.

Any activity that would result in a contravention of the above legislation would likely require an EPS licence from the relevant statutory body (NE, CCW or SNH).

Otters

The otter *Lutra lutra* is fully protected under Schedule 5 (in respect of section 9(4)(b) and (c) and (5) only) of the Wildlife and Countryside Act (1981, as amended) and are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2017. It is therefore illegal to deliberately capture, injure or kill an otter, possess an otter (dead or alive), or any other part of an otter, or intentionally or recklessly disturb otters. It is also illegal to damage, destroy or intentionally or recklessly obstruct access to a holt or other resting place used by an otter.

Any activity that would result in a contravention of the above legislation would likely require an EPS licence from the relevant statutory body (NE, CCW or SNH).

Water voles

Water voles *Arvicola amphibious* are protected under Schedule 5 of the Wildlife and Countryside Act (1981, as amended). It is an offence to possess, control or sell water voles or to intentionally kill, injure or take water voles. It is also an offence to intentionally or recklessly damage, destroy or obstruct access to a place that water voles use for shelter or protection or disturb water voles whilst using such a place.

A licence is required for catching/handling water voles, or for field surveys that are intrusive or disturbing where the surveyor suspects' water voles are present. A licence can be obtained by applying to the relevant statutory body (NE, SNH, and CCW,). Please note that the legislation does not permit licences to be issued in relation to development of land.

Biodiversity Policies

National Planning Policy Framework (NPPF) 2018

Published in 2018 the NPPF sets out the Government's planning policies for England and how these are expected to be applied by local authorities. It replaces all the Planning Policy Statements and Guidance (PPSs and PPGs). The NPPF emphasises the need for sustainable development, whilst specifying the need for protection of designated sites and priority habitats and priority species (as listed in section 41 of the Natural Environment and Rural Communities (NERC) Act 2006). Paragraph 170 of The National Planning Policy Framework (NPPF) states:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."

Paragraph 174 states that "to protect and enhance biodiversity and geodiversity, plans should:

a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity56; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation57; and
b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity."

Furthermore, paragraph 175 states that when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons58 and a suitable compensation strategy exists; and
d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

Paragraph 176 states:
"The following should be given the same protection as habitats sites:

a) potential Special Protection Areas and possible Special Areas of Conservation;
b) listed or proposed Ramsar sites59; and
c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites."

Paragraph 177 states:
"The presumption in favour of sustainable development does not apply where development requiring appropriate assessment because of its potential impact on a habitats site is being planned or determined."

<u>The UK Biodiversity Framework (2011-2020).</u>

The UK Biodiversity Framework is an important framework that is owned, governed and implemented by the four UK countries, assisted by Defra and JNCC in their UK co-ordination capacities. Although differing in details and approach, the four UK countries have published strategies which promote the same principles and address the same global targets: joining-up our approach to biodiversity across sectors; and identifying, valuing and protecting our 'Natural Capital' to protect national well-being now and in the future. This new framework has been developed to enhance the recovery of priority habitats and species in England (published under section 41 of the NERC Act 2006), thereby contributing to the delivery of the England Biodiversity Strategy. The framework has been developed and endorsed by the England Biodiversity Group and wider partnership. It is the starting point for a more integrated approach to biodiversity conservation in England, building on the strengths of the former UK Biodiversity Action Plan (BAP) process and improving those areas where insufficient progress was being made.

The Broxbourne Draft Local Plan 2018 – 2033

The above draft Local Plan sets out the relevant policies for the control of development with regards to the natural environment and biodiversity.

Policy NEB1: General Strategy for Biodiversity

I. Development proposals will be expected to apply the mitigation hierarchy of avoidance, mitigation and compensation.
II. Development proposals should result in net gains to biodiversity wherever possible.
III. The Council will seek the creation of new networks of biodiversity, as well as the extension, enhancement and active management of existing sites.
IV. Opportunities to connect habitat fragments through the creation of stepping stones, using built form, vegetation or green areas will be assessed as part of all relevant applications.
V. When granting permission, the Council will impose conditions or seek planning obligations that secure appropriate management regimes to deliver biodiversity gain in perpetuity.

Policy NEB2: Wildlife Sites Internationally and Nationally Designated Wildlife sites

I. Development which would harm the nature conservation or geological interest of an internationally or nationally important wildlife site, as shown on the Policies Map, will not be permitted unless:
   a. it is required in connection with the management or conservation of the site; or
   b. there are imperative reasons of overriding public interest for the development; and
   c. there is no alternative to the development. Compensation for the harm will be required. Locally designated sites of wildlife value
II. Development on, or which negatively affects, a Local Wildlife Site or Local Nature Reserve, as shown on the Policies Map, will not be permitted unless:
   a. local development needs significantly outweigh the nature conservation value of the site; and
   b. the development provides appropriate avoidance or mitigation, and as a last resort compensation measures, to offset any detriment to the nature conservation interest on the site.

Policy NEB3: Green Infrastructure

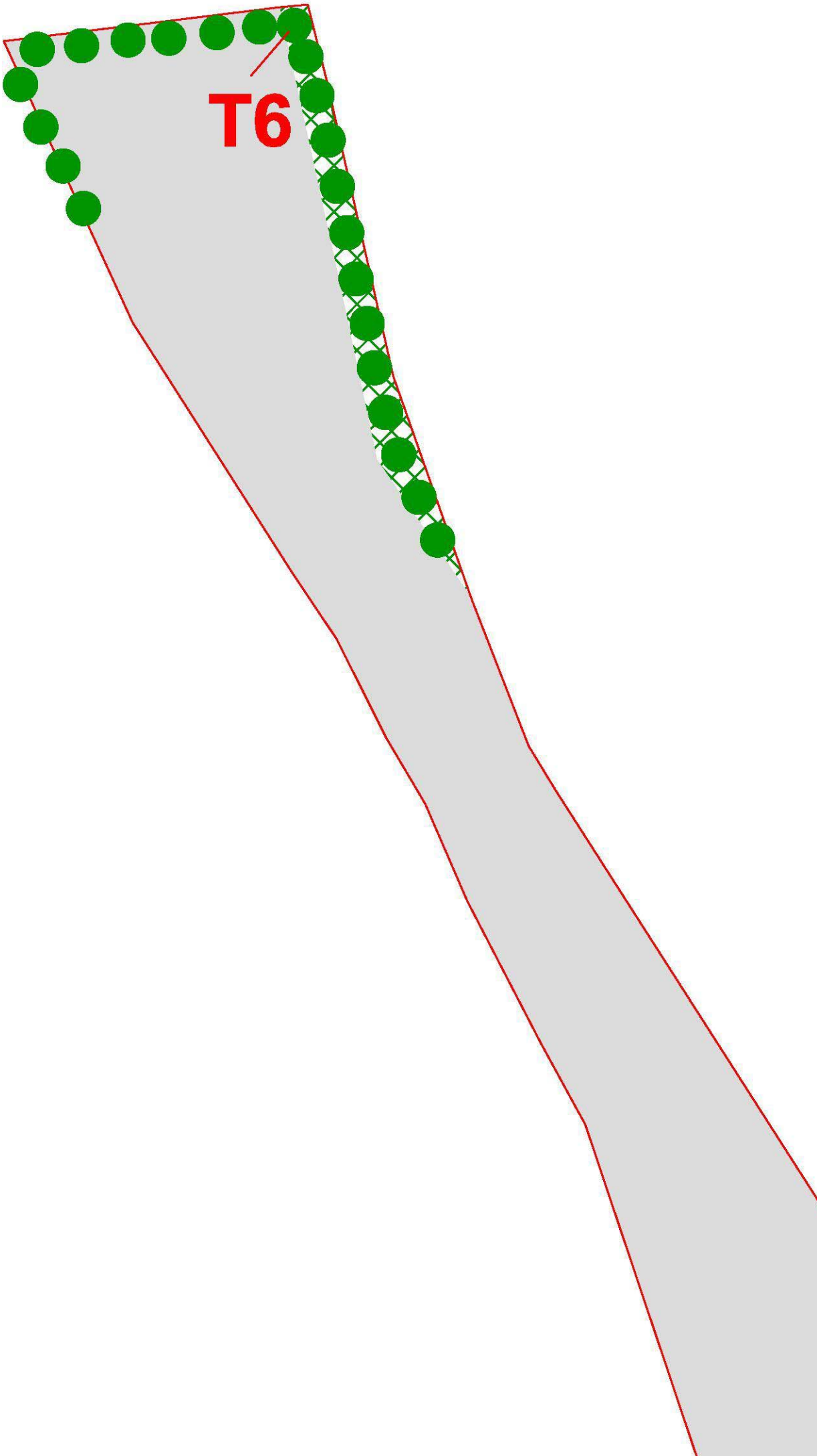
I. The Local Plan will create a diverse, linked network of multi-functional green infrastructure. The network will be protected and enhanced for its biodiversity, recreational, accessibility, health benefits and landscape value, and for the contribution it makes towards combating climate change.
II. Development proposals should:
   a. Avoid the loss, fragmentation or functionality of any component of the green infrastructure network, including within the built environment, such as access to urban waterways;
   b. Maximise opportunities for extensions, additions and improvements to the green infrastructure network;
   c. Maximise opportunities for urban greening through landscaping, the planting of street trees and restoration of channelised or culverted watercourses where possible; (d) Consider opportunities to enhance connections and extensions to footpaths, bridleways or rights of way where appropriate opportunities exist.
III. Contributions towards local green infrastructure projects will be sought where appropriate. If providing green infrastructure as part of a development contribution, applicants should detail how it will be maintained in the long term.

Policy NEB4: Landscaping and Biodiversity in New Developments

I. Proposals for new development must submit details on how existing landscaping will be protected, enhanced and integrated into the development.
II. New landscaping must be well planned taking into consideration:
   a. the outlook and amenity of existing and future residents,
   b. the safety of inhabitants,
   c. the practicalities of future management and maintenance,
   d. opportunities for biodiversity creation, and
   e. street scene and character.
III. Landscaping schemes should ensure that there is no residual land, which no one takes responsibility for, such as on the edge of development sites or house plots.
IV. New developments must make connections to biodiversity features and habitat networks outside of the site, particularly through the use of a strong landscape framework and green infrastructure to strengthen and widen wildlife corridors.
V. Landscaping schemes should maximise their benefits to biodiversity by using locally appropriate native species wherever possible.
VI. Integrated features for wildlife e.g. Swift, House Martin and bat boxes should be incorporated into all suitable buildings.

PJC Consultancy
Arboricultural, Ecological & Landscape Consultancy

APPENDIX II: PHASE 1 HABITAT MAP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