

Land to the Rear of Newcastle Road - Preliminary Ecological Appraisal and Baseline Biodiversity Assessment (Revised V4.4)

Brett Property Lettings Ltd.

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Ecus Ltd

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Executive Summary

Ecus Limited (Ecus Ltd) was commissioned by Brett Property Lettings Ltd to undertake a Preliminary Ecological Appraisal (PEA) and Biodiversity Net Gain (BNG) assessment for the Land to the rear of 17-29 Newcastle Road, Reading, RG2 7TN, hereafter referred to as 'the Site'. The Site is centred on National Grid Reference (NGR): SU 72315 71674.

Post-development plans include the construction of nine, two and a half (2.5) storey houses which will replace the existing habitats on Site of bramble scrub and developed land, sealed surface.

The BNG assessment was required to support a pre-application enquiry submitted to Reading Borough Council (RBC) by McConnell Planning on behalf of Brett Property Lettings Ltd (the applicant) for the development of land to the rear of 17-29 Newcastle Road, Reading, RG2 7TN.

As a result of the UKHabs survey, the baseline habitats within the survey area comprised:

- h3d – Bramble scrub
- u1b – Developed land, sealed surface

A botanical species list from the survey is provided in Appendix 3.

During the survey, the Site was assessed as having potential to be used by protected species groups, such as amphibians, badger, roosting and foraging bats, breeding birds, hedgehog and widespread reptiles.

Biodiversity Net Gain Calculation

Site baseline habitats have produced a biodiversity value of 0.98 Habitat Units (HU) based on an area of approximately 0.27 ha. A map of the baseline habitats is provided in Figure 1.

Post-development habitats have produced a biodiversity value of 1.23 HU and 0.24 HeU. It is understood that none of the baseline habitats will be retained post-intervention.

Post-development, the Survey Area will comprise of buildings, urban vegetated garden, modified grassland, other neutral grassland, mixed scrub introduced shrub, native hedgerow and urban trees.

The proposals as illustrated by habitat types in Figure 2, will result in an overall net gain of 0.25 HU and a positive net percentage change of 25.14%. However, as the bramble scrub habitat being lost will not be replaced with the same broad habitat or habitat of a higher distinctiveness, the trading summaries for BNG Metric 4.0 have not been met. Therefore, off-site compensation is required.

There will also be a total linear habitats (hedgerow) net gain of 0.24 HeU and a positive net percentage

change of 100%.

Results and Enhancement Opportunities

Despite a calculated gain of 25.14% in Habitat Units, the proposed development fails to achieve a quantitative no net loss of biodiversity in its present design due to the trading summaries within the metric not being met. Therefore, the need for off-Site compensation (i.e. off-Site habitat creation or the purchase of biodiversity credits) is required.

The client has agreed to the purchase of statutory biodiversity credits using a third party organization or the Local Planning authority. Such organisations may have habitat banks in the local or wider area whereby a financial contribution would deliver the required HU taking into account the trading rules and support delivery of local nature conservation actions in the local or wider area.

The field survey identified a number of ecological constraints to the proposed works, requiring the following recommendations:

- Any de-vegetation work carried out during the bird nesting season (March to August) or during the hibernation period for amphibians/reptiles (October to March) should proceed using a Precautionary Method of Works (PMoW) with an Ecological Clerk of Works (ECoW) present.
- It is recommended that replacement scrub and hedgerow planting be incorporated into the proposed development to mitigate for the loss of habitats for amphibians, reptiles and mammals and retain the nesting provisions on site for birds for the long term. Planting should ideally be comprised of native species.
- Bat roosting opportunities (one bat box per new build) and bird boxes (three 26 mm bird boxes, three 32 mm bird boxes and two swift boxes) should be incorporated into the proposed development to mitigate the loss of habitat.
- It is recommended that insect hotels be incorporated into the design to attract a wide range of invertebrate species, improving pollination and providing valuable food resources for birds, bats and small mammals.
- It is recommended that where lighting is required during the works, a sensitive lighting strategy should be implemented.
- Continuity should be maintained with linear habitats on the northern and eastern boundaries of the Site to ensure animals can disperse into the neighbouring park and allotments.
- If rabbit burrows need to be removed, the use of hand tools instead of mechanical removal techniques, must be implemented.

1. Introduction

1.1 Project Background

- 1.1.1 Ecus Limited (Ecus) was commissioned by Brett Property Lettings Ltd to undertake a Preliminary Ecological Appraisal (PEA) and Biodiversity Net Gain (BNG) assessment for the Land to the rear of 17-29 Newcastle Road, Reading, RG2 7TN, hereafter referred to as 'the Site'. The Site is centred on National Grid Reference (NGR): SU 72315 71674.

1.2 Purpose of the PEA and BNG

- 1.2.1 The BNG assessment was required to support a pre-application enquiry submitted to Reading Borough Council (RBC) by McConnell Planning on behalf of Brett Property Lettings Ltd (the applicant) for the redevelopment of Land to the rear of 17-29 Newcastle Road, Reading RG2 7TN.
- 1.2.2 The purpose of the PEA and BNG assessment was to carry out a habitat survey using UK Habitat (UKHabs) Classification methodology to gather necessary data on baseline conditions and determine the change in biodiversity value, should the proposals go ahead in their current form. In addition, the Site was surveyed for any signs of protected species and assessed for its potential to support protected species.

This report details the methodology and findings of the survey work and provides recommendations for additional survey and mitigation/enhancement measures, where appropriate.

2. Legislation

2.1.1 During the PEA and BNG assessment, the surveyors were present to identify any ecological constraints associated with the proposed works, including habitats and species protected by legislation, namely:

- The Wildlife & Countryside Act 1981 (as amended) (“the WCA 1981”);
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (“the Habitats Regulations”); and
- The Natural Environment and Rural Communities Act 2006 (“the NERC Act”).

2.1.2 Further details for species protected by the above legislation are provided in **Appendix 1** and can also be found at <http://www.legislation.gov.uk> .

3. Methodology

3.1 UK Habitat (UKHabs) Classification Survey

3.1.1 A baseline habitat survey was completed by experienced Botanist and Consultant Ecologist Claire Evans BSc (Hons) MSc in accordance with industry guidelines (UKHab Working Group, 2018) on 17th August 2022.

3.1.2 The habitats and vegetation types present were recorded on a field map. Notable, rare or scarce plant species were highlighted, where present. The UKHabs survey method aims to characterise habitats and communities present within the Site and is not intended to provide a complete list of all plants occurring across the Site.

3.1.3 The habitats present within the Site were identified and classified according to UKHabs, which is used by the Biodiversity Metric 3.1 (BM3.1) (Natural England, 2022) and its later version Biodiversity Metric 4.0 (BM4.0) (Natural England, 2023). A species list was compiled for each habitat (see **Appendix 3**). The abundance of each plant species was recorded using the DAFOR method. This method is intended to provide an indication of the relative abundances of plant species within each habitat. The standardised terms are as follows:

- D – Dominant
- A – Abundant
- F – Frequent
- O – Occasional
- R – Rare

3.1.4 The condition of each habitat type was assessed and categorised as either good, fairly good, moderate, fairly poor or poor. The assessment was made using the criteria within BM3.1 Technical Supplement (Natural England, 2022b), with specific assessment criteria for each broad habitat type.

3.2 Biodiversity Net Gain Assessment

3.2.1 Biodiversity metric calculations provide a numerical score for the current value (Habitat Units, Hedgerow Units and / or River (watercourse) Units) of the habitats on Site and their likely value post-works in order for the impact of the proposed works to be quantitatively assessed.

3.2.2 Originally the BNGA used the current biometric tool, the 'Biodiversity Metric 3.1 Auditing and accounting for biodiversity - Calculation Tool' (BM3.1) distributed by Natural England. As of March 2023, an updated

Biodiversity Metric 4.0 was released. The report has been updated to reflect the change in metric. Habitat measurements have been taken using digital mapping software (QGIS V3.28.0). A Minimum Mapping Unit (MMU) of 25 m² was used for each habitat. Any habitats with an area of less than 25 m² were not mapped.

Baseline

- 3.2.3 BM4.0 uses a classification system based mainly on the UK Habitat Classification System (UKHabs). Where applicable, habitats were subject to a condition assessment in accordance with the Condition Assessment Sheets included within the 'Biodiversity Metric 4.0: Auditing and accounting for biodiversity – Technical Supplement 1a (2023)' produced by Defra.
- 3.2.4 Using the BM4.0 tool, habitat values are calculated based on whether they occur commonly or whether they are rare, their area (ha) (or length (km) for linear features such as hedgerows), condition and importance within the local area, usually identified from local relevant planning policies or documents. This gives individual pre-development Habitat Units (HU), Hedgerow Units (HeU) and Watercourse Units (WaU).

Post-intervention

- 3.2.5 The post-intervention habitats were based on the following drawings;
- Newcastle Road, Reading - Soft Landscape Proposals, Ref no. 18762-LD-01 (file name 18762-LD-01C).
NOTE: At the time of writing landscape plans were due to be updated to include 119 m² of additional land.
 - PNG image sent by client via email on 31st October 2023 (includes additional land).

Habitat Condition

- 3.2.6 The condition of a habitat is a measure of the biological 'working-order' of a habitat type judged against the perceived ecological optimum state for that particular habitat.

Baseline

- 3.2.7 During the UKHab walkover survey at the Site the condition of each habitat type was assessed and categorised as either Good, Moderate or Poor. The assessment was made using the criteria within the Biodiversity Metric 4.0 Technical Supplement (Natural England, 2023), with specific assessment criteria for each broad habitat type.
- 3.2.8 If a habitat type varied in condition within the Site this was recorded and mapped.

Post-intervention

- 3.2.9 The condition of the post-intervention habitats were assessed using the criteria within the Biodiversity Metric 4.0 Technical Supplement (Natural England, 2023), with specific assessment criteria for each broad habitat type.

Habitat Strategic Significance

- 3.2.10 The metric accounts for whether the habitat is situated in an area locally identified as significant for nature.
- 3.2.11 Data on areas and habitats locally identified as significant for nature were obtained from the following:
- Multi-Agency Geographical Information for the Countryside (MAGIC) website for mapped statutory designated sites;
 - Habitats listed within the UK BAP Priority Habitat list and more local Reading Biodiversity Action Plan (2021).

3.3 Biodiversity Metric Calculations

- 3.3.1 Biodiversity metric calculations provide a numerical score for the current value (in Habitat Units (HU), Hedgerow Units (HeU) and Watercourse Units (WU)) of the habitats on the Site and their likely value post-intervention in order for the impact of the proposed changes to be quantitatively assessed. HU, HeU and WU are assessed separately with the metric tool.
- 3.3.2 Using the BM4.0 tool, habitat values are calculated based on whether they occur commonly or whether they are rare, their area (ha) (or length (km) for linear features such as hedgerows), condition, and importance within the local area, usually identified from local relevant planning policies or documents. This gives individual baseline Habitat Units (HU), Hedgerow Units (HeU) and Watercourse Units (WU).
- 3.3.3 The post-intervention value can then also be calculated for habitats where factors including time to target condition and difficulty of creation/enhancement are also taken into consideration. The values for area habitats and linear habitats are calculated separately. This provides an overall picture of the biodiversity net gain or loss as a result of a development.
- 3.3.4 The results of the BNG assessment will be detailed within **Section 4**.

3.4 Protected and/or Otherwise Notable Species

- 3.4.1 Any evidence of protected species or groups encountered during the survey was recorded. This included observations of field signs and an assessment of the suitability of the habitats present to support

protected species.

- 3.4.2 During the survey, any evidence of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) was recorded.
- 3.4.3 Where ponds were identified these were assessed against the Habitat Suitability Index (HSI) assessment methodology criteria.

3.5 Limitations

- 3.5.1 UKHabs surveys are intended to provide a rapid assessment of habitats present within a site and are not intended to replace detailed vegetation or protected species surveys. Where a greater level of information is considered necessary to inform an assessment, recommendations will be made to undertake further detailed survey.
- 3.5.2 Surveys of this type provide a snapshot of the Site at the time of the survey only and do not account for any seasonal variation.
- 3.5.3 The information contained within this report is considered valid for a period of 18 months from the date of the survey visit (CIEEM, 2019). Therefore, if the remaining works have not been completed by March 2024, it is recommended that the Site is re-surveyed to determine if there have been any significant changes.
- 3.5.4 An issue within the metric has resulted in the following error message 'Error - Area created does not equal area lost'. This relates to the area check found within the Area habitat summary table. This is a known issue with the tool which results in the metric comparing total area lost (including individual trees and green walls) with the total site area (excluding area of Individual trees and Green walls). However, the values we have provided within the metric 'total area lost excluding individual trees/green walls' in cell W261 within baseline sheet equals the same as 'site area excluding individual trees/green walls' in cell G259 within onsite creation sheet. Therefore, the area check error can be disregarded.

4. Results

4.1 Site Description

4.1.1 The site measures approximately 0.27 ha in area and includes No 19 Newcastle Road and land within the rear curtilages of 17-29 Newcastle Road. The northern boundary of the site adjoins Cintra Park. The eastern boundary of the site adjoins the Newcastle Road allotments and the western boundary of the site is bound by the rear curtilage of 13 Newcastle Road. The site topography is broadly level across the site, which overall slopes upwards slightly from south to north.

4.2 Designated Sites

4.2.1 There are no statutory designated sites within 2 km of the Site. There are eight non-statutory designated sites within 2 km of the Site. These are all Local Wildlife Sites (LWS), details are provided in **Table 1**.

Table 1: Non-statutory Designated Sites

LWS Site Name	Distance and Direction from Site	Reason for Designation
Whitley Farm Park/ St Patrick's Hall	300 m east	Designated for presence of birds of conservation concern.
River Kennet/ Kennet and Avon Canal	951m west	Designated for presence of habitat of principal importance - river, (marginal vegetation with elements of Lowland Fen).
Fobney and Kennet Valley Meadows Complex	1.1 km west	Designated for presence of floodplain grazing marsh, wet woodland and lowland fens. Contains a number of legally protected species and birds of conservation concern.
The Cowsey	1.2 km south east	Designated for the presence of ancient woodland indicator species (i.e. bluebells) and for its acid grassland species.
Whiteknights Park	1.4 km east	Designated for its parkland and wood pasture habitat and eutrophic water. Contains a number of protected species, species of principal importance, nationally scarce species and birds of conservation concern.
Holy Brook	2 km west	Designated for presence of chalk river habitat.

Redhatch Copse	2 km south east	Designated for presence of ancient woodland habitat.
Fobney Island	2 km south west	Designated for its protected and notable species. Contains 13 species on the Berkshire Rare Plants List.

- 4.2.2 Due to the distance between the Site and the designated sites and the low impact nature of the works, it is considered that there will be no impacts on these non-statutory designated sites.

4.3 Baseline Habitats

- 4.3.1 **Figure 1** illustrates the habitats present recorded on Site at the time of the survey. All habitats are described below and species lists for each habitat are provided in **Appendix 3**.

h3d – Bramble scrub, with scattered trees (11), ruderal and ephemeral (17) and non-native shrubs (48)

- 4.3.2 The Site is dominated by a mosaic of dense bramble scrub (approximately 0.246 ha) containing small patches of scattered trees and ruderal/ephemeral species, secondary codes 11 and 17 respectively. Species including creeping thistle *Cirsium arvense*, Yorkshire fog *Holcus lanatus*, false oat grass *Arrhenatherum elatius*, and cock's-foot *Dactylis glomerata* were found to be abundant on the Site. Non-native species including staghorn sumac *Rhus typhina* and snowberry *Symphoricarpos albus* were found to be locally abundant on the Site, present only towards the eastern boundary of the Site. Other non-native species present in this habitat include round-leaved snowberry *Symphoricarpos rotundifolius* and Wilson's honeysuckle *Lonicera nitida*.
- 4.3.3 The presence of holly *Ilex aquifolium*, goldenrod *Solidago sp.*, bloody cranesbill *Geranium sanguineum*, common ragwort *Jacobaea vulgaris* and creeping cinquefoil *Potentilla reptans* was rare in this habitat.
- 4.3.4 A full species list is provided in **Appendix 3**.
- 4.3.5 No condition assessment was required for this habitat as the condition for bramble scrub is fixed within the DEFRA metric.
- 4.3.6 This habitat is not listed under the UK Biodiversity Action Plan (UKBAP).

u1b – Developed land, sealed surface with ruderal and ephemeral (17)

- 4.3.7 The survey area comprised one small parcel (approximately 0.019 ha) of developed land with a sealed surface located at the front, side and rear of the 19 Newcastle Road property, south of the Site. Species present included false oat grass, spurge *Euphorbia sp*, petty spurge *Euphorbia peplus*, American

willowherb *Epilobium ciliatum* and sow thistle species *Sonchus sp.*

4.3.8 A full species list is provided in **Appendix 3**.

4.3.9 No condition assessment was required for this habitat.

4.3.10 This habitat is not listed under the UK Biodiversity Action Plan (UKBAP).

4.4 Species

Amphibians

4.4.1 Thames Valley Environmental Records Centre (TVERC) returned no recent records of Great Crested Newt (GCN) *Triturus cristatus* within 2 km of the Site. Recent records of other notable amphibians, including smooth newt *Lissotriton vulgaris*, common toad *Bufo bufo* and common frog *Rana temporaria* begin in 2013, spanning until 2018, with a total of 25 records during that time period. The most recent record pertained to common toad, located approximately 2 km to the west of the site in 2019.

4.4.2 A review of the Department for Environment, Food and Rural Affairs (Defra)'s Multi-Agency Geographic Information for the Countryside (MAGIC) website identified one European Protected Species (EPS) Mitigation Licence pertaining to GCN within 2 km of the Site. See **Table 2**.

Table 2. Granted Great Crested Newt EPSM licences returned within 2 km of the Site

EPS licence number	Distance and direction from Site	Licence impacts	Date
EPSM2010-1708	1 km south	Destruction of resting place	09/06/2010 to 12/06/2012

4.4.3 There were two GCN Pond Surveys 2017-2019 results within 2 km of the Site. See **Table 3**.

Table 3. Pond Survey 2017-2019 Results returned within 2 km of the Site

Grid reference	Distance and direction from Site	Habitat Suitability Index Score	Habitat Suitability Index Score Category	GCN Occurrence
SU 72763 70488	1.3 km south east	0.43	Poor	Absent
SU 70447 71087	1.9 km south west	0.79	Good	Absent

4.4.4 Using MAGIC, a single pond was identified 185 m north east of the Site within a university accommodation block. Good connectivity exists between the pond and the Site with no dispersal barriers

(i.e. roads, rails, fast flowing water courses) present.

- 4.4.5 Surveyors were unable to access this pond and so a Habitat Suitability Index (HSI) assessment was unable to be carried out.
- 4.4.6 A small drain flows from the southern aspect of the pond. A large drain also runs approximately 4 m north of the Site along the boundary. This drain could not be seen or accessed from the Site.
- 4.4.7 The scattered scrub habitat offers suitable foraging and sheltering opportunities for amphibians. Scattered logs and rubble present across the Site may provide suitable hibernation potential and refugia for amphibians.
- 4.4.8 The Site is likely to support amphibian species due to the presence of nearby waterbodies and suitable terrestrial habitat.
- 4.4.9 Amphibians, including GCN, are considered to be potential receptors to the proposed works.

Badger

- 4.4.10 TVERC returned 22 recent records of Eurasian badger *Meles meles* within 2 km of the Site. The most recent record pertained to a badger sett located 361 m north east of the Site in 2017. The most recent badger record was located 1.4 km south west of the Site in 2021.
- 4.4.11 No evidence of badger activity including sett entrances, latrines or foraging indicators were identified on or adjacent to the Site.
- 4.4.12 The scrub habitat provides potential foraging habitat for badger and it is possible that badger may utilise the Site for commuting across the wider landscape. Due to the transient nature of the species it is possible that badger may utilise the Site at any given time.
- 4.4.13 Badger are considered to be potential receptors to the proposed works.

Bats

Roosting bats

- 4.4.14 TVERC returned 29 recent records (over the last 10 years) of roosting bats within 2 km of the Site. These records spanned 4 species; brown long-eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, with the final record type being an unidentified pipistrelle species. The most recent roosting bat record pertained to common pipistrelle located approximately 0.7 km east of the Site in 2020.
- 4.4.15 MAGIC returned twelve records of EPS mitigation licences issued with regards to bats within 2 km of

the Site, see **Table 4**.

Table 4. Granted Bat EPSM licences returned within 2 km of the Site

EPS licence number	Licence Dates	Licence Details	Distance from the Site
2014-3941-EPS-MIT	21/10/2014 - 30/11/2019	Licence to allow the damage and destruction of a resting place for common pipistrelle and soprano pipistrelle.	0.7 km north east
2014-3941-EPS-MIT-1	17/12/2014 - 30/09/2019	Licence to allow the damage and destruction of a resting place for common pipistrelle and soprano pipistrelle.	0.7 km north east
2014-3941-EPS-MIT-2	26/01/2015 - 30/09/2019	Licence to allow the damage and destruction of a resting place for common pipistrelle and soprano pipistrelle.	0.7 km north east
2016-22301-EPS-MIT	21/04/2016 - 20/04/2021	Licence to allow the damage and destruction of a resting place for common pipistrelle.	1.2 km north
EPSM2010-2126	02/09/2010 - 31/08/2012	Licence to allow the destruction of a resting place for common pipistrelle.	1.2 km north east
EPSM2010-2266	01/09/2010 - 28/02/2011	Licence to allow the destruction of a breeding site and destruction of a resting place for common pipistrelle and brown long-eared bat.	1.2 km east
2019-44194-EPS-MIT	01/02/2020 - 31/03/2020	Licence to allow the destruction of a resting place for common pipistrelle and soprano pipistrelle.	1.7 km north
EPSM2012-4478	03/09/2012 - 30/09/2016	Licence to allow the destruction of a resting place for common pipistrelle and soprano pipistrelle.	1.7 km north east
2014-500-EPS-MIT	29/04/2014 - 30/09/2016	Licence reason unknown. Regards common pipistrelle and soprano pipistrelle.	1.7 km north east
2017-32379-EPS-MIT	04/12/2017 - 29/11/2022	Licence to allow the damage and destruction of a resting place for common pipistrelle.	1.7 km north west
2015-14868-EPS-MIT	10/12/2015 - 30/11/2018	Licence to allow the destruction of a resting place for brown long-eared bat and common pipistrelle.	2 km south west
EPSM2013-6388	07/10/2013 - 30/11/2018	Licence to allow the destruction of a resting place for brown long-eared bat and common pipistrelle.	2 km south west

- 4.4.16 No potential roost features were identified in the trees on Site. Two buildings are present on the Site, a main property (B1) and a small outhouse (B2). A Preliminary Bat Roost Assessment carried out by Ecus Ltd (Ecus, 2022) identified a number of potential roost features on both of the buildings. See Preliminary Bat Roost Assessment Report (Ecus, 2022) for full details.
- 4.4.17 Recommended nocturnal surveys were completed in August 2022. No emergences were recorded on the 2nd August or 18th August 2022.
- 4.4.18 As no bats have been identified roosting within the structures, it is considered that the proposed works are unlikely to have any impact on roosting bats.
- 4.4.19 Roosting bats are not considered to be a potential receptor to the proposed works.
- 4.4.20 However, it is recommended that where lighting is required during the works, a sensitive lighting strategy should be implemented.

Foraging and commuting bats

- 4.4.21 TVERC returned over 400 recent records (within the last 10 years) spanning 12 species of foraging and commuting bats within 2 km of the Site. The most recent of these records pertained to common pipistrelle *Pipistrellus pipistrellus* located approximately 0.9 km southeast of the Site in 2021.
- 4.4.22 The line of scattered trees along the northern boundary of the Site may act as a linear corridor for commuting and foraging bats.
- 4.4.23 The scrub habitat likely hosts invertebrate communities that may provide valuable foraging opportunities for local bat populations. Overall, the Site was assessed as having moderate suitability for foraging bats.
- 4.4.24 Foraging and commuting bats are considered to be a potential receptor to the proposed works.

Birds

- 4.4.25 TVERC returned 77 records of protected or notable bird species from within 2 km of the Site. Of these, 41 were listed as 'Red' species and 41 were listed as 'Amber' under the Birds of Conservation Concern (BoCC5) criteria.
- 4.4.26 The Site provides suitable nesting habitat for breeding birds within the scattered trees present along the northern and western boundary and bramble scrub throughout the Site.
- 4.4.27 If de-vegetation is required during the breeding bird season (March to August inclusive), nesting birds are considered to be potential receptors to the proposed works.

Hazel Dormouse

4.4.28 TVERC did not return any records of dormouse within 2 km of the Site.

4.4.29 The Site does not provide the dense understorey which is favoured by dormice, it is unlikely that dormice are present in the area. In addition, there is a lack of connectivity to suitable habitat in the wider area.

4.4.30 Dormice are not considered to be potential receptors to the proposed works.

Invertebrates

4.4.31 TVERC returned over 400 recent records of protected or notable invertebrate species within 2 km of the Site. The most recent record pertained to a white-footed furrow bee *Lasioglossum leucopus* located approximately 1.9 km from the Site in 2020.

4.4.32 The Site has some potential to support a wide range of invertebrate species due to the presence of flowering plants in the dense scrub. The rubble and log piles present across the Site may also provide suitable refugia for a number of invertebrate species.

4.4.33 Stag beetle *Lucanus cervus* adults and larvae have reportedly been identified on the Site within the last ten years, as per information obtained from one of the tenants at the 19 Newcastle Road property.

Other Protected and Notable Species

4.4.34 TVERC returned 64 recent records of three mammal species from within 2 km of the Site. These include Eurasian otter *Lutra lutra*, European water vole *Arvicola amphibius* and West European hedgehog *Erinaceus europaeus*. The most recent record pertained to hedgehog located approximately 1 km to the southeast of the Site in 2019.

4.4.35 The dense scrub and tall ruderal habitat on the Site provides suitable foraging habitat and refugia for hedgehog.

4.4.36 Hedgehogs are considered to be potential receptors to the proposed work.

4.4.37 No mammal species were identified on the Site, however a number of small holes were identified in one of the rubble piles present on the Site (See TN1). These holes may potentially have been created by rabbits, however, no other signs of rabbit presence (i.e. fur or droppings) were identified.

4.4.38 Therefore, the presence of rabbits will need to be considered to avoid offence being committed under the Wild Mammals (Protection) Act 1996.

Widespread Reptiles

4.4.39 TVERC returned 71 recent records (within the last 10 years) of two species of reptile from within 2 km of the Site. These pertained to grass snake *Natrix helvetica* and slow-worm *Anguis fragilis*. The most

recent record pertained to grass snake located approximately 2 km from the Site in 2020.

4.4.40 The dense bramble and tall ruderal species present within the scrub habitat offers suitable foraging and sheltering habitat for reptiles. The allotments that run adjacent to the eastern boundary of the Site also provides suitable foraging, sheltering and hibernation habitat and are typically known to support good populations of common reptile species, especially slow worm. Piles of discarded rubble and logs were scattered across the Site, which if left undisturbed provide potential refugia and hibernation potential for reptiles on the Site.

4.4.41 Widespread reptiles are considered to be receptors to the proposed work.

Invasive non-native Species

4.4.42 TVERC returned four recent records of invasive non-native species listed on Schedule 9 of the WCA 1981 within 2 km of the Site. These include floating pennywort *Hydrocotyle ranunculoides*, Himalayan balsam *Impatiens glandulifera*, Japanese knotweed *Fallopia japonica* and Nuttall's waterweed *Elodea nuttallii*.

4.4.43 No Schedule 9 INNS were identified within the dense scrub and sparsely vegetated land habitats on Site.

4.4.44 A number of non-native species not listed as Schedule 9 were identified on the Site. These pertained to Wilson's honeysuckle *Lonicera nitida*, snowberry *Symphoricarpos*, round-leaved snowberry *Symphoricarpos rotundifolius* and staghorn sumac *Rhus typhina*. These species were located towards the east and north easterly aspect of the Site only.

4.5 Baseline Biodiversity Value

4.5.1 Baseline habitats within the Survey Area comprised of developed land, sealed surface and bramble scrub with secondary codes scattered trees (11), ruderal and ephemeral (17) and non-native shrubs (48).

4.5.2 The baseline habitats of the Survey Area are mapped in **Figure 1** according to the UK Habitat Classification system used by the BM4.0.

4.5.3 The total area of the Site has been calculated at approximately 0.27 ha. The habitat type, condition, areas and Habitat Units (HU) are provided within **Table 5** below.

4.5.4 Baseline habitats on Site have produced a biodiversity value of 0.98.

Table 5. Baseline area-based habitats, condition and Habitat Units

Habitat Type	Condition	Area (ha)	Habitat Units (HU)
Bramble Scrub	N/A	0.246	0.98
Developed land, sealed surface	N/A	0.019	0.00
Total Habitat Units (HU)			0.98

4.6 Post-intervention Biodiversity Value

4.6.1 Post-development plans include the construction of nine, two and a half (2.5) storey townhouses of which five are 3-bed houses and four are 4-bed houses. The proposed dwellings nearest to the existing properties will have a rear to flank relationship and dwellings which face south towards the existing properties will be further separated by residential parking. The existing buildings at 19 Newcastle Road will be demolished and will be replaced by an access road.

Post-intervention calculations

4.6.2 The habitat type, condition, approximate area and Habitat Units (HU) are provided within **Table 6** below. Habitat type, condition, approximate length and Hedgerow Units (HeU) are provided within **Table 7**. Created post-intervention habitats have produced a biodiversity value of 1.23 HU and 0.24 HeU. It is understood that none of the baseline habitats will be retained post-intervention. It is expected that approximately 0.0119 ha of bramble scrub will be enhanced to good condition mixed scrub.

4.6.3 Grey infrastructure, i.e. buildings and hardstanding, provides a biodiversity value of zero. Vegetated gardens and modified grassland are habitats that are straight-forward and time-efficient to recreate and given the frequent mowing regime of areas of turf and modified grassland, it is likely that these habitats would be of no more than poor value. Gardens and amenity grassland within the development are therefore considered to be of low distinctiveness.

4.6.4 Any proposed planting of introduced shrubs is also straight-forward and time-efficient to create. However, their condition can only be up to poor due to the lack of habitat connectivity through scattered planting across the Site and the frequent use of ornamental species.

4.6.5 The proposed urban trees located outside of private garden plots (nine in total) have been assigned a condition of moderate, as it can be safely assumed that most trees on Site will pass 3 or 4 of the biodiversity metric condition sheet criteria within 30 years of planting. Proposed native hedgerow planting has been assigned a condition score of moderate, owing to their relatively short lengths and proximity to paths and access roads.

Table 6. Post-intervention area-based habitats, condition and Habitat Units

Habitat Type	Condition	Hectares (ha)	Habitat Units (HU)
Created - Areas			
Urban - Vegetated garden	N/A	0.049	0.09
Introduced shrub	N/A	0.006	0.01
Grassland - Modified grassland	Poor	0.010	0.02
Grassland – Other neutral grassland	Good	0.010	0.08
Urban - Urban Tree	Moderate	0.297	0.91
Urban - Developed land; sealed surface	N/A	0.173	0.00
Enhanced - Areas			
Heathland and shrub – Mixed scrub	Good	0.119	0.11
Total Habitat Units (HU)			1.23

Table 7. Post-intervention linear-based habitats, condition and Hedgerow Units

Habitat Type	Condition	Kilometers (km)	Hedgerow Units (HeU)
Created - Linear			
Native Species Rich Hedgerow	Moderate	0.02	0.15
Native Hedgerow	Moderate	0.02	0.10
Total Linear Hedgerow Units (HeU)			0.24

¹ Total area may differ from area provided in the metric due to rounding. Area of urban trees is additional to total habitat area.

4.7 Summary of Overall Biodiversity Change

4.7.1 **Table 8** summarises the changes in HU generated for the broad habitat categories within the

baseline and post-development on Site. The headline results are also provided in **Appendix 4**.

- 4.7.2 There is currently to be a total area habitat net gain of 0.25 HU and a positive net percentage change of 25.14%. However, as the bramble scrub habitat being lost will not be replaced with the same broad habitat or habitat of a higher distinctiveness, the trading summaries for BNG Metric 4.0 have not been met. Therefore, off-site compensation is required.
- 4.7.3 There is to be a total linear habitats (hedgerow) net gain of 0.24 HeU and a positive net percentage change of 100%.
- 4.7.4 The calculated net unit change of +0.24 HeU and net percentage change of +100% for hedgerow habitats means that the current proposals, taking into account the predicted post-development habitats, will achieve a quantitative measurable net gain in biodiversity. The BM4.0 metric trading rules have also been satisfied with respect to HeU. The large net gain has been achieved through the creation of new hedgerows in the absence of hedgerows currently on Site.

Table 8. Summary of Biodiversity Net Gain Calculation Results

	On-Site Baseline Units	On-Site Proposed Units	Change in Units	% Change in Units
Habitat Units (HU)	0.98	1.23	0.25	25.14%
Hedgerow Units (HeU)	0.00	0.24	0.24	100%

5. Conclusions and Recommendations

5.1 Proposals

- 5.1.1 Post-development plans include the construction of nine, two and a half (2.5) storey houses which will replace the existing habitats on Site of bramble scrub and developed land, sealed surface.

5.2 Habitat Enhancement

- 5.2.1 Despite a calculated gain of 25.14% in Habitat Units, the proposed development fails to achieve a quantitative no net loss of biodiversity in its present design due to the trading summaries within the metric not being met. It is considered that the net unit and percentage changes have been maximised as far as possible within the Site and it is unlikely to be feasible to meet the trading summaries using on Site compensation alone, unless significant design changes were to be made. Therefore, the need for off-Site compensation (i.e. off-Site habitat creation or the purchase of biodiversity credits) is required.
- 5.2.2 The calculated net unit change of +0.24 HeU and net percentage change of +100% for hedgerow habitats means that the current proposals, taking into account the predicted post-development habitats, will achieve a quantitative measurable net gain in biodiversity. The BM4.0 metric trading rules have also been satisfied with respect to HeU. The large net gain has been achieved through the creation of new hedgerows in the absence of hedgerows currently on Site.
- 5.2.3 The client has agreed to the purchase of statutory biodiversity credits using a third party organization or the Local Planning authority. Such organisations may have habitat banks in the local or wider area whereby a financial contribution would deliver the required HU taking into account the trading rules and support delivery of local nature conservation actions in the local or wider area.
- 5.2.4 Any documents detailing habitat creation and enhancement carried out by a 3rd party on behalf of the project and copies of any agreements relating to the delivery of off-site compensation should be provided to decision-makers.

On-Site habitat creation

- 5.2.5 On Site habitat creation is detailed within 'Soft Landscape Proposals Outline Specification & Maintenance Schedule' (Ref no. 18762-LD-02).
- 5.2.6 In addition to what is currently listed within the soft landscape proposals, the following habitats should be created/enhanced in order to improve the biodiversity of the Site.

Scrub enhancement

- 5.2.7 It is recommended that approximately 0.0119 ha of bramble scrub be enhanced to good condition mixed scrub.
- 5.2.8 To achieve a condition score of Good, the scrub must contain at least three woody species with no one species comprising more than 75% cover.
- 5.2.9 The proposed species composition is as follows:
- 30% Hawthorn *Crataegus monogyna*
 - 20% Blackthorn *Prunus spinosa*
 - 20% Hazel *Corylus avellana*
 - 10% Elder *Sambucus nigra*
 - 10% Guelder rose *Viburnum opulus*
 - 5% Wild cherry *Prunus avium*
 - 5% Bramble *Rubus fruticosus*
- 5.2.10 The existing bramble scrub habitat will need to be prepared for mixed scrub creation through scarification of the ground using a rake or tractor mounted rotavator. The scrub should be planted using 2 - 3-year-old whips of local provenance. Whips should be placed in diverse mixtures and planted in clumps to produce a natural looking habitat with small clearings. Whips should be protected with a non-plastic tree spiral/guard and the scrub creation area protected with temporary stock and rabbit-proof fencing until it sufficiently established and robust enough to withstand grazing (usually the first five years).
- 5.2.11 Ongoing management is required to ensure the created scrub habitats do not develop into woodland over time through the process of succession. Glades should be mown annually to keep them open, but a margin of tall herbs can be allowed to develop at the edge of the scrub habitat to increase diversity, by trimming these areas every two to three years until established. Habitat lying inside rabbit-proof fencing should be left unmanaged unless undesirable species, such as creeping thistle, become dominant. Mowing in late summer / autumn will encourage flowering and seeding of herbaceous species at the margins.
- 5.2.12 Bramble should be allowed to establish but should be managed within the first five years to prevent it dominating establishing species. Undesirable species and invasives should be eradicated at the earliest opportunity. Cutting of scrub encourages re-growth and prevents succession, and scrub typically takes 15 years to mature. Once established, scrub should be cut on rotation so for example cut 1/15th of the scrub area every year and cut small coupes rather than larger areas to maintain scrub at a variety of

ages and structure. Scrub species that produce berries should be cut in late winter only, to avoid bird nesting season but also ensure that there are sufficient berries in autumn and early winter to feed overwintering birds and mammals.

- 5.2.13 Tree species should be managed to prevent succession. Some tree species can be allowed to establish to increase structural diversity and provide foraging and sheltering opportunities for various species, but management should aim to keep the scrub in a mid-successional state, through thinning of larger tree species or coppicing. Felled / thinned trees should be retained in situ to provide valuable deadwood habitat.

Other neutral grassland creation

- 5.2.14 A strip of good condition species-rich neutral grassland should be incorporated into the development. This should include at least 9 species per m².
- 5.2.15 Management techniques should include the removal of perennial weeds/ undesirable species (e.g., creeping buttercup, nettles and creeping thistle) and the incorporation of low intensity management techniques (i.e., one cut annually in late summer post seed set) and successive sowing with species rich neutral grassland species.
- 5.2.16 Soil fertility testing should be carried out to determine nutrient levels and nutrient stripping may be required to reduce the soil nutrient levels to a satisfactory level to allow species-rich grassland to establish. The hydrology of the Site may need to be fully understood before any soil stripping strategy is proposed.
- 5.2.17 Introduction of new species is likely to be required to incorporate target species for the specific grassland habitat type (e.g., crested dog's-tail *Cynosurus cristatus*) and maintain a good diversity of plant species within the area. If seeding is to occur on Site, species-rich seeds should be sourced from a local green hay source or a reputable seed supplier which can provide seeds of local provenance. Ground preparation is likely to be required prior to sowing. Existing areas of grassland should be cut to a short sward and areas of bare ground (>50%) should be created (e.g., using machinery) to open the sward to sow the seeds (Natural England, 2010).
- 5.2.18 To maintain and enhance the condition, it is important to minimise nutrient input by avoiding the use of fertilisers, establish a varied sward height (at least 20% is less than 7 cm and at least 20% is more than 7 cm), reduce any damaging activities (i.e., damaging levels of access) and to control the level of undesirable species.
- 5.2.19 Inclusion of small log piles within the grassland areas at the Site will provide shelter and foraging

opportunities for invertebrates and small mammals and contribute to a gain in biodiversity at the Site.

5.3 Mitigation

Amphibians

- 5.3.1 Vegetation clearance should be carried out during the active period for amphibians (mid-April to mid-October) during suitable weather conditions (daytime temperatures above 9°C and no rain/fog or strong winds) using a two-stage clearance process. Any rubble piles should be dismantled by hand if possible or in a sensitive manner, allowing amphibians to escape if present. Construction materials such as wood and rubble should be stored away from suitable amphibian habitat to prevent these from being used for shelter during the works.
- 5.3.2 Any de-vegetation work carried out during the hibernation period for amphibians (October to March) should proceed using a Precautionary Method of Works (PMoW) with an Ecological Clerk of Works (ECoW) present.
- 5.3.3 Continuity should be maintained with habitats on the northern and eastern boundaries of the Site to ensure animals can disperse into the neighbouring park and allotments. Gaps in fencing should be introduced to enable the dispersal of amphibians to and from the Site.
- 5.3.4 It is recommended that replacement scrub and hedgerow planting be incorporated into the proposed development to mitigate for the loss of habitats for amphibians. Planting should ideally be comprised of native species.

Bats

- 5.3.5 As a general enhancement for roosting bats, it is recommended that long term bat roosting opportunities are incorporated in the new development. This should include a single bat box on each of the newly built properties at the Site (nine boxes in total). Integral bat boxes such as the Schwegler 1FR Bat Tube or external boxes such as the Schwegler 2F Bat Box (or similar products) are recommended to be located beneath the eaves (at least 4 m high).
- 5.3.6 All boxes should be situated so that they are avoiding bright light spill, i.e. security lights, and be located on elevations which are south facing or towards foraging habitat.
- 5.3.7 It is recommended that the soft landscape planting scheme should use native species and incorporate flowering/fruiting species to improve the foraging resources available for bats and compensate for the minor loss of adjoining habitat i.e. bramble scrub.
- 5.3.8 Bat species in the UK are known to be deterred by artificial lighting. In order to avoid impacts associated

with artificial light spill e.g. from security lighting, on bat flight-lines or foraging habitat, mitigation measures should be implemented whereby the lighting from the proposed development (as well as any temporary lighting to be used during the construction phase) should be designed to avoid light-spill onto suitable surrounding area.

5.3.9 The latest guidance, 'Bats and artificial lighting in the UK', Bat Conservation Trust and Institution of Lighting Professionals, August, 2018, should be referred to. General guidance within it includes:

5.3.10 No artificial lighting (during the construction or operational stages) should be focused on existing foraging/commuting habitat to be retained (including woodland and hedgerows).

5.3.11 Unnecessary light spill should be controlled through a combination of directional lighting, low lighting columns (reduced wattage lamps and louvres), hooded/shielded luminaires and/or strategic screening planting. All luminaires should lack UV elements and metal halide, fluorescent sources should not be used. LED luminaires should be used where possible with a warm white spectrum adopted (<2700Kelvin).

5.3.12 Night working during the construction phase to be avoided where possible and construction practices will follow best practice in terms of dust and noise control.

Birds

5.3.13 Any de-vegetation work carried out during the bird nesting season (March to August) should proceed using a Precautionary Method of Works (PMoW) with an Ecological Clerk of Works (ECoW) present.

5.3.14 Bird boxes should be integrated into the new development by being incorporated into the new dwellings walls and placed on any new trees planted on the Site.

5.3.15 Recommendations include general bird boxes with 26 mm and 32 mm entrance holes suitable for a range of garden bird species. The bird boxes should be placed at a minimum height of 3 m in a number of locations facing different aspects to maximise the chances of occupation, although full south aspects which receive full sun all day during the summer months present a risk of overheating and should therefore be avoided. It is recommended that three 26 mm and three 32 mm bird boxes should be incorporated into the development.

5.3.16 Due to the number of swift records returned within 2 km of the Site, it is further recommended that a minimum of two swift boxes should also be incorporated into the development. These can either be installed externally onto a building or incorporated into the walls which is the preferred option. Ideal sites for swift nest boxes include within gables, under eaves and on/in high walls at a height of at least 4.5 metres. Nest boxes should not be placed in exposed locations or close to trees/cables as these can

provide perches for predators.

- 5.3.17 It is recommended that replacement scrub and hedgerow planting be incorporated into the proposed development to retain the nesting provisions on site for birds for the long term. Planting should ideally be comprised of native species.

Other notable species

Mammals

- 5.3.18 Continuity should be maintained with habitats on the northern and eastern boundaries of the Site to ensure animals can disperse into the neighbouring park and allotments. Gaps in fencing should be introduced to enable the dispersal of hedgehog to and from the Site. Ground level boundary holes for hedgehog should measure 13 cm x 13 cm and link as many neighbouring parcels of land as possible.
- 5.3.19 It is recommended that replacement scrub and hedgerow planting be incorporated into the proposed development to mitigate for the loss of habitats for mammals. Planting should ideally be comprised of native species.
- 5.3.20 The mechanical removal of rabbit burrows could increase chances of asphyxiation. If rabbit burrows need to be removed, use hand tools instead of mechanical removal techniques should be incorporated.

Invertebrates

- 5.3.21 It is recommended that insect hotels are incorporated into the design and can be placed within the garden plots of the proposed residential dwellings. Insect hotels are an effective way of encouraging invertebrates onto Site which in turn increases rate of pollination, whilst also providing vital food for other species, such as birds, bats and small mammals.

Reptiles

- 5.3.22 Vegetation clearance should be carried out during the active period for reptiles (mid-April to mid-October) during suitable weather conditions (day time temperatures above 9°C and no rain/fog or strong winds) using a two-stage clearance process. Any rubble piles should be dismantled by hand if possible or in a sensitive manner, allowing reptiles and/or amphibians to escape, if present. Construction materials such as wood and rubble should be stored away from suitable reptile or amphibian habitat to prevent these from being used for shelter during the works.
- 5.3.23 Any de-vegetation work carried out during the hibernation period for reptiles (October to March) should proceed using a Precautionary Method of Works (PMoW) with an Ecological Clerk of Works (ECoW) present.

5.3.24 Continuity should be maintained with habitats on the northern and eastern boundaries of the Site to ensure animals can disperse into the neighbouring park and allotments. Gaps in fencing should be introduced to enable the dispersal of reptiles to and from the Site.

5.3.25 It is recommended that replacement scrub and hedgerow planting be incorporated into the proposed development to mitigate for the loss of edge habitats for reptiles. Planting should ideally be comprised of native species.

5.4 BNG Principles

5.4.1 **Table 9** below details the actions recommended in order for the proposed development to adhere to each of the BNG good practice principles, if the suggested changes are implemented (CIEEM, CIRIA, IEMA, 2016).

5.4.2 If followed, the recommended actions will enable the proposed development to achieve a quantitative and qualitative net gain in biodiversity.

Table 9: Recommended actions for proposed development to comply with BNG Good Practice Principles

Principle	Description	Recommended Action
1. Apply the mitigation hierarchy	Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.	The habitats on the Site that are to be lost range from very low to medium distinctiveness. Due to the scope of the works, the suggested changes contributes to a net gain, however it does not avoid compensation outside of the development footprint due to the trading summaries being unable to be met.
2. Avoid losing biodiversity that cannot be offset by gains elsewhere	Avoid impacts on irreplaceable biodiversity – these impacts cannot be offset to achieve No Net Loss or Net Gain.	Not applicable - no irreplaceable habitats are impacted by the proposed development.
3. Be inclusive and equitable	Engage stakeholders early and involve them in designing, implementing, monitoring and evaluating the approach to Net Gain. Achieve Net Gain in partnership with stakeholders where possible and share the benefits fairly among stakeholders.	The approach taken to achieve BNG should involve relevant stakeholders regularly throughout delivery. This should include consultation and involvement with the finalised BNG design and management.
4. Address risks	Mitigate difficulty, uncertainty and other risks to achieving Net Gain. Apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.	The approach taken to achieve BNG for the proposed development, should also be assessed using the Biodiversity Metric 4.0, which uses industry recognised risk multipliers. Where possible and feasible to do so i.e. if construction machinery can be excluded from the area during the construction stage, the habitat retention and possible enhancement and creation to achieve BNG should be

Principle	Description	Recommended Action
		implemented as soon as possible, ideally before the habitat clearance/construction commences.
5. Make a measurable Net Gain contribution	Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.	It is recommended that the suggested changes would achieve an overall BNG of at least 10%, in line with legislation changes proposed in the Environment Act (DEFRA, 2021) and that this revised approach is subjected to an update BNG assessment.
6. Achieve the best outcomes for biodiversity	Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly-justified choices when: • Delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses; • Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation; • Achieving Net Gain locally to the development while also contributing towards nature conservation priorities at local, regional and national levels; • Enhancing existing or creating new habitat; • Enhancing ecological connectivity by creating more, bigger, better and joined areas for biodiversity.	On top of the suggested changes, off-site compensation will be required. The suggested changes produce a net gain, however, fails to achieve the trading summary. Therefore, off-Site habitat creation or the purchase of biodiversity credits is required. It is recommended the approach used to achieve BNG is assessed using the Biodiversity Metric 4.0, which requires users to compensate any habitat loss with the creation of habitats of the same or better distinctiveness and includes temporal and spatial risk multipliers.

7. Be additional	Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway).	The BNG activities should achieve nature conservation outcomes that would not have occurred anyway due to existing obligations.
Principle	Description	Recommended Action
		For example, if partnerships and agreements are made with local charities or landowners for off-Site compensation, any funding should contribute to actions for biodiversity that would not otherwise occur.
8. Create a Net Gain legacy	Ensure Net Gain generates long-term benefits by: • Engaging stakeholders and jointly agreeing practical solutions that secure Net Gain in perpetuity; • Planning for adaptive management and securing dedicated funding for long-term management; • Designing Net Gain for biodiversity to be resilient to external factors, especially climate change; • Mitigating risks from other land uses; • Avoiding displacing harmful activities from one location to another; • Supporting local-level management of Net Gain activities.	A Habitat Management Plan (HMP) should be produced that details a long-term (30 Years minimum or the lifetime of the development) monitoring and management regime for the enhanced and created habitats on and off Site, once finalised, in order to achieve the required biodiversity value. The relevant stakeholders should be engaged for the implementation of the HMP and dedicated funding should be secured for this programme.
9. Optimise sustainability	Prioritise Biodiversity Net Gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy.	This BNG assessment should be used to inform the next iteration of the design of the proposed development to provide better outcomes for biodiversity. The BNG activities should be compatible with the sustainability strategy of the

		development. Any compensation off-Site should also optimise wider environmental, social and economic benefits.
10. Be transparent	Communicate all Net Gain activities in a transparent and timely manner, sharing the learning with all stakeholders.	The approach to achieve BNG is subjected to a BNG assessment (reporting) and should be shared with relevant stakeholders throughout its delivery.

6. References

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- Natural England (2023). Biodiversity Metric 4.0, User Guide.
- Natural England (2023). Biodiversity Metric 4.0, Technical Supplement

Figure 1: Baseline Habitat Map



- Site boundary
- ⊙ Target Notes
- h3d - bramble scrub
- u1b - developed land sealed surface
- u1b5 - buildings

Secondary codes:
 11 - Scattered trees
 17 - Ruderal/ephemeral
 48 - Non native shrub

0 10 20 m

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18762 Land to the Rear of Newcastle Road
 BNG Assessment

Figure 1
 Baseline Map Revised (V4.0)

• Unit 4 • Prisma Park • Berrington Way • Basingstoke • RG24 8GT
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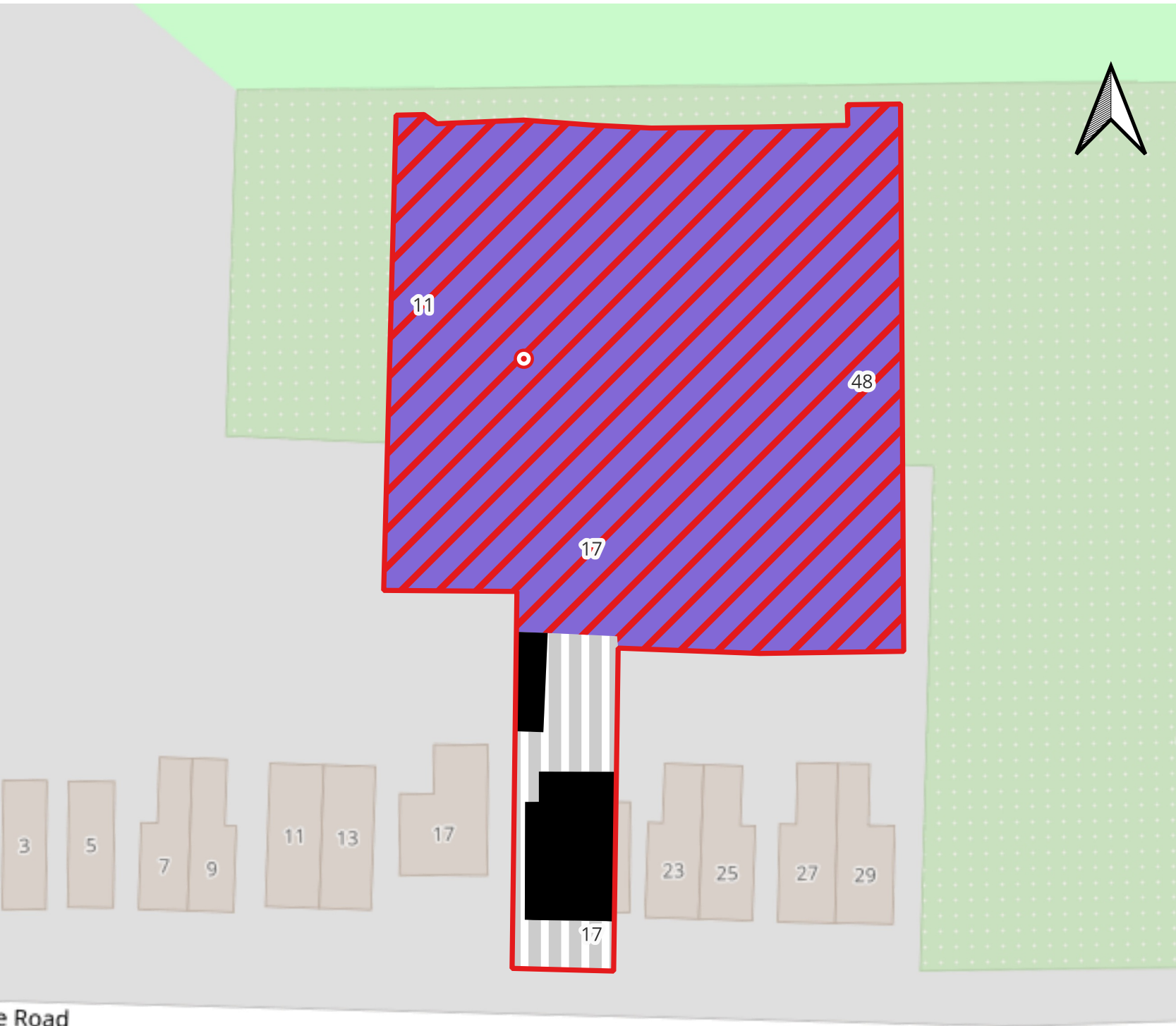
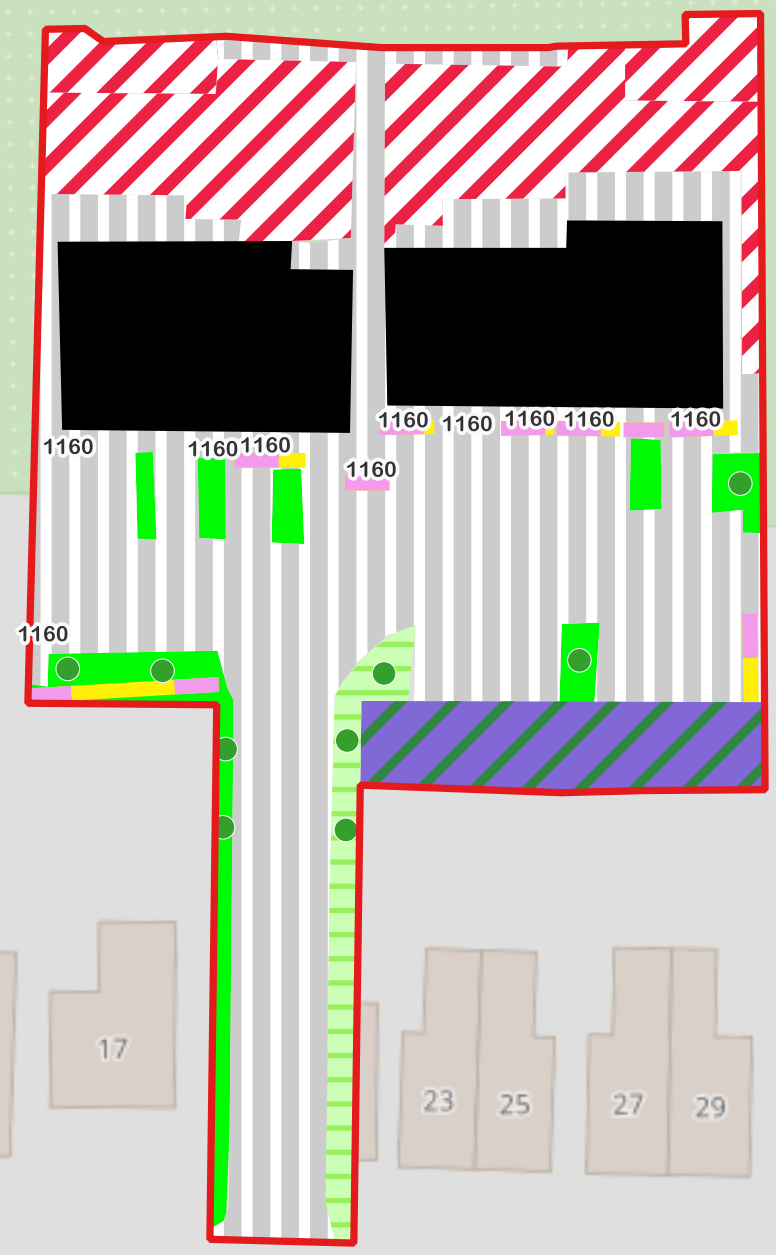
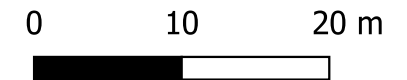


Figure 2: Post-development Habitat Map



- Site boundary
- h2 - hedgerow
- 11 - Scattered trees
- 1160 - Introduced shrub
- g3c - other neutral grassland
- g4 - modified grassland
- h3h - mixed scrub
- u1 - built-up areas and gardens
- u1b - developed land. sealed surface
- u1b5 - buildings

NOTE: Habitats not to scale, precise measurements detailed within landscape plans.



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22482 Land to the Rear of Newcastle Road
BNG Assessment

Figure 2
Post Development Map Revised (V4.0)

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Appendix 1. Relevant Legislation

Amphibians

Smooth newt *Lissotriton vulgaris*, palmate newt *L. helveticus*, common frog *Rana temporaria* and common toad *Bufo bufo* are included in Section 9(5) of the Wildlife and Countryside Act 1981 (“the WCA 1981”) which prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy these species.

Common toad is also a Priority Species under the Natural Environment and Rural Communities Act 2006 (“the NERC Act”).

Great crested newts *Triturus cristatus* (GCN) are protected under WCA 1981 and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (“the Habitats Regulations”), and are a European Protected Species (EPS).

It is illegal to kill, injure, capture, handle or disturb GCN, and the places they use for breeding, resting, shelter and protection are protected from being damaged or destroyed.

GCN is a Priority Species under the NERC Act.

Badger

Badgers *Meles meles* and their setts are protected under the Protection of Badgers Act 1992 (“the PBA 1992”). It is an offence to kill, injure or take a badger from the wild. It is also an offence to destroy, damage or obstruct a currently active badger sett, or to disturb badgers within the sett.

Bats

All species of bat occurring within the UK are included in Schedule 2 of the Habitats Regulations. Under regulation 41, bats are protected from deliberate capture, injury or killing, from deliberate disturbance and from deliberate damage or destruction of a breeding site or resting place (roost).

All UK bats are also included on Schedule 5 of the WCA 1981. However, their protection is limited to certain offences. It is an offence to intentionally or recklessly disturb bats while they are occupying a structure or place used for shelter or protection, or to obstruct access to any such place.

Birds

All nesting birds are protected under the WCA 1981 against destruction of the nest during the bird nesting season, which is generally considered to last between March and August, inclusive.

It is illegal to kill, injure or ‘take’ any wild bird, take or damage the nest of any wild bird whilst in use or being built. The eggs of all wild birds are also protected.

The birds listed in Schedule 1 of the WCA 1981 are further protected all year round for those in Part 1 and during a specified closed season for those listed in Part 2.

In 2020, a re-assessment of Birds of Conservation Concern (BoCC) was published by Eaton *et al.* (2020), which defined rare and threatened bird species on two lists (Red and Amber) describing the level of threat to each species of concern.

“Red” is the highest conservation priority, with species needing urgent action due to either a historical decline in breeding population, severe (>50%) decline in breeding or non-breeding population, or severe decline in breeding range over 50 years or more.

“Amber” is the next most critical group, with species qualifying for this status as a result of either recovery from red list criterion, being classed as rare breeders in the UK, moderate (>25%) decline in breeding or non-breeding population or moderate decline in breeding range over 25 years or more.

These categories are followed by “Green”, indicating that the species are relatively unthreatened.

Reptiles

All UK reptile species are protected under Schedule 5 of the WCA 1981 against intentional killing or injuring.

Sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca* are awarded further protection under the Habitats Regulations. However, it is considered unlikely that these species are present within the Site or local area, and as such, are not considered further in the report.

Slow worm *Anguis fragilis*, sand lizard, common lizard *Zootoca vivipara*, grass snake *Natrix Helvetica* and adder *Vipera berus* are also listed as Priority Species under the NERC Act.

Appendix 2. Ecological Construction Site Best Practice Guidelines

Works Site Best Practice Guidelines

The following best practice guidelines should be undertaken at all works sites: Deep excavations should be covered overnight during works;

Shallow excavations should have a scaffold board or equivalent placed in them overnight to allow any badgers to escape, should they fall in;

Where fuels / oils are required for equipment (e.g. strimmer's) fuel spill kits should be available at all times;

Refuelling should be undertaken in designated re-fuelling areas, or on plant 'nappies' to catch and contain spillage; and

All chemicals will be stored securely.

Appendix 3. Species List per Habitat Type

Table 10. Bramble scrub

Common Name	Scientific Name	DAFOR
Ash	<i>Fraxinus excelsior</i>	R
Blackthorn	<i>Prunus spinosa</i>	O
Bloody cranesbill	<i>Geranium sanguineum</i>	R
Bramble	<i>Rubus fruticosus</i>	D
Bristly ox-tongue	<i>Helminthotheca echioides</i>	O
Canadian goldenrod	<i>Solidago canadensis</i>	O
Cocksfoot	<i>Dactylis glomerata</i>	A
Common ivy	<i>Hedera helix</i>	O
Common ragwort	<i>Jacobaea vulgaris</i>	R
Creeping cinquefoil	<i>Potentilla reptans</i>	R
Creeping thistle	<i>Cirsium arvense</i>	A
Curled dock	<i>Rumex crispus</i>	O
Dock sp.	<i>Rumex sp.</i>	O
Dog rose	<i>Rosa canina</i>	R
False oat grass	<i>Arrhenatherum elatius</i>	A
Field bindweed	<i>Convolvulus arvensis</i>	O
Garlic mustard	<i>Alliaria petiolata</i>	O
Golden rod	<i>Solidago sp.</i>	R
Hedge bindweed	<i>Calystegia sepium</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Holly	<i>Ilex aquifolium</i>	R
Oak	<i>Quercus robur</i>	O
Red fescue	<i>Festuca rubra</i>	F
Ribwort plantain	<i>Plantago lanceolata</i>	O
Rose sp.	<i>Rosa sp.</i>	R
Round-leaf snowberry	<i>Symphoricarpos rotundifolius</i>	R
Snowberry	<i>Symphoricarpos albus</i>	LA

Spear mint	<i>Mentha spicata</i>	O
Spear thistle	<i>Cirsium vulgare</i>	F
Staghorn sumac	<i>Rhus typhina</i>	LA
White clover	<i>Trifolium repens</i>	O
Willowherb sp.	<i>Epilobium sp.</i>	O
Willow sp.	<i>Salix sp.</i>	R
Wilson's honeysuckle	<i>Lonicera nitida</i>	R
Yorkshire fog	<i>Holcus lanatus</i>	A

Table 11. Developed land sealed surface

Common Name	Scientific Name	DAFOR
American willowherb	<i>Epilobium ciliatum</i>	O
Barren brome	<i>Bromus sterilis</i>	O
False oat grass	<i>Arrhenatherum elatius</i>	O
Great willowherb	<i>Epilobium hirsutum</i>	R
Nigella sp.	<i>Nigella sp.</i>	O
Petty spurge	<i>Euphorbia peplus</i>	O
Ribwort plantain	<i>Plantago lanceolata</i>	R
Sow thistle	<i>Sonchus oleraceus</i>	O
Spurge sp.	<i>Euphorbia sp.</i>	O
Willowherb sp.	<i>Epilobium sp.</i>	O

Appendix 4. BNG Raw Data

Please refer to '22482 Newcastle Road Updated Metric 4.0 Calculations' document.

Appendix 5. Site Photographs



- Plate 1 Ephemeral/ruderal vegetation present at front of property
- Plate 2 u1b Developed land; sealed surface
- Plate 3 h3d Dense bramble scrub
- Plate 4 Mosaic of dense bramble scrub, recently cleared in places.

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PEA Site Photographs



Plate 5 u1b Developed land; sealed surface

Plate 6 Discarded rubble, provides suitable shelter for amphibians, reptiles and small mammals

Plate 7 u1b5 Buildings (B1)

Plate 8 u1b5 Buildings (B2)

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PEA Site Photographs

Ecus Ltd.

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Plate 9 Dense bramble scrub as pictured in July before some areas cleared. Baseline habitats based on habitats before they were cleared.

Plate 10 Dense bramble scrub

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