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Preliminary Ecological Appraisal

&

Biodiversity Net Gain Assessment

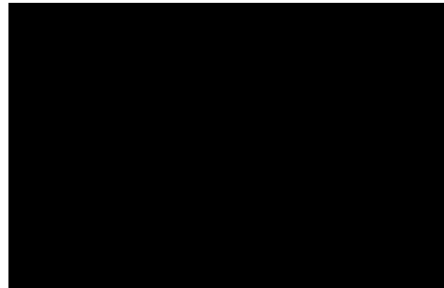
Land off Malt Kiln Brow

Chipping

July 2022

On behalf of

Hodson Homes





Earth Environmental
& Geotechnical

PRELIMINARY ECOLOGICAL APPRAISAL & BIODIVERSITY NET GAIN ASSESSMENT

LAND OFF MALT KILN BROW

CHIPPING

FOR

HODSON HOMES

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Contents

Summary.....	i
1. Introduction	1
2. Methodology	2
3. Baseline Conditions	5
4. Impact Assessment, Recommendations and Mitigation	12
5. Conclusion	16
6. References.....	17
Figure 1. Site Overview.....	18
Figure 2. Designated Sites, Ancient Woodland and Priority Habitat.....	20
Figure 3. Baseline Habitat Map	22
Appendix 1. Policy and Legislation	24
Appendix 2. Photographs.....	27
Appendix 3: Species List	28
Appendix 4. Biodiversity Net Gain Report	31



Summary

This report is an Preliminary Ecological Appraisal for the proposed development at Land off Malt Kiln Brow, Chipping. It identifies ecological constraints for the development and provides recommendations for further survey and/or mitigation. A baseline biodiversity value for the Site has been calculated and an indicative estimate of biodiversity net gain is presented, based on the current landscaping plan.

The Site is comprised of rough, unmanaged grassland with isolated woodland areas along the boundaries. Chipping Brook partially runs along the north-eastern boundary, with a drainage ditch running along the southern extent. All Site habitats are of either low or medium distinctiveness, with the exception of Chipping Brook, and are common and widespread, with a value to nature conservation at the site level only.

No direct impacts or modifications to Chipping Brook are anticipated. However, there is the potential for unintentional pollution and/or sedimentation event to occur during the re-profiling of the steep embankment adjacent to the brook. It has been recommended that a Construction Environmental Management Plan (CEMP) should be produced that includes appropriate control measure to prevent any impacts to the brook.

The baseline biodiversity value of the Site is calculated as 3.22 Habitat Units (HU), 0.00 Hedgerow Units (HeU) and 0.81 River Units (RU). A post-development value of 2.38 HU, 0.58 HeU and 0.81 RU is currently predicted, representing a net change of -26.16% for area-based habitats; >100% for hedgerow-based habitats and no change for river-based habitat.

The following potential ecological receptors for the development have been identified.

Great Crested Newt – The site falls within an amber risk zone for great crested newt, with suitable terrestrial habitat present within 250m of a large mill pond. It is recommended that either further surveys are undertaken within the pond to establish presence/ likely absence or a mitigation licence is applied for through the Natural England District Licencing service. This will require a compensation payment to be made that has been estimated at approx. £2,100 (ex VAT) based on the development footprint.

Common Amphibians and Reptiles – There is considered to be a low risk of individual common amphibians and reptiles within the site. It is recommended that good practise measures in relation to these species are included within the site CEMP to prevent any negative impacts.

Bats – Suitable roosting, foraging and commuting habitat has been identified within the Site but is not anticipated to be significantly impacted. No further surveys are considered to be required, however it is recommended that a bat sensitive lighting plan is incorporated during both the construction and post-development phase.

Birds – The Site supports suitable habitat for both arboreal and ground nesting birds. It is recommended that all vegetation clearance is undertaken outside of the nesting bird season (1st March – 31st August, inclusive). If this is not possible, nesting bird inspections must be undertaken within 48-hours of any vegetation removal.

Terrestrial & Riparian Mammals – Suitable sheltering and foraging habitat has been identified for both badgers and otter within the Site. Although no evidence of either species was observed during the field survey, the presence of individual animals during the construction phase cannot be ruled out. It is recommended that good practise measures in relation to these species are included within the site CEMP to prevent any negative impacts.

Aquatic species associated with Chipping Brook - Chipping Brook is known to support salmonid fish species and has been assessed to provide potential suitable habitat for white-clawed crayfish. Protective control measures for the brook to be included within the site CEMP are considered appropriate for the protection of these species.

No other constraints were identified. Assessment methodologies, results and subsequent recommendations and/or mitigation measures are provided in the main body of the report, including any opportunities for ecological enhancements, where appropriate.



1. Introduction

- 1.1.1 Envance UK was commissioned by Hodson Homes to undertake an Preliminary Ecological Appraisal and for a residential development at land off Malt Kiln Brow, Chipping (central British National Grid Reference (BNGR): SD 61932 43528; hereafter referred to as the 'Site'). This report has been requested to support a planning application for the proposed development of four residential houses with associated gardens, driveways, access and soft-landscaping. The Site boundary is highlighted in Figure 1.
- 1.1.2 The purpose of the present report was to carry out a UK Habitat Classification (UKHab) survey of the Site and to undertake an updated review of the Site's potential to support notable and protected species, listed within both UK and European nature conservation legislation, namely the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). Any impacts upon these habitats or species that may result from the development were then assessed.
- 1.1.3 A Biodiversity Net Gain (BNG) assessment has been undertaken for the Site. Biodiversity accounting metrics were employed to calculate the baseline biodiversity value of the Site and to identify any features of significant value. With reference to current site layout (Drawing No: LAN/BND/P01) an estimate of BNG for the Site was then made.
- 1.1.4 This report documents survey findings and evaluates the likely existing ecological interests of the Site in line with standard industry guidelines (BSI, 2013; CIEEM 2017, 2018). Methodologies employed are described, including Site surveys, and evaluation with recommendations for any further survey work and/or mitigation measures included, where appropriate.



2. Methodology

Desk Study

- 2.1.1 A desk study was undertaken to inform the requirements for field survey and to obtain additional ecological information outside the scope of field survey. The following sources were consulted for relevant ecological information from within 2 km of the Site:
- Lancashire Environmental Record Network (LERN)
 - Multi Agency Geographic Information Centre (MAGIC) website (www.magic.gov.uk);
- 2.1.2 The following information was sought and considered:
- records of specially protected and priority species;
 - records of priority habitats;
 - details of any statutory sites of ecological interest e.g. Sites of Special Scientific Interest (SSSI), Special Protection Areas (SPA) etc., and
 - details of any non-statutory sites of ecological interest e.g. Sites of Importance for Nature Conservation (SINC), Local Wildlife Sites (LWS) etc.
- 2.1.3 Only receptors considered to pose a potential constraint to the development are presented within this report, with the locations of any significant records and/or designated sites presented in Figures 1 & 2. Full records can be viewed on request.

Field Survey

- 2.1.4 A UKHab survey was undertaken by Envance ecologists Paul Wolstenholme (ACIEEM) & Lucia Schlecht on 4th March 2022. The survey followed UKHab methodology (Butcher *et al.*, 2020), where the habitats and vegetation types present were recorded, together with an indication of their relative abundance. This survey method aims to characterise habitats and communities present and is not intended to provide a complete list of all species occurring across a site.
- 2.1.5 UKHab is a habitat classification system designed to support the evaluation of habitats for ecological impact assessment and biodiversity net gain analysis. It has been designed to integrate with other UK classification systems and is becoming widely accepted as the new standard for habitat surveying within the UK.
- 2.1.6 Plant species recorded were classified according to the subjective method of DAFOR abundance ratings. The standardised terms are as follows:

Dominant	(D)
Abundant	(A)
Frequent	(F)
Occasional	(O)
Rare	(R)

Protected and Key Species Survey

- 2.1.7 Evidence of specially protected species or species of nature conservation importance was recorded where present at the time of the survey, including tracks and foraging marks. The structure and quality of the habitats present were also assessed for their suitability to support such species.
- 2.1.8 Invasive plant or animal species listed on Schedule 9 of the Wildlife and Countryside Act (1981) (as amended) were also recorded.



Preliminary Roost Assessment

- 2.1.9 A ground-based preliminary roost assessment of all trees and structures within the Site was undertaken in accordance with best practice guidance (Collins, 2016).
- 2.1.10 All buildings were visually examined for the presence of potential roost features such as cavities and/or crevices created by damaged/lifted roofing materials, missing brickwork and mortar, amongst other features that may provide access to suitable roosting space. Similarly, all trees were examined for potential roost features that may form as a result of either disease, decay and/or damage (i.e. animal holes, knot holes, callus rolls, wounds and other similar features). Close focusing binoculars were used where necessary and any evidence of roosting bats, including live or dead bats, droppings, and staining due to fur oils, was noted.
- 2.1.11 An individual building or tree may support features of potential interest to roosting bats. However, it is not always possible to confirm usage of a feature by bats because they may be present on one day and not on the next, with no lingering evidence of occupancy. Therefore, structures and/or trees are assigned a defined category of roost suitability, based on the potential roosting features present, their associated characteristics (size, shelter, condition etc) and the surrounding habitat. Categories of roost suitability are defined as follows:
- **Negligible** – A structure or tree with no suitable features present that are likely to support roosting bats;
 - **Low** – A structure or tree with suitable features present that could potentially support roosting bats but unlikely to be occupied on a regular basis and/or by a significant number of individuals;
 - **Moderate** – A structure or tree with suitable features with suitability to provide regular shelter for low numbers of individual bats but unlikely to support a roost of high conservation status.
 - **High** – A structure or tree with suitable features with suitability to support large numbers of bats on a regular basis, for potentially longer periods of time.
- 2.1.12 The Site was also assessed for its suitability to support foraging and commuting bats.

Limitations

- 2.1.13 This report serves to indicate the value of the Site in nature conservation terms based upon the survey data gathered. As with any survey of this kind, the information collected defines the habitat types and quality and is not intended to be a record of every species present.
- 2.1.14 Despite these limitations, the combination of data obtained is considered sufficient to provide a broad evaluation of the nature conservation interests of the Site and its environs and assess the nature, magnitude, and significance of impacts to those interests associated with the development. Where this was not considered possible or robust, further precautionary surveys have been recommended.

Assessment methodology

Ecological importance

- 2.1.15 The importance of ecological features was determined based on the guidance given by CIEEM (2018). Individual ecological receptors (habitats and species that could be affected by the Development) were assigned levels of importance for nature conservation in one of the following categories:
- International
 - UK
 - National
 - County



- Local, or
- At site level only

2.1.16 For a given receptor determination of value includes consideration of the size, conservation status and quality of the species or feature.

Valuation of Habitats

2.1.17 Some sites are automatically assigned a nature conservation value through designation and the reason for designation is taken into account. Designated sites are considered at the following levels:

- International – Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar Sites;
- National – Sites of Special Scientific Interest (SSSI);
- County or local – sites designated by Local Authorities.

2.1.18 Habitats that are not subject to specific nature conservation designations have been valued against published selection criteria where possible, including the following:

- Guidelines for the selection of biological SSSI; and
- Habitats of Principle Importance listed under Section 41 of the Natural Environment and Rural Communities [NERC] Act 2006;
- The Hedgerow Regulations 1997.

2.1.19 In determining the value of habitats, consideration has also been given to national and local Habitat Action Plans and the appropriate Ancient Woodland Inventory (AWI) in conjunction with critical appraisal of the size, status and quality of the habitat affected. Further details of policy and legislation are given in Appendix 1.

Species

2.1.20 In ascribing values to populations of species consideration has been given to the legal status of species, as well as their size and status on the Site and within the local geographic area. Certain species receive protection, or require special consideration, under various pieces of legislation (see Appendix 1), and this has been taken into account when determining value. Legislation considered includes:

- The Conservation of Habitats and Species regulations 2017 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- The Protection of Badgers Act 1992;
- The NERC Act 2006.

2.1.21 The rarity of the species in the context of status, i.e. whether populations of a species are declining either nationally or at a more local level has also been considered.



3. Baseline Conditions

3.1.1 Baseline conditions at the Site are described below.

Site Description

- 3.1.2 The Site is formed of rough grassland on a steep embankment, bordered by small isolated sections of woodland, scattered tree and shrubs. A drainage channel runs along the southern boundary, with Chipping Brook running along the north eastern boundary.
- 3.1.3 The Site is located on the outskirts of Chipping, within the county of Lancashire. Chipping is located in a rural area within Forest of Bowland Area of Outstanding Natural Beauty. The nearest town (Longridge) located approximately 5.5 km south-east. There are no major roads located within 1 km of the Site; the nearest major road is the B5269 situated approximately 6 km south from the Site's nearest border. There are no railway lines within the local vicinity or within 10 km of the Site, and there are no public parks within 1 km of the Site.
- 3.1.4 The River Loud runs approx. 1.7 km W of the Site, however is hydraulically connected via Chipping Brook to the SE approx. 2.1km downstream. The nearest waterbody, Mill Pond, is located approx. 40 m north-east of the Site's boundary.
- 3.1.5 The Site is completely included as part of the National Habitat Recovery Network (Habitat Networks (England), 2021 – available at data.gov.uk) as part of 'Network Enhancement Zone 2'. This represent land connecting existing patches of priority and associated habitats and is considered to be strategically significant target zone for improving biodiversity value and ecological landscape connectivity.

Protected Sites

Statutory Designated Sites

- 3.1.6 The Site is situated within the Forest of Bowland Area of Outstanding Natural Beauty. Bowland Fells Site of Special Scientific Interest (SSSI) and Special Protection Area (SPA) is located approximately 1.9 km north-west of the nearest Site border, designated due to the presence of breeding hen harrier *Circus cyaneus* lesser black-backed gull *Larus fuscus*, and merlin *Falco columbarius*. This site is considered to be of international importance to nature conservation.
- 3.1.7 The site is does not support significantly valuable breeding habitat for any of the qualifying species listed and is considered unlikely to support significant numbers of wintering individuals due to the presence of tall vegetation, as well as high disturbance from the surrounding residential areas and agricultural grazing pasture. Therefore, the site is not considered to represent functionally-linked land and due to the nature of the development, no significant direct or indirect impacts are anticipated to the Bowland Fells SSSI & SPA.
- 3.1.8 The proposed development is also not anticipated to cause a significant visual impact above that of the surrounding residential areas that would significantly affect the Forest of Bowland AONB designation. Therefore statutory designated sites are not considered a receptor to the proposed development and are not discussed further in this report.

Non-Statutory Designated Sites

- 3.1.9 LERC returned details of seven Biological Heritage Sites (BHS) within 2 km of the Site (Figure 2). All of these sites are considered of local importance to nature conservation.



Table 1. Non-statutory sites within 2 km of the Site.

Grid Ref	Site Name	Approximate Distance from Site
SD632451	Buckbanks Wood	1.9 km
SD614438	Nan King's Grassland	501 m
SD617446	Dobson's Brook Wood	1 km
SD633438	Little Bowland Road-Throstle Nest	1.3km
SD618437	Lumpy Pasture	130 m
SD617437	Clark House Farm Pasture	197 m
SD629426	Chipping Moss	1.2 km

- 3.1.10 Given the scale and scope of the development, all biological heritage sites are considered to be a significant distance from the Site and are highly unlikely to be impacted either, directly or indirectly, in any way. Therefore non-statutory designated sites are not considered a receptor to the proposed development and are not discussed further in this report.

Ancient Woodland and Priority Habitat

- 3.1.11 There are areas of ancient woodland located approximately 1 km north, 1.9 km north-east and 2.4 km east of the Site (Figure 1). There are three areas of priority good quality semi-improved grassland within 2 km of the Site; one borders the Site's north-eastern boundary. There are many pockets of priority deciduous woodland within 2 km of the Site's border, one of which lies adjacent to the Site's north-eastern boundary. Within 2 km of the Site's boundary also lies areas of priority calcareous grassland, lowland meadow, purple moor grass and rush pasture, lowland fen, upland flushes, fens and swamps. It should be noted that priority upland heathland and blanket bog are located approximately 2.1 km and 2.2 km north of the Site's border, respectively. All areas of Priority Habitat are highlighted in Figure 2.
- 3.1.12 All habitat within the site bordering any areas of priority habitat is anticipated to be retained as part of current development plans. All other areas of priority habitat and ancient woodland are a significant distance from the site and are not anticipated to be impacted in any way. Therefore, priority habitat and areas of ancient woodland are not considered to be a receptor to the proposed development and are not discussed further in this report.

Main Watercourses

- 3.1.13 Chipping brook runs along the north eastern border of the site. No direct impacts to the riparian margin are anticipated (within 10m of the bank top). However, some reprofiling of the steep embankment of the site is planned which has the potential to cause pollution or sedimentation events which may impact the water quality within the brook, and in-directly, riparian habitats further downstream. Therefore, Chipping Brook is considered a potential receptor to the proposed development.

Site Habitats

- 3.1.14 Site habitats are described below and mapped in Figure 3. Photographs are presented in Appendix 2, with a full botanical species list provided within Appendix 3.

Arrhenatherum neutral grassland (g3c5 16 80)

- 3.1.15 The site is largely comprised of rough, unmanaged grassland (g3c5 in Figure 3; Appendix 2: Photograph 1), dominated by rank grasses including abundant false oat-grass *Arrhenatherum elatius*, cock's-foot *Dactylis glomerata*, and Yorkshire-fog *Holcus lanatus*. Tall ruderal herbs were also frequent, including common nettle *Urtica dioica* (F); creeping thistle *Cirsium arvense* (O); broad-leaved dock *Rumex*



obtusifolius (O); hogweed *Heracleum sphondylium* (O), with further herb species indicative of sub-optimal conditions such as creeping buttercup *Ranunculus repens* (F) and cleavers *Galium aprine* (O).

- 3.1.16 This habitat was formed on a steep embankment, with areas of scattered scrub forming at the base (10 in Figure 3; Appendix 2: Photograph 2). This included locally frequent alder *Alnus glutinosa* (LF); goat willow *Salix caprea* (R); and grey willow *S. cinerea* (R). Scattered elder *Sambucus nigra* (R), blackthorn *Prunus spinosa* (R) and bramble *Rubus fruticosus agg.* (LF) were also present in the wider site, with scattered trees (11 in Figure 3) and shrubs along the western boundary including mature lime *Tilia x europaea* (R); sycamore *Acer pseudoplatanus* (R) and hawthorn *Crataegus monogyna* (O). An section of scattered young ash *Fraxinus excelsior* (LF) is also present within the north-eastern boundary.
- 3.1.17 The grassland was a uniform tall sward, with a relatively poor species-diversity (less than 9 species per square meter), typical of this habitat. Neutral grassland of this type is common and widespread in the wider area, and with a poor-diversity, abundance of scattered scrub and presence of species indicative of sub-optimal conditions, this habitat has been assessed to be in poor condition. Full condition assessment details are provided in Appendix 4.

Other woodland; broadleaved (w1g)

- 3.1.18 A small section of woodland is present along the north western boundary of the site (w1g in Figure 3; Appendix 2: Photograph 3). This represented a relatively isolated area of woodland surrounded by agricultural pasture at the edge of Chipping Brook. The woodland canopy was dominated by semi-mature sycamore (A) with rare sessile oak *Quercus petraea* (R) and ash (A). The understorey was relatively scattered with frequent hawthorn (F) and young sycamore (R). The ground flora was mostly dominated by rank grasses and ruderal herbs such as cock's foot (F); and cow parsley *Anthriscus sylvestris* (F). However, woodland indicator species such as bluebell *Hyacinthoides non-scripta*; enchanter's-nightshade *Circaea lutetiana*; male fern *Dryopteris filix-mas* (R); and red campion *Silene dioica* (O) were present.
- 3.1.19 A separate section of this woodland type is present along the south eastern boundary, as a woodland corridor along a drainage ditch. This area again supports abundant mature sycamore (A); with more occasional mature ash (O) and wych elm *Ulmus glabra* (O). The understorey is comprised of frequent snowberry *Symphoricarpos albus* (F); blackthorn (F); with occasional dog-rose *Rosa canina* (O); and raspberry *Rubus idaeus* (R). Ground flora in this section was mostly bare, with occasional dog's-mercury *Mercurialis perennis*.
- 3.1.20 The ground-flora present in both areas indicates the potential historic presence of a more established historic woodland (Most likely *Fraxinus excelsior* – *Sorbus aucuparia* – *Mercurialis perennis* woodland (NVC: W9; UkhHab: Upland mixed ashwoods)). However, the canopy is now dominated by non-native trees species and as a result this woodland does not meet the criteria for Priority Habitat Woodland type (as defined within S41 of the NERC Act 2006). Both areas woodland has also been assessed to be in poor condition due to a complex canopy, abundance of non-native trees; absence of deadwood; invasive/sub-optimal species presence in the understorey/ground flora; and signs of disease and decay. Full condition assessment details are provided in Appendix 4.

Rivers and Lakes; Other rivers and streams (r2b)

- 3.1.21 Chipping Brook runs along the boundary of the Site (r2b in Figure 3; Appendix 2: Photograph 4). The brook is approximately 3 m wide and 20 m deep, with a substrate comprised of cobble, gravel and small exposed boulder. The left bank is vertical earth cliff, approximately 2 m high, dominated by mature and semi-mature trees, tall grass and herbs. Leaning trees are present, trailing into the channel. The right bank is a composite bank with a gentle slope, ending in a vertical cliff. This side of the bank is dominated by tall herbs and grasses. Fallen trees and deadwood also lie on the right-hand side of the brook. The channel is heavily shaded by adjacent trees, with only occasional emergent/marginal aquatic vegetation.



- 3.1.22 A drainage ditch also runs along the southern boundary of the site (r2b 191 in Figure 3; Appendix 2: Photograph 5). This represents a relatively deep ditch running along a stone wall before cutting through a small section of woodland. The water level was approx. 30cm deep by 1 m wide with 3m high banks. The substrate was formed of cobble and small boulders with a moderate flow.
- 3.1.23 This ditch was assessed to be in poor condition due to the absence of marginal/aquatic vegetation, low water levels and high shade. A full river condition assessment for Chipping brook was not undertaken as the morphology of the river is unlikely to be impacted in any way as a result of the proposed development. Full condition assessment details are provided in Appendix 4.

Specially Protected and Otherwise Notable Species

Amphibians

- 3.1.24 LERN returned one recent record for common frog *Rana temporaria* from within 2 km of the Site. No reports of presence were reported from Natural England GCN Licence returns within the search area. The Site does however fall largely within an 'Amber' risk zone for Great crested newt *Triturus cristatus* (GCN).
- 3.1.25 A Mill Pond is located around 40 m north-east of the Site's boundary. The pond is approx. 4000m² with the majority of the riparian margin formed by a minor road. Great crested newt *Triturus cristatus* (GCN) are rarely found in waterbodies of this size, and with a likely high abundance of water fowl and fish populations it is unlikely to be suitable for GCN breeding. No further suitable waterbodies have been identified within 500 m and therefore it is considered unlikely that amphibians would be present in the area in any significant numbers.
- 3.1.26 The site does however support suitable foraging and sheltering habitats for amphibians in the form of tall rough grassland. As such, the potential presence of amphibians, including GCN, cannot be ruled out and amphibians should be considered as a receptor to the proposed development.

Bats

- 3.1.27 LERN did not return any recent bat records from within 2 km of the Site.
- 3.1.28 South Lancashire Bat Group (SLBG) returned single further recent record from within 2 km of the Site. This pertained to a common pipistrelle roost located approx. 1 km south-east of the Site. In addition to this, an older record of an Daubenton's bat day roost located within the woodland opposite the north-eastern boundary of the site, was returned from 2009.

Bat Roosting

- 3.1.29 A single ash tree in the north-east woodland (TN1 in Figure 3; Appendix 2: Photograph 6) was identified with potential features to support bat roosting. All other trees within the site were assessed to have negligible bat roosting suitability. The desk study also revealed that bat roosting has been confirmed within the woodland area, immediately adjacent to the site. No impacts to the identified tree or adjacent woodland are anticipated with the proposed development.

Foraging/Commuting Bats

- 3.1.30 The riparian margin of Chipping brook, as well as the areas of woodland along the boundary of the site will have value for commuting/foraging bats. All suitable foraging/commuting habitat will be retained as part of current development plans. Therefore, no significant impacts to local populations of foraging/commuting bats are anticipated.
- 3.1.31 No significant direct impacts to either roosting or foraging/commuting bats are anticipated under current development plans, however, bats and their prey are particularly sensitive to artificial light, with the presence of roosting bats in the immediate vicinity of the site, should be considered during both the construction and post-development phase.



Birds

- 3.1.32 LERN returned 14 recent records of notable bird species from within 2 km of the Site (Table 4). These species are considered to be priority bird species due to significant population declines. Protected birds listed within Schedule 1 of the Wildlife and Countryside Act 1981 (WCA; as amended) were reported. There were three recent records of pheasant *Phasianus colchicus*, an invasive non-native species.

Table 4. Notable bird species recorded within 2 km of the Site.

Common Name	Scientific Name	Conservation Status*
Mallard	<i>Anas platyrhynchos</i>	Amber
Kingfisher	<i>Alcedo atthis</i>	SCH1
House Martin	<i>Delichon urbicum</i>	Red
Kestrel	<i>Falco tinnunculus</i>	Amber
Moorhen	<i>Gallinula chloropus</i>	Amber
Curlew	<i>Numenius arquata</i>	S41, Red
House Sparrow	<i>Passer domesticus</i>	S41, Red
Starling	<i>Sturnus vulgaris</i>	S41, Red
Barn Owl	<i>Tyto alba</i>	SCH1
Lapwing	<i>Vanellus vanellus</i>	S41, Red
Dipper	<i>Cinclus cinclus</i>	Amber
Moorhen	<i>Gallinula chloropus</i>	Amber

*S41 = listed under Section 41 of the NERC Act; Red or Amber = listed on the Birds of Conservation Concern Red or Amber list (Stanbury *et al.*, 2021). SCH1 = listed under schedule 1 of the Wildlife and Countryside Act 1981 (WCA; as amended).

- 3.1.33 The habitats present may provide some foraging value for both the Schedule 1 species: barn owl and kingfisher. However, no suitable habitat features for nesting for either of these species were observed within either the trees or banks of Chipping brook. The site habitats present are common and widespread, not representing high value habits for any of the priority/notable species listed, and as such, any loss is unlikely to have a significant negative effect on local bird populations.
- 3.1.34 The habitats do however support suitable habitat for both arboreal and ground nesting birds within the tall grassland, trees and scrub and it is considered likely that individual active nests would be present over the bird nesting season (march – august, inclusive). Significant loss of nesting habitat is not anticipated under current development plans, however there will be some loss of grassland and trees in the southern half of the site. Therefore nesting birds should be considered as a receptor to the proposed development.

Fish

- 3.1.35 LERC returned 6 recent records of notable bony fish (Actinopterygii) 2 km of the Site (Table 5). Notable fish are listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

Table 5: Recent bony fish records from within 2 km of the Site.

Common Name	Scientific Name	Number of Records
European eel	<i>Anguilla anguilla</i>	2
Atlantic salmon	<i>Salmo salar</i>	2
Brown/sea trout	<i>Salmo trutta</i>	2

- 3.1.36 Chipping Brook was considered to be too shallow at the time of survey to support any significant fish spawning or juvenile refuges. However salmonid fish are known to be present within the brook and may pass through this section on occasion.
- 3.1.37 No direct impacts to the morphology of the watercourse are anticipated, however there is the potential for pollution or sedimentation events to occur as a result of re-profiling of the steep



embankment. This may impact more important areas, further downstream. Therefore, fish should be considered as a receptor to the proposed works.

Flowering Plants

- 3.1.38 LERC returned six records of one notable plant species from within 2 km of the Site. This record pertained to a bluebell *Hyacinthoides non-scripta* which are associated with ancient woodland.
- 3.1.39 LERC returned recent records for invasive non-native species (INNS) listed within Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) within 2 km of the Site (Table 5).

Table 5: INNS recently recorded within 2 km of the Site.

Common Name	Scientific Name	Number of Records
Cotoneaster	<i>Cotoneaster</i> spp.	1
Montbretia	<i>Crocsmia x crocosmiiflora</i>	3
Japanese Knotweed	<i>Fallopia japonica</i>	6
Himalayan balsam	<i>Impatiens glandulifera</i>	35
Yellow archangel	<i>Lamium galeobdolon subsp. argentatum</i>	1
Rhododendron	<i>Rhododendron ponticum</i>	1
Japanese rose	<i>Rosa rugosa</i>	1

- 3.1.40 Bluebell was observed during the site visit, present within the small section of woodland along the north western boundary. This area is not anticipated to be impacted in anyway under current development plans.
- 3.1.41 No other notable plants or INNS were observed the Site visit. Therefore, flowering plants are not considered to a be a receptor for the proposed development and are not discussed further in this report.

Invertebrates

- 3.1.42 LERC returned one recent record for the comma butterfly *Polytonia c-album* within 2 km of the Site. In addition, two recent records of the Harlequin ladybird *Harmonia axyridis*, an invasive non-native species, were also returned.
- 3.1.43 The habitat present are common and widespread, with a relatively poor diversity. While they may support an abundance of common invertebrate species due to the absence of intensive management, habitats are considered unlikely to support rare or priority invertebrates in any significant numbers. Therefore, invertebrates of conservation importance are not considered to be a receptor for the proposed development and are not discussed further in this report.

Reptiles

- 3.1.44 LERC returned no recent records for reptiles from within 2 km of the Site.
- 3.1.45 The habitats present are considered to be sub-optimal for reptiles, which a very limited diversity of vegetation structure offering suitable areas for basking and shelter. Despite this, Chipping brook does offer some limited ecological connectivity to the site and the potential presence of individual reptiles cannot be ruled out.

Riparian Mammals

- 3.1.46 LERC returned one recent records for the European otter *Lutra lutra* from within 2 km of the Site.
- 3.1.47 No field signs for riparian mammals was observed during the Site visit. The watercourses present within and adjacent to the Site offer very limited foraging opportunities for otter, with limited suitable



terrestrial sheltering habitat present within the site, along the brook.

- 3.1.48 Otter are however a wide ranging species and the presence of individual animals within the site cannot be ruled out.

Terrestrial Mammals

- 3.1.49 LERC returned five recent records for brown hare *Lepus europaeus* and one recent record for roe deer *Capreolus capreolus* from within 2 km of the Site. Similarly, LERC returned one record for west European hedgehog *Erinaceus europaeus*. There was one recent record for eastern grey squirrel *Sciurus carolinensis*, an invasive non-native species.
- 3.1.50 No field signs of terrestrial mammals were observed during the Site visit. The Site habitats may offer some foraging value for badger, with set creation opportunities present within the steep embankment. Badger is a wide ranging species, with the ability to excavate setts over a relatively short time period. Therefore, the potential presence of badger cannot be ruled out and should be considered as a receptor for the proposed development.

White-claw Crayfish

- 3.1.51 LERN did not return any records for white-clawed crayfish *Austropotamobius pallipes* from within 2 km of the site.
- 3.1.52 No signs of crayfish were observed during the site visit. However, white-clawed crayfish are known to be present within streams in the north-west of England and Chipping brook does support a cobble substrate that may offer some value as sheltering habitat. Therefore, the presence of white-clawed crayfish cannot be ruled out.
- 3.1.53 No direct impacts to the morphology of the watercourse are anticipated, however there is the potential for pollution or sedimentation events to occur as a result of re-profiling of the steep embankment. Therefore, white-claw crayfish should be considered as a receptor for the proposed works.



4. Impact Assessment, Recommendations and Mitigation

Development Proposals

- 4.1.1 The proposed development involves the erection of four two-storey houses with associated parking, access roads, gardens and soft-landscaping. In addition, two of the houses will have additional garages separated from the main building. Access to the site will be via a newly created bridge access off Church Rake. Land take of the development will be largely restricted to the south central area of the site, where the topography is relatively flat. All habitats on the steep embankment, riparian margin of chipping brook, woodland areas and scattered trees will be retained. Bank re-profiling is planned on the north, west and eastern side of the development, which will be replanted to create 'green walls' of similar type to the existing grassland habitat.

Habitats

- 4.1.2 Under current development plans, the only habitat anticipated to be lost is *Arrhenatherum* neutral grassland, for which a section is to be cleared to facilitate the development footprint. All other habitat will be largely retained in their current form. The only exception is the drainage ditch along the southern boundary, which is anticipated to become partially culverted to facilitate the new bridge access to the Site.
- 4.1.3 No habitats of Principle Importance or Priority Habitats listed within the local biodiversity action plan are present within the site. All habitats anticipated to be lost are common and widespread, with their loss representing an impact to nature conservation at site level only.

Main Watercourses

- 4.1.4 No morphological changes to Chipping Brook are anticipated under current development plans. However, there is considered to be a risk of pollution and/or sedimentation events as a result of re-profiling of the steep embankment.
- 4.1.5 Additional protective measures should further be incorporated. These should include:
- The prevention of construction material storage in close-proximity to the brook;
 - The production of a construction environmental management plan (CEMP) that details pollution prevention measures to be strictly adhered to during development works. Guidelines should follow those set-out within.
- 4.1.6 Additional protective measures such as silt traps and/or straw bales/sandbags to prevent siltation and sedimentation should also be implemented, where required.



Species

Amphibians & Reptiles

Great Crested Newt

- 4.1.7 GCN are protected by the Conservation of Habitats and Species Regulations 2017 (as amended) and by the Wildlife and Countryside Act 1981 (as amended). It is an offence to deliberately capture, injure or kill an individual; to deliberately disturb an individual; and to deliberately disturb or damage a GCN breeding site or resting place.
- 4.1.8 There is currently considered to be a low risk of GCN presence within the site due to the proximity of the Mill Pond, 40m north of the Site and the locality of the site within an 'Amber' GCN risk zone. Land take of the development would currently result in the loss of 0.15 ha of terrestrial habitat within 250m of the pond. As a result the potential presence of GCN must be considered.
- 4.1.9 Lancashire is currently part of the Natural England District Licencing Scheme. This enables a one-off compensation payment to be paid for a GCN mitigation licence to be granted without any further surveys. This would allow the use of reasonable avoidance measures (RAMs) during site clearance, with any individual GCN found to be moved off-site by a licenced individual. Given the small footprint of the development it has been calculated that the compensation payment may be as little as £2,100, however actual costs can only be calculated and confirmed through Natural England.
- 4.1.10 Given the low suitability of the pond for GCN, it may be a more cost effective option to undertake eDNA water sampling within the waterbody to rule out the presence of GCN. If a negative result is returned then GCN are considered to be absent and highly unlikely to be present within the site. Water sampling can only be undertaken from 15th April to the end of June, however and a positive result would result in the an increase in the compensation payment to Natural England by approx. 50%.

Common Amphibians & Reptiles

- 4.1.11 All UK native reptiles are protected under Schedule 5 (Section 9) of the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally injure, kill or trade any individuals of these species. They are also all listed as priority species under Section 41 of the NERC Act 2006. Common amphibians are protected under the WCA 1981 against sale, barter or exchange of captive animals. Common toad is listed as a priority species under Section 41 of the NERC Act 2006.
- 4.1.12 There is currently considered to be a low risk of encountering both individual common amphibians and reptiles within the Site during the construction phase. It is recommended the CEMP produced for the Site should include good working practices to be implemented during the works to prevent any significant impacts to individual amphibians and reptiles.

Bats

- 4.1.13 All species of bat occurring within the UK are protected by the Conservation of Habitats and Species Regulations 2017 (as amended) and by the Wildlife and Countryside Act 1981 (as amended). It is an offence to deliberately capture, injure or kill a bat; to deliberately disturb a bat; and to deliberately disturb or damage a bat breeding site or resting place (i.e. a bat roost).
- 4.1.14 Brown long-eared bat *Plecotus auritus*; noctule; and soprano pipistrelle bats are listed as Species of Principal Importance listed under Section 41 of the NERC Act.
- 4.1.15 No direct impacts to roosting or foraging/commuting bats are anticipated under current development plans. Nevertheless, the Development works and final landscape plan should adopt lighting strategies sensitive to the presence of bats. The woodland areas and riparian habitats of Chipping brook situated around the boundary of the site offer some potential value for both roosting, foraging and commuting



bats. Therefore, it is recommended that during both the construction and post-development phase, artificial lighting should be minimised and should be appropriately directed to avoid excessive light-spill. In addition to this, lights that emit minimal ultra-violet light and avoid insect-attracting white and blue wavelengths of light should be used. Further information on lighting design for bats is provided by the Bat Conservation Trust (BCT, 2018).

- 4.1.16 Measures and lighting strategies in relation to bats should be included within both the site CEMP to be implemented during the construction phase, and the Biodiversity Enhancement Management Plan (BEMP) for post-development biodiversity management.

Birds

- 4.1.17 Active nests of all species of birds are protected from disturbance, damage and destruction by the Wildlife and Countryside Act 1981 (as amended). Additional protection is afforded to any species listed in Schedule 1 of the Act.
- 4.1.18 Rough grassland, scattered scrub and trees are anticipated to be lost are considered to have the potential to support both arboreal and ground nesting birds. It is therefore recommended that all vegetation clearance is undertaken outside of the bird nesting season (which runs from 1st March to 31st August, inclusive). However, if this is not possible, vegetation could be removed during this period, subject to the results of a nesting bird inspection done no more than 24 hours prior to the clearance. If an active nest were to be found, a no disturbance buffer zone would need to be established around the nest until it had been confirmed that the nest was no longer active.

Riparian & Terrestrial Mammals

Badger

- 4.1.19 Badgers and their setts are fully protected by the Protection of Badgers Act 1992.

Otter

- 4.1.20 Otter are protected by the Conservation of Habitats and Species Regulations 2017 (as amended) and by the Wildlife and Countryside Act 1981 (as amended). It is an offence to deliberately capture, injure or kill an individual; to deliberately disturb an individual; and to deliberately disturb or damage a GCN breeding site or resting place.
- 4.1.21 Although no evidence for the presence of these species was found within the Site, their occasional presence is considered to be possible based on the habitats present. As such, there is considered to be a risk of impacts to individual animals that may pass through the Site during the construction phase. It is recommended that the site CEMP should include good working practices to be implemented during the works to prevent any significant impacts to individual badger and/or otter, should they be present.

Aquatic Species associated with Chipping Brook

Fish

- 4.1.22 European eel, brown trout and Atlantic salmon are listed as Species of Principal Importance listed under Section 41 of the NERC Act.

White-clawed crayfish

- 4.1.23 White-clawed crayfish are protected under Schedule 5 (Section 9) of the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally remove, capture or trade any individuals of these species. They are also listed as endangered on the global IUCN Red List of Threatened Species.
- 4.1.24 Suitable habitat for these species is present within Chipping Brook and may be directly and/or



indirectly impacted by pollution or sedimentation impacts associated with re-profiling of the steep embankment. Protective measures for the brook described in Section 4.1.4 are considered to be sufficient to prevent any impacts to these species, should they be present.

Biodiversity Net Gain

4.1.25 Habitat gains and losses, biodiversity values, target condition and suggested management associated with the proposed development of the Site are detailed in the biodiversity net gain report provided in Appendix 3. The overall baseline biodiversity value of the Site was calculated as 3.22 Habitat Units (HU) and 0.81 River Units (RU). Post-development, area-based habitats generated 2.38 HU; hedgerows generated 0.58 HeU; and river-based habitats remained at 0.81 RU. This represents a biodiversity net change of -26.61% for area-based habitats; >100% for hedgerows and no change for river-based habitats.

Biological Enhancements

- 4.1.26 Under Policy ENV4: Biodiversity of the Craven District Council Local Plan 2019, it is required that 'Developments should achieve a biodiversity net gain when possible.' While it is not explicitly stated that this should be via the Biodiversity Metric, local planning authorities are often using the metric as a proxy for measuring biodiversity value.
- 4.1.27 In order to achieve a biodiversity net gain for the site, it recommended that appropriate management of existing retained habitats should be incorporated into the post-development management plan for the site. If all areas of retained neutral grassland can be improved to 'moderate' condition this would result in an increase of 1.11 HU, resulting in a biodiversity net gain of 8.42% for habitat units.
- 4.1.28 In order to achieve this, a post-development management plan for the area should be produced. This should involve a low-intensity mowing regime, with the first yearly cut occurring in late summer to allow wild flowers to seed and invertebrates to complete their life-cycles un-impacted. This will allow a diverse range of grasses and wildflowers to establish.
- 4.1.29 Additional options for increasing biodiversity value include:
- Additional tree planting within areas of public open space – Native tree species are encouraged, with the planting of heavy or extra-heavy standards, if possible.
 - Wildflower planting – The incorporation of native wildflower planting within the areas of public open space will increase the biodiversity value of this area. Management of these areas should be via a low-intensity cutting/mowing regime, as described above.
- 4.1.30 Additional species specific enhancements for the site could include the installation of bat and bird boxes within woodland areas surrounding the site, as well as reptile and amphibian hibernacula along the margins of Chipping Brook.
- 4.1.31 All biological enhancements and habitat management for the site, post-development, should be detailed within a Biodiversity Enhancement Management Plan (BEMP). This will detail habitat creation/enhancement strategies, management timescales and responsible persons, covering the entire post-development management period for the site.



5. Conclusion

- 5.1.1 The Site is located on the outskirts of Chipping, surrounded by agricultural pasture and residential development. All statutory designated sites are located beyond 1 km of the Site, with the closest local site of wildlife interest, Lumpy Pasture, within approx.. 130 m. No significant direct or indirect impacts to any designated sites are anticipated as a result of the development.
- 5.1.2 The Site is largely comprised of rough grassland (*Arrhenatherum* neutral grassland, 0.67 ha), with isolated areas of woodland along the north western and south eastern boundary (other woodland; broadleaved, 0.03 ha). Chipping Brook runs along the north-eastern boundary of the site (other rivers and streams, 0.06 km) with a drainage ditch along the southern boundary (ditches, 0.03 km). All habitats identified are common and widespread, of either low/moderate ecological value and in poor condition (with the exception of Chipping Brook). No habitats of principal importance or priority habitats listed within local and national biodiversity action plans are present.
- 5.1.3 There is considered to be a risk of unintentional pollution and/or sedimentation events associated with re-profiling of steep embankments within the site that may affect the water quality of Chipping Brook. It is recommended that pollution/sedimentation control measures are implemented during the construction phase to avoid any direct and/or indirect impacts to the brook.
- 5.1.4 Important Ecological Features that may potentially be affected by the Development are:
- Presence of amphibians and reptiles, including GCN, within the site;
 - Presence of roosting, foraging and commuting bats within the site;
 - Common and widespread nesting birds within the Site;
 - Presence of individual terrestrial and riparian mammals within the Site; and
 - Presence of notable aquatic species within Chipping Brook.
- 5.1.5 The majority of suitable site habitats for these species will be retained as part of current development plans; avoiding any significant impacts to local populations. It is recommended that further good practise measure for these species are included within a Construction Environmental Management Plan (CEMP) for the site to prevent any negative impacts to individual animals.
- 5.1.6 Further survey to establish the presence/ likely absence of GCN within the mill pond, north east of the site, is recommended prior to any site clearance to minimise the risk of an offence. If time scales do not allow this, a mitigation licence can be applied for without survey via the Natural England District Licensing Scheme.
- 5.1.7 Landscaping for the Development currently results in a biodiversity net loss for the site, post-development. It is recommended that retained habitats are appropriately managed to a higher condition state in order to achieve a biodiversity net gain for the site. Additional value can be gained through tree and wildflower planting within the development footprint itself.
- 5.1.8 Compliance with planning conditions, implementation of mitigation and habitat creation/enhancement recommended within this report will ensure that there are no important negative ecological effects of the development over the short-term and that longer-term ecological effects are positive for local biodiversity.



6. References

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Figure 1. Site Overview



Figure 2. Designated Sites, Ancient Woodland and Priority Habitat



Figure 3. Baseline Habitat Map

The table below lists the target notes shown in Figure 3.

Target Note ID	Description
TN1	Mature ash with bat roosting suitability



Appendix 1. Policy and Legislation

Policy

Craven District Council Local Plan 2019

The local plan for Craven District was adopted by the council in November 2019. Key policies in relation to biodiversity and ecology are:

Policy ENV4: Biodiversity

This policy states that:

- Special Areas of Conservation (SAC'S), Special Protected Areas (SPA'S), and Sites of Special Scientific Interest (SSSI's) should be safeguarded, and their recovery, expansion and adaptation to climate should be aided.
- Green infrastructure should be incorporated where possible to provide opportunities for biodiversity net gain/benefit biodiversity.
- Potential developments within 2.5 km of a national or local designated site should be specially considered with an Appropriate Assessment to determine if the development will have an adverse impact.
- In the event of developments having a potential adverse impact on designated sites, permission may be refused unless there are 'imperative reasons of overriding public interest' (IROPI). If there are IROPI, compensatory measures will be required to minimise negative impacts to designated sites.
- The effect of the development on local biodiversity/ecology, as well as wider ecological networks/biodiversity, should be assessed. It is expected that the development will positively contribute to the local/wider biodiversity. Particular attention should be paid to priority habitats, and species within national and local Biodiversity Action Plans.
- The biodiversity and/or geodiversity of land and buildings within the site should be conserved.
- The loss of ecological networks, habitats and species populations should be avoided, and should be recovered or enhanced with the incorporation of beneficial biodiversity features within the development's design.
- Trees and woodlands should be increased by incorporating native and locally characteristic plant and tree species.
- Existing mature and healthy trees and hedgerows should be retained.
- Wildlife should be able to move freely throughout the local environment.
- Developments should achieve a biodiversity net gain when possible.
- Developments that significantly reduce/harm the biodiversity on site should be resisted.
- Developments that will result in the loss/deterioration of irreplaceable habitats (i.e., ancient woodland) will be denied.

National Planning Policy Framework (2021)

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. Section 15 of the document is entitled 'Conserving and enhancing the natural environment' and is of relevance here. Extracts from this section are highlighted below.

'174. 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;...

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;...

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.'

'175. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.'

'180. When determining planning applications, local planning authorities should apply 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 reasons and a suitable compensation strategy exists;

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.'

Legislation

Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 allows for the designation of National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs), to protect areas containing habitats and species of national or international importance. All SPAs and SACs identified under the EC Directives are also SSSIs.

The 1981 Act also provides for the protection of certain species. These include a number of specially protected birds (listed in Schedule 1). Other animals are listed in Schedule 5 and a number of plant species under Schedule 8.

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

The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations) provide domestic implementation of the EU Habitats Directive 1992. Under the Regulations, species listed in Annex II of the Directive are given strict protection in the UK as European protected species and it is an offence intentionally or recklessly to disturb or to harm a European protected species.

Projects which are likely to affect European protected species are subject to particular assessment criteria under the Habitats Directive and the Habitats Regulations. A mechanism for implementing a derogation of the



species protection measures of the Directive – by a system of licensing – is incorporated into the Regulations. Under Part 5 of the Regulations a licence may be granted for a project affecting a European protected species for specific purposes.

Natural England is the licensing authority for derogation licenses. A derogation licence may only be granted, provided:

- that there is no satisfactory alternative; and
- the action authorised will not be detrimental to the maintenance of the population of a European protected species at a favourable conservation status in its natural range.

All public authorities are required to have regard to the provisions of the Habitats Directive in the exercise of their functions under Regulation 9 of the Habitats Regulations. Guidance on the application of the Habitats Regulations is set out in the Joint ODPM and Department for the Environment, Food and Rural Affairs (DEFRA) circular 06/2005 & 01/2005.

Natural Environment and Rural Communities Act 2006

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England.

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Protection of Badgers Act 1992

Under the Protection of Badgers Act 1992 all badgers and their setts are protected from disturbance. The Act also includes provisions to allow NE to grant licences permitting interference with a badger sett in the course of development. Such a licence will normally incorporate conditions to ensure that undue disturbance and suffering to badgers is avoided in the course of the development works.

Hedgerow Regulations 1997

Under the Hedgerow Regulations 1997, provision is made for the notification of “important” hedgerows. To qualify for notification, hedgerows must fulfil a range of criteria relating to their historical, landscape or wildlife character. In accordance with the Regulations, the intention to remove any hedgerow should be notified to the LPA via a hedgerow removal notice. The planning authority may issue a Hedgerow Retention Notice to prevent the loss of an “important” hedgerow. Where permission is granted to remove an “important” hedgerow, the LPA may impose conditions to mitigate the loss.



Appendix 2. Photographs



Appendix 3: Species List

Table A1: Botanical Species Recorded within the Site

Common Name	Scientific Name	Habitat					
		Grassland	Woodland & Forest			Rivers & Lakes	
		A. neutral grassland	Scattered Trees & Shrubs	(NW) Other woodland; broadleaved	(SE) Other woodland; broadleaved	Other Rivers and Streams	Ditches
sycamore	<i>Acer pseudoplatanus</i>		R				
ground-elder	<i>Aegopodium podagraria</i>	F					
common bent	<i>Agrostis capillaris</i>	F					
alder	<i>Alnus glutinosa</i>		F				
sweet vernal-grass	<i>Anthoxanthum odoratum</i>	F					
cow parsley	<i>Anthriscus sylvestris</i>			F			
false oat-grass	<i>Arrhenatherum elatius</i>	A			O		
lady-fern	<i>Athyrium filix-femina</i>	R					
common smoothcap moss	<i>Atrichum undulatum</i>			O			
rough-stalked feather-moss	<i>Brachythecium rutabulum</i>			F			
enchanter's-nightshade	<i>Circaea lutetiana</i>			O			
creeping thistle	<i>Cirsium arvense</i>	O					
hazel	<i>Corylus avellana</i>				F		
hawthorn	<i>Crataegus monogyna</i>			F			
cock's-foot	<i>Dactylis glomerata</i>	A		F			
male-fern	<i>Dryopteris filix-mas</i>			R			
field horsetail	<i>Equisetum arvense</i>	F					
ash	<i>Fraxinus excelsior</i>		R	R	O		
cleavers	<i>Galium aparine</i>	O					
hogweed	<i>Heracleum sphondylium</i>	O					
Yorkshire-fog	<i>Holcus lanatus</i>	A					
bluebell	<i>Hyacinthoides non-scripta</i>			F			
soft-rush	<i>Juncus effusus</i>					F	
dog's mercury	<i>Mercurialis perennis</i>				O		
butterbur	<i>Petasites hybridus</i>					F	
rough meadow-grass	<i>Poa trivialis</i>	F		F			



Land off Malt Kiln Brow, Chipping
Preliminary Ecological Appraisal & Biodiversity Net Gain Assessment

Common Name	Scientific Name	Habitat					
		Grassland	Woodland & Forest			Rivers & Lakes	
		A. neutral grassland	Scattered Trees & Shrubs	(NW) Other woodland; broadleaved	(SE) Other woodland; broadleaved	Other Rivers and Streams	Ditches
selfheal	<i>Prunella vulgaris</i>	R					
blackthorn	<i>Prunus spinosa</i>	R			F		
sessile oak	<i>Quercus petraea</i>			O			
meadow buttercup	<i>Ranunculus acris</i>	O					
creeping buttercup	<i>Ranunculus repens</i>	F					
dog-rose	<i>Rosa canina</i>				O		
bramble	<i>Rubus fruticosus agg.</i>		F				
raspberry	<i>Rubus idaeus</i>				F		
common sorrel	<i>Rumex acetosa subsp. acetosa</i>	O					
broad-leaved dock	<i>Rumex obtusifolius</i>	O					
willow [spp]	<i>Salix [spp]</i>		R				
goat willow	<i>Salix caprea</i>		R				
grey willow	<i>Salix cinerea subsp. cinerea</i>		R				
elder	<i>Sambucus nigra</i>		R				
common ragwort	<i>Senecio jacobaea</i>	F					
red campion	<i>Silene dioica</i>			O			
marsh woundwort	<i>Stachys palustris</i>					F	
hedge woundwort	<i>Stachys sylvatica</i>	F					
lesser stitchwort	<i>Stellaria graminea</i>	F					
snowberry	<i>Symphoricarpos albus</i>				F		
common lime	<i>Tilia x europaea</i>		R	R			
red clover	<i>Trifolium pratense</i>	O					
wych elm	<i>Ulmus glabra</i>				O		
common nettle	<i>Urtica dioica</i>	F					
germander speedwell	<i>Veronica chamaedrys</i>	R					
tufted vetch	<i>Vicia cracca</i>	R					
common vetch	<i>Vicia sativa subsp. segetalis</i>	R					



Appendix 4. Biodiversity Net Gain Report

Introduction

In addition to the preliminary ecological appraisal, a biodiversity net gain (BNG) assessment has been undertaken for the Site. Biodiversity accounting metrics were employed to assess the baseline biodiversity value of the Site and identify any particular features of significant value. The baseline biodiversity value of the Site was then compared to the expected value following the development of the site based on the current iteration of the development landscaping plan (Drawing No: LAN/BND/P01).

Methodology

Baseline

The baseline biodiversity assessment used the Biodiversity Metric 3.1 (BM3.1) calculation tool (Natural England, 2022). Habitat measurements were made using digital mapping software (QGIS Geographic Information System version 3.22). Habitat condition was assessed according to the criteria outlined by Panks *et al.* (2021). The baseline survey and condition assessment was undertaken in combination with the UKHab classification survey, by Envance ecologists Paul Wolstenholme (ACIEEM) and Lucia Schlecht on 4th July 2022.

Information derived from the desk-study was used to inform the biodiversity calculation in relation to the strategic significance of the Site. Habitats are defined as strategically significant if they achieve one of the following criteria:

- are part of a statutory or non-statutory designated site;
- are part of the National Habitat Recovery Network;
- are listed in the Priority Habitat Inventory; and/or;
- are part of a locally designated wildlife corridor or any other local strategic area;

Habitats failing all of these criteria are typically classified as of 'low strategic significance'. However, if they are judged to provide significant ecological connectivity and or value to the local area, they may be assigned an intermediate strategic significance status and classified as 'ecologically desirable'.

Using BM3.1, habitat values are calculated based on whether they occur commonly or whether they are rare (habitat distinctiveness), their area (ha) (or length (km) for linear habitats such as hedgerows, rivers and streams), condition, and strategic significance. This gives a pre-development value in Habitat Units (HU), Hedgerow Units (HeU) and/or River Units (RU).

Measuring Change in Biodiversity

The current landscaping plan and baseline habitats were referred to in order to calculate the area, type, and condition of each predicted habitat once the Development is implemented.

BM3.1 was used to calculate the likely net change in biodiversity value of the Site by comparing the existing baseline against the predicted post-restoration units which would be provided by implementation of the restoration plan.

Net change in biodiversity value can be calculated by subtracting the forecasted future biodiversity value of the site, post-management, from its current biodiversity value ('baseline').

Limitations

The baseline survey was undertaken in July, which is within the optimal season for habitat survey. Therefore, it is considered that a robust assessment of biodiversity value has been made.

A full river condition assessment was not considered to be necessary for Chipping Brook, as no morphological



changes to the watercourse are anticipated. Therefore, a precautionary condition score of moderate has been applied for the baseline calculation.

Baseline Survey Results

Habitat Classification

Site baseline habitats are listed below in BM 3.1 format, followed by the corresponding UKHab codes:

- Grassland – Other neutral grassland (UKHab: g3c5 16 80)
- Woodland and Forest – Other woodland; broadleaved (UKHab: w1g)
- Urban - Developed land; sealed surface (UKHab: u1b)
- Other rivers and streams (UKHab: r2b)
- Ditches (UKHab: r2b 191)

Condition assessment

Tables A3 – 5 detail the results of the condition assessment for each applicable habitat type

Grassland

Other neutral grassland (g3c5, 10, 191)

Table A2. Condition assessment of other neutral grassland within the Site

Criteria	Description	Pass/Fail
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.	Pass
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Fail
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass
4	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Fail
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	Fail
6	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	Fail
Final Assessment		Condition
Clearly neutral grassland type but fails most criteria – Poor condition		Poor

Woodland

Other woodland; broadleaved (w1g)

Table A3. Condition assessment of other woodland; broadleaved within the site

Indicator	North West Area	South East Area
1 Age distribution of	Two age classes present (2)	One age class present (1)



Indicator		North West Area	South East Area
	trees		
2	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland (3)	
3	Invasive plant species	No invasive species present in woodland (3)	Rhododendron or laurel present, or other invasive species > 10% cover (1)
4	Number of native tree species	None to two native tree or shrub species across woodland parcel (1)	
5	Cover of native tree and shrub species	< 50% of canopy trees and <50% of understory shrubs are native (1)	
6	Open space within woodland	10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply (3)	
7	Woodland regeneration	No classes or coppice regrowth present in woodland (1)	
8	Tree health	11% to 25% mortality and/or crown dieback or low risk pest or disease present (2)	
9	Vegetation and ground flora	Ancient woodland flora indicators present (3)	
10	Woodland vertical structure	One or less storey across all survey plots (1)	
11	Veteran trees	No veteran trees present in woodland (1)	
12	Amount of deadwood	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps (1)	
13	Woodland disturbance	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground (2)	
Final Score		25	23
Condition		Poor	Poor

Rivers & Streams

Ditches (r2b 191)

Table A4. Condition assessment of ditches within the Site

Criteria	Description	Pass/Fail
1	The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	Pass
2	A range of emergent, submerged and floating leaved plants are present. As a guide >10 species of emergent, floating or submerged plants in a 20 m ditch length.	Fail
3	There is less than 10% cover of filamentous algae and/or duckweed (these are signs of eutrophication).	Pass
4	A fringe of marginal vegetation is present along more than 75% of the ditch.	Fail
5	Physical damage evident along less than 5% of the ditch, such as excessive poaching, damage from machinery use or storage, or any other damaging management activities.	Pass
6	Sufficient water levels are maintained; as a guide a minimum summer depth of approximately 50 cm in minor ditches and 1 m in main drains.	Fail
7	Less than 10% of the ditch is heavily shaded.	Fail
8	There is an absence of non-native plant and animal species.	Pass
Final Assessment		Condition
50% criteria failed due to low water levels and absence of aquatic/marginal vegetation - Poor		Poor



Baseline Biodiversity Value

Habitat types, conditions, and areas are summarised below in Tables A6 & A7. All area based habitats are considered to be of high strategic significance as they fall within Network Enhancement Zone 2 of the National Habitat Network Strategic Area. Neither watercourse is included within any identified local strategic plan.

Within the Site area-based habitats have a biodiversity value of 3.22 Habitat Units and watercourses have a biodiversity value of 0.81 River Units.

Table A6: Baseline area-based habitat biodiversity value.

UKHab Habitat code	BM 3.0 Habitat Type	Condition	Habitat Distinctiveness	Area (ha)	Habitat Units (HU)
g3c5 16 80	Other neutral grassland	Poor	Medium	0.67	3.09
w1g	Other woodland; broadleaved	Poor	Medium	0.03	0.14
u1d	Developed land; sealed surface	N/A	Very Low	0.0004	0.00
Total Habitat Units					3.22

Table A7: Baseline river habitat biodiversity value.

UKHab Habitat Code	Habitat Type	Condition	Habitat Distinctiveness	Watercourse encroachment	Riparian encroachment	Length (km)	River Units (RU)
r2b	Other rivers and streams	Moderate	Medium	None	None	0.06	0.72
r2b 191	Ditches	Poor	Low	None	Major	0.03	0.09
Total River Units							0.81

Biodiversity Net Gain

The biodiversity net gain assessment has been undertaken based on the current landscaping plan (Drawing No: LAN/BND/P01). From this, habitats have been assumed based on the plan and scope of the Development to provide an indicative net gain value for the Site. Recommendations for management of these habitats has also been provided in order to achieve the maximum feasible biodiversity value based on this plan.

Habitats Retained

Figure A1 outlines the proposed post-development habitats based on the indicative development master plan. The following habitats are anticipated to be retained as part of these plans:

- **Other woodland; broadleaved** – 0.03 ha. The woodland corridor along the south eastern boundary will be retained in its current form.
- **Other neutral grassland** – 0.35 ha. Grassland areas around the eastern, northern and western boundary will be retained as part of the steep embankment. Re-profiling of the embankment is due to be undertaken, north of the residential gardens to create a ‘green wall’ type habitat. This is anticipated to re-create the existing habitat and will be at least of the same condition, if not better.
- **Developed land; sealed surface** – 0.004 ha. The section of road within the Site boundary will be retained without alteration.
- **Other rivers and streams** – 0.06 km. Chipping Brook and associated habitats will be retained in their current form with not major alterations.
- **Ditches** – 0.03 km. The drainage ditch along the southern boundary will be retained, with the only significant alteration the installation of a culvert to facilitate the new bridge access. The ditch is already culverted under Malt Kiln Brow and therefore the presence of a new culvert will not have any adverse impacts on the ditch biodiversity value above current conditions.



- **Urban Tree** – 0.0732 ha. Two existing trees within the development footprint will be retained and classified as urban trees as they will over sail urban habitat types, post-development. Trees are already of medium stature (Diameter at Breast Height >30cm) and would be expected to achieve moderate condition over the post-development management period.

Habitats Created

Newly created habitats, not present during the baseline habitat survey include:

- **Developed Land; Sealed Surface** – 0.15 ha. This represents the buildings, driveways, and access pathways and roads that form the residential development.
- **Vegetated Gardens** – 0.12 ha. This represents garden areas which are anticipated to be managed by residents (considered, as a precaution, to only ever achieve poor condition due to the absence of control over management).
- **Amenity grass seeding (Modified grassland)** – 0.06 ha. This represents the grassland areas within the public open space and marginal buffer of the development site. Grassland areas will be rotovated and seeded with a low-maintenance seed mix. Management will be via an intense mowing regime, keeping the grassland to a short, even sward. Grassland mix proposed is species-poor and therefore this habitat can only achieve poor condition.
- **Native Hedgerows** - 0.123 km. Native hedgerows are to be created along the main access road, and to the rear of residential gardens. Hedgerows will be form of native wooded species, anticipated to be regularly pruned for aesthetic purposes, but are expected to be free of canopy gaps, damage and nutrient enrichment. Therefore they are anticipated to achieve moderate condition over the post-development management period.
- **Ornamental Shrubs (Hedge Ornamental Non Native)** – 0.092 km. Ornamental shrubs will be planted around the residential front gardens and access roads as part of the development. These will be formed of easy to manage non-native ornamental species, anticipated to be intensively managed for aesthetic purposes.

Change in Biodiversity Value

Target condition for habitats, post-development, is based on most favourable condition considered to be feasible within a 30-year period (the minimum management period recommended by the government with the biodiversity net gain scheme), following the proposed habitat management regime to be implemented. Time to target values are based on those provided by the BM 3.1 Calculation Tool (Natural England, 2021)

Habitats, target condition and biodiversity value associated with the indicative development for the Site are detailed within Table A8 – A10. Post-development, area-based habitats generated: 2.38 HU; hedgerows: 0.58 HeU; and rivers: 0.81 RU. Representing a biodiversity net change of -26.16% for habitats; and >100% for hedgerows and no change for river-based habitats.



Table A8. Post-development area-based habitat gains/losses

Habitat Type	Impact/Action	Target Condition	Strategic Significance	Time-to Target	Area (ha)	Habitat Units (HU)	Habitat Management
Urban – Developed land; sealed surface	Creation	N/A - Other	High	0	0.15	0.00	Development of residential buildings, access roads and associated driveways and pathways.
Urban – Developed land; sealed surface	Retention	N/A - Other	High	0	0.004	0.00	Section of Malt Kiln Brow to be retained
Urban – Vegetated Gardens	Creation	Poor	High	1	0.12	0.26	Residential gardens to be managed by residents
Urban – Urban Tree	Creation	Moderate	High	27	0.0732	0.26	Retention of two mature trees within development footprint
Grassland – Modified grassland	Creation	Poor	High	1	0.06	0.13	Amenity grass seeding to be created within areas of public open space around the boundary of the site. Management via intensive mowing regime.
Grassland – Other neutral grassland	Retention	Poor	High	0	0.35	1.59	Retention of rough grassland around steep embankment.
Grassland – Other neutral grassland	Loss	N/A	High	N/A	0.33	-1.50	Loss of existing rough grassland to facilitate development
Woodland and forest – Other woodland; broadleaved	Retention	Poor	High	10	0.25	1.70	Retention of existing woodland area along south eastern boundary.
Post-Development Biodiversity Units (HU)						2.38	
Baseline Biodiversity Units (HU)						3.22	
Percentage Change in Biodiversity (%)						-26.16%	

Table A9. Post-development hedgerow-based habitat gains/losses

Habitat Type	Impact/Action	Target Condition	Strategic Significance	Time-to Target	Length (km)	Hedgerow Units (HeU)	Habitat Management
Native Hedgerow	Creation	Moderate	High	5	0.123	0.47	Creation of native hedgerows around residential gardens and access roads. To be managed for aesthetic purposes.
Hedge Ornamental Non Native	Creation	Poor	High	1	0.092	0.10	Ornamental shrubs planted around residential front gardens and along access roads/pathways. Managed for



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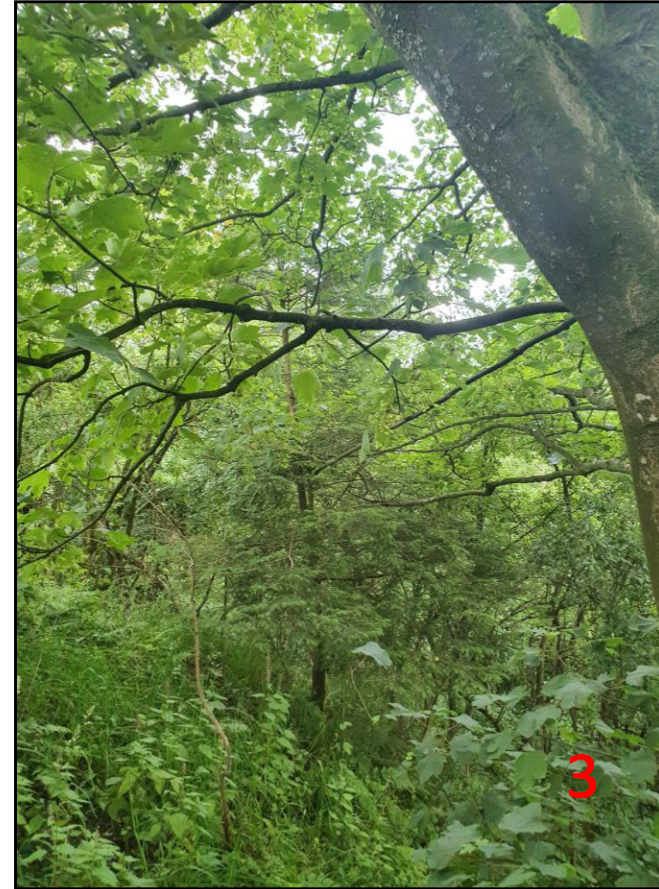
Habitat Type	Impact/Action	Target Condition	Strategic Significance	Time-to Target	Length (km)	Hedgerow Units (HeU)	Habitat Management
							aesthetic purposes.
Post-Development Biodiversity Units (HeU)						0.58	
Baseline Biodiversity Units (HeU)						0.00	
Percentage Change in Biodiversity (%)						>100%	

Table A10. Post-development river-based habitat gains/losses

Habitat Type	Impact/Action	Target Condition	Strategic Significance	Time-to Target	Length (km)	River Units (RU)	Habitat Management
Other rivers and streams	Retention	Moderate	Low	0	0.06	0.72	Retention of Chipping Brook and associated habitats
Ditches	Retention	Poor	Low	0	0.03	0.09	Retention of drainage ditch along southern boundary
Post-Development Biodiversity Units (RU)						0.81	
Baseline Biodiversity Units (RU)						0.81	
Percentage Change in Biodiversity (%)						0.00%	



Figure A1: Post-Development Habitat Map



Legend

Photo 1. Grassland (g3c5)

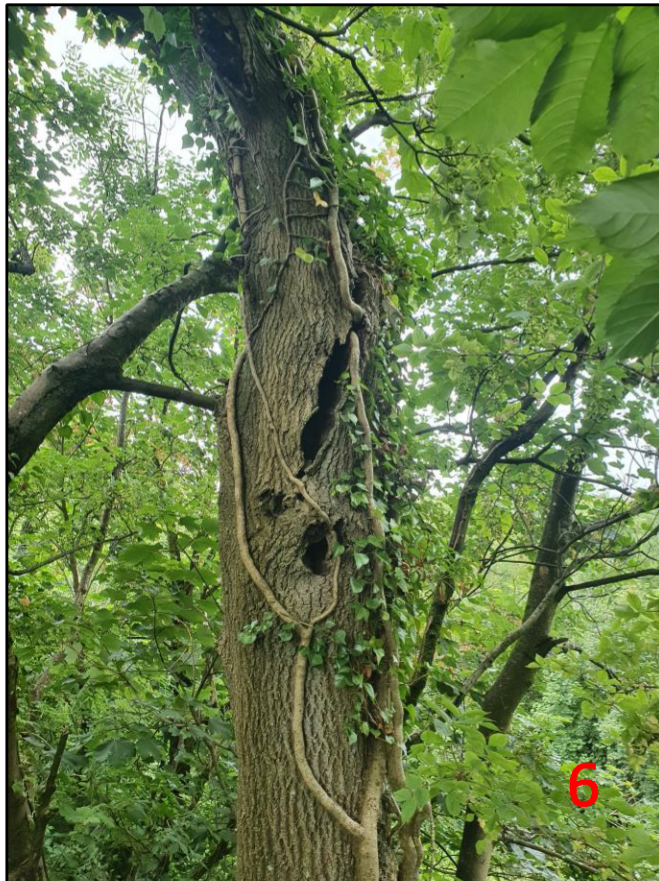
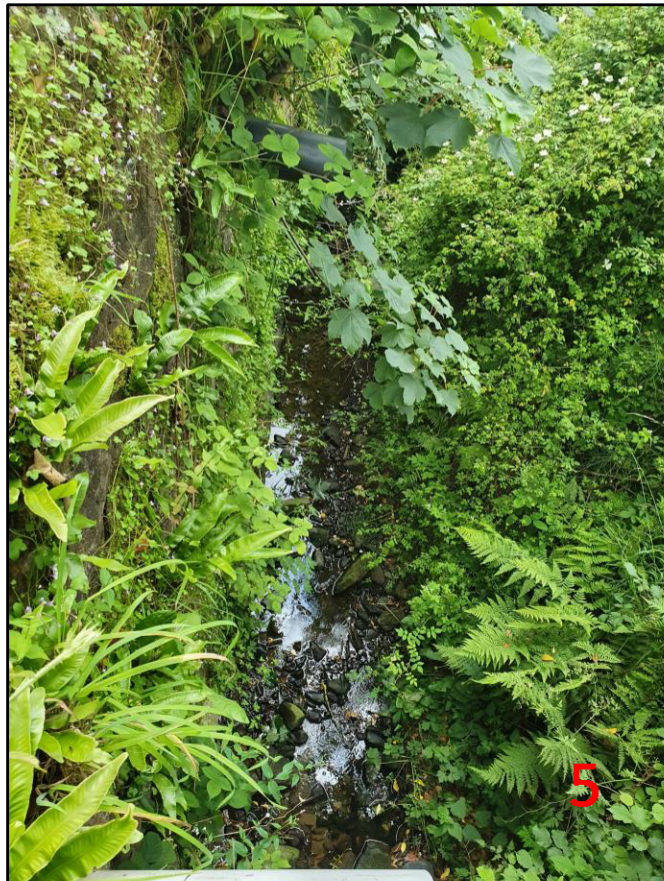
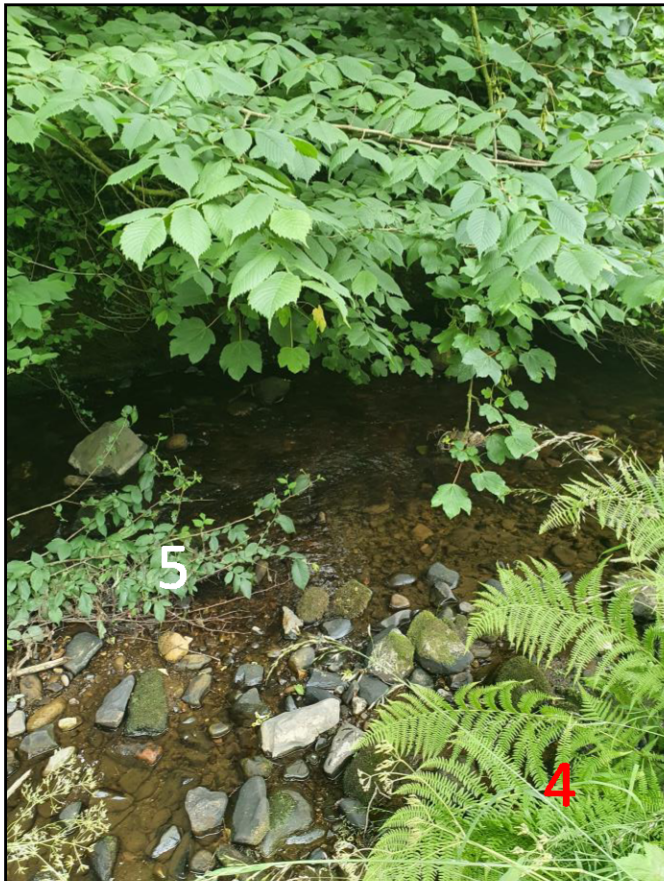
Photo 2. Scattered scrub

Photo 3. Woodland (w1g)

Photo 4. Chipping Brook (r2b)

Photo 5. Drainage Ditch

Photo 6. Ash Tree with Bat Roosting Potential



Land off Malt Kiln Brow, Chipping

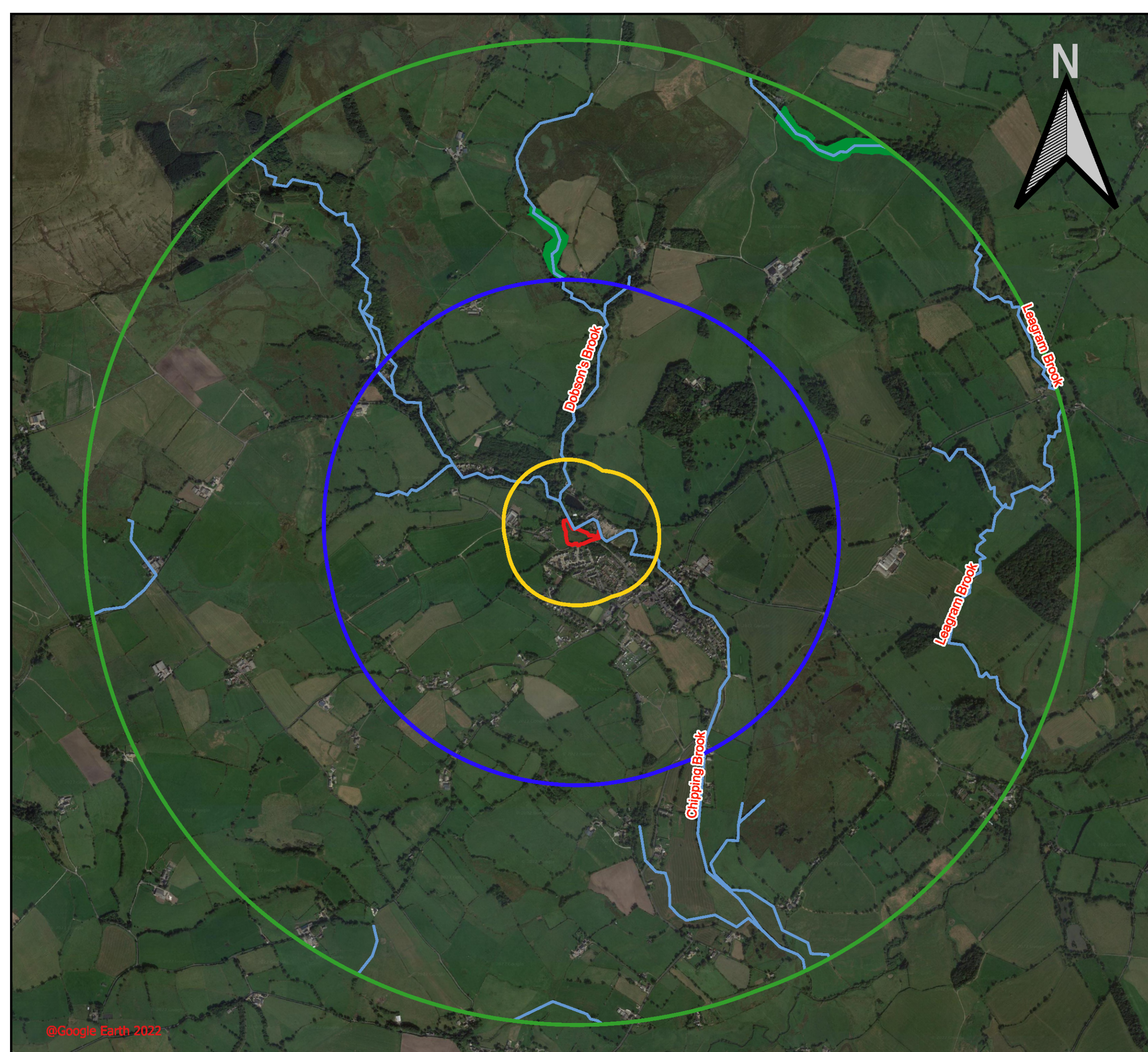
Appendix 2: Site Photographs



Suite 450
Houldsworth Mill Business Centre
Houldsworth Street
Stockport
SK14 6DS

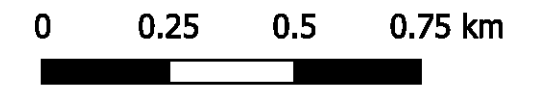
0161 327 1 723

enquiries@envanceuk.com



Legend

- ▭ Red Line Boundary
- ▭ 250m buffer
- ▭ 1 km buffer
- ▭ 2 km buffer
- ▭ Ancient Woodland Inventory
- Main Watercourses



Land off Malt Kiln Brow, Chipping

Figure 1. Site Overview

Date	July 2022
Scale	1:15000@A3
Drawing Ref:	205/F1



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






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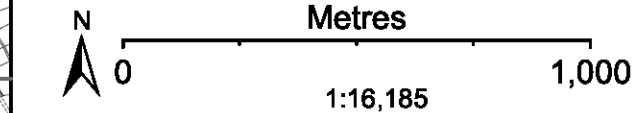
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 Ancient Tree Inventory, Woodland Trust Accessed 04/2020

Lancashire Environment Record Network
 Planning and Environment
 Lancashire County Council,
 PO Box 100,
 County Hall,
 Preston: PR1 0LD
 lern@lancashire.gov.uk
 http://www.lancashire.gov.uk/lern.aspx

Project:
 Land off Malt Kiln Brow
Client:
 Evance UK
Grid Ref: 0 0

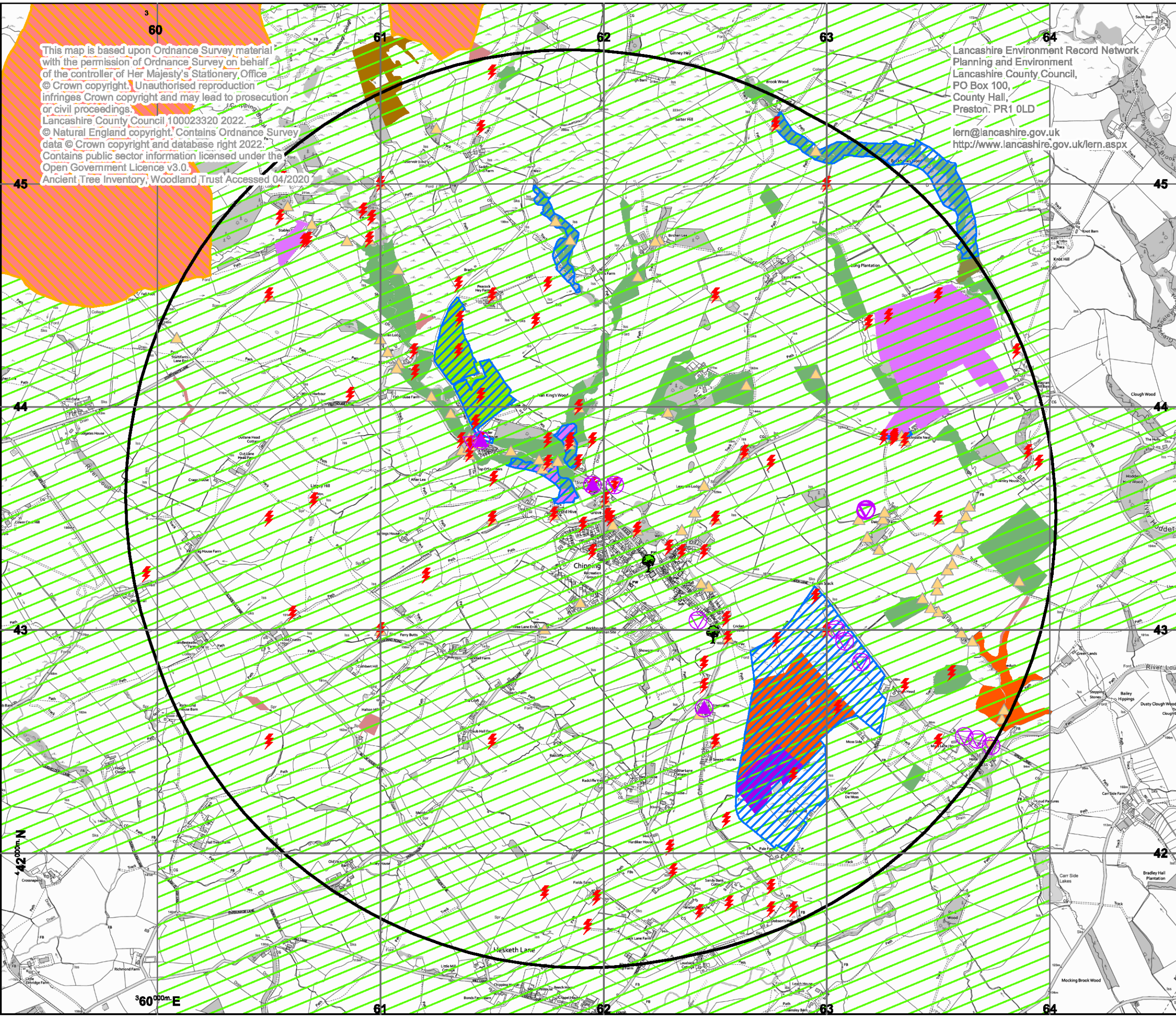
-  Search Site
-  Bat Roost or Possible Roost
-  Other Bat Record
-  Ancient Tree Inventory
-  SLBG Bat Roost or Possible Roost
-  SLBG Other Bat Record
-  Lancashire Key Species
-  Lancashire INNS
-  Biological Heritage Sites
-  Natura 2000
-  SSSI
-  FC/BTO Wader Zonal Map
-  Deciduous woodland
-  Good quality semi-improved grassland
-  Grass moorland
-  Lowland calcareous grassland
-  Lowland fens
-  Lowland meadows
-  No main habitat but additional habitats pres.
-  Purple moor grass and rush pastures

**N.B. THIS IS AN INTERACTIVE PDF
 LAYERS CAN BE TURNED ON OR OFF
 TO AID CLARITY.**



Boundaries of statutory designations (Natura 2000, SSSI etc) are included for information only. <ITA> Definitive information for these designations should be obtained from Natural England.

Lancashire Key Species records are plotted at the centre of the area to which they relate (the precision of each record is given in the accompanying attribute data and spreadsheet).





Legend

- Red Line Boundary
 - u1b - Developed land; sealed surface
 - g3c5 16 80 -Arrhenatherum neutral grassland
 - w1g - Other woodland; broadleaved
 - r2b 1919 - Ditches
 - r2b - Other Rivers and Streams
 - X 10 - Scattered scrub
 - 11 - Scattered trees
 - Target Notes
- 0 10 20 30 m

Land off Malt Kiln Brow, Chipping

Figure 3. Baseline Habitats

Date	July 2022
Scale	1:550@A3
Drawing Ref:	205/F3



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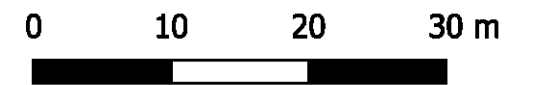
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Legend

- Red Line Boundary
- Residential Housing
- Developed land; sealed surface
- Seeded Amenity Grass
- Retained Grassland
- Retained Woodland
- Vegetated garden
- Retained Ditch
- Retained Brook



Land off Malt Kiln Brow, Chipping

Figure A1. Post Development Habitats

Date	July 2022
Scale	1:550@A3
Drawing Ref:	205/A1



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