

Bank Top Farm, Hollingworth Road, Littleborough, Rochdale OL15 0AU

ECOLOGICAL SURVEY AND ASSESSMENT

August 2022

[ERAP (Consultant Ecologists) Ltd ref: 2021-358]

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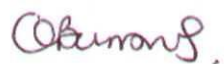
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Document Control

Survey Type:	Surveyors ¹	Survey Date(s)
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Reporting	Personnel	Date
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Signature(s)		
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SUMMARY

Introduction and Scope

- i. This ecological survey and assessment has been prepared for the land at Bank Top Farm, Hollingworth Road, Littleborough OL15 0AU. The assessment was requested in connection with a planning application to construct a farm shop, café and community room facility with associated parking, on part of the field of agriculturally improved grassland.
- ii. This report presents the results of a desktop study and data search and an extended Phase 1 Habitat Survey carried out in April 2022. The scope of survey undertaken is appropriate to identify potential ecological constraints, the remit of mitigation required and opportunities for biodiversity associated with the development proposals.
- iii. This report also presents information including habitat condition assessments to inform the implementation of the Defra Biodiversity Metric Calculation Tool (version 3.1) and an assessment of biodiversity net gain, refer to **Appendices 2 and 3**.

Results of Survey and Assessment

- iv. The approximately 0.38 hectare (ha) site is located in a semi-rural area to the east of Hollingworth Road and 365 metres to the north of the northern shore of Hollingworth Lake. The triangular shaped site comprises part of a larger sloping field (with a western aspect) of sheep-grazed improved grassland with a small area of marshy grassland at a spring. The site boundaries are demarcated by a continuous stone wall along Hollingworth Road to the west and by a farm track to the east. The northern boundary is undefined and is a continuation of the sheep-grazed improved grassland.
- v. The proposals can be achieved with no adverse direct or indirect effect on statutory and non-statutory designated sites for nature conservation present in the wider area.
- vi. The site contains only common and widespread plant species that are typical of the agriculturally managed conditions present. No semi-natural habitats or Priority Habitat are present at the site. No invasive plant species were detected at the site or on the site boundaries.
- vii. No badger activity is present at the site; the presence of badger activity in the wider area is identified by the assessment and best practice measures to be applied, by the site design (i.e. appropriate use of lighting), and protective measures during the construction period are outlined in **Section 5.3**.
- viii. The Sycamore tree at the southern end of the site has negligible suitability for use by roosting bats. The short grazed habitats at the site are assessed to be of low suitability for use by foraging bats. Guidance in relation to the enhancement of the opportunities at the site for use by foraging bats as part of good design were provided to the design team and have been accommodated as part of the proposals (refer to **Section 5.2**).
- ix. Protection of nesting birds and recommendations for the provision of enhanced habitats and opportunities for nesting birds are feasible and will be accommodated (**Sections 5.3 and 5.4**).
- x. Appropriate survey effort and / or assessment in accordance with standard guidance, has been carried out to reasonably discount adverse effects on other relevant protected species.

Recommendations

- xi. The following recommendations of the ecological assessment have been secured by the *Landscape Layout* (Penny Bennett Landscape Architects, 2022) and the proposals:
 - Retain Sycamore tree(s) to the south;
 - Enhancement of the existing grassland habitats by securing the treatment and overseeding with an appropriate wildflower seed mixture indicative of acid grassland / more species-diverse neutral grassland and appropriate long-term management;

- Planting of at least 377 metres of native hedgerows to add this Priority Habitat to the site, to improve habitat connectivity and to provide opportunities for nesting birds and foraging bats;
- Maximised use of native species and species known to be of value for the attraction of wildlife within the landscape proposals (such as use of trailing plants (i.e. Honeysuckle) over stone filled gabions;
- Enhancement and extension of the wetland area at the current spring / marshy grassland and an increase in the plant species diversity by the introduction of native plants typical of wetland such as Marsh Marigold (*Caltha palustris*), Yellow Iris (*Iris pseudacorus*), Water Mint (*Mentha aquatica*) and Purple Loosestrife (*Lythrum salicaria*);
- Inclusion of a kitchen / herb garden area and planters with flowering plants that are attractive to invertebrates at the patio area;
- Installation of opportunities for nesting birds, including Priority Species and conservation priority species;
- Accommodation of wider farm enhancements comprising the planting of three trees in the corners of fields and the continuation of the new native hedgerow along Hollingworth Road further north (length of 182 metres); and
- Commitment to the long-term management and maintenance of the habitats by preparation and implementation of a Landscape and Ecological Management Plan (including the accommodation of non-intervention, as appropriate).

Conclusion

- xii. The construction of the farm shop and café and associated works, in accordance with the *Landscape Plan* at Bank Top Farm can be achieved in accordance with relevant planning policy, identified ecological considerations, wildlife legislation, best practice and local conservation objectives.
- xiii. As demonstrated at **Section 5.4** and **Appendices 2** and **3**, the site proposals achieve a net gain for biodiversity in accordance with the Biodiversity Metric Calculation Tool and the *Biodiversity Net Gain: Good Practice Principles for Development* (CIEEM, 2016).

1.0 INTRODUCTION

1.1 Background and Rationale

- 1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned to carry out an ecological assessment of Land at Bank Top Farm, Hollingworth Road, Littleborough, Rochdale OL15 0AU (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SD 9360 1568. An aerial image of the site and its surrounding habitats is appended at **Figure 1** (source image: ESRI World Imagery).
- 1.1.2 The assessment was requested in connection with a planning application to construct a farm shop, café and community room facility with associated parking, on part of the field of agriculturally improved grassland.

1.2 Scope of Works

- 1.2.1 The scope of ecological works undertaken comprised:
- A desktop study and data search for known ecological information at the site and the local area;
 - An Extended Phase 1 Habitat Survey and assessment;
 - Assessment of the ecological value of the habitats within the site with the use of the National Vegetation Classification (NVC) and the Ratcliffe criteria, as presented in *A Nature Conservation Review* (Ratcliffe, 1977);
 - Survey and assessment of all habitats for relevant statutorily protected species¹ and other wildlife including badger (*Meles meles*), great crested newt (*Triturus cristatus*), bird species and reptiles;
 - A licensed daylight bat survey and assessment of the trees and stone wall;
 - The identification of any potential ecological constraints on the proposals and the specification of the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance;
 - The identification of further surveys or precautionary actions that may be required to inform a planning application and prior to the commencement of construction activities; and
 - Collation of appropriate information including habitat condition assessments to inform the implementation of the Defra Biodiversity Metric Calculation Tool (version 3.1), refer to **Appendices 2 and 3**.

2.0 METHOD OF SURVEY

2.1 Desktop Study and Data Search

- 2.1.1 The following sources of information and ecological records were consulted:
- MAGiC Maps: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites;
 - Greater Manchester Local Record Centre (GMLRC); and
 - Greater Manchester Biodiversity Action Plan (BAP).

¹ In accordance with *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact on the Planning System* (Ministry of Housing, Communities & Local Government, 2005) developers should not be required to undertake surveys for protected species unless there is reasonable likelihood of the species being present and affected by the development. In this instance (for example) there are no water courses within, adjacent to or within a zone of potential influence of the proposals to redevelop the site; there has been no requirement to consider water vole (*Arvicola amphibius*) or otter (*Lutra lutra*) as part of this assessment.

- 2.1.2 Ecological reports prepared for the planning application for residential development on the former Akzo Nobel site on opposite side of Hollingworth Road (Rochdale Council reference 21/01146/FUL) were consulted for reference namely:
- a. *Land at Hollingworth Road, Littleborough. Ecological Assessment.* (Envance, June 2021);
 - b. *Land at Hollingworth Road, Littleborough. Breeding Bird Survey Report* (Envance, June 2021);
 - c. *Land at Hollingworth Road, Littleborough. Habitats Regulations Assessment* (Envance, June 2021);
 - d. *Land at Hollingworth Road, Littleborough. Biodiversity Net Gain Assessment* (Envance, June 2021); and
 - e. *Land at Hollingworth Road, Littleborough. Ecological Impact Assessment* (Envance, June 2022).

2.2 Vegetation and Habitats

- 2.2.1 An Extended Phase 1 Habitat Survey of the site was carried out by Victoria Burrows on 6th April 2022. The weather was dry with sunny intervals, a light breeze (Beaufort scale 2) and an air temperature of 8°C.
- 2.2.2 A habitat and vegetation map was produced for the site and the immediate surrounding area (refer to **Figure 2**). The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.
- 2.2.3 The plant species within the site boundary were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR system, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.
- 2.2.4 Stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and is a reliable framework for nature conservation and land-use planning.
- 2.2.5 Habitats within the site were assessed in accordance with the UK Habitats Classification / UKHab (Butcher, et al., 2020). The UKHab has been designed to function at two scales: fine scale (25m² or 5 metres length) and large scale (400m² or 20 metres length). It has been considered for the purposes of this survey that the fine scale of 25m² or 5 metres length is appropriate.
- 2.2.6 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3rd Edition* (Stace, 2010).
- 2.2.7 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

2.3 Animal Life

Badger

- 2.3.1 The survey area for badger covered the site (as annotated on **Figures 1 and 2**) and extended to accessible land within a radius of 50 metres from the site boundary, including land on the opposite side of Hollingworth Road, where access was possible.
- 2.3.2 The survey was conducted in accordance with guidance presented within *Badgers and Development* (Natural England, 2007) and *Badgers: surveys and mitigation for development projects* (Natural England, 2015).
- 2.3.3 The following signs of badger activity were searched for:
- a. Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;

- b. Large spoil heaps outside sett entrances;
- c. Bedding outside sett entrances;
- d. Badger footprints;
- e. Badger paths;
- f. Latrines;
- g. Badger hairs on fences or bushes;
- h. Scratching posts; and
- i. Signs of digging for food.

2.3.4 Habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering badger in accordance with their known habitat preferences as detailed in current guidance and *Badger* (Roper, 2010).

Bat Species

Habitat Assessment for Commuting / Foraging Bats

2.3.5 Habitats within and adjacent to the site were assessed for their value and suitability for commuting and foraging bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, J. (ed), 2016). Reference has been made to the categories and descriptions / examples, presented below.

Table 2.1: Consideration of Suitability of Foraging and Commuting Habitat for Bats

Suitability	Commuting Habitat	Foraging Habitat
Negligible	Negligible habitat features on site likely to be used by commuting bats.	Negligible habitat features on site likely to be used by foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.	Habitat that is linked to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. Habitats close to and connected to known roosts.	High-quality habitat that is well-connected to the wider landscape and is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Habitats close to and connected to known roosts.

Daylight Survey

Survey Personnel

2.3.6 The site was assessed for its suitability to support roosting bats by Victoria Burrows (Natural England Class Survey Licence WML CL18 (Bat Survey Level 2), Registration Number 2015-10390-CLS-CLS). The surveyor's qualifications and experience meet the criteria as defined in the Technical Guidance Series Competencies for Species Survey: Bats (CIEEM, 2013).

Buildings and Wall

2.3.7 There are no buildings at the site. The stone wall along Hollingworth Road at the western site boundary was examined and assessed for its suitability for use by roosting bats.

Trees

- 2.3.8 Trees within the site and on the site boundary were examined and assessed for their suitability for use by roosting bats, and to inform whether further surveys or precautionary measures were required.
- 2.3.9 The survey was carried out in accordance with standard methodology including the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004), the *Bat Workers' Manual 3rd Edition* (Mitchell-Jones & Mcleish, 2004) and *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, J. (ed), 2016).
- 2.3.10 Trees were assessed from the ground using binoculars and a high-powered torch. Each tree was searched for the presence of the following features:

Woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed platey bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy (Hedera helix) with stem diameters in excess of 50mm and bat, bird or dormouse (Muscardinus avellanarius) boxes.

- 2.3.11 Terms used to describe any features present follow (where possible) those outlined and described in *Bat Tree Habitat Key, 2nd Edition* (Andrews, H (ed), 2013) and *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-care and Ecology Professionals* (BTHK, 2018).

Equipment

- 2.3.12 A list of equipment used is detailed below:

Table 2.2: Survey Equipment Used / Available for Use during Daylight Bat Survey

Ladders
LED Lenser P14 torch
Canon Ixus digital camera
8x20 binoculars
Rigid Micro Inspection Camera Borescope CA-300

Bird Species

- 2.3.13 Bird species observed and heard during the survey were recorded.
- 2.3.14 Habitats throughout the site and in the immediate surrounding area were assessed for their value to roosting, feeding and nesting birds, as indicated by the amount of shelter, feeding value, woody vegetation structure and species diversity of tree and shrub species in the site.

Great Crested Newt and Amphibians

Desktop Search for Ponds

- 2.3.15 In accordance with current Natural England guidance (Natural England, 2020) all ponds within an unobstructed 500 metres of a site should be considered for their suitability to support breeding great crested newts. The potential of the proposed development to impact upon any great crested newt population(s) whose breeding ponds are within 500 metres must be considered.
- 2.3.16 The search of habitats in the wider area up to a distance of 500 metres from the site boundary revealed the presence of two ponds, as detailed below and annotated on **Figure 1**.

Table 2.3: Ponds within 500 metres of the Site

Pond Reference	OS Grid Reference	Distance from Site Boundary	Description / Location (refer to Figure 1)
1	SD 93497 15572	400 metres	Large lodge to the west (opposite side of Hollingworth Road).
2	SD 93893 15598	475 metres	Field pond to the east of the site.

Habitat Suitability Index Assessment

- 2.3.17 Ponds 1 and 2 were assessed using the Habitat Suitability Index (HSI) (Oldham, et al., 2000) by Victoria Burrows on 6th April 2022. The ponds were examined with reference to the ten HSI scoring criteria, which are: **SI₁**: Geographical location; **SI₂**: Pond area; **SI₃**: Pond drying; **SI₄**: Water quality (as indicated by the diversity of aquatic plants and invertebrates); **SI₅**: Shade; **SI₆**: Waterfowl; **SI₇**: Fish; **SI₈**: Abundance of other ponds within a one kilometre radius; **SI₉**: Quality of terrestrial habitat; and **SI₁₀**: Macrophyte cover (i.e. aquatic and emergent plants). The survey was conducted in accordance with *ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom* (ARG UK, 2010).
- 2.3.18 The assessment followed guidance in relation to interpreting HSI scores, following the categorical scale shown below.

Table 2.4: Pond Habitat Suitability Index Categories

HSI Score	Pond Suitability for Great Crested Newt
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Consideration of Requirement for Further Survey

- 2.3.19 The requirement for further survey at each pond was then assessed using the following criteria:
- The results of the desktop study and data search;
 - The HSI score;
 - Presence of dispersal barriers to great crested newt movements between ponds and the site, as detected during the walkover survey;
 - Distance of ponds from the site, and the potential influence of the proposed development of the site on any populations of great crested newt (if present at ponds), using the Natural England rapid risk assessment tool, as needed; and
 - Presence of other ponds which may form metapopulations and/or alter the influence of the site on ponds at greater distances.

Assessment of Terrestrial Habitat

- 2.3.20 An assessment of the terrestrial habitat within the site for great crested newts was conducted, as informed by the *Great Crested Newt Mitigation Guidelines* (English Nature / Natural England, 2001) and the *Great Crested Newt Conservation Handbook* (Langton, et al., 2001).
- 2.3.21 Habitats present within the site were assessed for their value to support foraging, sheltering and hibernating great crested newt. Favourable habitats can comprise rough grassland, scrubland, woodland and sites with underground crevices or cracks, such as mammal holes, voids in tree stumps or banks, and refugia such as rock piles or dead wood.

Reptile Species

- 2.3.22 The site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document '*Reptile Mitigation Guidelines*' (Natural England, 2011), and the *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined below.

Table 2.5: Important Habitat Characteristics for Reptiles

1. Location (in relation to species range)	7. Connectivity to nearby good quality habitat
2. Vegetation Structure	8. Prey abundance
3. Insolation	9. Refuge opportunity
4. Aspect	10. Hibernation habitat potential
5. Topography	11. Disturbance regime
6. Surface geology	12. Egg-laying site potential

2.4 Survey and Reporting Limitations

- 2.4.1 No survey limitations were experienced.
- 2.4.2 All measurements within this report are approximate only, and have been either estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC Maps and Google Earth.

2.5 Evaluation Methods

- 2.5.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.
- 2.5.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006*. Where suitable, the ecological value of the habitats present has been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).
- 2.5.3 Government advice on wildlife, as set out in the *National Planning Policy Framework* (Ministry of Housing, Communities and Local Government, 2021) and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and 8 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species Regulations 2017* (as amended), is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.
- 2.5.4 The presence of any Priority Species, as listed under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of habitats and/or species listed by the Greater Manchester Biodiversity Action Plans has been taken into account in the evaluation of the site.

3.0 SURVEY RESULTS

3.1 Desktop Study and Data Search

Statutory Designated Sites for Nature Conservation and SSSI Impact Risk Zones

- 3.1.1 The site and adjacent land have no statutory designation for nature conservation.
- 3.1.2 The site lies within a Site of Special Scientific Interest (SSSI) Impact Risk Zone for the overlapping Rochdale Canal Special Area of Conservation (SAC) and Rochdale Canal SSSI, situated 165 metres to the north-west of the site (Hollingworth Road lies between the site and the canal). The canal is designated for supporting important habitats for submerged aquatic plants and emergent vegetation including Floating Water-plantain (*Luronium natans*), a European protected plant species.

- 3.1.3 The overlapping South Pennine Moors SAC, South Pennine Moors Phase 2 SPA and South Pennine Moors SSSI lie approximately 1.2 kilometres to the south-east of the site and are designated for being the largest unenclosed moorland within West Yorkshire, containing the most diverse and extensive examples of upland plant communities in the country.
- 3.1.4 The SSSI Impact Risk Zone requires the Local Planning Authority to consult with Natural England on likely risks from the following development categories (Ordnance Survey, 2022):
- a. Pipelines, pylons and overhead cables. Any transport proposals including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals;
 - b. Solar schemes with footprint greater than 0.5 hectares and all wind turbines;
 - c. Planning applications for quarries, including new proposals, Review of Minerals Permissions, extensions, variations to conditions etc. Oil and gas exploration / extraction;
 - d. Large non-residential developments outside existing settlements / urban areas where net additional gross internal floorspace is greater than 1,000m² or footprint exceeds 0.2 hectares;
 - e. Residential development of 50 units or more;
 - f. Any residential development of 50 or more houses outside existing settlement / urban areas;
 - g. Any development that could cause air pollution, including industrial / commercial processes, livestock and poultry units, slurry lagoons and digestate stores and manure stores;
 - h. All general combustion processes, including energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis / gasification, anaerobic digestion, sewage treatment works and other incineration / combustion;
 - i. Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste and other waste management;
 - j. Any composting proposal, including open windrow composting, in-vessel composting, anaerobic digestion and other waste management;
 - k. Any discharge of water or liquid waste that is discharged to ground (i.e. to seep away) or to surface water, such as a beck or stream; and
 - l. Large infrastructure such as warehousing / industry where net additional gross internal floorspace is greater than 1,000m² or any development needing its own water supply.
- 3.1.5 It is considered that the proposals do not meet the criteria which would require the local planning authority to consult with Natural England in respect of likely risks to the relevant statutory designated sites as a consequence of the proposed development.
- 3.1.6 The presence of the statutory designated sites in the wider area is considered further at **Section 4.2**.

Non-statutory Designated Sites for Nature Conservation

- 3.1.7 The site and adjacent land have no non-statutory designation for nature conservation.
- 3.1.8 The site is located within 1 kilometre of two non-statutory designated sites for nature conservation, summarised in **Table 3.1** below.

Table 3.1: Non-statutory Designated Sites Within 1 kilometre of the Site

Non-Statutory Designated Sites	Distance and Direction from the Site	Reason for Designation
Rochdale Canal (Scowcroft to Warland) Site of Biological Importance (SBI)	165m north of the site	The canal supports important populations of Floating Water-plantain (<i>Luronium natans</i>). The national importance of the canals pondweed species (<i>Potamogeton</i> spp.) were recognised by the designation of a SSSI in August 2000. The canal is also reported to support a diversity of waterfowl.
Hollingworth Lake and Surrounds SBI	365m south of the site	The large water bodies are a Greater Manchester Biodiversity Habitat. The lake supports a range of breeding, wintering and passage birds.

3.1.9 The presence of the non-statutory designated sites is considered further at **Section 4.2** below.

Priority Habitats Inventory and Soilscape Information

3.1.10 The Priority Habitats Inventory² was checked via MAGiC Maps; no Priority Habitats are noted for the site or the adjacent land. The nearest Priority Habitat is an area of broadleaved woodland (0.52 hectares) located 237 metres to the south. The site lies within a Network Enhancement Zone which covers the north-west portion of the site, extending through to the north-east.

3.1.11 In accordance with *Soilscape (England)* as presented on MAGiC Maps (National Soil Resources Institute, 2005), the site supports 'freely draining slightly acid loamy soils' and the characteristic semi-natural habitats associated with the soils comprise 'neutral and acid pastures and deciduous woodlands; acid communities such as bracken and gorse in the uplands'.

Protected and Notable Species

3.1.12 GMLRC hold no records of protected and notable species for the site. Records of protected and notable species for a 1 kilometre radius of the site are summarised at **Table 3.2** below.

Table 3.2: Records of Protected Species Within a 1 Kilometre Radius of the Site

Taxon Group	Species Name and Designations ¹ and Notes
Amphibians	Common toad (<i>Bufo bufo</i>): PS. 7 records, dated between 2017 and 2019. The closest record is 110 metres south-west in 2019.
Birds – WCAs1 Species	Kingfisher (<i>Alcedo atthis</i>): WCAs1. 156 records, dated between 2001 and 2020. The closest record is 250 metres south from the site in 2010. Peregrine (<i>Falco peregrinus</i>): WCAs1. 16 records, dated between 2004 and 2020. The closest record is 65 metres south-west from the site in 2006. Little ringed plover (<i>Charadrius dubius</i>): WCAs1. 94 records, dated between 2004 and 2020. The closest, most recent record is 65 metres south-west from the site in 2013. Scaup (<i>Aythya marila</i>): WCAs1 and PS. 7 records, dated between 2005 and 2016. The closest, most recent record is 465 metres south from the site in 2016. Hobby (<i>Falco subbuteo</i>): WCAs1. 4 records, dated between 2006 and 2012. The closest, most recent record is 465 metres south from the site in 2012. Bittern (<i>Botaurus stellaris</i>): WCAs1. 1 record, dated 2016, 465 metres south from the site.
Birds – Priority Species & GMBAP Species	PS Only: Bullfinch (<i>Pyrrhula pyrrhula</i>), dunnoek (<i>Prunella modularis</i>), house sparrow (<i>Passer domesticus</i>), lapwing (<i>Vanellus vanellus</i>), lesser redpoll (<i>Carduelis cabaret</i>), song thrush (<i>Turdus philomelos</i>), starling (<i>Sturnus vulgaris</i>), reed bunting (<i>Emberiza schoeniclus</i>), herring gull (<i>Larus argentatus</i>), grasshopper warbler (<i>Locustella naevia</i>), curlew (<i>Numenius arquata</i>), linnet (<i>Carduelis cannabina</i> subsp. <i>autochthona/cannabina</i>), skylark (<i>Alauda arvensis</i> subsp. <i>arvensis/scotica</i>), yellow wagtail (<i>Motacilla flava</i> subsp. <i>Flavissima</i>), tree pipit (<i>Anthus trivialis</i>), cuckoo (<i>Cuculus canorus</i>), dark-bellied brent goose (<i>Branta bernicla</i> subsp. <i>Bernicla</i>), black-tailed godwit (<i>Limosa limosa</i> subsp. <i>Limosa</i>), black-throated diver (<i>Gavia arctica</i>), common

² A spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.

	scoter (<i>Melanitta nigra</i>), spotted flycatcher (<i>Muscicapa striata</i>), grey partridge (<i>Perdix perdix</i>) and ring ouzel (<i>Turdus torquatus</i>). PS & GMBAP: Willow tit (<i>Poecile montanus subsp. Kleinschmidti</i>) and twite (<i>Carduelis flavirostris subsp. bensonorum/ pipilan</i>).
Flowering Plants	Floating Water-plantain (<i>Luronium natans</i>).
Invertebrates Butterflies	- Buff ermine (<i>Spilosoma lutea</i>) and small heath (<i>Coenonympha pamphilus</i>).
Invertebrates Moths	- PS Only: Autumnal rustic (<i>Eugnorisma glareosa</i>), blood-vein (<i>Timandra comae</i>), broom moth (<i>Melanchra pisi</i>), cinnabar moth (<i>Tyria jacobaeae</i>), dark-barred twin-spot carpet (<i>Xanthorhoe ferrugata</i>), dot moth (<i>Melanchra persicariae</i>), dusky brocade (<i>Apamea remissa</i>), ghost moth (<i>Hepialus humuli</i>), grey dagger (<i>Acrionicta psi</i>), mouse moth (<i>Amphipyra tragopoginis</i>), neglected rustic (<i>Xestia castanea</i>), rosy minor (<i>Mesoligia literosa</i>), rosy rustic (<i>Hydraecia micacea</i>), small phoenix (<i>Ecliptopera silaceata</i>), small square-spot (<i>Diarsia rubi</i>), spinach (<i>Eulithis mellinata</i>) and white ermine (<i>Spilosoma lubricipeda</i>).
Terrestrial Mammals	Eurasian otter (<i>Lutra lutra</i>): EPS, WCAs5 & PS. 13 records, dated between 2018 and 2020. The closest record is 240 metres north-west in 2019. European water vole (<i>Arvicola amphibius</i>): WCAs5, PS & GMBAP. 3 records, dated between 1981 and 2007. The closest record is 60 metres west from the site in 2007. Common pipistrelle (<i>Pipistrellus pipistrellus</i>): EPS, WCAs5, GMBAP. 42 records, dated between 1996 and 2019. The closest record is 135 metres west from the site in 2007. Daubenton's Bat (<i>Myotis daubentonii</i>): EPS, WCAs5 and GMBAP. 2 records, dated 2007. The closest record is 200 metres west from the site in 2007. Myotis bat species (<i>Myotis sp.</i>): EPS, WCAs5 & GMBAP. 3 records, dated 2009. The closest record is 735 metres west from the site in 2009. Nathusius's pipistrelle (<i>Pipistrellus nathusii</i>): EPS, WCAs5 GMBAP 1 record , dated 2019, 560 metres south from the site. Noctule bat (<i>Nyctalus noctula</i>): EPS, WCAs5, PS and GMBAP. 6 records, dated between 2014 and 2019. The closest record is 235 metres south from the site in 2014. Pipistrelle species (<i>Pipistrellus</i>): EPS, WCAs5, GMBAP. 96 records, dated between 2002 and 2019. The closest record is adjacent to the site and dated 2007. Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>): EPS, WCAs5, PS & GMBAP. 1 record dated 2011, 695 metres west from the site. Eurasian badger (<i>Meles meles</i>): PBA. 24 records, dated between 1996 and 2019. The closest record is 110 metres west of the site and dated 2007 Whiskered / brandt's bat (<i>Myotis mystacinus</i>): EPS, WCAs5, GMBAP. 1 record dated 2004, 565 metres north-west from the site. West European Hedgehog (<i>Erinaceus europeus</i>): PS. 2 records, dated between 2014 and 2020. The closest record is 640 metres south-west of the site and from 2020.
¹Key to Designation Codes: EPS = European Protected Species under the <i>Conservation of Habitats and Species Regulations 2017</i> (as amended). WCAs1 = Species receives full protection under Schedule 1 of the <i>Wildlife and Countryside Act 1981</i> (as amended). WCAs5 = Species receives full protection under Schedule 5 of the <i>Wildlife and Countryside Act 1981</i> (as amended). PBA92 = Protection of Badger Act 1992. PS = Priority Species listed under Section 41 of the NERC Act 2006. GMBAP = Species listed on the Greater Manchester Biodiversity Action Plan Provisional Long List.	

3.1.13 The presence of these protected and notable species within the wider area has been taken into account throughout this report.

3.2 Vegetation and Habitats

General Description

3.2.1 The approximately 0.38 hectare (ha) site located in a semi-rural area to the east of Hollingworth Road and 365 metres to the north of the northern shore of Hollingworth Lake.

3.2.2 The triangular shaped site comprises part of a larger sloping field (with a western aspect) of sheep-grazed improved grassland. The site boundaries are demarcated by a stone wall along Hollingworth Road to the

west and by a farm track to the east. The northern boundary is undefined and is a continuation of the sheep-grazed improved grassland.

- 3.2.3 A Phase 1 Habitat Survey map is appended at **Figure 2**. Photographs are appended at **Table 8.1**.

Improved / Modified Grassland

- 3.2.4 Refer to **Photos 1 to 3**. The improved grassland is characterised by constant and frequent Perennial Ryegrass (*Lolium perenne*), Rough Meadow-grass (*Poa trivialis*), Crested Dog's-tail (*Cynosurus cristatus*) and Sheep's Fescue (*Festuca ovina*) with frequent Soft-rush (*Juncus effusus*), Dandelion (*Taraxacum officinale* agg.), Creeping Buttercup (*Ranunculus repens*) and locally frequent White Clover (*Trifolium repens*), Sheep's Sorrel (*Rumex acetosella*) and very locally frequent Field Wood-rush (*Luzula campestris*).
- 3.2.5 At the far southern tip of the grassland is one semi-mature Sycamore (*Acer pseudoplatanus*) tree which is part of a group of four trees (with three off-site trees).
- 3.2.6 It is recognised that plant species indicative of acid grassland namely Sheep's Sorrel and Sheep's Fescue are present. No other calcifuge species / species indicative of an lowland acid grassland located in the Rochdale area such as Heath Bedstraw (*Galium saxatile*), Tormential (*Potentilla erecta*), Purple Moor-grass (*Molinia caerulea*) and dwarf shrubs such as Heather (*Calluna vulgaris*) and Bilberry (*Vaccinium myrtillus*) were recorded.
- 3.2.7 It is advised that the distribution of Sheep's Sorrel and an increased cover of Sheep's Fescue were associated with areas of disturbed ground (as a result of damaged caused by livestock) and on areas of the field with the steepest gradient where it is assumed that the underlying acid loamy soil has been exposed any agricultural improvement has not been able to persist. The total area covered by these more acid-tolerant species covers an area below 25m² and is therefore below the minimal mappable unit in accordance with UKHab.
- 3.2.8 As the plant species that attain the greatest cover are plant species typical of neutral conditions and areas of agricultural improvement, the grassland is identified as improved grassland and is described by the UKHab as g4 modified grassland with the secondary codes 11 scattered trees and 58 grazed.
- 3.2.9 In addition, as recognised in the assessment of biodiversity net gain (refer to **Appendices 2 and 3**) it is advised that 'low' distinctiveness as attributed to modified grassland is an appropriate assessment of the current ecological value of the grassland at the site.
- 3.2.10 A plant species list for the grassland is appended at **Table 8.2**. It is advised that the grassland is the MG6 *Cynosurus cristatus* – *Lolium perenne* community of the NVC (Rodwell, 1992).

Marshy Grassland

- 3.2.11 Refer to **Photos 7 and 8**. At the lowest lying part of the site, close to the stone wall along the western site boundary is an area of marshy grassland. The vegetation at the water logged (but no open water) ground conditions is characterised by species tolerant of indication to include constant and abundant Soft-rush with locally abundant Common Duckweed (*Lemna minor*) and Common Water Starwort (*Callitriche stagnalis*). Yorkshire-fog (*Holcus lanatus*) is locally frequent with frequent Great Willowherb (*Epilobium hirsutum*), Creeping Bent (*Agrostis stolonifera*), Creeping Buttercup and Wavy Bittercress (*Cardamine flexuosa*). A plant species list is appended at **Table 8.3**.
- 3.2.12 It is considered that the marshy grassland is representative of the MG10 *Juncus effusus* – *Holcus lanatus* community of the NVC and is described by the UKHab as g3c8 Holcus-Juncus neutral grassland with the secondary code 58 grazed.

Invasive Plant Species

- 3.2.13 No Japanese Knotweed or other invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were detected at the site or on the site boundaries.

3.3 Animal Life

Badger

- 3.3.1 No badger setts or field signs to indicate use of the site by badger was detected.
- 3.3.2 Badger activity was detected in the wider survey area (i.e. land on the opposite side of Hollingworth Road). Further details on location is not disclosed here in accordance with best practice; further details can be provided on request.
- 3.3.3 The badger activity located to the west is assessed to be outside the zone of potential influence of the proposed development. In addition the presence of the stone wall at the western site boundary acts to provide additional separation of the site from the detected badger activity. Despite this, use of the site by foraging / commuting badger may occur (as part of a wider territory) and it is advised that best practice measures, particularly during the construction period are proportionate and appropriate to the scale of the proposals, refer to **Section 5.3**.

Bat Species

Habitat Assessment for Commuting and Foraging Bats

- 3.3.4 The short grazed grassland with one tree is not likely to provide optimal opportunities for the attraction of foraging and commuting bats (particularly in the context of the mosaic of more favourable opportunities for foraging bats at the woodland, scrub, open water and the canal habitats in the wider area (i.e. to the south and west)).
- 3.3.5 It is considered that the site is of low suitability for use by foraging and commuting bats.

Daylight Survey: Trees

- 3.3.6 The Sycamore tree in the site (refer to **Photo 4**) and the three off-site trees, have no features with suitability for use by roosting bats; all trees are assessed to be of negligible suitability.

Daylight Survey: Other Features

- 3.3.7 The 0.7 metres high stone wall at the western site boundary (refer to **Photos 5 and 6**) does not have any features with suitability for use by roosting bats.

Bird Species

- 3.3.8 Birds detected in the site on 6th April 2022 comprised two wood pigeon (*Columba palumbus*), a species with an Amber status in accordance with the BOCC: Birds of Conservation Concern (Stanbury, et al., 2021). No other birds were detected at the site on the survey date. The Sycamore tree may be used by nesting birds such as wood pigeon and magpie (*Pica pica*); there are no other opportunities for nesting passerine birds at the site.
- 3.3.9 Owing to the presence of a steep gradient, use of the site by ground nesting birds is reasonably discounted. Lapwing behaviour / activity to indicate nesting was detected on the land on the opposite side of Hollingworth Road on the 6th April 2022 (this species was reported as a probable breeder at the eastern area of the site in 2021 by the Land at Hollingworth Road, Littleborough Breeding Bird Survey Report (Envance, June 2021) prepared for the proposed residential development to the west).

Great Crested Newt and other Amphibians

Habitat Suitability Index Assessments

- 3.3.10 The Habitat Suitability Index (HSI) assessments for Ponds 1 and 2 (off-site) are provided below. Photographs of the ponds are appended at **Table 8.1 (Photos 11 and 12)**.

Table 3.3: Habitat Suitability Index Assessment for Ponds 1 and 2

Criteria	Description	Pond 1	Score ¹	Pond 2	Score ²
SI ₁	Location	Optimal	1.0	Optimal	1.0
SI ₂	Pond Area	>2000m ²	N/A	540m ²	1.0
SI ₃	Permanence	Never dries	0.9	Never dries	0.9
SI ₄	Water Quality	Poor	0.33	Poor	0.33
SI ₅	Shade	40%	1.0	0%	1.0
SI ₆	Waterfowl	Major impact	0.01	Major impact	0.01
SI ₇	Fish	Major impact	0.01	Possible	0.67
SI ₈	Pond count ³	2 ponds	0.68	2 ponds	0.68
SI ₉	Terrestrial habitat	Moderate	0.67	Moderate	0.67
SI ₁₀	Macrophyte cover	5%	0.35	0%	0.3
Assessment Result:		Poor	0.26	Poor	0.44

¹ Calculated by $(SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$
² Calculated by $(SI_1 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/9}$
³ Ponds within an unobstructed 1 kilometre radius

3.3.11 The poor HSI scores at both ponds are affected by the heavy use of both ponds by waterfowl comprising Canada geese and the possible / confirmed presence of coarse fish.

Consultation of Existing Data

3.3.12 A great crested newt eDNA survey at Pond 1 in 2021 was negative for great crested newt³. It is advised that conditions at Pond 1 remain comparable to those described in the *Ecological Assessment* (Envance, June 2021) and it is considered that the great crested newt eDNA survey result remains valid.

3.3.13 Common frog, common toad and smooth newt were detected during the reptile surveys on the land to the west of Hollingworth Road in 2021.

Consideration of the Presence of Dispersal Barriers and Natural England Rapid Risk Assessment

3.3.14 Pond 1 is separated from the site by Hollingworth Road and the continuous stone wall at the western boundary of the site; in combination both these features are considered to act as physical barriers for the movement of amphibians between Pond 1 and surrounds to the site.

3.3.15 There are no physical barriers to the dispersals of amphibian species between Pond 2 and the site.

3.3.16 To inform the requirement for further surveys, the Natural England Rapid Risk Assessment tool from GCN *Method Statement WML-A14-2 (Version April 2020)* (Natural England, 2020)) has been completed, as presented below.

3.3.17 The tool has been completed based on the distances of Pond 2 (only) from the site, and the size of the development site (0.38 ha). The rapid risk assessment tool assumes that great crested newt are present.

Table 3.4: Rapid Risk Assessment Result

Component	Likely Effect	Notional Offence Probability Score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.005
Individual great crested newts	No effect	0
	Maximum:	0.005
Rapid risk assessment result:		GREEN: OFFENCE HIGHLY UNLIKELY

³ As reported in the *Land at Hollingworth Road, Littleborough. Ecological Assessment* (Envance, June 2021) prepared for the residential development application on the west side of Hollingworth Road (Rochdale Council reference 21/01146/FUL).

- 3.3.18 In consideration of the combination of the poor HSI score at Pond 2, the result of the rapid risk assessment and the short grazed conditions of the terrestrial habitats (grassland) at the site it is advised that it is highly unlikely that any offence would be committed should the proposals proceed. It is reasonably concluded that great crested newt (and other amphibian species) are not a consideration / constraint on the proposals. No further surveys are required to inform the planning application.
- 3.3.19 In this instance it is considered that a proportionate approach is the application of Reasonable Avoidance Measures (RAMs) under a method statement, as outlined in **Section 4.4** and **5.3**.

Reptiles

- 3.3.20 The short grazed grassland with an absence of cracks / mammal holes across the whole site are assessed to be of sub-optimal conditions for use by sheltering reptile species. There are no piles of garden waste or other suitable debris for use by sheltering or hibernating reptiles, and the site supports no cover / favourable habitat for basking reptiles.
- 3.3.21 Reptile presence / absence surveys carried out at the site to the west of Hollingworth Road between July and October 2020 (by Pell Frischman, as cited in the *Ecological Assessment* (Envance, June 2021)) did not detect any reptiles species in the habitats assessed to be more favourable for use by reptiles (compared to those at the site) in the land to the west.
- 3.3.22 It is advised that the presence of reptile species is reasonably discounted.

4.0 EVALUATION AND ASSESSMENT

4.1 Introduction and Description of Proposals

- 4.1.1 The ecological baseline survey information, the need to apply the mitigation hierarchy and the need to demonstrate a net gain for biodiversity have informed the proposals from an early stage. Ecological guidance has been provided to the client, landscape architect to assist in the preparation of the proposals (particularly the *Landscape Layout* (Penny Bennett Landscape Architects, 2022) and to demonstrate a collaborative approach.
- 4.1.2 **Section 4.2** provides an assessment of any impacts of the proposed development on the designated sites for nature conservation present in the wider area. The ecological value of habitats within the site is evaluated at **Section 4.3**, and the presence of protected and notable species is considered at **Section 4.4**.
- 4.1.3 The report at **Appendix 2** and the completed calculator at **Appendix 3** provide all methods applied to inform the Biodiversity Metric Calculation Tool (version 3.1) and an assessment of biodiversity net gain.

4.2 Designated Sites for Nature Conservation

- 4.2.1 Owing to the distance between the site and any statutory and non-statutory designated sites for nature conservation within the wider area, the absence of habitats at the site that complement the habitats at the designated sites and the absence of habitat and hydrological connectivity, direct and indirect effects on any statutory and non-statutory designated sites are reasonably discounted.

4.3 Vegetation and Habitats

- 4.3.1 Only common and widespread plant species were found. None of the habitats present are representative of semi-natural habitat or are Priority Habitat.
- 4.3.2 The NVC communities present are typical of the geographical area and agriculturally improved conditions present. As identified in **Sections 5.2** and **5.4**; the proposals provide an opportunity to enhance the biodiversity of the retained areas of grassland by over-seeding with an appropriate acid / neutral grassland seed mix, the extension of the area of marshy grassland (with increased species diversity) and by a reduction in the intensity of the grazing regime at the grassland. In addition, the proposals seek to accommodate Priority

Habitat (native hedgerows) at the site to enhance the habitat and structural diversity and value of the site for wildlife.

- 4.3.3 In terms of each habitat's importance in a geographical context⁴, the improved grassland, marshy grassland and single Sycamore tree are assessed to be of value at the 'site' level only. The loss / modification of these habitats will have no significant adverse effect and, as described in **Sections 5.2, 5.4** and **Appendices 2 and 3**, net gains for biodiversity are secured.

4.4 Protected Species and Other Wildlife

- 4.4.1 No badger activity is present at the site; the presence of badger activity in the wider area is identified by the assessment and best practice measures to be applied, by the site design (i.e. appropriate use of lighting to avoid the disturbance of habitats used by badger), and protective measures during the construction period are outlined in **Section 5.3**.
- 4.4.2 The Sycamore tree at the southern end of the site has negligible suitability for use by roosting bats. The short grazed habitats at the site are assessed to be of low suitability for use by foraging bats. Guidance in relation to the enhancement of the opportunities at the site for use by foraging bats as part of good design were provided to the design team and have been accommodated as part of the proposals (refer to **Section 5.2**).
- 4.4.3 Protection of nesting birds and recommendations for the provision of enhanced habitats and opportunities for nesting birds are feasible and will be accommodated (**Sections 5.3** and **5.4**).
- 4.4.4 Appropriate survey effort and / or assessment in accordance with standard guidance, has been carried out to reasonably discount adverse effects on other relevant protected species.

5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

5.1 Introduction

- 5.1.1 The recommendations and guidance provided in this section follow 'The Mitigation Hierarchy' (i.e. avoid, mitigate, compensate) as advised by the NPPF to aim to ensure that the development is implemented in accordance with relevant wildlife legislation, Natural England guidance, the principles of the NPPF, relevant local planning policy and best practice.
- 5.1.2 The recommendations are appropriate and proportionate to the proposals and, where possible, opportunities to enhance the ecological value of the site, and habitat connectivity and secure biodiversity gain through appropriate landscape planting, habitat enhancement, habitat creation and management have been identified, as required by the NPPF and other relevant planning documents.
- 5.1.3 These recommendations aim to ensure that the development is implemented in accordance with relevant wildlife legislation, Natural England guidance, the principles of the National Planning Policy Framework (NPPF), local planning policy and best practice.

5.2 Recommendations in Relation to Site Layout / Design

Landscape Sketch Layout

- 5.2.1 The following guidance was provided to the design team and has been accommodated by the *Landscape Layout* (Penny Bennett Landscape Architects, 2022) and the proposals:

⁴ Using the terms presented at Section 4.7 of *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018), i.e. International and European, National, Regional, Local Authority-wide area, River Basin District, Estuarine system / Coastal cell or Local. The term 'site' value is additionally used to highlight ecological features considered to be of importance in the context of the wider site habitats, but which are of negligible value in the context of the local area.

- a. Retain Sycamore tree(s) to the south;
- b. Enhancement of the existing grassland habitats by securing the treatment and overseeding with an appropriate wildflower seed mixture indicative of acid grassland / more species-diverse neutral grassland and appropriate long-term management;
- c. Planting of at least 377 metres of native hedgerows to add this Priority Habitat to the site, to improve habitat connectivity and to provide opportunities for nesting birds and foraging bats;
- d. Maximised use of native species and species known to be of value for the attraction of wildlife within the landscape proposals (such as use of trailing plants (i.e. Honeysuckle) over stone filled gabions;
- e. Enhancement and extension of the wetland area at the current spring / marshy grassland and an increase in the plant species diversity by the introduction of native plants typical of wetland such as Marsh Marigold (*Caltha palustris*), Yellow Iris (*Iris pseudacorus*), Water Mint (*Mentha aquatica*) and Purple Loosestrife (*Lythrum salicaria*);
- f. Inclusion of a kitchen / herb garden area and planters with flowering plants that are attractive to invertebrates at the patio area;
- g. Installation of opportunities for nesting birds, including Priority Species and conservation priority species (refer to **Section 5.4**);
- h. Accommodation of wider farm enhancements comprising the planting of three trees in the corners of fields and the continuation of the new native hedgerow along Hollingworth Road further north (length of 182 metres); and
- i. Commitment to the long-term management and maintenance of the habitats by preparation and implementation of a Landscape and Ecological Management Plan (including the accommodation of non-intervention, as appropriate).

Lighting

- 5.2.2 In addition, Paragraph 180, bullet point 'c' in Chapter 15 (conserving and enhancing the natural environment) of the NPPF states that development should:

'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

- 5.2.3 The lighting scheme to be implemented at the shop and cafe must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over the retained and enhanced habitats within the site, and surrounding habitats, as lighting overspill may deter use by wildlife such as foraging bats and badger.

- 5.2.4 The lighting scheme will be designed with reference to current guidance, namely:

- a. *Guidance Note 8: Bats and Artificial Lighting in the UK* (Institution of Lighting Professionals & Bat Conservation Trust, 2018); and
- b. *Bats and lighting: Overview of current evidence and mitigation guidance* (Stone, 2014).

Biodiversity Metric Calculation Tool

- 5.2.5 As demonstrated at **Appendices 2** and **3**, a preliminary assessment of the site proposals as described above and below and detailed on the *Landscape Sketch Layout* demonstrates that a net gain for biodiversity is achieved in accordance with the Biodiversity Metric Calculation Tool (version 3.1).
- 5.2.6 Further detail is provided in **Section 5.4** and **Appendices 2** and **3**.

5.3 Protection of Existing Vegetation and Wildlife During Construction

Introduction

- 5.3.1 To inform the site preparation and construction activities it is recommended that a Construction Environment Management Plan (CEMP) for Biodiversity is prepared and implemented. The CEMP for Biodiversity will describe the following actions / measures:

Protection of Existing Vegetation / Trees

- 5.3.2 During the construction phase, temporary protective demarcation fencing will be used to protect the Sycamore trees to be retained. The fencing will be in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction: Recommendations* (BSI, 2012).

Nesting Birds

- 5.3.3 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is advised that any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist. The bird breeding season typically extends between March to August inclusive.

Badger

Best Practice Measures During Construction

- 5.3.4 During the site preparation and construction operations it is essential that the following best practice is applied:
- No machinery or construction operations must be carried out beyond the site boundary / construction zone demarcation fencing. Ecological guidance must be sought if works are necessary beyond the fencing;
 - No trenches must be left open overnight. Trenches or holes must be covered with a board or fitted with a means of escape (such as ramped edge or a sloping plank of timber). This will ensure that any inquisitive badger do not become trapped;
 - Any pipes must be stored with caps on (to prevent badger entry);
 - No fires must be lit at the site; and
 - Any chemicals or harmful materials must be stored so that they cannot be accessed by inquisitive badger.

Reasonable Avoidance Measures for the Protection of Amphibians and Other Wildlife

- 5.3.5 In accordance with best practice the following Reasonable Avoidance Measures (RAMs) Method Statement will be applied prior to and during the construction phase of development:

Prior to Construction Activities

- 5.3.6 To ensure this method statement remains valid and the terrestrial habitats do not become more suitable for use by sheltering amphibians and wildlife, it is advised that the grazing management of the improved grassland is continued and the grassland is maintained as a short sward prior to commencement of clearance / site preparation and construction works.

During Site Clearance and Construction

- 5.3.7 To avoid the active construction working area becoming suitable for the attraction of sheltering amphibians / fauna the following best practice actions are necessary:
- Avoid the accumulation of construction waste and debris in piles (which can create suitable shelters for amphibians) by ensuring skips are available to receive waste;

- b. Store construction materials off the ground as much as is possible (i.e. on pallets); and
- c. Avoid leaving trenches / holes open overnight (either complete the works in one day or ensure the holes are suitably covered or fitted with a means of escape (sloping edge or plank) to permit wildlife to escape).

5.4 Enhancement for Biodiversity / Assessment of Biodiversity Net Gain

Introduction

5.4.1 Chapter 15, paragraph 180(d) of the NPPF states:

'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'.

5.4.2 At this stage in the planning application it is advised that the proposals and *Landscape Layout* (Penny Bennett Landscape Architects, 2022) secure the enhancements for biodiversity listed in **Section 5.2** and achieve a measurable net gain for biodiversity in accordance with the Biodiversity Metric Calculation Tool (version 3.1) (refer to **Appendices 2 and 3**).

5.4.3 Additional measures for the enhancement of biodiversity and to demonstrate compliance with the *Biodiversity Net Gain Good Practice Principles for Development* (CIEEM, 2016) the proposals also accommodated the following:

Installation of Opportunities for Nesting Birds

5.4.4 A selection of bird boxes, including boxes designed for Priority Species and swift (a red-listed species), see below, will be installed on suitable elevations of the farm shop and café building. Boxes to be installed at least 2 metres from ground level, and away from access by cats. To avoid the risk of chicks overheating in the box, south facing bird boxes are to be avoided.

Swift

5.4.5 The swift (*Apus apus*) has recently been added to The Birds of Conservation Concern Red list (Stanbury, et al., 2021) owing to the recorded recent declines and its identified status as a high conservation priority. The construction of the building in close proximity to Hollingworth Lake (a feeding resource for swift) provides an opportunity for the installation of additional nesting opportunities for swift to assist their conservation. Suitable swift nest boxes are illustrated at **Insert 1** below.



Insert 1: Examples of swift nest boxes⁵

⁵ From left to right No. 17A Schwegler Swift Nest Box (Triple Cavity) as installation (left), Manthorpe Swift Nesting Box (centre) and Ibstock Eco-habitat for Swift (right), all available from www.NHBS.com

Green Roof

- 5.4.6 The 23m² area of green roof will be seeded with the BFS12 Greenroof Wildflower Mix⁶ (or similar) which contains grassland and herbs, including a number of butterfly larvae food plants such as Common Sorrel (*Rumex acetosa*), Common Bird's-foot-trefoil (*Lotus corniculatus*). This selected mix is also complementary to the grassland habitats in the wider area.

Extension of the Marshy Grassland

- 5.4.7 The proposals intend to capture the resource provided by the on-site spring and extend the marshy grassland (with an increased plant species diversity) that accommodation as range of attractive and native species such as Marsh Marigold, Water Avens, Sneezewort and Ragged Robin.

Planting of a Native Hedgerow at the Site Boundaries

- 5.4.8 Planting of a native hedgerows of shrubs (not trees) at the boundaries will contribute to the maintenance of habitat connectivity through the site and will provide opportunities for nesting birds such as dunnoek, a Priority Species. The proposals accommodated 377 metres of native hedgerow within the site and a further 182 metres of native hedgerow and three standard trees within the wider farm site.
- 5.4.9 An appropriate hedgerow specification is a random mix of Hawthorn (*Crataegus monogyna*), Gorse (*Ulex europaeus*), Blackthorn (*Prunus spinosa*) and Dog Rose (*Rosa canina*).

Landscape Planting at Planters

- 5.4.10 The biodiversity value of the vegetation to be provided at the planters, particularly the value for invertebrates, has also been maximised with the inclusion of species such as Rosemary, *Salvia* and Apple species.

5.5 Landscape and Ecological Management Plan

- 5.5.1 A Landscape and Ecological Management Plan will be prepared for the site. The Plan will confirm the management objectives, prescriptions, target conditions and responsibilities.

6.0 CONCLUSION

- 6.1 The construction of the farm shop and café and associated works, in accordance with the Landscape Sketch Plan at Bank Top Farm can be achieved in accordance with relevant planning policy, identified ecological considerations, wildlife legislation, best practice and local conservation objectives.
- 6.2 As demonstrated at **Section 5.4** and **Appendices 2** and **3**, the site proposals achieve a net gain for biodiversity in accordance with the Biodiversity Metric Calculation Tool and the *Biodiversity Net Gain: Good Practice Principles for Development* (CIEEM, 2016).

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8.0 APPENDIX 1: TABLES AND FIGURES

8.1 Photographs

Table 8.1: Photographs



Photo 1: Sheep grazed improved grassland (facing west)



Photo 2: Sheep grazed improved grassland (facing south-west)



Photo 3: Sheep grazed improved grassland (facing north)



Photo 4: Sycamore tree within the site (right)



Photo 5: Stone wall at western site boundary with Hollingworth Road beyond



Photo 6: Stone wall at western site boundary with site beyond



Photo 7: Marshy grassland at spring



Photo 8: Marshy grassland at spring



Photo 9: Existing track from Hollingworth Road (with site to the left)



Photo 10: Off-site badger activity (path beneath fence with badger hairs)



Photo 11: Pond 1



Photo 12: Pond 2

8.2 Plant Species Lists

Table 8.2: Plant Species List for Improved / Modified Grassland

Scientific Name	Common Name	DAFOR ¹	Cover
Woody Species			
<i>Acer pseudoplatanus</i>	Sycamore	R	1%
Herb Species			
<i>Agrostis capillaris</i>	Common Bent	F	5%
<i>Cardamine flexuosa</i>	Wavy Bittercress	VLA	1%
<i>Cardamine pratensis</i>	Cuckooflower	O	<1%
<i>Cerastium fontanum</i>	Common Mouse-ear	O	<1%
<i>Cirsium arvense</i>	Spear Thistle	O	<1%
<i>Cynosurus cristatus</i>	Crested Dog's-tail	F	5%
<i>Festuca ovina</i>	Sheep's Fescue	F	5%
<i>Heracleum sphondylium</i>	Common Hogweed	R	<1%
<i>Holcus lanatus</i>	Yorkshire-fog	LF	2%
<i>Juncus effusus</i>	Soft-rush	F	20%
<i>Lolium perenne</i>	Perennial Rye-grass	F*	2%
<i>Luzula campestris</i>	Field Wood-rush	VLF	1%
<i>Plantago lanceolata</i>	Ribwort Plantain	R	<1%
<i>Poa trivialis</i>	Rough Meadow-grass	F*	50%
<i>Ranunculus repens</i>	Creeping Buttercup	F	5%
<i>Rumex acetosella</i>	Sheep's Sorrel	LF	2%
<i>Rumex obtusifolius</i>	Broad-leaved Dock	O	<1%
<i>Senecio jacobaea</i>	Common Ragwort	O	<1%
<i>Taraxacum officinale</i> agg.	Dandelion	F	2%
<i>Trifolium repens</i>	White Clover	LF	2%

¹Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Table 8.3: Plant Species List for Marshy Grassland (Holcus-Juncus Neutral Grassland)

Scientific Name	Common Name	DAFOR ¹	Cover
<i>Agrostis stolonifera</i>	Creeping Bent	F	5%
<i>Callitriche stagnalis</i>	Common Water Starwort	LA	5%
<i>Cardamine flexuosa</i>	Wavy Bittercress	F	2%
<i>Epilobium hirsutum</i>	Great Willowherb	F	5%
<i>Epilobium montana</i>	Broad-leaved Willowherb	F	2%
<i>Holcus lanatus</i>	Yorkshire-fog	LF	2%
<i>Juncus effusus</i>	Soft-rush	A*	70%
<i>Lemna minor</i>	Common Duckweed	LA	5%
<i>Ranunculus repens</i>	Creeping Buttercup	F	5%
<i>Sagina procumbens</i>	Procumbent Pearlwort	VLA	<1%
<i>Urtica dioica</i>	Common Nettle	R	<1%

¹Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

8.3 Figures

Figure 1: Aerial Image of the Site and Surrounds

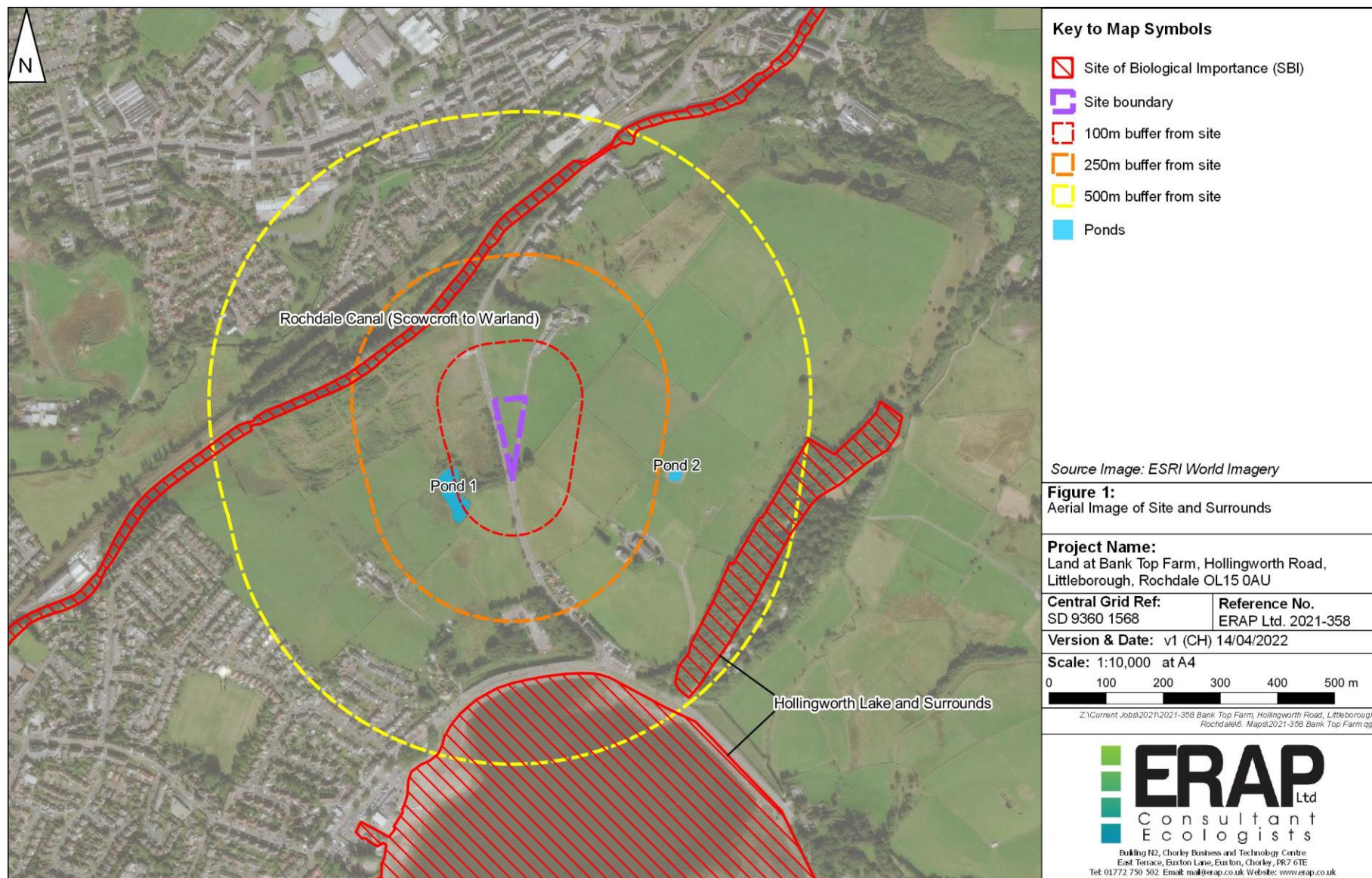
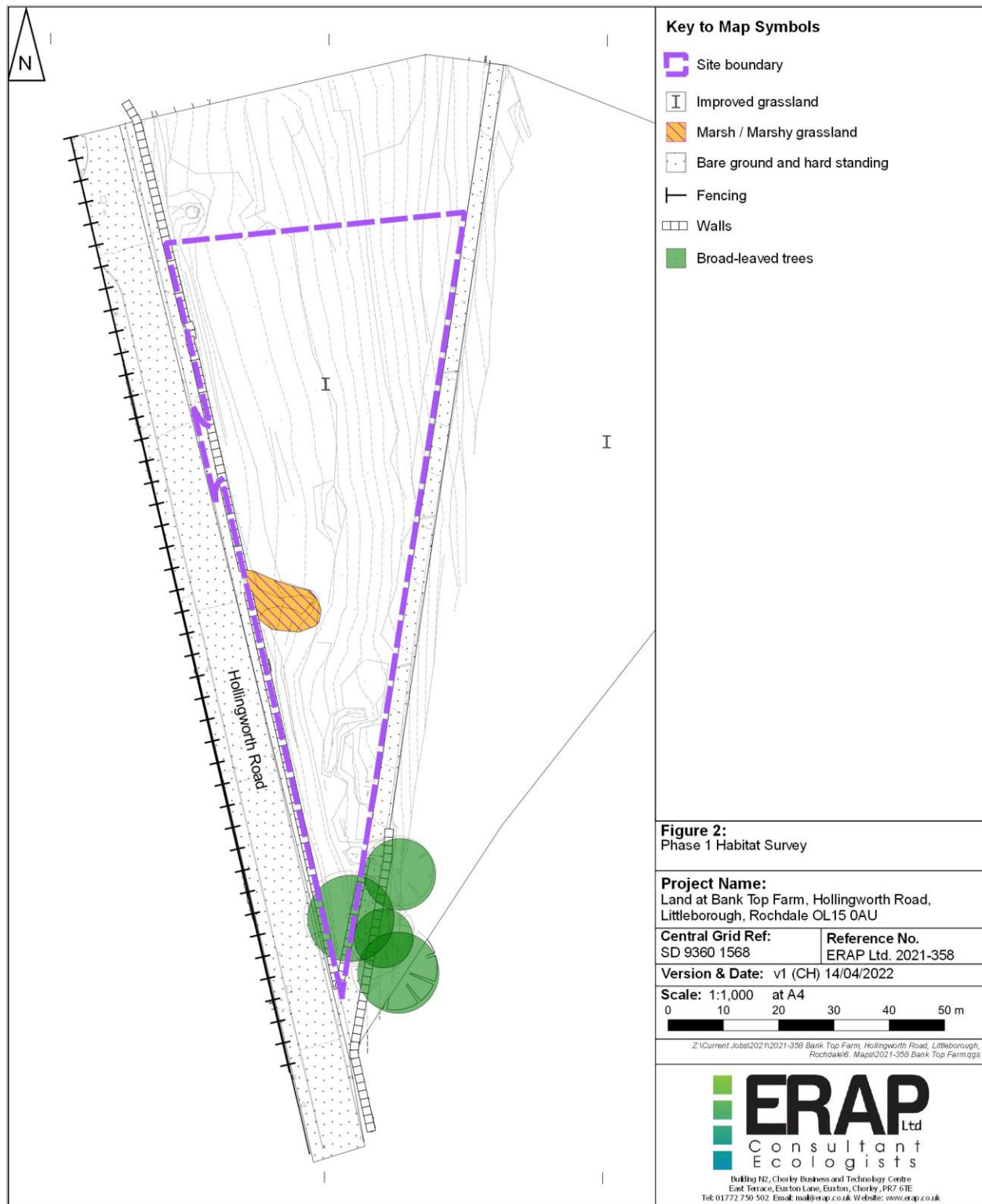


Figure 2: Phase 1 Habitat Survey



9.0 APPENDIX 2: ASSESSMENT OF BIODIVERSITY NET GAIN

9.1 Background

- 9.1.1 ERAP (Consultant Ecologists) Ltd carried out an ecological survey and assessment of the land at Bank Top Farm, Hollingworth Road, Littleborough OL15 0AU in April 2022. The Ordnance Survey (OS) grid reference at the centre of the site is SD 9360 1568.
- 9.1.2 Ecological information and guidance has informed the preparation of the site proposals and associated *Landscape Layout* (Penny Bennett Landscape Architects, 2022) for the construction of a farm shop and café with associated car parking and landscaping / habitat creation.
- 9.1.3 To complement the ecological survey and assessment and to demonstrate compliance with the *Biodiversity Net Gain: Good Practice Principles for Development* (CIEEM, 2016) this report presents the results of a preliminary assessment of the proposals in accordance with the Defra Biodiversity Metric Calculation tool (version 3.1) (Natural England, 2022).

9.2 Methods

UK Habitat Classification

- 9.2.1 The UK Habitat Classification (or 'UKHab') has been designed to function at two scales: fine scale (25m² or 5 metres length) and large scale (400m² or 20m length). It is considered for the purposes of this survey (where the UKHab has been used to inform the BNG calculation of a relatively small area) that a finer scale of 5m² is appropriate for the classification of habitats.

Evaluation, Measurements and Condition Assessments

- 9.2.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006*.
- 9.2.3 The BNG Assessment tool used is *The Biodiversity Metric 3.1 (JP039)* (Natural England, 2022). Condition Assessments for each of the habitats present within the site have been taken from *The Biodiversity Metric 3.1: Auditing and accounting for biodiversity: technical supplement* (Panks, et al., April 2022).
- 9.2.4 QGIS has been used to calculate the total area of each baseline habitat present within the site. The total site area has been measured on QGIS.
- 9.2.5 The proposed habitats within the developed site (in accordance with the *Landscape Layout*) have been measured by ERAP (Consultant Ecologists) Ltd. ERAP (Consultant Ecologists) Ltd has determined how the proposed habitats conform to the habitat definitions presented within the BNG Metric.

9.3 Baseline Survey Results

Site Description and Assessment of Habitats: Baseline

- 9.3.1 The condition assessments for each habitat are presented at **Tables 9.5 to 9.6** at **Section 9.6**, below. Figures are appended at **Section 9.7**.
- 9.3.2 The total site area **0.38 hectares**.
- 9.3.3 **Table 9.1** below provides a summary of the habitats present, their condition assessment result and their area / length within the site. Refer also to **Figure 2**.

Table 9.1: Summary of Baseline Area-based Habitats within the Site

Habitat, Photo and Plant Species List Ref.	UK Habitat Classification Type	BNG Habitat Equivalent	Phase 1 Habitat Equivalent	Condition Assessment Result	Area (ha) to 2 decimal places
Habitat 1: Modified grassland	g4 modified grassland with the following secondary codes: 11 scattered trees and 58 grazed	Grassland – modified grassland	B4 improved grassland	Moderate	0.37
Habitat 2: Neutral grassland / Marshy grassland	g3c8 Holcus-Juncus neutral grassland with the following secondary code: 58 grazed	Grassland – other neutral grassland	B5 marshy grassland	Moderate	0.01
Habitat 3: Hard-standing	u1b6 other developed land	Urban – developed land; sealed surface	J4 Hard-standing	N/A	0.00 [0.0026]
Total					0.38ha

9.3.4 The on-site baseline score for the site in biodiversity units is provided at **Section 9.5**, below.

9.4 On-site Post-intervention

9.4.1 Refer to **Figure 3** for a UKHab Classification Map of the proposed habitats in accordance with the *Landscape Layout*.

9.4.2 The areas and lengths of habitats retained, enhanced and proposed at the site are presented at **Tables 9.2** and **9.3** below:

Table 9.2: Summary of Habitat Areas Retained, Enhanced and Proposed and Target Conditions

Habitat Type	BNG Equivalent Habitat	Target Condition	Hectare to 2 decimal places
Retained Habitats			
<i>Habitat 2: Neutral grassland / Marshy grassland</i>	Grassland – other neutral grassland (marshy grassland)	Good (increase from moderate)	0.01
Created Habitats			
<i>Habitat 1: Other lowland acid grassland</i>	Grassland – other lowland acid grassland	Good	0.24
<i>Habitat 2: Neutral grassland</i>	Grassland – other neutral grassland (marshy grassland)	Good (increase from moderate)	0.02
<i>Habitat 3: Grasscrete</i>	Artificial unvegetated; unsealed surface	N/A	0.04
<i>Habitat 4: Building and car park</i>	Developed land; sealed surface	N/A	0.06
<i>Habitat 5: Introduced shrub</i>	Introduced shrub	N/A	0.01
<i>Habitat 6: Other green roof</i>	Other green roof		0.00 [0.00235]
Total			0.38ha

Table 9.3: Summary of Linear Habitats Proposed and Target Conditions

Habitat Reference	BNG Habitat Classification	Target Condition	Length Created (km)
Created			
Native Hedgerow A	Native hedgerow	Good	0.38
Total			0.36km

9.4.3 Criteria for target conditions to be achieved by the created habitats area are presented at **Table 9.7** at **Section 9.6**.

9.4.4 Criteria for target conditions to be achieved by created linear habitats are presented at **Table 9.8**.

9.5 Headline Results

9.5.1 The headline results of the BNG calculation (as appended in the separate document *Appendix 3: ERAP 2021-358 Biodiversity Metric 3.1 calculation tool 03.08.2022*) are presented below.

Table 9.4: Results of BNG Calculation (from Headline Results Tab of BNG Calculator at Appendix 3)

On-site Baseline	Habitat units	1.56
	Hedgerow units	0.00
	River units	0.00
On-site Intervention Post	Habitat units	1.88
	Hedgerow units	1.41
	River units	0.00
Total Net Unit Change	Habitat units	0.32
	Hedgerow units	1.41
	River units	0.00
Total Net % Change	Habitat units	+20.49%
	Hedgerow units	+100.00%
	River units	0.00%
Trading rules satisfied?		Yes

9.5.2 It is confirmed that based on the proposals as presented on **Figure 3** that biodiversity net gain can be achieved at the site in accordance with the metric in both the habitat units and the hedgerow units and at the site overall. This is in addition to the measures outlined in **Sections 5.2** and **5.4** of the ecological survey and assessment report.

9.6 Condition Assessment Tables

Baseline Habitats

Table 9.5: Condition Assessments for Grasslands (Low Distinctiveness)

Condition Assessment Criteria	Modified grassland
1. There must be 6-8 species per m2. Note - if a grassland has 9 or more species per m2 it should be classified as a moderate distinctiveness grassland habitat type. NB - this criterion is non-negotiable for achieving good condition.	✓
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.	x
3. Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	✓
4. Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	x
5. Cover of bare ground between 1% and 10%, including localised areas, for example, rabbit warrens.	✓
6. Cover of bracken less than 20%.	✓
7. There is an absence of invasive non-native species listed on Schedule 9 of <i>Wildlife and Countryside Act 1981</i> (as amended).	✓
Good: Passes 6 or 7 of 7 including essential criterion 1	-
Moderate: Passes 4 or 5 of 7 criteria; OR passes 4 of 5 criteria including essential criteria 1	✓
Poor: Passes 0, 1, 2 or 3 of 7 criteria OR passes 4, 5 or 6 but failing criterion 1	-

Table 9.6: Condition Assessments for Grassland Habitats (Medium, High and Very High Distinctiveness)

Condition Assessment Criteria	Marshy Grassland
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.	✓
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.	x
3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	x
4. Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	✓
5. There is an absence of invasive non-native species listed on Schedule 9 of <i>Wildlife and Countryside Act 1981</i> (as amended). Combined cover of undesirable species ¹ 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.	✓
6. <i>Additional Group – non-acid grassland types only</i> There are greater than 9 species per metre squared. NB – this criterion is essential for achieving good condition (non-acid grassland types only)	x
Acid Grassland Types	
Good: passes 5 of 5 criteria	-
Moderate: passes 3 or 4 of 5 criteria	-
Poor: passes 0, 1 or 2 of 5 criteria	-
Non-acid Grassland Types	
Good: Passes 5 of 6 criteria, including essential criteria 1 and 6	-
Moderate: Passes 3 or 4 of 5 criteria Passes 3 of 6 criteria, including essential criterion 1	✓
Poor: Passes 0, 1 or 2 of 5 criteria OR passes 3 or 4 criteria excluding criterion 1 and 6	-
Additional Information:	
¹ Footnote 1: Species considered undesirable for this habitat type include: Creeping Thistle (<i>Cirsium arvense</i>), Spear Thistle (<i>Cirsium vulgare</i>), Curled Dock (<i>Rumex crispus</i>), Broad-leaved Dock (<i>Rumex obtusifolius</i>), Common Nettle (<i>Urtica dioica</i>), Creeping Buttercup (<i>Ranunculus repens</i>), Greater Plantain (<i>Plantago major</i>), White Clover (<i>Trifolium repens</i>), Cow Parsley (<i>Anthriscus sylvestris</i>).	

Post-intervention New Habitats / Target Conditions

Table 9.7: Target Condition Assessments for Grassland Habitats

Condition Assessment Criteria	Marshy Grassland	Other Lowland Acid Grassland
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. <i>NB – this criterion is essential for achieving moderate condition for non-acid grassland types only.</i>	✓	✓
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.	✓	✓
3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	x	✓
4. Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	✓	✓
5. There is an absence of invasive non-native species listed on Schedule 9 of <i>Wildlife and Countryside Act 1981</i> (as amended). Combined cover of undesirable species ¹ 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.	✓	✓
6. <i>Additional Group – non-acid grassland types only</i> There are greater than 9 species per metre squared. <i>NB – this criterion is essential for achieving good condition (non-acid grassland types only)</i>	✓	N/A
Acid Grassland Types		
Good: passes 5 of 5 criteria	-	✓
Moderate: passes 3 or 4 of 5 criteria	-	-
Poor: passes 0, 1 or 2 of 5 criteria	-	-
Non-acid Grassland Types		
Good: Passes 5 of 6 criteria, including essential criteria 1 and 6	✓	-
Moderate: Passes 3 or 4 of 5 criteria Passes 3 of 6 criteria, including essential criterion 1	-	-
Poor: Passes 0, 1 or 2 of 5 criteria OR passes 3 or 4 criteria excluding criterion 1 and 6	-	-
Additional Information: ¹ Footnote 1: Species considered undesirable for this habitat type include: Creeping Thistle (<i>Cirsium arvense</i>), Spear Thistle (<i>Cirsium vulgare</i>), Curled Dock (<i>Rumex crispus</i>), Broad-leaved Dock (<i>Rumex obtusifolius</i>), Common Nettle (<i>Urtica dioica</i>), Creeping Buttercup (<i>Ranunculus repens</i>), Greater Plantain (<i>Plantago major</i>), White Clover (<i>Trifolium repens</i>), Cow Parsley (<i>Anthriscus sylvestris</i>).		

Table 9.8: Target Condition Assessments for Hedgerows

Condition Assessment Criteria	1
A1. Height: >1.5m average along length <i>The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees.</i> <i>Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).</i> <i>A newly planted hedgerow does not pass this criterion (unless it is > 1.5 m height).</i>	✓
A2. Width: >1.5m average along length. <i>The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (e.g. blackthorn suckers) are only included in the width estimate when they >0.5 m in height.</i> <i>Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of 4 years (if undertaken according to good practice*)</i>	✓
B1. Gap - hedge base. <i>Gap between ground and base of canopy <0.5, for >90% of length (unless line of trees).</i> <i>This is the vertical gappiness of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (e.g. a Hazel dominated hedgerow or where the hedgerow is affected by shading from other vegetation such as woodland, see page 65 of the Hedgerow Survey Handbook (Defra, 2007)).</i>	✓
B2. Gap - hedgerow canopy continuity. <i>Gaps make up less than 10% of total length and no canopy gaps are greater than 5m. Gates and access points are not subject to the >5m criterion.</i> <i>This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small).</i> <i>Access points and gates contribute to the overall gappiness, but are not subject to the >5 m criterion (as this is the typical size of a gate).</i>	✓
C1. Undisturbed ground and perennial vegetation. <i>>1m width ground with perennial herbaceous vegetation for >90% of length.</i> <i>Measured from outer edge of the hedgerow.</i> <i>May be present on only 1 side of the hedgerow.</i> <i>This is the level of disturbance (excluding wildlife disturbance) at the base of the hedge.</i> <i>Undisturbed ground should be present for at least 90% of the hedgerow length, greater than 1m in width and must be present along at least one side of the hedge.</i> <i>This criterion recognises the value of the hedge base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.</i>	✓
C2. Lack of undesirable perennial vegetation. <i>Plant species indicative of nutrient enrichment of soils do not dominate more than 20% cover of the ground area of undisturbed ground.</i> <i>The indicator species used are nettles (<i>Urtica</i> spp.), cleavers (<i>Galium aparine</i>) and docks (<i>Rumex</i> spp.). Their presence, either singly or together, should not exceed the 20% cover threshold.</i>	x
D1. Invasive and neophyte species. <i>>90% of the hedgerow and undisturbed ground is free of invasive and neophyte species.</i> <i>Neophytes are plants which have naturalised since AD 1500.</i>	✓
D2. Current damage. <i>>90% of the hedgerow or undisturbed ground is free of damaged caused by human activities.</i> <i>This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes.</i> <i>This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g. excessive hedge cutting).</i>	✓
E1. Tree Age (if trees are present) <i>At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.</i> <i>This criterion addresses if there are sufficient mature trees (within the scope of planning timescales) which are of higher value to biodiversity.</i>	N/A
E1. Tree health (if trees are present) <i>At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.</i> <i>This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.</i>	N/A
Hedgerows Without Trees	Yes
Good: "No more than 2 failures in total; and no more than 1 in any functional group.	✓
Moderate: No more than 4 failures in total; and does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition).	-
Poor: Fails a total of more than 4 attributes; or fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).	-

9.7 Figures

Figure 1: Site Location and Aerial Image of the Habitats Present



Figure 2: Baseline UKHab Habitats Within the Site

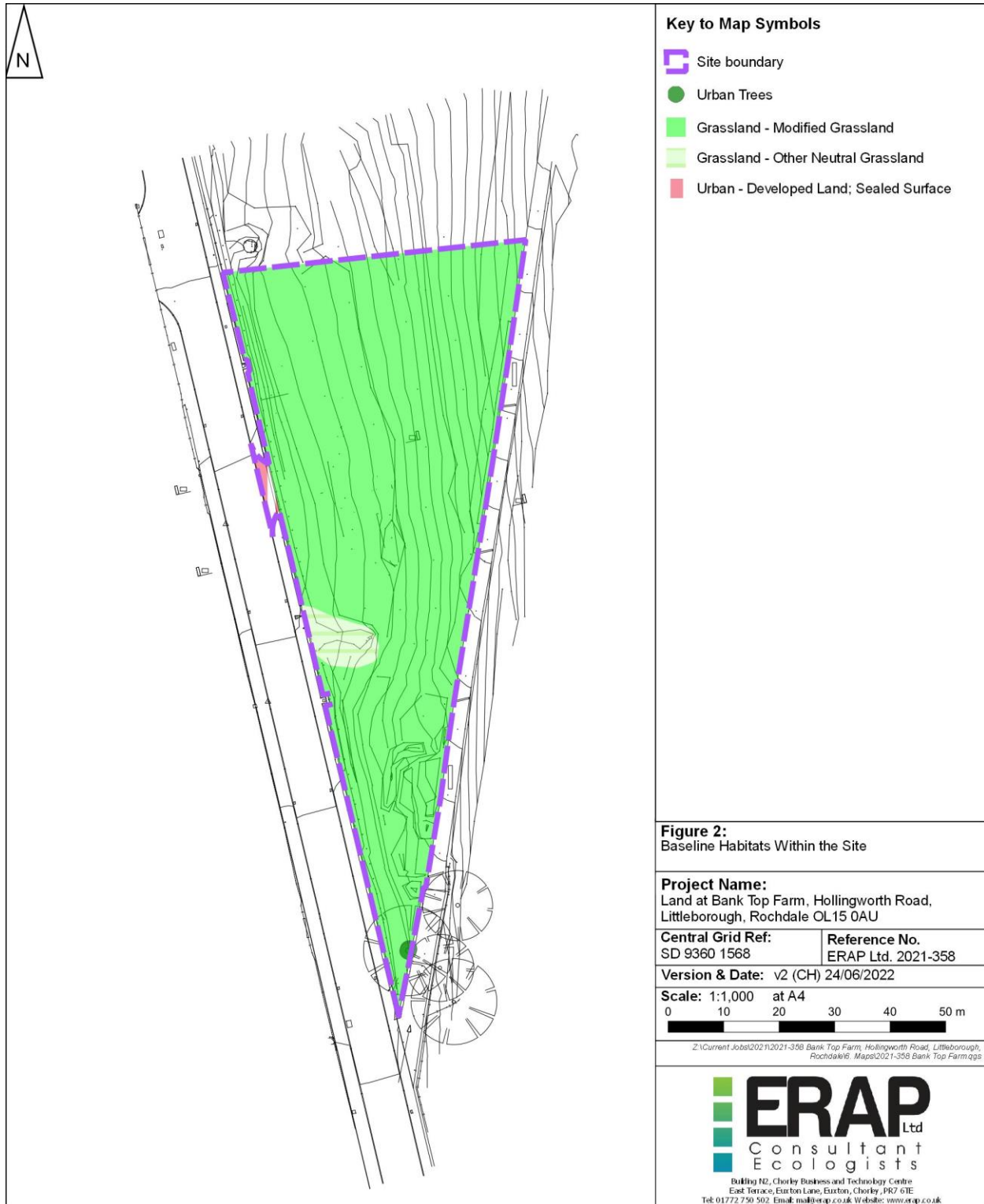
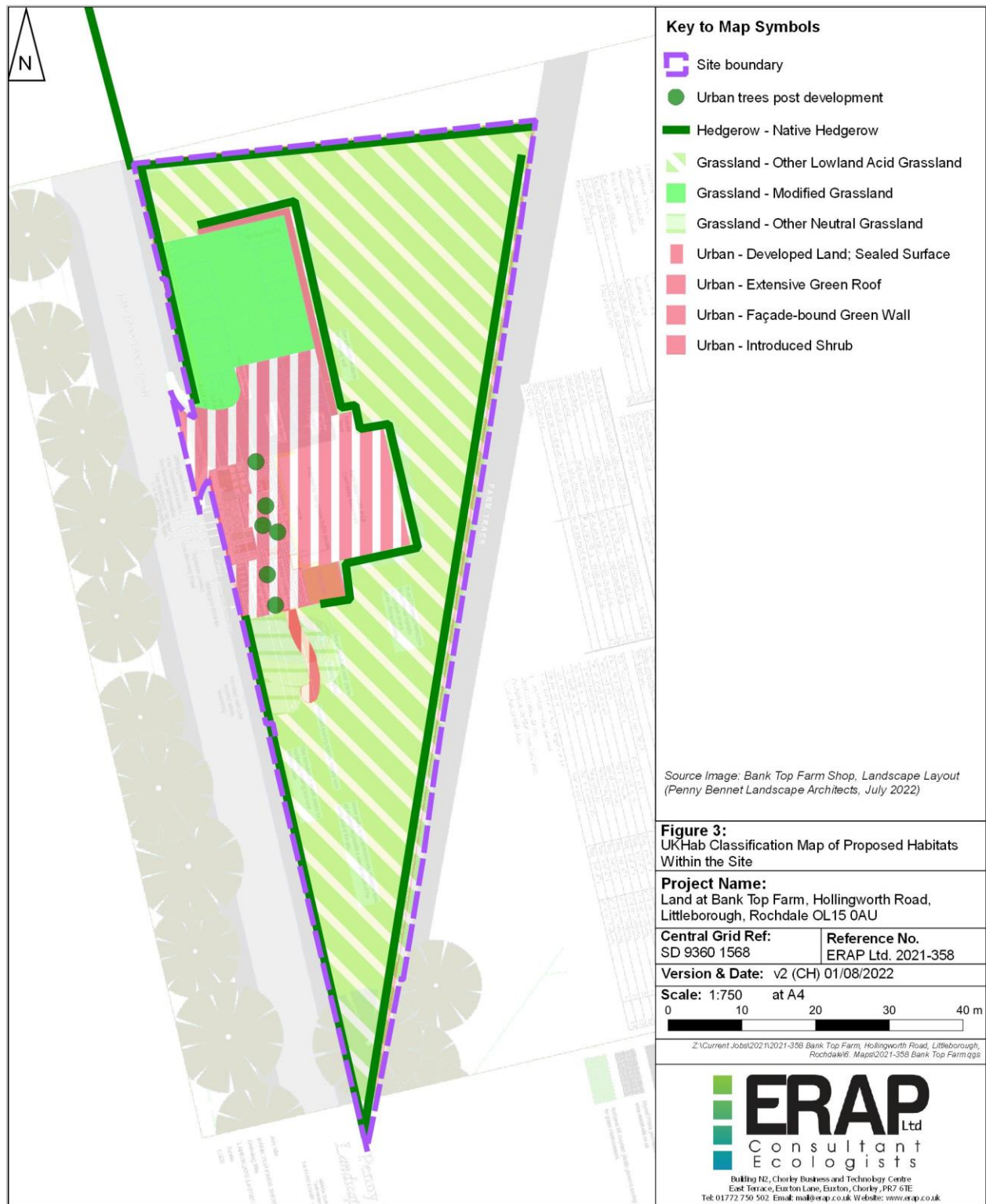


Figure 3: Proposed UKHab Habitats Within the Site



10.0 APPENDIX 3: DEFRA METRIC CALCULATION TOOL VERSION 3.1_03.08.22

Separate document