

Harras Moor, Whitehaven
Preliminary Ecological Appraisal



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Author:	K.S. Holmes
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Declaration of Compliance

This Preliminary Ecological Appraisal has been conducted in accordance with British Standard 42020:2013 "Biodiversity: Code of practice for planning and development" (BSI, 2013), the CIEEM Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017a) and Ecological Impact Assessment (CIEEM, 2016). The information has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct (CIEEM, 2022) and Guidelines for Ecological Report Writing (CIEEM, 2017b).

PBA Applied Ecology Ltd
New Croft
Stackhouse Lane
Giggleswick
Settle
North Yorkshire
BD24 0DL
t. 01729 822063
e. enquiries@pba-ecology.co.uk
www.pba-ecology.co.uk

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KEY FINDINGS

This Preliminary Ecological Appraisal (PEA) report assesses the ecological baseline conditions at Harras Moor and identifies any potential ecological constraints to the proposed housing development. A desktop study of site attributes and an 'extended' habitat survey using UK Habitat Classifications were conducted to identify features of apparent or potential ecological significance at the site. Potential ecological impacts from the proposed housing development are assessed, and recommendations are made for limiting these impacts.

Designated Sites

The site lies within the Impact Zone of River Ehen (Ennerdale water to Keekle confluence) SSSI and St Bees Head SSSI, it is also within 2 km of the Solway Firth SPA. There is negligible risk from the proposed development to these SSSI's as the proposed development does not meet the criteria listed by Natural England for requiring SSSI assent. The development has potential to impact the Solway Firth SPA.

Non-statutory sites within 2 km of the site include Midgley Wood, Midgley Gill, Castle Park Wood, Hope Mission Pond, Woodhouse Quarry, Redness Point, Bonnywood, Priestgill Wood, Weddicar Hall, Keekle, River, Bransty Quarries and Parton Cliffs.

Habitats & Species

Habitats present within the project site include: other neutral grassland (g3c), acid grassland- bracken (g1c), other neutral grassland- false oat grassland (g3c5), other broadleaved woodland (w1g), other neutral grassland tall forb (g3c 16), modified grassland (g4), modified grassland tall forb (g4 16, other neutral grassland- *Holcus Juncus* (g3c 8), gorse scrub (h3e), other wetlands (f2f), bramble scrub (h3d), blackthorn scrub (h3a), developed land; sealed surface (u1b) and native hedgerow (h2a) and other standing water (r1g).

Species observed include Carrion crow *Corvus corone*, kestrel *Falco tinnunculus*, house martin *Delichon urbicum* and European rabbit *Oryctolagus cuniculus*. Habitats on site have the potential to support notable species.

The Invasive Non-Native Species (INNS) Himalayan balsam *Impatiens glandulifera*, yellow loosestrife *Lysimachia vulgaris* and montbretia *Crocsmia x crocosmiiflora* were also found on the project site.

Recommendations

Based on the findings of this PEA, the following recommendations for future monitoring, management, and/or mitigation are made:

- A HRA should be completed to determine if the development will have a likely significant effect on the SPA and recommend any necessary mitigation.
- BNG Assessment to ensure the development achieves 10% BNG.
- Surface Water Management Plan & Construction Ecological Management Plan (CEMP) for the development to prevent pollution runoff into watercourses adjacent to the site and that the development does not impact any ecological features on site. This should include sediment fencing along the boundaries.
- GCN eDNA survey of the nearby ponds to determine presence of GCN.
- A full badger survey of woodland on site and within 30 m of the boundary will be required to determine if badger setts are present on site. To ensure badgers will not be impacted by the development.

- Vegetation clearance works should be timed to avoid the nesting bird season which runs from March to August inclusive. If clearance works occur within this period, nesting bird checks will be required by a suitably qualified ecologist.
- If mature trees are to be removed, further bat surveys must be conducted by a suitably qualified ecologist.
- If habitats suitable for reptiles will be impacted by the development, a reptile survey will be required to determine if they are present on site.
- Ecologist to give a toolbox talk at the start of works to ensure all site personnel are aware of the potential presence of protected species, designated sites, and their legal obligations to protect the environment.
- INNS exclusion zones to be established around all known INNS on site. No vegetation or ground substrate must be removed from within 10 m of any known INNS locations. If such material is required to be removed from the site, it must be treated as controlled waste and transported by a licensed waste carrier to an authorised landfill site. Strict biosecurity measures must be adhered to, including the washing of all equipment (boots, machinery, etc.) on arrival to and removal from the site.
- Ecologist to complete a prestart walkover to ensure the PEA is up to date and no further ecological recommendations are required.

1. INTRODUCTION

1.1. TERMS OF REFERENCE

PBA Applied Ecology Ltd (PBA) was commissioned by Gleeson to undertake a Preliminary Ecological Appraisal (PEA) at Harras Moor, Whitehaven, Cumbria. This report assesses the ecological baseline conditions at the site and identifies any potential ecological constraints to the proposed housing development. The objectives of the ecological appraisal were to:

- Determine the types of habitats present within the project site,
- Determine the current condition / quality of habitats present within the project site,
- Identify any protected / notable species which are present or potentially present on site,
- Identify likely constraints and assess potential impacts of the proposed works,
- Highlight any further survey work which may be required,
- Provide recommendations for the avoidance, minimisation, and mitigation of ecological impacts resulting from the proposed works.

The level of detail in this appraisal and report is intended to be proportionate to the scale of works and complexity of its potential impacts.

Unless otherwise specified, the information presented in this report is valid for a period of 24 months from the date of the survey. If works have not progressed on site by this time, it may be necessary to conduct an updated site visit to determine any changes in the site condition or ecological constraints.



Figure 1: Site location (Bing Maps, 2025).

1.2. ADDITIONAL SURVEYS & REPORTS

PBA will produce a separate report which will detail a Biodiversity Net Gain Assessment to be undertaken for the site.

1.3. SITE DESCRIPTION AND CONTEXT

The survey site is located at Harras Moor on the eastern side of the town of Whitehaven, Cumbria (NX 98788 18010, Figures 1 & 2). The site comprises grazed fields and woodland patches.

The wider landscape is dominated by the town of Whitehaven, pasture fields and the Lake District National Park to the west (Figures 1 & 2).



Figure 2: Site context (Google Maps, 2025).

1.4. DESCRIPTION OF WORKS

The proposed works are expected to include a large residential development (Appendix E).

1.5. WILDLIFE LEGISLATION AND PLANNING POLICY

This PEA has been undertaken with reference to relevant environmental and wildlife legislation and planning policy. The following international and national legislation has been considered within the scope of this document:

- EC Habitats Directive 1992 (Council Directive 92/43/EEC)
- Wildlife and Countryside Act 1981 (as amended)
- Countryside and Rights of Way Act 2000
- Natural Environment and Rural Communities Act 2006
- The Conservation of Habitats and Species Regulations 2017 (as amended)
- Protection of Badgers Act 1992
- Hedgerow Regulations 1997
- Environmental Protection Act 1990
- Salmon and Freshwater Fisheries Act 1975

- National Parks and Access to the Countryside Act 1949

The most recent amendments to the Conservation of Habitats and Species Regulations 2017 take account of the UK's exit from the European Union. These amendments are found in the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

In addition to obligations under wildlife legislation, the preservation of biodiversity is also a material consideration in planning decisions. The Government's main objective for protecting UK biodiversity, as set out in Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services, is to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people. (DEFRA 2011). Furthermore, the National Planning Policy Framework 2023 encourages decision-making in favour of sustainable development and requires planning decisions to "contribute to and enhance the natural environment", including "minimising impacts on biodiversity and providing net gains in biodiversity where possible" (Appendix A). Consequently, incorporating measures to protect, mitigate, and enhance biodiversity is an essential aspect of project design.

Further information on legislation and policy is provided in Section 5 of this report, as well as in Appendix A, which describes the levels of protection conferred on the species and habitats identified within the project site.

2. APPROACH

This PEA is based on a desktop study of site attributes, followed by an 'extended' habitat survey conducted in the field. The extension of the standard habitat mapping survey using UK Habitat Classification (UKHC, UK HCWG 2023) is intended to highlight additional features of apparent or potential ecological significance, specifically in relation to habitats present on the site which have the potential to support notable or protected species (CIEEM 2017a). The fieldwork conducted to support this PEA was undertaken on 15/07/2025 by Andrew Macaulay BSc ACIEEM, Katie Holmes BSc and Nicola Carter MSc.

2.1. DESKTOP STUDY

The Natural England online facility 'Magic Map' was used to obtain information on local, national, and international designations, including statutory wildlife sites (e.g., SSSI, SPA, SAC), within a 2 km radius of the project site.

In addition, the Cumbria Biodiversity Data Centre (CBDC) provided further records of non-statutory wildlife sites and any rare and protected species that had been recorded within a 2 km radius of the survey site. This information was made available in July 2025.

Additional records of non-statutory wildlife sites, and any rare and protected species recorded within a 2 km radius of the survey site, were provided by the CBDC in July 2025. data provided by the CBDC were used to determine the likelihood of the presence of protected or notable species and habitats on the project/survey site. Despite the inherent limitations of biological records, they may provide valuable insights into the presence of species not recorded during field surveys. It is important to note, however, that due to the frequent *ad hoc* nature of these records, the absence of records does not necessarily indicate the absence of species.

Aerial photographs and OS maps were consulted to identify waterbodies within 500 m of the survey site, which might provide suitable habitat for amphibians, with a particular focus on great crested newt (GCN) *Triturus cristatus*. The site was also assigned a green GCN risk zone using data provided by Natural England (NE, 2023).

2.2. HABITAT SURVEY

The habitat survey consisted in the mapping the vegetation communities present on site, with the survey area covering agricultural fields and woodland patches. The habitats immediately surrounding these features were also surveyed and covered an area of approximately 20.7 ha.

The habitat survey was conducted in accordance with standard UKHC habitats definitions, condition assessments, and mapping methodology (UK HCWG 2023). Each habitat type is recorded by way of colour or code, allowing simple display and interpretation on the resulting habitat map (Appendix D). Dominant and indicator plant species were observed and recorded within each habitat type. Additional descriptions of species composition, habitat structure, habitat management, and any features of local ecological interest or potential significance, are provided as supplementary information.

2.3. SPECIES SCOPING SURVEY

The potential for the habitats on the survey site to support protected or notable species was assessed in accordance with standard practice and procedures (JNCC 2010, CIEEM 2017a). The term "notable" species refers to those that are legally protected, are nationally or locally rare, endangered, or are identified as a "priority" species in the UK or locally. The probability of notable species occurrence within the survey site was established based on the findings of the desktop study, evidence of animal activity on the site, and an evaluation of the quality and extent of suitable habitats.

To the extent feasible and based upon the surveys completed to date, an impact assessment was conducted to appraise the potential impacts of the proposed works on notable species and supporting habitats. In cases where further surveys are recommended, a more specific impact assessment can be developed once additional surveys have been completed.

In addition, any INNS and/or controlled species present on site were recorded.

2.4. SURVEY CONDITIONS AND CONSTRAINTS

Weather conditions at the time of survey were: overcast, with heavy rain, high wind, and a temperature of ~ 15 °C. Conditions prior to and during the survey were suitable for all target fauna to have been active.

In accordance with Clause 6.7 of BS 42020:2013, any limitations to the survey and ecological assessment are detailed below and within the results. It should be noted that this species scoping survey does not constitute a full survey for each taxon and cannot categorically ascertain the presence or absence of any species. Should there be any potential for protected species or florally rich communities to occur within the project or survey site, further survey work may be necessary to confirm and detail their presence.

If the potential impact of a proposed action cannot be ascertained with confidence, it is recommended that an ecologist be consulted prior to the commencement of works.

3. DESKTOP STUDY RESULTS

The following chapter has been produced based upon information gathered from the desk study.

3.1. DESIGNATED SITES

Records show there are two statutory sites, and 11 non-statutory sites, are located within a 2 km radius of the survey site (Table 1; Appendix B). The site lies within the Impact Zone of River Ehen (Ennerdale water to Keekle confluence) SSSI and St Bees Head SSSI. The Solway firth Special Protection Area (SPA) and St Bees Head Site of Special Scientific Interest (SSSI) are 1.8 km to the west.

Non-statutory sites include Midgey Wood, Midgey Gill, Castle Park Wood, Hope Mission Pond, Woodhouse Quarry, Redness Point, Bonnywood, Priestgill Wood, Weddicar Hall, Keekle, River, Bransty Quarries and Parton Cliffs.

Table 1: Designated sites within 2 km of Harras Moor.

Statutory designated sites			
Solway Firth	SPA	1.8 km west	Designated for aggregations of breeding and non-breeding birds of international importance.
St Bees Head	SSSI	1.8 km west	Designated for a population of cliff breeding sea birds as well as coastal cliff plant communities.
Non-statutory designated sites			
Midgey Wood	Ancient woodland	Borders site	Area of semi natural ancient woodland
Midgey Gill	County Wildlife Site	Borders site	Ancient woodland with importance for local wildlife
Castle Park Wood	County Wildlife Site	Boarders site	Ancient woodland with importance for local wildlife
Hope Mission Pond	County Wildlife Site	~1.1 km northeast	Pond with importance for local wildlife
Woodhouse Quarry	County Wildlife Site	~1.9 km southwest	Disused quarry with importance for local wildlife
Redness Point	County Wildlife Site	~1.9 km northwest	Area of coastline with importance for local wildlife
Bonnywood	County Wildlife Site	~1.9 km northeast	Woodland with importance for local wildlife
Priestgill Wood	Sites of Invertebrates Significance	~1 km east	Site with importance for invertebrate communities
Weddicar Hall	Sites of Invertebrates Significance	~1.9 km east	Site with importance for invertebrate communities
Keekle, River	Sites of Invertebrates Significance	~1.8 km east	Site with importance for invertebrate communities
Bransty Quarries and Parton Cliffs	Local Geological Sites	~1.6 km northwest	Site with important geological formations

3.2. SPECIES RECORDS

The data records provided by CBDC (Appendix C) indicate that a range of nationally and internationally protected species have historically been recorded within 2 km of the survey site. A summary of the most significant results of relevance to the survey area and proposed works is provided below. Distances are taken from a central grid reference.

The majority of the site lies within a GCN green risk zone however, the eastern edge crosses into an amber zone, thus GCN may be present within the area.

One hundred and twenty-three species of bird were recorded within 2 km of the site. In addition there were records of several bat species, otter *Lutra lutra*, red squirrel *Sciurus vulgaris*, common toad *Bufo bufo*, common frog *Rana temporaria*, smooth newt *Lissotriton vulgaris*, common lizard *Zootoca vivipara*, slow worm *Anguis fragilis*, brown/sea trout *Salmo trutta*, European eel *Anguilla Anguilla*, mackerel *Scomber scombrus* as well as the invasive non-native species Himalayan balsam *Impatiens glandulifera*, Japanese knotweed *Fallopia japonica*, Canadian waterweed *Elodea canadensis*, giant hogweed *Heracleum mantegazzianum*, Japanese rose *Rosa rugosa*, montbretia *Crococsmia x crocosmiiflora*, Rhododendron ponticum, Canada goose *Branta canadensis* and eastern grey squirrel *Sciurus carolinensis*.

4. FIELD SURVEY RESULTS

Following the desktop study of the survey site, PBA ecologists performed a site visit on 15/07/2025. The following sections provide an assessment of the habitat categories identified within the survey site, and any notable species observed or considered to be potentially present.

Habitats present on the survey site include: other neutral grassland (g3c), bracken (g1c), Arrhenatherum grassland (g3c5), other broadleaved woodland (w1g), other neutral grassland tall forb (g3c 16), modified grassland (g4), modified grassland tall forb (g4 16), Holcus Juncus grassland (g3c8), gorse scrub (h3e), fen, marsh and swamp (f2), bramble scrub (h3d), blackthorn scrub (h3a), developed land; sealed surface (u1b) and native hedgerow (h2a) and other standing water (r1g) (Appendix D). Carrion crow *Corvus corone*, kestrel *Falco tinnunculus*, house martin *Delichon urbicum* and European rabbit *Oryctolagus cuniculus* were observed on site. No surrogate signs of other animals were recorded, however habitats on site have potential to support notable species.

Habitat distribution and location of target notes are recorded on the UKHC Map (Appendix D), and photographs are provided in Appendix F.

4.1. GRASSLAND 1 – OTHER NEUTRAL GRASSLAND (G3C)

A white clover *Trifolium repens* dominant field. Other species present include: creeping buttercup *Ranunculus repens*, creeping bent *Agrostis stolonifera*, horsetail *Equisetum sp.*, greater plantain *Plantago major*, common mouse ear *Cerastium fontanum*, meadow buttercup *Ranunculus acris*, Yorkshire fog *Holcus lanatus*, Timothy *Phleum pratense*, sorrel *Rumex acetosa*, broadleaved dock *Rumex obtusifolius*, perennial rye grass *Lolium perenne*, red bartsia *Odontites verna* and common knapweed *Centaurea nigra* (Appendix D, habitat 1).

This habitat was assessed to be in poor condition as it only passed criteria A and D.

4.2. GRASSLAND 2 – BRACKEN (G1C)

An area of bracken *Pteridium aquilinum* dominant grassland bordering Caldbeck Road. Species present include bracken, false oat grass *Arrhenatherum elatius*, broad leaved dock, hogweed *Heracleum sphondylium*, creeping thistle *Cirsium arvense*, great willowherb *Epilobium hirsutum*, nettle *Urtica dioica*, Himalayan balsam, willow saplings *Salix sp.*, sycamore *Acer pseudoplatanus* and hawthorn *Crataegus monogyna* (Appendix D, habitat 2).

This habitat does not require a condition assessment.

4.3. GRASSLAND 3 – ARRHENATHERUM NEUTRAL GRASSLAND (G3C5)

A false oat dominant grassland trip running between two fields. Other species present include: hogweed, sweet vernal grass *Anthoxanthum odoratum*, perennial rye grass, white clover, ribwort plantain *Plantago lanceolata*, creeping thistle *Cirsium arvense*, Yorkshire fog and horsetail (Appendix D, habitat 3).

This habitat was assessed to be in moderate condition as it passes criteria A, C and D.

4.4. WOODLAND 1 – OTHER BROADLEAVED WOODLAND (W1G)

A strip of woodland that stretches along the south and west of grassland 1 and the north and east of grassland 9. Species present include: sycamore, ash *Fraxinus excelsior*, rowan *Sorbus aucuparia*, Scots pine *Pinus sylvestris*, beech *Fagus sylvatica*, English oak *Quercus robur*, bramble *Rubus fruticosus*, male fern *Dryopteris filix-mas*, wood avens *Geum urbanum*, ivy *Hedera sp.*, hogweed, harts tongue fern *Asplenium scolopendrium*, pendulous sedge *Carex pendula*, ground elder *Aegopodium podagraria* and cleavers *Gallium sp.* (Appendix D, habitat 4).

This habitat was assessed to be in moderate condition as it scored 29 points.

4.5. GRASSLAND 4 – OTHER NEUTRAL GRASSLAND- TALL FORB (G3C 16)

An area of grassland located in front of woodland 1. Species present include: yellow loosestrife, soft rush *Juncus effusus*, cleavers, angelica *Angelica sylvestris*, creeping thistle, Timothy, ragwort *Senecio jacobaea*, alder *Alnus glutinosa*, horsetail, marsh woundwort *Stachys palustris* and greater willowherb (Appendix D, habitat 5).

This habitat was assessed to be in poor condition as it fails essential criteria A.

4.6. GRASSLAND 5 – MODIFIED GRASSLAND (G4)

An area of perennial rye grass dominant modified grassland which lies between two woodland patches. Species present include: sweet vernal grass, common bent, mouse ear, yarrow, white clover, sorrel, Yorkshire fog, creeping thistle and rush sp. (Appendix D, habitat 6).

This habitat was assessed to be in good condition as it passed all the assessment criteria.

4.7. GRASSLAND 6 – ARRHENATHERUM NEUTRAL GRASSLAND (G3C5)

A false oat dominant grassland located in the middle of site. Other species present include: common knapweed *Centaurea nigra*, yarrow *Achillea millefolium*, hogweed, ragwort, creeping buttercup, white clover, perennial rye grass and nettle (Appendix D, habitat 7).

This habitat was assessed to be in moderate condition as it passes criteria A, C and D.

4.8. GRASSLAND 7 – MODIFIED GRASSLAND TALL FORB (G4 16)

A nettle dominant patch of grassland on top of a mound at the end of Caldbeck Road. Other species present include: greater willowherb, creeping thistle, bracken, bramble, bindweed *Convolvulus arvensis*, cleavers, montbretia and hawthorn (Appendix D, habitat 8).

This species was assessed to be in poor condition as it fails essential criteria A.

4.9. GRASSLAND 8 – HOLCUS JUNCUS GRASSLAND (G3C8)

A Holcus Juncus grassland field including soft rush, Yorkshire fog, common bent, white clover, sorrel, crested dogs' tail *Cynosurus cristatus*, birds foot trefoil *Lotus corniculatus*, ribwort plantain, sharp glowered rush *Juncus acutiflorus* and slender marsh bedstraw *Galium constrictum* (Appendix D, habitat 9).

This habitat was assessed to be in moderate condition as it passes all criteria excluding criteria F which is essential for non-acid grassland achieving good condition.

4.10. GRASSLAND 9 – OTHER NEUTRAL GRASSLAND (G3C)

A white clover dominant field. Other species present include: creeping buttercup, creeping bent, horsetail, greater plantain, common mouse ear, meadow buttercup, Yorkshire fog, Timothy, sorrel, broad leaved dock, perennial rye grass, red bartsia, *Odontites verna* and common knapweed (Appendix D, habitat 10).

This habitat was assessed to be in poor condition as it only passed criteria A and D.

4.11. WOODLAND 2 – OTHER BROADLEAVED WOODLAND (W1G)

An area of woodland is located to the east of grassland 9. Species present include: sycamore, ash, rowan *Sorbus aucuparia*, Scots pine *Pinus sylvestris*, beech, English oak, bramble, male fern, wood avens *Geum urbanum*, ivy, hogweed, harts tongue fern, pendulous sedge *Carex pendula*, ground elder and cleaver sp. (Appendix D, habitat 11).

This habitat was assessed to be in poor condition as it scored 24 points.

4.12. WOODLAND 3 – OTHER BROADLEAVED WOODLAND (W1G)

An area of woodland that follows on from woodland 1, with slightly different species composition and condition. Species present include: ash, Scots pine, oak, whitebeam *Sorbus aria*, rowan, nettle, Yorkshire fog, cock's foot, *Poa* sp., willow, creeping thistle and tufted hair grass *Deschampsia cespitosa* (Appendix D, habitat 12).

This habitat was assessed to be in poor condition as it scored 24 points.

4.13. SCRUB 1 – GORSE SCRUB (H3E)

A patch of gorse scrub located along the north edge of the site. Species present include: gorse, hawthorn, nettle, creeping thistle, white clover, perennial rye grass and common bent (Appendix D, habitat 13).

This habitat was assessed to be in poor condition as it only passes criteria B and C.

4.14. GRASSLAND 10 – OTHER NEUTRAL GRASSLAND TALL FORB (G3C 16)

A horse field with a small wooden stable. Species present include ragwort, spear thistle, broad leaved dock, perennial rye grass, knapweed, yarrow, dandelion *Taraxacum officinale*, bent and self-heal *Prunella vulgaris* (Appendix D, habitat 14).

This habitat was assessed as poor as it failed essential criteria A.

4.15. WETLAND 1 – OTHER WETLANDS (F2F)

An area of fen at the south of the horse field. Species present include: yellow loosestrife *Lysimachia vulgaris*, soft rush, rose bay willowherb, bramble, angelica, ground elder, bamboo *Bambusoideae* sp., willow, knapweed, horsetail, *Epithelium* sp., orchids *Orchidaceae* sp., Himalayan balsam and montbretia (Appendix D, habitat 15).

This habitat was assessed to be in moderate condition as it passes criteria A, D and E.

4.16. SCRUB 2 – BRAMBLE SCRUB (H3D)

A patch of bramble scrub to the east of the horse field. Bramble and Himalayan Balsam are dominant with false oat grass, ragwort and nettle also present (Appendix D, habitat 16).

This habitat does not require a condition assessment.

4.17. SCRUB 3 – BLACKTHORN SCRUB (H3A)

An area of blackthorn scrub to the east of the site bordering an other neutral grassland field and a road. Other species present include: eared willow and bramble (Appendix D, habitat 17).

This habitat was assessed to be in poor condition as it only passed criteria B and C.

4.18. WOODLAND 4 – OTHER BROADLEAVED WOODLAND (W1G)

A patch of ash and sycamore dominant woodland running through the centre of site. Evidence of human disturbance to the ground in the form of bike tracks and small trenches were present in this woodland. Other species present include downy birch *Betula pubescens*, oak, rowan, hawthorn, holly, bramble, hogweed, cleavers, false oat grass and herb Robert *Geranium robertianum* (Appendix D, habitat 18).

This habitat was assessed to be in moderate condition as it scored a total of 30 points.

4.19. WOODLAND 5 – OTHER BROADLEAVED WOODLAND (W1G)

A continuation of the ash and sycamore dominant woodland without the human disturbance to the ground. This woodland has the same species and condition assessment as woodland 4 (Appendix D, habitat 19).

4.20. GRASSLAND 11 – OTHER NEUTRAL GRASSLAND (G3C)

A white clover dominant field. Other species present include: silverweed, creeping buttercup, creeping bent, horsetail, greater plantain, common mouse ear, meadow buttercup, Yorkshire fog, Timothy, sorrel, broad leaved dock, perennial rye grass, red bartsia and common knapweed (Appendix D, habitat 20).

This habitat was assessed to be in poor condition as it only passed criteria A and D.

4.21. GRASSLAND 12 – ARRHENATHERUM NEUTRAL GRASSLAND (G3C5)

A false oat grassland bordering a field to the east of the site. Other species present include: common knapweed, yarrow, hogweed, ragwort, creeping buttercup, white clover, perennial rye grass and nettle (Appendix D, habitat 21).

This habitat was assessed to be in moderate condition as it passed criteria A, C and D.

4.22. GRASSLAND 13 – ARRHENATHERUM NEUTRAL GRASSLAND (G3C5)

An area of false oat grassland to the east of Calbeck Road. Other species present include: common knapweed, yarrow, hogweed, ragwort, creeping buttercup, white clover, perennial rye grass and nettle (Appendix D, habitat 22).

This habitat was assessed to be in moderate condition as it passed criteria A, C and D.

4.23. WOODLAND 6 – OTHER BROADLEAVED WOODLAND (W1G)

An area of woodland to the east of Calbeck Road. Species include rowan, ash, hawthorn, nettle, rosebay willowherb, greater willowherb, elder, and bramble (Appendix D, habitat 23).

This habitat was assessed to be in poor condition as it scored 24 points.

4.24. GRASSLAND 14 – HOLCUS JUNCUS GRASSLAND (G3C8)

A large field that is located to the north of the site. This field comprises a mosaic of *Holcus juncus* grassland and modified grassland. In the *Holcus juncus* patches, species present include: soft rush, Yorkshire fog, common bent, white clover, sorrel, crested dogs tail, bird's foot trefoil, ribwort plantain, *Juncus acutiflorus* and *Galium constrictum* (Appendix D, habitat 24).

This habitat was assessed to be in good condition as it passes criteria A, B, C, D and E.

4.25. GRASSLAND 15 – MODIFIED GRASSLAND (G4)

The modified grassland patches within the large field at the north of the site included: sweet vernal grass, common bent, mouse ear, yarrow, white clover, sorrel, Yorkshire fog, creeping thistle and rush sp. (Appendix D, habitat 25).

This habitat was assessed to be in good condition as it passed all the assessment criteria.

4.26. URBAN 1 – DEVELOPED LAND SEALED SURFACE (U1B)

Calbeck road. A tarmacked road to the south of the site (Appendix D, habitat 26).

4.27. URBAN 2 – DEVELOPED LAND SEALED SURFACE (U1B)

An area of tarmacked road bordering the industrial estate to the northeast of the site (Appendix D, habitat 27).

4.28. HEDGEROW 1 – NATIVE HEDGEROW (H2A)

A hawthorn dominant hedgerow bordering residential properties to the north of the site. Blackthorn is also present.

This hedgerow was assessed to be in poor condition as it only passed criteria A1, A2, D1 and D2.

4.29. HEDGEROW 2 – NATIVE HEDGEROW (H2A)

A hedgerow with a mix of native and non-native species bordering residential properties to the north of the site. Species present include: hawthorn, Leyland *Cupressus xleylandii*, wood cranes bill *Geranium sylvaticum*, bramble, foxglove *Digitalis purpurea*, gorse, cotoneaster *Cotoneaster sp.* and snowberry *Symphoricarpos albus*.

This hedgerow was assessed to be in poor condition as it only passed criteria A1, A2, B1 and D2.

4.30. HEDGEROW 3 – NATIVE HEDGEROW (H2A)

A hawthorn dominant hedgerow to the west of the large field. Other species present include: sessile oak *Quercus petraea*, red campion *Silene dioica*, nettle and male fern.

This hedgerow was assessed to be in moderate condition as it passes criteria A1, A2, B2, D1, D2 and E2.

4.31. HEDGEROW 4 – NATIVE HEDGEROW (H2A)

Hawthorn dominant hedgerow to the east of the site. Other species present include: false oat grass, red campion, hogweed, field horsetail, bracken and bramble.

This hedgerow was assessed to be in good condition as it only failed 2 criteria passing A1, A2, B2, C1, C2 and D2.

4.32. HEDGEROW 5 – NON-NATIVE ORNAMENTAL HEDGEROW (H2B)

A non-native hedgerow located south of the gorse scrub, bordering residential properties and the large field to the west of the site.

This habitat does not require a condition assessment.

4.33. DITCH 1 – OTHER STANDING WATER (R1G)

A ditch is located to the west of the site in a field margin of other neutral grassland tall forb. It was mostly dry at the time of surveying.

Table 2: Summary of desktop study and field survey results.

Taxa	Recorded in desk study (Full records in Appendix C)	Evidence on site (Locations and photos in Appendices D & F)	Potential of site to support presence
Birds	Yes – 123 species of bird have been recorded within 2 km of the site, including several birds protected under Schedule 1 of the Wildlife and Countryside Act (as amended).	Yes – Suitable nesting habitat is provided by woodlands, scrub and grasslands. A small nest was observed within a tree cavity (TN3). Carrion crow, kestrel and house martin were observed on site.	Confirmed – Bird nests were found on site, there is suitable nesting habitat across the site.
Bats	Yes – Several species including common pipistrelle <i>Pipistrellus pipistrellus</i> and soprano pipistrelle <i>Pipistrellus pygmaeus</i> .	None – No evidence observed on site, however, mature trees on site have the potential to support roosting bats.	High – Suitable roost features in mature trees.
Otter	Yes – Records of otter <i>Lutra lutra</i> within 2 km of the site	None – No evidence observed on site.	Negligible – No running water on site.
Badger	None – No records within 2 km.	None – No evidence observed on site, however, the woodland patches provide suitable habitat.	Moderate – Suitable habitat on site for foraging and sett building.
Other Mammals	Yes – Several species including Red Squirrel <i>Sciurus vulgaris</i> .	Yes – Rabbits were observed on site.	High – Records of notable species including red squirrel on site and rabbits were observed on site.
Amphibians	Yes – Common toad <i>Bufo bufo</i> , common frog <i>Rana temporaria</i> and smooth newt <i>Lissotriton vulgaris</i> recorded within 2 km of the site.	None – No evidence observed on site.	Moderate – No standing water bodies on site, suitable breeding ponds 250 m east of the site, suitable terrestrial habitats were present on site.
Reptiles	Yes – Common lizard <i>Zootoca vivipara</i> and slow worm <i>Anguis fragilis</i> recorded within 2 km of the site.	None – No evidence observed on site, however, there is false oat grassland which provides suitable habitat.	Moderate – Records of reptiles within 2 km of the site and suitable habitat on site.
Fish	Yes – Brown/sea trout <i>Salmo trutta</i> , European eel <i>Anguilla Anguilla</i> and mackerel <i>Scomber scombrus</i> recorded within 2 km of the site.	None – No evidence observed on site.	Negligible – No suitable water bodies on site to support fish species.
Invasive Non-Native Species	Yes – Several INNS have been recorded within 2 km of the site.	Yes – Himalayan balsam, yellow loosestrife, and montbretia were confirmed on site.	Confirmed – Himalayan balsam and montbretia were all confirmed on site.

5. EVALUATION AND RECOMMENDATIONS

The site lies within the Impact Zone of River Ehen (Ennerdale water to Keekle confluence) SSSI and St Bees Head SSSI.

The survey area is situated within 2 km of Midgley Wood, Midgley Gill, Castle Park Wood, Hope Mission Pond, Woodhouse Quarry, Redness Point, Bonnywood, Priestgill Wood, Weddicar Hall, Keekle, River, Bransty Quarries and Parton Cliffs. The survey site encompasses habitats of significant ecological value, including other neutral grassland (g3c), acid grassland- bracken (g1c), other neutral grassland- false oat grassland (g3c5), other broadleaved woodland (w1g), other neutral grassland tall forb (g3c 16), modified grassland (g4), modified grassland tall forb (g4 16, other neutral grassland- *Holcus Juncus* (g3c 8), gorse scrub (h3e), fen, marsh and swamp (f2), bramble scrub (h3d), blackthorn scrub (h3a), developed land; sealed surface (u1b) and native hedgerow (h2a) and other standing water (r1g). Carrion crow, kestrel, house martin and European rabbit were confirmed to use habitats on and in the vicinity of the site. There is also potential for other protected and notable species to use habitats on the site. In addition, it is likely that transient mammals and birds will use the habitats on the site. The UK Habitat Classification Map (Appendix D) and accompanying photographs (Appendix F) illustrate the significant ecological features of interest.

Table 3 (below) presents an evaluation of the ecological features present on the project/survey site, along with an assessment of the potential impact of the proposed works on each of these features in the absence of any proposed mitigation measures. Recommendations are made to avert the potential risk of both short- and long-term adverse impacts on local biodiversity, and to avoid contravention of environmental and wildlife legislation.

Table 2: Ecological features – evaluation and recommendations.

Ecological Feature	Potential impact of proposed development	Recommendations for mitigation and/or further surveys
Solway Firth SPA	Moderate – The development has potential to impact the SPA.	A HRA should be completed to determine if the development will have a likely significant effect on the SPA and recommend any necessary mitigation.
River Ehen (Ennerdale water to Keekle confluence) SSSI and St Bees Head SSSI	Low – The site lies within the Impact Zone of River Ehen (Ennerdale water to Keekle confluence) SSSI and St Bees Head SSSI.	No further action is required as the development does not meet the criteria listed by Natural England for requiring SSSI assent.
Notable habitats including: other neutral grassland (g3c), acid grassland- bracken (g1c), other neutral grassland- false oat grassland (g3c5), other broadleaved woodland (w1g), other neutral grassland tall forb (g3c 16), other neutral grassland- <i>Holcus Juncus</i> (g3c 8), gorse scrub (h3e), fen, marsh	High – These habitats will be lost due to the development with no current plans to replace them within the development.	As part of the BNG Assessment, a 10% net gain will be required for the development to compensate for the lost habitats. Surface Water Management Plan & Construction Ecological Management Plan (CEMP) for the development to prevent pollution runoff into watercourses adjacent to the site and that the development does not impact any ecological features on site. This should include sediment fencing along the boundaries

Ecological Feature	Potential impact of proposed development	Recommendations for mitigation and/or further surveys
and swamp (f2), bramble scrub (h3d), blackthorn scrub (h3a), and native hedgerow (h2a).		
Amphibians	Moderate – Some suitable terrestrial habitats on site. Suitable breeding ponds for GCN and other amphibians 250 m east of the site.	GCN eDNA survey of the nearby ponds to determine presence of GCN.
Badgers	Moderate – suitable habitat on site for badgers. The works could cause disturbance and harm to badgers and badger setts if they are present within the woodland patches on site.	A full badger survey of woodland on site and within 30 m of the boundary will be required to determine if badger setts are present on site. To ensure badgers will not be impacted by the development.
Birds	High – suitable nesting bird habitat present on site and birds nest confirmed on site.	Vegetation clearance works should be timed to avoid the nesting bird season which runs from March to August inclusive. If clearance works occur within this period, nesting bird checks will be required by a suitably qualified ecologist.
Bats	High – if mature trees are to be removed then bat roosts could be destroyed.	If mature trees are to be removed, further bat surveys must be conducted by a suitably qualified ecologist.
Reptiles	Moderate – Some sections of habitat on site have reptile suitability (areas of false oat grassland, bracken, scattered scrub and tall unmanaged grassland).	If these habitats will be impacted by the development, a reptile survey will be required to determine if they are present on site.
INNS	High – Himalayan balsam, yellow loosestrife and montbretia were all confirmed on site.	INNS exclusion zones to be established around all known INNS on site. No vegetation or ground substrate must be removed from within 10 m of any known INNS locations. If such material is required to be removed from the site, it must be treated as controlled waste and transported by a licensed waste carrier to an authorised landfill site. Strict biosecurity measures must be adhered to, including the washing of all equipment (boots, machinery, etc.) on arrival to and removal from the site.
- Ecologist to complete a prestart walkover to ensure the PEA is up to date and no further ecological recommendations are required. - Any excavations created during the works should be left covered overnight, or fitted with a ramp to allow any entrapped animals to escape.		

The National Planning Policy Framework 2023 requires that planning decisions be made in a way that "conserves and enhances the natural environment" and "provides net gains in biodiversity where possible" (Appendix A). At Harras Moor, there are several potential opportunities for biodiversity enhancement that could be incorporated into the works, with the aim of providing long-term biodiversity enhancements once the works are complete. These will be listed within the BNG Assessment.

6. CONCLUSION

Further surveys, permitting, and monitoring as outlined in Chapter 5/Table 3, will be required to prevent a negative impact on ecological features by the proposed development (Appendix E). These are summarised in the recommendations and key findings.

REFERENCES

- BSI (2013) 'Biodiversity - Code of practice for planning and development (BS 42020:2013)', British Standards Institution.
- CIEEM (2017a) 'Guidelines for Preliminary Ecological Appraisal, 2nd edition', Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2017b) 'Guidelines on Ecological Report Writing', Chartered Institute of Ecological and Environmental Management, Winchester.
- CIEEM (2022) 'Code of Professional Conduct', Chartered Institute of Ecology and Environmental Management, Winchester.
- National Planning Policy Framework (2024) Department for Levelling Up, Housing & Communities, London.
- Natural England (2023) *GCN Risk Zones*. Available at: <https://naturalengland-defra.opendata.arcgis.com/search?collection=Dataset&q=gcn> (Accessed: 03 January 2024).
- PBA Ecology (2022a) 'Biodiversity Net Gain Assessment - [Harras Moor]'.
PBA Ecology (2022b) 'Biodiversity Enhancement Plan - [Harras Moor]'.
- UK Hab (2023) *The UK Habitat Classification Version 2.0*. Available at <https://ukhab.org/> (Accessed: 03 January 2024)

APPENDICES

Appendix A – Policy and Legislation

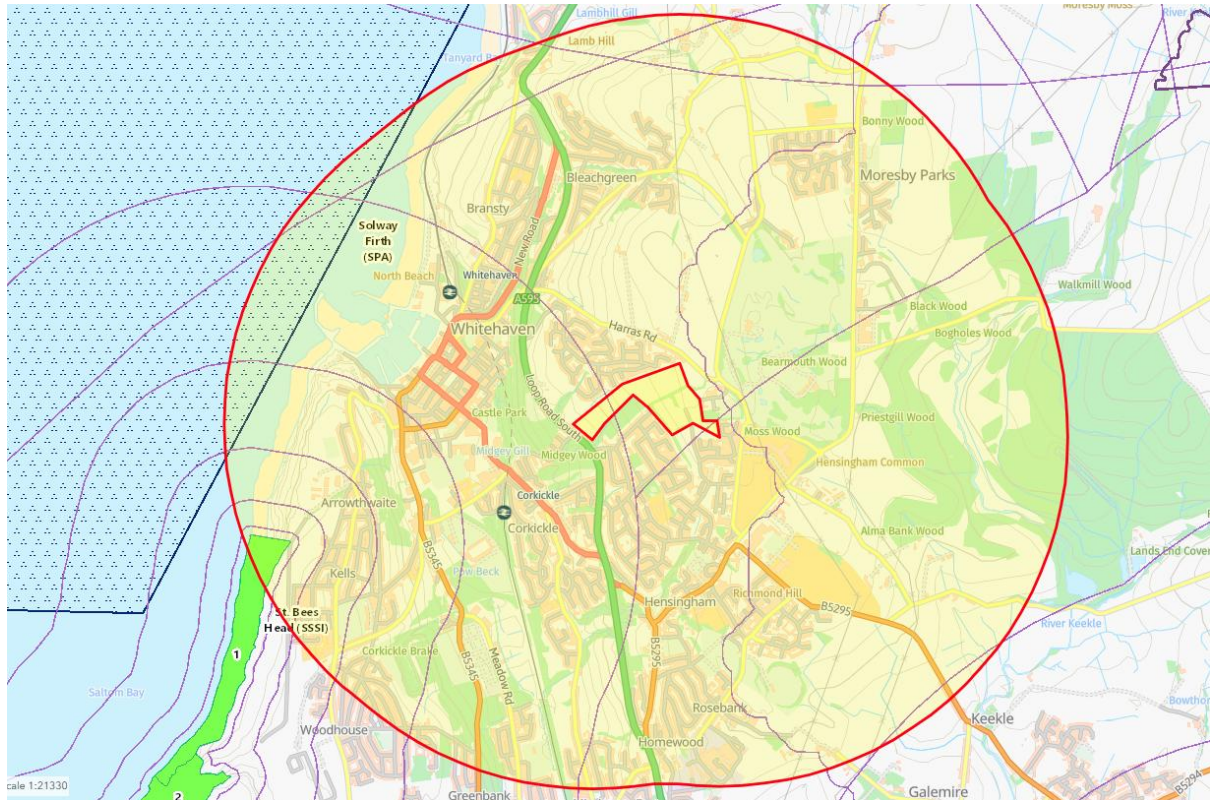
Several statutory measures are in place to protect habitats and wildlife. These measures range from a global to a local scale and confer varying degrees of protection on whole ecosystems or single species. The following is a synopsis of the legislation and planning policy most applicable to the current project/works. It should be noted that this is not an exhaustive list, and the original texts should be consulted for further details.

Legislation		Description
INTERNATIONAL	Convention on the Conservation of European Wildlife and Natural Habitats 1979 (Bern Convention)	It is incumbent upon parties to safeguard all wild plant and animal species and their natural habitats, and to afford special protection to those species that are most vulnerable or threatened.
	Convention on Biological Diversity 1992	It is incumbent upon parties to develop national strategies, plans, or programmes for the conservation and sustainable use of biological diversity. In the UK, this is implemented through the UK Post-2010 Biodiversity Framework.
	Habitats Directive 1992/43/EEC	It is incumbent upon the member states of the European Union to enact legislation that will result in the designation of a network of protected sites and the maintenance of their ecological integrity. Furthermore, the Directive in question affords certain species a degree of strict protection. In England, this is implemented through the Conservation of Habitats & Species Regulations 2010.
	Water Framework Directive 2000/60/EC	It is incumbent upon European member states to implement legislation that will designate, monitor, and maintain or improve the ecological status of river basins and coastal waters. In England, this is implemented through the Water Environment Regulations 2003.
	Birds Directive 2009/147/EC	It is a legal obligation of European member states to provide general protection to all wild birds and to designate protected sites for rare or vulnerable species. In the United Kingdom, this is implemented through the Wildlife and Countryside Act 1981.
NATIONAL	National Parks and Access to the Countryside Act 1949 (as amended)	The legislation provides protection for National Parks and is the primary legislation under which some local sites for nature conservation are designated.
	Wildlife and Countryside Act 1981 (as amended)	The Act provides for the protection of sites and species of national importance for nature conservation. The level of protection afforded to a species is dependent on which Schedule of the Act it is listed on. Species protection encompasses the prohibition of certain activities, including the killing, injuring, disturbing, or taking of individuals, as well as the protection of breeding and sheltering places. Schedule 9 (with 2010 amendments) lists invasive non-native species, for which it is an offence not to adequately control or cause to grow in the wild.

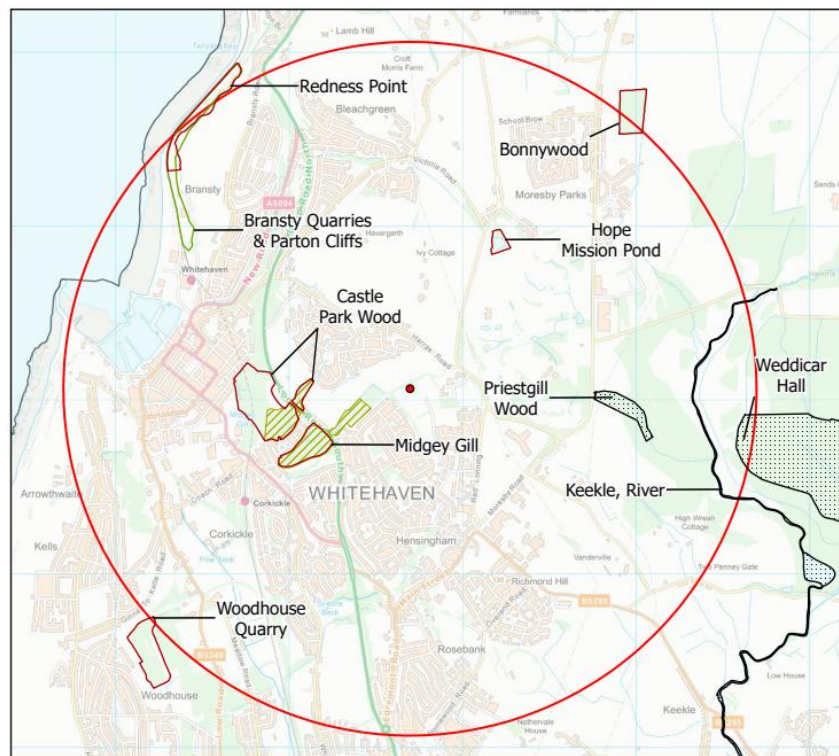
Legislation		Description
	Countryside and Rights of Way Act 2000	The amendments and strengthening of existing legislation for the protection of threatened species and SSSIs is a notable aspect of this legislation. For instance, some offences under the Wildlife and Countryside Act can now result in imprisonment.
NATIONAL	Natural Environment and Rural Communities Act 2006	The Act places a duty on all public authorities to consider biodiversity in their work. This duty extends beyond the mere conservation of existing biodiversity to encompass actions that may restore or enhance biodiversity. The Secretary of State is required to produce a list of species and habitats of principal importance for the conservation of biodiversity. This list is used to guide authorities when implementing their duty.
	The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	An amendment to the Conservation of Habitats and Species Regulations 2017, to transpose these EU regulations to UK law post-Brexit. Provides for the protection of sites in the UK that support habitats and species in need of conservation across Europe (SPAs/SACs). Provides full protection to species of European importance. The Regulations also set out how licensing for European protected species should work, and makes breaching the conditions of a licence an offence.
	Environmental Sanctions Regulations 2010	Under these regulations, the relevant authorities, namely Natural England and the Environment Agency, are empowered to act against any illegal activities, to order the restoration of environmental damage, and to impose fines (up to £250,000) in instances where legislation has been breached.
	National Planning Policy Framework 2023	The planning system is to be employed to minimise the impacts that development can have on biodiversity, with the objective of providing net gains in biodiversity where possible.
	Hedgerows Regulations 1997	The Regulations permit the identification of significant hedgerows and their subsequent protection. However, permission to remove such hedgerows must be obtained from the local planning authority.
	Infrastructure Act 2015	This Act contains amendments to the Wildlife and Countryside Act, in relation to non-native invasive species, that enable an environmental authority to issue a species control order, requiring a landowner to undertake control measures, or allowing the authority to do so at the landowner's expense.
	Protection of Badgers Act 1992	The Act provides for the strict protection of badgers and their setts. Offences under the act include killing, injuring, or disturbing a badger, as well as damaging or interfering with a sett, unless a licence is obtained beforehand.

Legislation		Description
	Environmental Protection Act 1990	This Act provides for the regulation of pollution to the air, water, and land, through the control of waste management and emissions. The Act imposes a duty of care on any business or individual who produces, carries, keeps, treats, disposes of, or imports controlled waste, requiring them to do so safely.
	Salmon and Freshwater Fisheries Act 1975	This legislation is designed to protect freshwater fish, with a particular focus on salmonids. The activities that constitute an offence include causing direct mortality of fish, creating barriers to migration, and causing degradation of habitats. It is also an offence to discharge toxic substances into waters containing fish or their spawn.

Appendix B – Designated Sites



Statutory designated sites within 2 km of works site (MAGIC, 2025).



Non-statutory designated sites within 2 km of works site.

Appendix C – Species Records

Taxon group	Scientific name	Common name	Most recent record	Distance from site (km)
amphibian	Bufo bufo	Common Toad	2017	0.401782
amphibian	Lissotriton vulgaris	Smooth Newt	2000	1.765822
amphibian	Rana temporaria	Common Frog	2017	0.362255
bird	Acanthis cabaret	Lesser Redpoll	2017	1.955973
bird	Accipiter nisus	Sparrowhawk	2017	1.110373
bird	Acrocephalus schoenobaenus	Sedge Warbler	2017	1.459085
bird	Alauda arvensis	Skylark	2016	1.527698
bird	Alca torda	Razorbill	2009	1.937248
bird	Alcedo atthis	Kingfisher	2016	1.615952
bird	Anas crecca	Teal	2010	2.004727
bird	Anas platyrhynchos	Mallard	2010	1.10857
bird	Anser anser	Greylag Goose	2015	1.586215
bird	Anser brachyrhynchus	Pink-footed Goose	2017	1.307704
bird	Anthus petrosus	Rock Pipit	2017	1.979649
bird	Anthus pratensis	Meadow Pipit	2016	1.894839
bird	Apus apus	Swift	2024	1.492759
bird	Ardea cinerea	Grey Heron	2020	1.217427
bird	Arenaria interpres	Turnstone	2017	1.651407
bird	Athene noctua	Little Owl	1999	1.937248
bird	Aythya ferina	Pochard	2007	2.537504
bird	Aythya fuligula	Tufted Duck	2013	2.537504
bird	Bombycilla garrulus	Waxwing	2023	1.250771
bird	Branta canadensis	Canada Goose	2012	2.537504
bird	Buteo buteo	Buzzard	2020	1.217427
bird	Calidris maritima	Purple Sandpiper	2019	1.27355
bird	Carduelis carduelis	Goldfinch	2020	1.217427
bird	Cephus grylle	Black Guillemot	2020	2.23985
bird	Certhia familiaris	Treecreeper	2018	1.11751
bird	Charadrius hiaticula	Ringed Plover	2016	1.648736
bird	Chloris chloris	Greenfinch	2017	1.423499
bird	Chroicocephalus ridibundus	Black-headed Gull	2017	1.559848
bird	Cinclus cinclus	Dipper	2016	1.661081
bird	Clangula hyemalis	Long-tailed Duck	2009	1.937248
bird	Coloeus monedula	Jackdaw	2023	1.475001
bird	Columba livia	Rock Dove	2017	1.32376
bird	Columba oenas	Stock Dove	1997	2.949056
bird	Columba palumbus	Woodpigeon	2023	1.475001

Taxon group	Scientific name	Common name	Most recent record	Distance from site (km)
bird	Corvus corone	Carrion Crow	2017	1.357508
bird	Corvus frugilegus	Rook	2020	0.981951
bird	Cuculus canorus	Cuckoo	2021	1.42686
bird	Curruca communis	Whitethroat	2021	1.42686
bird	Cyanistes caeruleus	Blue Tit	2020	1.217427
bird	Cygnus cygnus	Whooper Swan	2016	1.584846
bird	Cygnus olor	Mute Swan	2023	1.475001
bird	Delichon urbicum	House Martin	2017	1.760264
bird	Dendrocopos major	Great Spotted Woodpecker	2017	0.847661
bird	Egretta garzetta	Little Egret	2023	0.980066
bird	Emberiza citrinella	Yellowhammer	2016	1.741358
bird	Emberiza schoeniclus	Reed Bunting	2016	1.741358
bird	Erithacus rubecula	Robin	2018	1.980823
bird	Falco tinnunculus	Kestrel	2024	1.867867
bird	Ficedula hypoleuca	Pied Flycatcher	1999	1.10857
bird	Fratercula arctica	Puffin	2009	1.716982
bird	Fringilla coelebs	Chaffinch	2017	1.466842
bird	Fulica atra	Coot	2010	0.981289
bird	Fulmarus glacialis	Fulmar	2020	2.23985
bird	Gallinago gallinago	Snipe	2019	0.982308
bird	Gallinula chloropus	Moorhen	2023	0.980066
bird	Garrulus glandarius	Jay	2017	0.85547
bird	Gavia stellata	Red-throated Diver	2011	1.937248
bird	Gulosus aristotelis	Shag	2009	1.937248
bird	Haematopus ostralegus	Oystercatcher	2017	1.110373
bird	Hirundo rustica	Swallow	2017	1.580484
bird	Larus argentatus	Herring Gull	2023	1.475001
bird	Larus canus	Common Gull	2023	1.475001
bird	Larus fuscus	Lesser Black-backed Gull	2023	1.475001
bird	Larus marinus	Great Black-backed Gull	2023	1.475001
bird	Larus michahellis	Yellow-legged Gull	2017	1.578588
bird	Larus michahellis michahellis	Larus michahellis michahellis	2017	1.558342
bird	Linaria cannabina	Linnet	2016	1.949083
bird	Locustella naevia	Grasshopper Warbler	2023	1.662657
bird	Lymnocyptes minimus	Jack Snipe	2008	2.537504
bird	Mareca penelope	Wigeon	2007	2.537504
bird	Melanitta nigra	Common Scoter	2019	2.441501

Taxon group	Scientific name	Common name	Most recent record	Distance from site (km)
bird	<i>Mergus merganser</i>	Goosander	2018	1.678104
bird	<i>Mergus serrator</i>	Red-breasted Merganser	2010	1.937248
bird	<i>Morus bassanus</i>	Gannet	2009	1.937248
bird	<i>Motacilla alba</i>	Pied Wagtail	2017	0.519161
bird	<i>Motacilla alba alba</i>	White Wagtail	2017	1.247609
bird	<i>Motacilla cinerea</i>	Grey Wagtail	2020	1.11751
bird	<i>Muscicapa striata</i>	Spotted Flycatcher	2010	2.949056
bird	<i>Numenius arquata</i>	Curlew	2023	1.475001
bird	<i>Numenius phaeopus</i>	Whimbrel	2019	2.441501
bird	<i>Oenanthe oenanthe</i>	Wheatear	2013	1.653853
bird	<i>Parus major</i>	Great Tit	2018	1.968446
bird	<i>Passer domesticus</i>	House Sparrow	2022	1.104339
bird	<i>Passer montanus</i>	Tree Sparrow	2010	1.10857
bird	<i>Perdix perdix</i>	Grey Partridge	2018	2.04275
bird	<i>Periparus ater</i>	Coal Tit	2017	0.724648
bird	<i>Phalacrocorax carbo</i>	Cormorant	2017	1.516589
bird	<i>Phasianus colchicus</i>	Pheasant	2017	1.278243
bird	<i>Phoenicurus ochruros</i>	Black Redstart	2017	1.966845
bird	<i>Phoenicurus phoenicurus</i>	Redstart	1999	1.10857
bird	<i>Phylloscopus sibilatrix</i>	Wood Warbler	2009	1.937248
bird	<i>Phylloscopus trochilus</i>	Willow Warbler	2017	1.977986
bird	<i>Pica pica</i>	Magpie	2016	1.729083
bird	<i>Picus viridis</i>	Green Woodpecker	1998	1.10857
bird	<i>Podiceps cristatus</i>	Great Crested Grebe	2020	2.23985
bird	<i>Prunella modularis</i>	Dunnock	2017	0.732549
bird	<i>Pyrrhula pyrrhula</i>	Bullfinch	2020	1.217427
bird	<i>Pyrrhula pyrrhula pileata</i>	Pyrrhula pyrrhula pileata	2017	1.169062
bird	<i>Regulus regulus</i>	Goldcrest	2019	1.27355
bird	<i>Riparia riparia</i>	Sand Martin	2013	2.537504
bird	<i>Rissa tridactyla</i>	Kittiwake	2008	1.937248
bird	<i>Saxicola rubetra</i>	Whinchat	1999	1.10857
bird	<i>Saxicola rubicola</i>	Stonechat	2019	2.441501
bird	<i>Scolopax rusticola</i>	Woodcock	2017	1.937509
bird	<i>Sitta europaea</i>	Nuthatch	2010	1.10857
bird	<i>Somateria mollissima</i>	Eider	2009	1.937248
bird	<i>Spatula clypeata</i>	Shoveler	2008	2.537504
bird	<i>Spinus spinus</i>	Siskin	2013	1.10857

Taxon group	Scientific name	Common name	Most recent record	Distance from site (km)
bird	<i>Streptopelia decaocto</i>	Collared Dove	2017	0.732549
bird	<i>Strix aluco</i>	Tawny Owl	2017	1.11751
bird	<i>Sturnus vulgaris</i>	Starling	2022	1.104339
bird	<i>Tachybaptus ruficollis</i>	Little Grebe	2010	2.537504
bird	<i>Thalasseus sandvicensis</i>	Sandwich Tern	2008	1.937248
bird	<i>Tringa nebularia</i>	Greenshank	2008	1.10857
bird	<i>Tringa totanus</i>	Redshank	2017	1.869693
bird	<i>Troglodytes troglodytes</i>	Wren	2022	1.104339
bird	<i>Turdus iliacus</i>	Redwing	2018	1.647583
bird	<i>Turdus merula</i>	Blackbird	2018	1.978062
bird	<i>Turdus philomelos</i>	Song Thrush	2017	0.989004
bird	<i>Turdus philomelos clarkei</i>	<i>Turdus philomelos clarkei</i>	2017	0.969722
bird	<i>Turdus torquatus</i>	Ring Ouzel	1997	2.484538
bird	<i>Turdus viscivorus</i>	Mistle Thrush	2017	1.511036
bird	<i>Uria aalge</i>	Common Guillemot	2010	1.937248
bird	<i>Vanellus vanellus</i>	Lapwing	2017	0.970625
bony fish (Actinopterygii)	<i>Anguilla anguilla</i>	European Eel	2017	1.710871
bony fish (Actinopterygii)	<i>Salmo trutta</i>	Brown/Sea Trout	2017	1.710871
bony fish (Actinopterygii)	<i>Scomber scombrus</i>	Mackerel	2009	2.004727
chromist	<i>Ascophyllum nodosum</i>	Wig Wrack or Sea-loch Egg Wrack	2009	2.004727
conifer	<i>Pinus sylvestris</i>	Scots Pine	2018	0.982308
crustacean	<i>Armadillidium pulchellum</i>	<i>Armadillidium pulchellum</i>	2012	2.015869
flowering plant	<i>Crocsmia pottsii</i> x <i>aurea</i> = <i>C. x crocosmiiflora</i>	Montbretia	2017	0.362255
flowering plant	<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	1999	1.042031
flowering plant	<i>Daucus carota</i> subsp. <i>gummifer</i>	Sea Carrot	2015	1.510655
flowering plant	<i>Elodea canadensis</i>	Canadian Waterweed	1999	1.042031
flowering plant	<i>Euphorbia helioscopia</i>	Sun Spurge	2017	0.362255
flowering plant	<i>Fallopia japonica</i>	Japanese Knotweed	2021	1.925341
flowering plant	<i>Heracleum mantegazzianum</i>	Giant Hogweed	2022	1.959701
flowering plant	<i>Hippophae rhamnoides</i>	Sea-buckthorn	2018	0.982308

Taxon group	Scientific name	Common name	Most recent record	Distance from site (km)
flowering plant	Hyacinthoides non-scripta	Bluebell	1999	0.85547
flowering plant	Impatiens glandulifera	Himalayan Balsam	2017	0.362255
flowering plant	Rhododendron ponticum	Rhododendron ponticum	1999	0.85547
flowering plant	Rosa rugosa	Japanese Rose	2015	1.880353
insect - beetle (Coleoptera)	Acalles ptinoides	Acalles ptinoides	2012	2.015869
insect - beetle (Coleoptera)	Anotylus mutator	Anotylus mutator	2007	0.85547
insect - beetle (Coleoptera)	Barynotus squamosus	Barynotus squamosus	2006	1.217427
insect - beetle (Coleoptera)	Cercyon littoralis	Cercyon littoralis	2009	2.269345
insect - beetle (Coleoptera)	Dendroxena quadrimaculata	Dendroxena quadrimaculata	2018	0.947644
insect - beetle (Coleoptera)	Deronectes latus	Deronectes latus	2004	2.037824
insect - beetle (Coleoptera)	Gabrius bishopi	Gabrius bishopi	2020	1.296198
insect - beetle (Coleoptera)	Grypus equiseti	Horsetail Weevil	1998	1.678639
insect - beetle (Coleoptera)	Heterota plumbea	Heterota plumbea	2009	2.269345
insect - beetle (Coleoptera)	Hoplia philanthus	Welsh Chafer	2014	2.015869
insect - beetle (Coleoptera)	Nicrophorus interruptus	Nicrophorus interruptus	2014	1.217427
insect - beetle (Coleoptera)	Orthochaetes insignis	Orthochaetes insignis	2001	1.217427
insect - beetle (Coleoptera)	Proteinus crenulatus	Proteinus crenulatus	2020	1.217427
insect - beetle (Coleoptera)	Rhizophagus nitidulus	Rhizophagus nitidulus	2001	1.11751
insect - beetle (Coleoptera)	Stenus pusillus	Stenus pusillus	2018	0.918002
insect - beetle (Coleoptera)	Timarcha tenebricosa	Bloody-nosed Beetle	2016	2.011375
insect - butterfly	Boloria selene	Small Pearl-bordered Fritillary	1992	0.832183
insect - butterfly	Coenonympha pamphilus	Small Heath	2010	1.801313
insect - butterfly	Cupido minimus	Small Blue	2009	1.931276

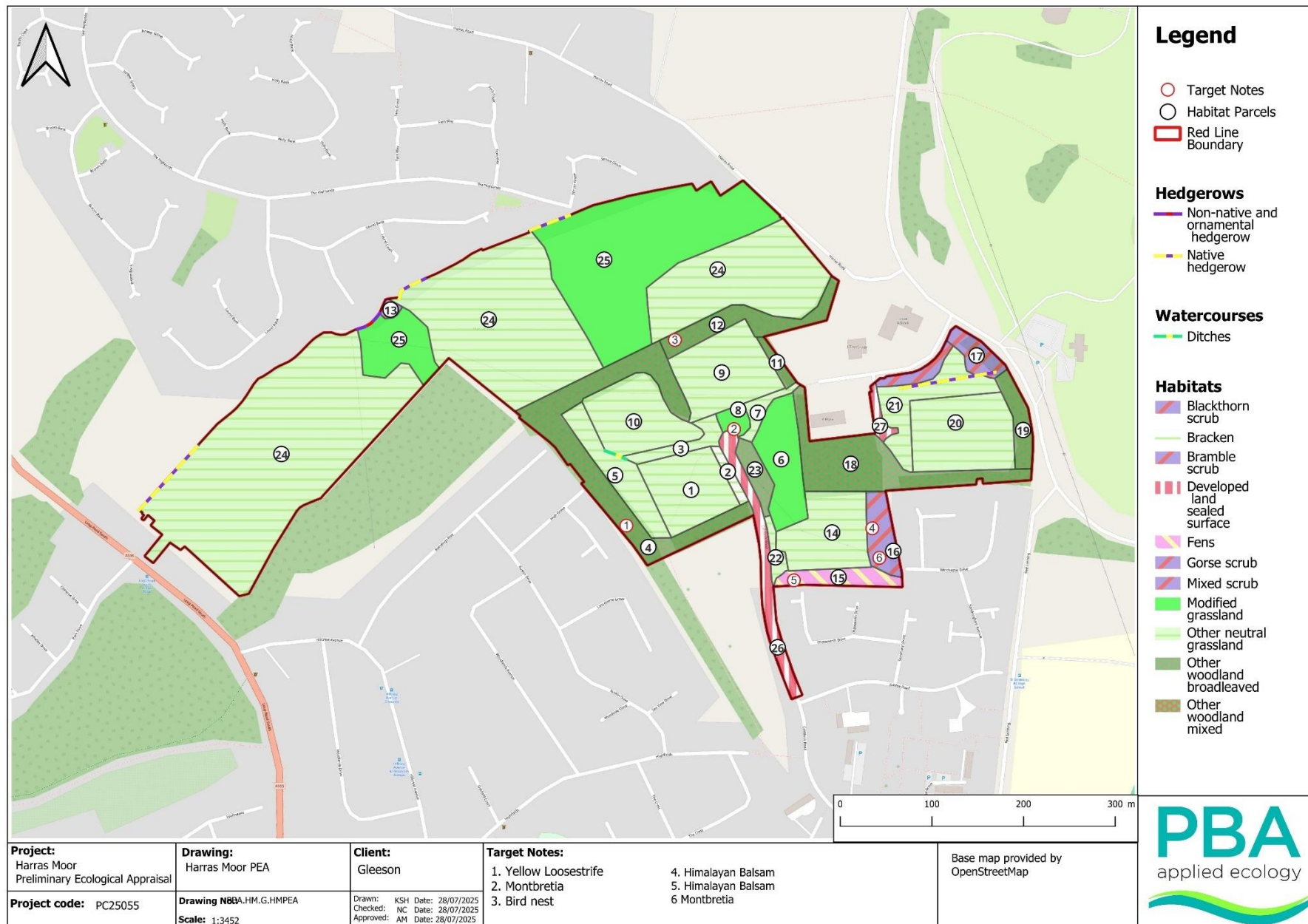
Taxon group	Scientific name	Common name	Most recent record	Distance from site (km)
insect - butterfly	Erynnis tages	Dingy Skipper	1999	1.97457
insect - butterfly	Hipparchia semele	Grayling	2013	1.04763
insect - butterfly	Lasiommata megera	Wall	2018	2.269345
insect - butterfly	Polygonia c-album	Comma	2019	1.919669
insect - dragonfly (Odonata)	Aeshna grandis	Brown Hawker	2013	0.923124
insect - dragonfly (Odonata)	Anax imperator	Emperor Dragonfly	2017	0.338731
insect - dragonfly (Odonata)	Cordulegaster boltonii	Golden-ringed Dragonfly	2009	1.923156
insect - moth	Acasis viretata	Yellow-barred Brindle	2017	0.719575
insect - moth	Acronicta psi	Grey Dagger	2017	0.719575
insect - moth	Allophyes oxyacanthae	Green-brindled Crescent	2016	0.719575
insect - moth	Arctia caja	Garden Tiger	2017	1.55786
insect - moth	Atethmia centrargo	Centre-barred Sallow	2016	0.719575
insect - moth	Atolmis rubicollis	Red-necked Footman	2006	1.369718
insect - moth	Chiasmia clathrata	Latticed Heath	2016	0.46014
insect - moth	Diarsia rubi	Small Square-spot	2017	0.719575
insect - moth	Ecliptopera silaceata	Small Phoenix	2017	0.719575
insect - moth	Helotropha leucostigma	Crescent	2017	0.719575
insect - moth	Hoplodrina blanda	Rustic	2017	0.719575
insect - moth	Hydraecia micacea	Rosy Rustic	2018	2.014827
insect - moth	Litoligia literosa	Rosy Minor	2018	2.014827
insect - moth	Melanchra persicariae	Dot Moth	2017	0.719575
insect - moth	Mniotype adusta	Dark Brocade	2017	0.719575
insect - moth	Scotopteryx chenopodiata	Shaded Broad-bar	2018	2.014827
insect - moth	Spilosoma lubricipeda	White Ermine	2021	0.708204
insect - moth	Spilosoma lutea	Buff Ermine	2017	0.719575
insect - moth	Tyria jacobaeae	Cinnabar	2019	1.287334
insect - true bug (Hemiptera)	Dictyla convergens	Dictyla convergens	2004	1.552588

Taxon group	Scientific name	Common name	Most recent record	Distance from site (km)
insect - true bug (Hemiptera)	<i>Dolycoris baccarum</i>	Hairy Shieldbug	2012	2.050812
insect - true bug (Hemiptera)	<i>Palomena prasina</i>	Green Shieldbug	2017	0.718421
insect - true bug (Hemiptera)	<i>Scolopostethus grandis</i>	<i>Scolopostethus grandis</i>	2006	1.217427
insect - true fly (Diptera)	<i>Chrysotoxum cautum</i>	<i>Chrysotoxum cautum</i>	1996	1.217427
insect - true fly (Diptera)	<i>Tabanus sudeticus</i>	Dark Giant Horsefly	2006	1.126867
insect - true fly (Diptera)	<i>Xanthogramma pedissequum</i>	<i>Xanthogramma pedissequum</i>	2011	1.217427
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	2021	1.983592
marine mammal	<i>Phoca vitulina</i>	Harbour Seal	2023	1.549751
marine mammal	<i>Phocoena phocoena</i>	Common Porpoise	2018	1.560682
reptile	<i>Anguis fragilis</i>	Slow-worm	2014	1.269105
reptile	<i>Zootoca vivipara</i>	Common Lizard	2014	1.269105
terrestrial mammal	<i>Capreolus capreolus</i>	Roe Deer	2017	1.389039
terrestrial mammal	Chiroptera	Bat	2020	1.250291
terrestrial mammal	<i>Erinaceus europaeus</i>	Hedgehog	2023	0.982308
terrestrial mammal	<i>Lepus europaeus</i>	Brown Hare	2003	0.980066
terrestrial mammal	<i>Lutra lutra</i>	Otter	2023	1.430429
terrestrial mammal	<i>Mustela erminea</i>	Stoat	2001	1.721781
terrestrial mammal	<i>Mustela nivalis</i>	Weasel	2011	1.021463
terrestrial mammal	<i>Neomys fodiens</i>	Water Shrew	2019	1.183583
terrestrial mammal	<i>Pipistrellus</i>	Pipistrelle	2014	1.956126
terrestrial mammal	<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	2011	0.989013
terrestrial mammal	<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	2022	1.104339

Taxon group	Scientific name	Common name	Most recent record	Distance from site (km)
terrestrial mammal	Sciurus carolinensis	Grey Squirrel	2015	0.991742
terrestrial mammal	Sciurus vulgaris	Red Squirrel	2024	1.033175
terrestrial mammal	Sorex araneus	Common Shrew	2011	1.231664
terrestrial mammal	Sorex minutus	Pygmy Shrew	1998	1.530859

The highlighted yellow boxes feature records of invasive non-native species (INNS).

Appendix D – UK Habitat Classifications Map



Appendix E – Proposed Site Plan



Appendix F – Photographs and Target Notes

TN ref	Photograph	Notes
3		Birds nest in a tree.
		Other neutral grassland field
		Acid grassland-bracken



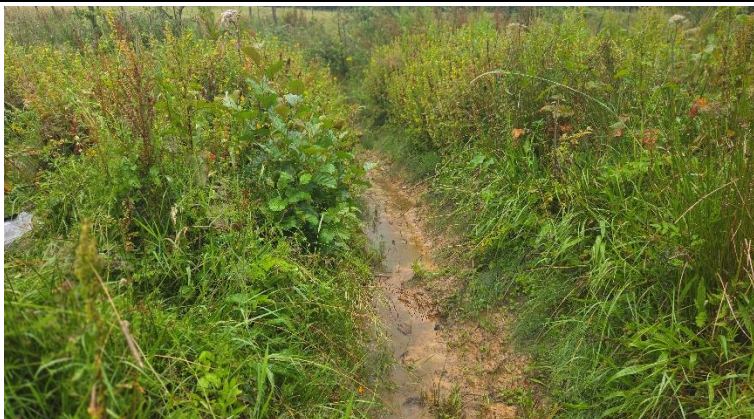
Himalayan
balsam



False oat
grassland



Other
broadleaved
woodland



Ditch



False oat
grassland and
modified
grassland tall
forb



Holcus Juncus
grassland



Native hedgerow



Other wetland