Report

Ecological Impact Assessment

Singleton Birch

Proposed Hydrogen Facility

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C03	07/11/25	Correction of error in Appendix B	BM	ER	AN
C04	10/02/26	Amendments following change in site access design	BM	ER	AN

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Ecology reports are considered valid for 12 to 36 months after the survey date(s) depending on survey type and findings. Should the development not commence within the validity period, the survey(s) should be repeated, and the report updated.

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1 Non-technical Summary

This ecological impact assessment has been prepared by Sweco for Centrica Energy Storage Limited and relates to a proposed hydrogen development at Singleton Birch Melton Ross Quarries for which outline planning permission will be sought.

The purpose of this report is to establish baseline ecological conditions at the site, detail mitigation measures to be put in place to minimise effects on important ecological features, identify residual effects and their significance including cumulative effects and detail enhancement measures to be incorporated into the proposed development.

An initial ecological desk study, UK habitat classification survey, associated condition assessment and protected species scoping survey was carried out in July 2025, with a National Vegetation Classification survey undertaken in August 2025. The site comprises a disused quarry with tall forbs, sparsely vegetated urban land with tall forbs, buildings, other developed land, modified grassland, other broadleaved woodland, sparsely vegetated urban land with scattered scrub, artificial unvegetated, unsealed surface and other neutral grassland. The desk study identified that the site is designated as a non-statutory Local Wildlife Site (LWS) for habitats including brownfield mosaic, acid grassland and calcareous grassland.

The site provides suitable habitat for terrestrial invertebrates, common reptiles, amphibians including great crested newt, bats, badger, hedgehog and brown hare. Targeted protected species surveys for badger and roosting bats have been undertaken. Badger have been confirmed present on site through identification of field signs however no active setts have been identified within the survey area. Woodland on site has limited potential for roosting bats given the immaturity of many of the trees.

Mitigation includes reduction of habitat loss through proposed development design and habitat creation. Construction impacts would be mitigated through installation of bird boxes, pollution prevention measures, minimisation of night working and lighting, supervision of woodland clearance, pre-construction survey of one tree (PRF-I tree 4) for roosting bats and sensitive felling measures. Given the on-site presence of potential bird nesting habitat, any clearance of vegetation, should be timed to avoid the core bird breeding season (March-August inclusive). If this is not possible, these habitats can only be removed following confirmation by a suitably qualified ecologist that they are not in active use by nesting birds a maximum of 48 hours prior.

Residual effects, assessed as not significant, include loss of habitat within the Local Wildlife Site and for protected species, habitat fragmentation and noise disturbance. No cumulative effects have been identified and no compensation is required given the absence of significant residual effects. Four bat boxes would be installed to mitigate loss of woodland adjacent to the A18 and PRF-I tree 4. No monitoring requirements have been identified as there is no requirement for a licence.

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2 Introduction

2.1 Purpose

This ecological impact assessment (EcIA) has been prepared by Sweco for Centrica Energy Storage Limited and relates to the proposed hydrogen development, hereafter referred to as 'the proposed development', at a site at Singleton Birch Melton Ross Quarries, Lincolnshire, hereafter referred to as 'the site'. For which outline, and then detailed, planning permission will be sought.

The purpose of this EcIA is to:

- Establish baseline ecological conditions at the site.
- Provide details of ecological mitigation measures incorporated through design evolution as an intrinsic part of the project design.
- Detail any ecological mitigation measures to be implemented during site clearance and construction.
- Identify any residual ecological effects after avoidance and mitigation measures have been considered.
- Identify any compensation measures required to offset residual effects.
- Provide recommendations for how mitigation and compensation may be secured and monitored.
- Set out details of ecological enhancement measures to be included within the proposed development.
- Provide sufficient information to determine whether the project accords with relevant nature conservation policies and legislation and, where appropriate, to allow conditions or obligations to be proposed by the relevant authority.

2.2 Site Description

The site occupies an area of 1.74ha and is located around national grid reference TA 08765 11270, to the south-east of Barton-upon-Humber, Lincolnshire.

The site sits within a wider arable landscape, with arable land to the east and south beyond the adjacent A18 and a rail line to the north beyond which is the existing operational lime quarry. The site is situated on a disused, infilled quarry within Singleton Birch ownership which extends west beyond the site boundary.

The site includes part of the disused, infilled quarry, a section of rail line and associated embankment and hard standing and existing lime kilns in the operational site to the north of the rail line.

The site boundary is shown on drawing Figure 1: UK Habitat Classification Survey Results and Bat Roost Potential.

2.3 Proposed Development

This EcIA is in support of an outline planning application, with all matters reserved (except for means of access) for a Hydrogen Production Facility including electrolyser equipment and buildings, hydrogen compressor and shelter, LP hydrogen compression, gas handling equipment and gas holders, hydrogen metering, cooling water package, refrigeration package, water purification and demineralisation including storage, main interconnecting pipe-racks and pipe-tracks, service buildings,

electrical substations, security fencing, landscaping, sustainable drainage, biodiversity net gain (BNG) and associated infrastructure and works.

The construction phase will include, in addition to construction of the facility and access road, directional drilling beneath National Rail line with no above ground impacts and digging of a trench on existing hard standing within the lime quarry to the north of the rail line from the directional drilling location to the existing lime kilns.

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3 Legislative and Policy Context

3.1 Current UK Legislation

The main pieces of legislation relating to ecology within England and Wales are:

- **The Conservation of Habitats and Species Regulations 2017** (as amended) transposes European Union Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law. These regulations provide for the designation and protection of 'European Sites', the protection of 'European Protected Species' and the adaptation of planning controls for the protection of such sites and species. Under the regulations, public bodies have a duty in exercising their functions to have regard to the EC Habitats Directive.

- **The Wildlife and Countryside Act 1981** (as amended) provides detail on a range of protection and offences relating to wild birds, other animals, and plants. The level of protection depends on which Schedule of the Act the species is listed on. Licences are available for specific purposes to permit actions that would otherwise constitute an offence in relation to species.

- **The Natural Environment and Rural Communities (NERC) Act 2006** imposes an obligation on all public bodies, including local authorities, to consider whether their activities can contribute to the protection of wildlife. The duty is created by section 40(1) of the Act, which states that: “Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.” Section 41 requires the Secretary of State to work with Natural England to publish a list of habitats and species that are a priority for local authorities to take into account, for example when assessing planning applications.

- **The Environment Act 2021** introduces a framework to improve and protect the natural environment, overseen by the newly created Office for Environmental Protection. The Act introduces new statutory requirements, including the duty for local authorities to create new local nature recovery strategies. The Act also introduces a new mandatory requirement for developments to achieve measurable biodiversity net gain. A two-year transition period for this requirement is included in the Act, with provision for secondary legislation to set a date for the requirement to come into force. It is likely this will be late 2023 or later. Once in force, all planning permissions in England (subject to exemptions) must be granted subject to a new general pre-commencement condition that requires approval of a biodiversity gain plan. The planning authority would only approve the biodiversity gain plan if the biodiversity value attributable to a development exceeds the pre-development biodiversity value of the onsite habitat by 10%.

The reader is referred to the original legislation for definitive interpretation.

3.2 Planning Policy

The recommendations of this report are in line with the key principles of the National Planning Policy Framework [1] and Government Circular 06/05 [2].

Local planning policies relating to ecology are invariably based on the conservation of species protected under the above legislation, including species and habitats of principal importance listed under Section 41 of the NERC Act 2006; and the protection of designated sites. All of these features are considered within the scope of this ecological impact assessment and therefore any recommendations made herein are likely to be in line with this policy.

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4 Methods

4.1 Technical Approach

A Preliminary Ecological Appraisal (PEA), comprising a UK Habitat classification (UKHab) [3] and protected species scoping survey, has been undertaken following CIEEM's guidelines [4] and British Standard 42020:2013 [5]. This approach has been employed to provide an indication of the ecological importance of the site and the potential for the site to be used by protected species.

Common names and binomial scientific names of plant species identified are as they appear in Stace [6].

4.2 Personnel

The UKHab and protected species scoping survey was undertaken by Sweco Senior Ecologist Beth Mell ACIEEM and this report produced by Beth Mell, who has over eight years' experience in ecological consultancy including surveys and mitigation for a range of protected species and in producing EcIAs. This report was reviewed by Sweco Ecologist Libby Ward, who has over five years' experience and approved by Sweco Technical Manager Lorna McDonald MCIEEM CEnv, who has over 13 years' experience in ecological consultancy and production of EcIAs.

4.3 Scope of the Assessment and Zone of Influence

The Zone of Influence (ZOI) is the area over which ecological features may be subject to change as a result of the proposed development and associated activities [7]. The ZOI varies depending on the ecological feature concerned and can extend beyond the site boundary. Where possible, ZOIs will be determined using the results of professionally accredited or published scientific studies. Where such studies are not available, the ZOI will be determined using the professional judgement of a suitably experienced and qualified ecologist. This is in line with professional guidelines [7].

Given the size and location of the site the ZOI was generally taken to be the site boundary and its immediate environs only, although the following below exceptions apply:

- Statutory designated sites: the ZOI was considered as 10km for internationally important statutory designated sites, 3km for other nationally important and locally important designated sites. These distances were chosen based on best professional judgement.
- Non-statutory designated sites: a 2km ZOI was considered appropriate. This distance was chosen based on best professional judgement.
- Ancient woodland and priority habitat: a 200m ZOI where no hydrological connection exists, and a 1km ZOI where a downstream hydrological connection exists.
- Bats: a 6km ZOI for internationally and nationally important statutory sites designated for bats was considered appropriate. This distance was chosen based on Bat Conservation Trust (BCT) guidelines [8].
- Great crested newt (*Triturus cristatus*) (GCN): a 500m ZOI from the site boundary was considered sufficient, based on professional guidelines [9].
- Badgers (*Meles meles*): a 30m ZOI was considered sufficient, based on Natural England guidelines [10].

A site-wide only ZOI for breeding birds, reptiles, brown hare (*Lepus europaeus*) and hedgehog (*Erinaceus europaeus*) was considered sufficient. No waterbodies are present on or adjacent to site and as such white-clawed crayfish (*Austropotamobius pallipes*), otter (*Lutra lutra*), water vole (*Arvicola amphibius*) and fish are scoped out.

4.4 Desk Study

The Multi-Agency Geographic Information for the Countryside (MAGIC) [11] online database was consulted to obtain geographic information on nationally and/or internationally important site designations, ancient woodland and priority habitats within the identified ZOI, granted protected species licences and GCN survey results within 2km of the site.

Greater Lincolnshire Nature Partnership (GLNP) [12] was contacted for details of any non-statutory designations and records of protected/notable habitats and species within 2km of the site's central national grid reference. Only records of protected species and invasive non-native species (INNS) from within the last 10 years are considered within this report.

Online mapping tools were used to check for the presence of any waterbodies within 500m of the site boundary to inform an assessment of habitat availability and connectivity for GCN.

4.5 UKHab Survey

A UKHab survey [3] of the site was undertaken on 16 July 2025 with some additional areas surveyed on 15 August and 8 September 2025. Weather conditions at the time of the survey were dry and sunny, with ambient temperatures of approximately 21°C 16 July and 8 September, and up to 27°C on 15 August.

A list of plant species was compiled in accordance with methodology required to establish UKHab [3] up to level 4. Level 5 was recorded wherever possible, with care to accurately record all habitats of priority importance (if present). Secondary codes were added to polygons where deemed appropriate, taking special care to map mandatory codes for habitat mosaic, complex and origin. Survey was undertaken at the fine scale minimum mapping unit (MMU) of 25m^2 (polygons) and 1m width/5m long (lines). Key ecological features below the MMU in either area or length were mapped as points.

Habitats were also condition assessed in accordance with the statutory biodiversity metric condition assessments [13].

4.6 National Vegetation Classification Survey

4.6.1 Site Survey

A detailed botanical NVC survey [14] was undertaken, focussing on the grassland communities present primarily around the perimeter of the site, with the aim of establishing the grassland community type, in light of the LWS citation (see Section 5.1), and mapping their extents. This was undertaken on 1 August 2025 by Martin Brammah PhD MA (Cantab) BA (Hons) CEcol MCIEEM MRSB FISC Level 4.

The surveyor traversed the grassland areas within the site and undertook 2 m x 2 m quadrat sampling in quadrat locations (shown on Figure 2: National Vegetation

Classification Survey) 1 to 15, assessing five quadrat locations in each separate area of homogenous grassland habitat. Full vascular plant species lists were taken at each quadrat location and the percentage abundance was recorded for each plant species encountered within the grassland. All plants were identified to species level unless otherwise stated. Common names and binomial scientific names of plant species identified were recorded as they appear in Stace [6].

4.6.2 Analysis

The species lists were checked for presence of any species listed in the Red Data Book [15], which indicates degrees of rarity, to determine if any rare or scarce plants occur on the site.

To determine the vegetation communities on the site, the community keys and floristic tables in the British Plant Communities Volume 3 [16] were analysed. Species names including scientific and common names are as they appear in Stace [6], noting that old names as they appear in Stace 1997 [17] appear in the floristic tables and text. The systematic analysis and assignment of vegetation community's types was undertaken by Martin Brammah and Beth Mell.

The condition of the habitats was determined using the condition assessment criteria for grassland developed by the statutory biodiversity metric condition assessments [13].

4.7 Protected Species Scoping Survey

The following was searched for and recorded if present during the survey:

- All field signs of protected species or those of conservation interest, including burrows, droppings, footprints and hairs
- Refuges and particular habitat types to be used by certain classes of fauna
- Any mammal paths if found were noted and followed where possible
- Entry points for fauna along fence and/or hedgerow boundaries if present
- Incidental sightings of invasive species listed on Schedule 9 of the WCA 1981 (as amended).

4.7.1 Great Crested Newt Habitat Suitability Index Assessments

Ponds/ditches within 500m of the site boundary were subject to a Habitat Suitability Index (HSI) assessment to assess their suitability for GCN where access was possible, in line with relevant guidelines [18].

4.7.2 Bat Ground Level Tree Assessment

A ground level tree assessment (GLTA) of the trees was conducted on site, in line with current survey guidance [19], on 15 August 2025 by Beth Mell. The trees subject to survey were those within the site to be directly impacted by the proposed development, within the woodland adjacent to the A18.

The surveyor used binoculars to identify and assess any potential roosting features (PRFs). The following data was recorded for each potential roosting feature (PRF) identified:

- The tree reference on which the PRF is located;

- The location of the PRF;
- The elevation and orientation of the PRF;
- A description of the PRF; and
- The roosting suitability of the PRF (see Tables 1 and 2 below).

Survey evidence of bats was also searched for. This includes:

- Bat droppings (if found these were collected for eDNA analysis);
- Staining around PRF entrances;
- Feeding remains (such as moth wings);
- Scratch marks around PRF entrances; and
- Live/dead bats

The scoping criteria for roost habitat on trees was taken directly from best practice guidance [19] and are summarised in Table 1 below.

Table 1. Suitability of Roosting Habitats for Bats on Trees

Suitability	Description
None	Either no PRF in the tree or highly unlikely to be any.
FAR	Further assessment required to establish if PRFs are present in the tree.
PRF	A tree with at least one PRF present.

Where PRFs were identified on trees, these were categorised as shown in Table 2 below.

Table 2. Categorisation of PRF on Trees

Suitability	Description
PRF-I	PRF is only suitable for individuals bats or very small numbers of bats either due to the size or lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

4.7.3 Badger Survey

Surveys were undertaken in line with standard methodology outlined in guidance [20]. The badger survey was undertaken on 16 July 2025 and 10 September 2025 by Beth Mell. The survey area included the site plus the ZOI (30m from the site as shown on Figure 3: Badger Survey) where access was possible. The survey area was surveyed for badger setts and evidence of badger field signs (including dung pits and latrines, paths, hairs, footprints and scrapes).

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When identified, sett status (active or disused) was classified, based on the legal status definition provided in The Badgers Act 1991 which defines a sett as “any structure or place which displays signs indicating current use by a badger”. The definition of current use here, and when a sett is legally protected, is as long as signs indicative of current use are present and until such signs have deteriorated or decayed to the point they no longer indicate current use. This classification of sett status is different to that in guidance [20] (which includes a third classification, partially-used) as legally setts are active or inactive.

Sett type was classified for active setts in accordance with guidance [20].

4.7.4 Reptile Surveys

The survey was undertaken by Beth Mell and Sweco Principal Ecologist Andrew Noble MCIEEM. The site was surveyed for reptiles using a methodological approach based on guidance produced by the JNCC [21], Amphibian and Reptile Conservation Trust [22] and Froglife [23]. A combination of visual sightings and refuge searching of natural and artificial refuges was employed to detect the presence of reptiles within suitable habitats on site.

In order to supplement the existing natural refuges, a total of 45 artificial refuges (1.0m x 0.5m roofing felt mats) were placed in arrays or groups. The refuges were placed across the site within all suitable reptile habitats present. Positions of refuges were picked to maximise the chances of use by placing them in sheltered sunny positions, and in or near to cover where possible. Figure 4: Reptile Survey shows the locations of the refuges.

Seven separate site visits were undertaken between August and September 2025. To maximise chances of recording reptiles, surveys were carried out under optimal weather conditions and at times of day when reptiles are most likely to be using the artificial refuges. The dates, times and weather conditions for each of the surveys are included in Table 3 below.

Table 3. Reptile Survey Conditions

Date	Surveyor	Time	Weather (Start and End)
22/8/25	Beth Mell	9.00AM – 10.00AM	Cloud (Oktas): 8 – 8 Temperature (°C): 15 – 17 Wind (Beaufort): 2 – 3 No rain
27/8/25	Beth Mell	8.30AM – 9.15AM	Cloud (Oktas): 0 - 0 Temperature (°C): 16 – 17 Wind (Beaufort): 2 – 1 No rain
29/8/25	Beth Mell	8.50AM – 9.30AM	Cloud (Oktas): 8 - 8 Temperature (°C): 15 - 15 Wind (Beaufort): 2 – 1 No rain
2/9/25	Beth Mell	9.30AM – 10.05AM	Cloud (Oktas): 1 - 3 Temperature (°C): 15 – 16

Date	Surveyor	Time	Weather (Start and End)
			Wind (Beaufort): 2 - 1 No rain
5/9/25	Beth Mell	9.15AM – 9.45AM	Cloud (Oktas) – 0 – 0 Temperature (°C): 15 – 16 Wind (Beaufort): 2 - 2 No rain
8/9/25	Beth Mell	6.00PM – 6.25PM	Cloud (Oktas) – 0 – 0 Temperature (°C): 19 - 19 Wind (Beaufort): 1 - 2 No rain
10/9/25	Beth Mell Andrew Noble	9.10AM – 10.15AM	Cloud (Oktas) – 8 - 8 Temperature (°C): 16 - 17 Wind (Beaufort): 4 - 3 No rain

The current method for assessing reptile population size on short term studies is based on the peak number of adult reptiles seen using refuges on a site [23]. This methodology provides a rough estimate only; reptiles are cryptic and so it is difficult to get a more accurate idea of population size on a site without longer term study and analysis.

4.8 Impact Assessment

Construction and operational impacts have been assessed separately in accordance with CIEEM guidance [7].

Potential effects on important ecological features are summarised with full characterisation and significance assessed for residual effects after the consideration of avoidance and mitigation measures. Any compensation and enhancements measures are discussed but are not considered when assessing the effects, in line with the CIEEM guidance [7].

4.8.1 Important Ecological Features

The important ecological features to be considered within the impact assessment were determined following the desk study, UKHab and protected species surveys. The geographic level of importance of each of the features was assessed, as recommended within the CIEEM guidance on ecological impact assessment [7], using the criteria in Table 4 below.

Table 4. Assessment of Conservation Value of Ecological Features

Geographical Frame of Reference	Brief Description
International and European	• Habitats that meet criteria for Ramsar, Special Area of Conservation (SAC) or Special Protection Area (SPA) site.

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Geographical Frame of Reference	Brief Description
	• A species present in internationally important numbers (>1% of international population). • Notable species which is part of the cited interest of an SPA or SAC and which regularly occurs in internationally or nationally important numbers.
National	• Habitats that meet criteria for Site of Special Scientific Interest (SSSI) or an important reserve to England. • A species present in nationally important numbers (>1% of UK population). • A species which is part of the cited interest of a SSSI and which regularly occurs in internationally or nationally important numbers. • Rare breeding species (e.g. birds with <300 UK breeding pairs).
Regional	• A local site with important regional habitats or significant populations of species of principal importance under the NERC act. • Species present in regionally important numbers (>1% of regional population). • Species listed as priority species, which are not covered above, and which regularly occur in regionally important numbers. • Sustainable populations of a species that is rare or scarce within a region. • Species on the BoCC Red List [24] and which regularly occur in regionally important numbers.
County	• A local site with a habitat that is characteristic of the county or rare on a county scale, or with significant populations of locally important species. • Species present in county important numbers (>1% of county population). • Species listed as priority species, which are not covered above, and which regularly occurs in county important numbers • Sustainable populations of a species that is rare or scarce within a county. • A site designated for its county important assemblage of birds, reptiles, invertebrates, etc. • Species on the BoCC Red or Amber List [24] and which regularly occur in county important numbers.

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Geographical Frame of Reference	Brief Description
Local	• A site which has wildlife corridors likely to be essential to allow viable movement of species or improve the biodiversity of the area. • Species listed as priority species, which are not covered above, and are rare in the locality. • Species present in numbers just under county importance (<1% of county population). • Sustainable populations of a species that is rare or scarce within the locality. • A site whose designation is just under for inclusion for its county important assemblage of a particular species on site. • Other species on the BoCC Red or Amber List [24] and which are considered to regularly occur in locally important numbers.

4.8.2 Characterisation of Effects

The following were used when categorising the ecological effects, where applicable:

- Extent.
- Positive or negative.
- Direct or indirect.
- Duration.
- Timing.
- Frequency.
- Reversibility.

4.8.3 Significance of Effects

The significance of an effect is evaluated simply as significant or not significant, where a significant effect is an effect which either supports or undermines the biodiversity conservation objectives for the important ecological features or for biodiversity in general. Effects will be considered significant at a geographic scale from local to international, in accordance with CIEEM guidelines [7].

4.9 Limitations

The protected species survey scope included a badger survey of the site plus a 30m buffer (collectively the 'badger survey area'), however access was not granted to land outside the Client ownership outside the site boundary. Also inaccessible were areas of woodland scrub within the badger survey area on cliffs around the perimeter of the site. These areas were observed from the perimeters and surveyed for field signs. Inaccessible areas are shown on Figures 1 and 3.

The rail line and embankments in the central area of the site were not accessible for UKHab survey. The northern embankment within the operational site was covered in chalky dust and as such identification of species was severely limited. The southern embankment was largely not visible due to the topography to the south of the rail land.

As such habitats within the proposed drilling location across the Network Rail land have been mapped from a combination of what was visible whilst on site, aerial imagery and Mastermap data. In terms of species scoping this is not considered a constraint. Conditions of habitats in this area, which will not be directly impacted as proposals here include directional drilling only with no above ground impacts, have been assumed to inform BNG calculations.

Access to survey each aspect of trees within woodland adjacent to the A18 for the bat GLTA was limited, due to the presence of the A18 adjacent to the south of the woodland and the woodland being situated on a steep embankment. Within the north of the site, the GLTA was largely limited to survey from the level ground adjacent to the woodland. However, trees within the woodland are largely young, and the recommendations in Section 6 take into consideration these limitations.

Desk study data from GLNP does not include bird records and invertebrate records with certain conservation statuses, such as those listed on Birds of Conservation Concern lists and red lists. This is considered within the recommendations.

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5 Ecological Baseline

5.1 Designated Sites

Figure 5 shows designated sites within their relevant ZOIs. There are no statutory designated sites found within the site boundary.

Consultation of the MAGIC online interactive mapping tool [11] confirms the absence of internationally important statutory designations within 10km of the site boundary. The nearest site of international importance is the Humber Estuary Ramsar, Special Protection Area (SPA) and Special Area of Conservation (SAC) approximately 11.3km north-east, which is scoped out of this assessment as it sits outside of the identified ZOI.

There is one nationally important statutory designated site within 3km; Kirmington Pits Site of Special Scientific Interest (SSSI) approximately 1.3km east. The site falls within the Impact Risk Zone (IRZ) of the SSSI, however as the SSSI is designated for geological reasons it is hereafter scoped out of further consideration within this report.

GLNP has confirmed the presence of four non-statutory designations within the 2km search area, as detailed within Table 5. Additionally, GLNP identified Melton Ross Quarry Local Geological Site (LGS) present on site. As a site designated for geological reasons the LGS is scoped out of this assessment.

Table 5. Non-statutory designated sites within 2km of the Site

Site Name	Distance and Direction from Site	Description/reason for Designation
Melton Ross Quarry Local Wildlife Site (LWS)	On-site	The site is designated as brownfield mosaic and ruderal habitat, with semi-natural woodland, scrub, unimproved calcareous grassland and unimproved acid grassland also present. Additional features include abundant nectar sources, structural diversity and bare ground with rock outcrops and slopes.
Melton Ross Road Verges LWS	1.7km north-west	The verge is designated for calcareous grassland.
New Barnetby Road Verges, South LWS	1.7km south-west	The verge is designated for calcareous grassland.

The Melton Ross Quarry LWS citation provided by GLNP was based upon a survey undertaken in 2010. Given the anecdotal evidence of quarry infilling four to five years ago (see Section 5.2) and the results of the UKHab and NVC surveys, it is considered that some of the additional habitats (including unimproved acid and calcareous grasslands) are no longer present on the site, with other habitats (i.e. woodland and scrub) limited to the outer edge embankments. However, brownfield ruderal habitat is still present in abundance on site, albeit the ‘mosaic’ listed on the citation is absent at

a smaller scale. The UKHab and NVC surveys have confirmed that habitats on site are present in less of a mosaic and consist more of continuous grassland and ruderal habitats (see Figure 1).

5.2 Priority Habitats

The following priority habitats were identified on MAGIC [11] during the desk study within ~200m of the site, or within 1km with a downstream hydrological connection and are shown on Figure 5:

- Lowland calcareous grassland – on-site and adjacent to the west of the site
- Open mosaic habitat on previously developed land – on-site and adjacent to the west of the site

The UKHab and NVC survey identified the habitats present on site (see Section 5.4) and confirmed that they do not qualify as the priority habitats identified within the desk study. Anecdotal evidence reports that quarrying activities were ceased on site to the south of the rail line 50 to 60 years ago, and that infilling of the area was undertaken four to five years ago. The date on the MAGIC [11] priority habitat data is 2003 and 2010 for the open mosaic habitat and 1988 for the calcareous grassland. As such it is considered likely that these habitats are no longer present on site. This is supported by the UKHab and NVC survey results, which has found that whilst the site has a known history of disturbance and includes grassland and ruderal communities, the communities lack the spatial variation on a small scale required to qualify as the priority habitat open mosaic. Therefore, no priority habitats are considered present on site, however priority habitats may exist further west of the site within the areas of Melton Ross Quarry not subject to survey.

GLNP identified the site as open mosaic habitat on previously developed land priority habitat. GLNP also identified two areas of calcareous grassland within the two previously identified LWS road verges (see Section 5.1).

5.3 Ancient Woodland and Veteran Trees

A review of MAGIC [11] and the Woodland Trust Ancient Tree Inventory [25] identified no ancient woodland or ancient or veteran trees respectively within ~200m of the site or within 1km with a downstream hydrological connection. As such they are not considered a constraint to the proposed development and are not considered further.

5.4 Habitats on Site

The results of the UKHab survey are presented below and on Figure 1. The following habitat types are present on site:

- Urban – disused quarry with tall forbs (u1 838 16)
- Sparsely vegetated urban land with tall forbs (u1f 16)
- Buildings (u1b5)
- Other developed land (u1b6)
- Modified grassland (g4)
- Other broadleaved woodland (w1g)
- Sparsely vegetated urban land with scattered scrub (u1f 10)
- Artificial unvegetated, unsealed surface – railway (u1c 802)
- Other neutral grassland (g3c)
- Other native hedgerow (h2a6)

Appendix B provides a list of plant species encountered for the habitats listed and their scientific names. As such complete species lists and plant scientific names are not provided below.

5.4.1 Urban – Disused Quarry with Tall Forbs (u1 838 16)

The majority of the disused quarry to the south of the rail line is colonised by early successional vegetation, dominated largely by forbs however with occasional localised grass present including tufted hair grass, creeping bent, perennial rye grass and Yorkshire fog (see photographs 1 and 2). This area is more densely vegetated than the adjacent sparsely vegetated land, with bare ground much more discrete if present. Wetter areas in the south of the site also include hard rush.

The habitat was assessed as being in moderate condition with a good number of flowering species present of benefit for wildlife, however the habitat lacked variation in structure.

Photograph 1: close up of the urban disused quarry habitat

Photograph 2: urban disused quarry habitat

The NVC survey recorded a total of 38 species within this habitat, including encroaching sycamore seedlings. The habitat does not fit into an NVC category due to lacking the constant species required for any of the relevant 'open habitat' communities.

5.4.2 Sparsely Vegetated Urban Land with Tall Forbs (u1f 16)

Within the disused quarry in the western area of the site there is a less vegetated area indicative of more recent disturbance with vegetation not yet as developed as other areas of the disused quarry (see photograph 3). Vegetation present is patchy and includes a high proportion of the tall forb weld and also abundant scentless mayweed.

The habitat was assessed as being in poor condition due to the lack of variation in vegetative structure and less opportunities for wildlife, as the community was dominated by smaller number of species on the species list (Appendix B).

Photograph 3: sparsely vegetated urban land with tall forbs

5.4.3 Buildings (u1b5)

Buildings are present on site to the north of the rail line only, in the active lime quarry site. Buildings include the operational lime kilns (see photograph 4).

Photograph 4: operational lime kilns

5.4.4 Other Developed Land (u1b6)

Other developed land consisting of sealed surface is present to the north of the rail line, in the operational lime quarry site, and along the A18.

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5.4.5 Modified Grassland (g4)

In the southern corner of the disused quarry is an area of open grassland (MG1) which appears to be a later successional stage of vegetation than much of the rest of the disused quarry (see photograph 6). Quadrats 1 to 5 inclusive in Appendix C document the detailed botanical results for this habitat from the NVC survey which recorded a total of 20 species within this habitat. Creeping bent is present with between 76% - 90% coverage in each of the five surveyed quadrats, with other grass species including timothy, Yorkshire fog, common bent, perennial rye grass, common couch and tufted hair grass.

Due to the community present the grassland does not fit into an NVC grassland community. The community doesn't match those NVC communities with constant creeping bent due to lack of other species constant within the community; for example, the grassland lacks silverweed and red fescue which are constant species of MG11 *Fesctua rubra-Agrostis stolonirera-Potentilla anserina* and lacks marsh foxtail which is a co-constant species for MG13 *Agrostis-stolonifera-Alopecurus geniculatus.*

It is considered likely that the grassland does not fall into an NVC classification as the areas had been subject to heavy modification considering historic quarrying and more recent infilling activities. Given this, the grassland is considered modified grassland, which is supported by the <20% cover of forbs and a species-poorness of the sward with <6 – 8 species per m².

The modified grassland is assessed as being in poor condition due to the species-poorness of the sward and lack of variation of the sward height.

Photograph 6: modified grassland MG1 in the south-east corner of the disused quarry

A second parcel of modified grassland is present on site on the A18 verge to the south-east of the disused quarry ((MG2) see photograph 7). The grassland is species-poor with six species per m^2 and cover of forbs is low (<20%). Species largely include false oat grass, cock's-foot, common nettle, ground ivy and field bindweed.

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The grass verge is half mown on the south side closest to the road and bramble scrub is present reducing the condition score of the grassland. The condition was assessed as moderate.

Photograph 7: modified grassland MG2 on the A18 verge

5.4.6 Other Broadleaved Woodland (w1g)

Other broadleaved woodland (W1) is present in the southern area of the site, adjacent to the A18 where the proposed access road is located (see photograph 8). The woodland is young and dominated by ash, with sycamore, hawthorn and dog-rose present, and an elder understorey.

The woodland is assessed as being in moderate condition with positive condition indicator scoring including herbivore damage (lack of), invasive plants (lack of), cover of native species (>80%), open space within the woodland (optimal) and tree health (no disease). However, the woodland lacks veteran trees, deadwood and a recognisable ground flora community, as the ground flora consists solely of ivy.

A second parcel of other broadleaved woodland (W2) is present on site, on the southern rail embankment between the rail line and the disused quarry. As this woodland was largely inaccessible due to being on top of a cliff (see Section 4.9) its condition has been assumed poor given its location on a rail embankment. Species include hawthorn, ash, whitebeam, dog-rose and Norway maple. Ground flora includes wood avens, false oat grass, yarrow, common ragwort and bramble.

No species list is provided in Appendix B for this habitat as the species recorded are all mentioned here in the text.

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Photograph 8: W1 other broadleaved woodland adjacent to the A18

5.4.7 Sparsely Vegetated Urban Land with Scattered Scrub (u1f 10)

The rail embankment adjacent to the north of the rail line and south of the operational lime quarry consists of sparsely vegetated land with butterfly-bush, bramble and willow scrub and scattered scrubby immature trees (see photograph 9). Herbaceous species include ribwort plantain, willowherb, colt's-foot and dandelion.

The habitat has been assessed as being in poor condition. Whilst there is variation in the vegetation structure with bare ground, scattered scrub and herbaceous species present, the invasive butterfly-bush is present, the habitat lacks a range of flowering plants beneficial for wildlife and the habitat as a whole is covered in white chalky powder from the active quarry site.

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Photograph 9: sparsely vegetated urban land with scattered scrub on the rail embankment adjacent to the active lime quarry site

5.4.8 Artificial Unvegetated, Unsealed Surface – Railway (u1c 802)

An inaccessible rail line runs south-west to north-east along the centre of the site.

5.4.9 Other Neutral Grassland (g3c)

Within the north-east corner of the disused quarry is an area of other neutral grassland (ONG1). Quadrats 11 to 15 inclusive in Appendix C document the detailed botanical results for this habitat from the NVC survey which recorded a total of 25 species within this habitat (see photograph 10). Creeping bent and Yorkshire fog are co-dominant grasses within the grassland, which is more species-rich and has a higher % cover of forbs than the modified grassland.

As with the modified grassland, the community does not fit into an NVC grassland community, due to the sward lacking the other constant species to qualify as a mesotrophic grassland community associated with constant creeping bent.

As the grassland has >20% cover of broadleaved species, including abundant grass species not sown for agricultural production (creeping bent) and has <30% cover of rye grasses and white clover, it is classified as other neutral grassland.

The grassland is assessed as being in moderate condition as it is a good example of other neutral grassland, with little bare ground, bracken, scrub and species indicative of sub-optimal condition. The species-richness required to achieve good condition (>10 species per m²) is not achieved.

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Photograph 10: other neutral grassland in the north-east corner of the disused quarry

A second parcel of other neutral grassland ((ONG2) photograph 11) is present in the disused quarry in the south adjacent to the woodland fringing the A18. Species assemblage is similar to that in the adjacent modified grassland MG1, however the higher coverage of forbs (>20%) qualify this habitat as other neutral grassland albeit a species-poor example with 6-8 species per m^2. The sward height is varied, and bare ground, scrub, bracken and species indicative of suboptimal condition are minimal or absent. However, due to the species-poorness the habitat is assessed as being in poor condition.

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Photograph 11: other neutral grassland ONG2

5.4.10 Other native Hedgerow (h2a6) – **Priority Habitat**

A native hedgerow (H1) is present adjacent to the woodland on the verge of the A18 on the southern boundary of the disused quarry. The hedgerow appears to have failed in some locations and in others seems to have grown into the adjacent woodland, however planting stakes in a double staggered row are still visible.

Species consist of hawthorn and a birch species. Identification and assessment of this hedgerow was limited due to lack of safe access along the A18 (see Section 4.9). The hedgerow is assessed as being in poor condition, with the canopy largely <1.5m in height and width, and gaps in the hedgerow due to failed specimens.

One further hedgerow is present (see photograph 12) to the south-east of the disused quarry including one (H2) adjacent to the A18 road verge. H2 is a species-poor native hedgerow dominated by sycamore and hawthorn with other species including elder and a non-native *Prunus* sp. Identification and assessment of this hedgerow was limited due to lack of safe access along the A18 (see Section 4.9). The hedgerow is assessed as being in moderate condition due to lack of an adjacent strip of undisturbed perennial vegetation. Full condition assessment results are included in Appendix A.

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Photograph 12: H2

5.4.11 Individual Tree (w 200)

An individual rural tree (RT1) is present to the south-east of the disused quarry within farmland (see photograph 13). The tree is a multi-stemmed semi-mature sycamore assessed as being in moderate condition. There is little or no evidence of an adverse impact on the tree's health with ecological niches present including ivy.

Photograph 13: RT1

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5.5 Protected and Notable Species

5.5.1 Botany

GLNP returned no records of protected or notable native species of flora.

The UKHab survey identified wild chicory within the sparsely vegetated land with tall forbs habitat (see Section 5.4.2 and photograph 14). Wild chicory is listed within the Red Data Book [15] as 'vulnerable' in England.

Photograph 14: wild chicory within the sparsely vegetated urban land with tall forbs

The NVC survey identified wild strawberry within sparsely vegetated urban land in the north-east corner of the disused quarry. Wild strawberry is listed within the Red Data Book [15] as 'near threatened' in England. This species and the habitat it was recorded in was within a previous version of the site boundary, however now sits outside of the site boundary.

5.5.2 Invertebrates

GLNP returned records of notable invertebrates within the Melton Ross Quarry LWS (the larger area under Singleton Birch ownership which the site sits within) including S41 NERC Act 2006 small heath (*Coenonympha pamphilus*) butterfly, dated 2016.

Larvae of the S41 NERC Act 2006 species cinnabar (*Tyria jacobeaea*) moth was recorded on site during the survey on its foodplant common ragwort. A blue butterfly was also recorded on site during the survey and is considered most likely the S41 NERC Act 2006 species common blue (*Polyommatinae icarus*) due to the colouring, size and lack of markings, however this cannot be confirmed due to lack of a clear visual assessment. A species of white butterfly (*Pieris sp.*) was also recorded on site, however it was not possible to identify to species level.

Habitats on site, including grasslands, sparsely vegetated land and the other broadleaved woodland, have the potential to support common and notable terrestrial species of invertebrate.

5.5.3 Reptiles

GLNP returned no records of reptiles. The site offers no suitable habitat for the rarer smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) and as such these species are not considered further.

No reptiles or field signs were recorded on site during the survey. The grasslands and sparsely vegetated land on site offer suitable habitat for common reptiles, with areas around the perimeter of the site nearby the embankments and associated woodland and scrub habitats offering basking habitat nearby shelter.

The woodland adjacent to the A18 provides suitable refugia for reptiles amongst tree roots and within brash piles (see Photograph 15).

Photograph 15: brash piles within the woodland adjacent to the A18

No reptiles were identified during the targeted survey (see Figure 4). As such reptiles are considered absent from the site and are hereafter scoped out of this assessment.

5.5.4 Amphibians (including GCN)

Two GCN licence returns were identified on MAGIC [11] within 2km of the site. Both returns are dated 2017 and record GCN presence approximately 0.7km south-west of the site. At a second location approximately 1.5km south-west of the site there are four records of GCN European protected species (EPS) licence returns dated between 2017 – 2021.

GLNP returned five records of GCN located within 2km of the site the closest of which is located a minimum distance of 0.6km from the site. Records are dated between 2017 and 2021. One record of the S41 NERC Act priority species common toad (*Bufo bufo*) dated 2021 and located a minimum distance of 0.6km from the site was also returned by GLNP.

The desk study identified six waterbodies within 500m of the site on MAGIC [11]. Two of these waterbodies, located within the active lime quarry to the north of the rail line, are gravel-lined basins which are dry the majority of the time, from which water if present is pumped out. These waterbodies are scoped out as unsuitable for GCN.

Two further waterbodies (see photographs 16 and 17) are present within the active lime quarry. These waterbodies are approximately 0.2km and 0.3km from any suitable terrestrial GCN habitat which will be subject to direct impacts (i.e. excluding existing quarry land to the north of the rail line and the rail line itself, habitat on which will not be impacted above-ground) and are located on the far side of the rail line, a dispersal barrier, from suitable habitat on site in the disused quarry.

The final two waterbodies within 500m of the site are located >0.4km south and are separated from the site by the A18 and unsuitable arable land.

As such GCN are not anticipated to be on site during construction and no constraints are considered upon the proposed development due to legally protected GCN habitat. GCN are therefore scoped out of this assessment. Due to lack of aquatic habitat nearby with connectivity to the site common amphibians are also not anticipated to be on site and are hereafter scoped out of this assessment.

Photograph 16: Pond present within the active lime quarry

Photograph 17: Second pond present within the active lime quarry, dry at the time of survey

5.5.5 Birds

GLNP has provided records of protected and notable bird species within 2km of the site, detailed within Table 7 below. GLNP has also identified a number of species as being of 'local priority', as indicated within Table 6, however has cited no Local Biodiversity Action Plan or similar document to refer to.

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Table 6. Records of protected and notable birds returned by GLNP

Common Name	Scientific Name	Designation/Conservation Status
Avocet	*Recurvirostra avosetta*	Sch1
Barn owl	*Tyto alba*	Sch1, Local Priority
Brambling	*Fringilla montifringilla*	Sch1
Bullfinch	*Pyrrhula pyrrhula*	S41, Local Priority
Corn bunting	*Emberiza calanadra*	Local priority
Fieldfare	*Turdus pilaris*	Sch1
Green sandpiper	*Tringa ochropus*	Sch1
Greenshank	*Tringa nebularia*	Sch1
Greylag Goose	*Anser anser*	Sch1-2
Grey partridge	*Perdix perdix*	S41, Local Priority
Hobby	*Falco subbuteo*	Sch1
House sparrow	*Passer domesticus*	S41, Local Priority
Lesser redpoll	*Acanthis cabaret*	S41
Linnet	*Linaria cannabina*	S41, Local Priority
Peregrine falcon	*Falco peregrinus*	Sch1
Red kite	*Milvus milvus*	Sch1
Redwing	*Turdus iliacus*	Sch1
Reed bunting	*Emberiza schoeniclus*	S41, Local Priority
Ring ouzel	*Turdus torquatus*	S41
Skylark	*Alauda arvensis*	S41, Local Priority
Song thrush	*Turdus philomelos*	S41, Local Priority
Starling	*Sturnus vulgaris*	S41, Local Priority
Swift	*Apus apus*	Local Priority
Tree sparrow	*Passer montanus*	Sch1, Local Priority
Yellowhammer	*Emberiza citrinella*	S41, Local Priority
Yellow wagtail	*Motacilla flava*	S41, Local Priority
Whimbrel	*Numenius phaeopus*	Sch1

Key: Sch1 – Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Sch1-2 Part 2 of the Wildlife and Countryside Act 1981 (as amended). S41 – Section 41 of the Natural Environment and Rural Communities Act 2006

All records are located >700m from the approximate centre of the site on which the desk study search was based.

Habitats on site with the potential to support breeding birds include modified grassland, other neutral grassland, sparsely vegetated land and other broadleaved woodland. Habitats on site have limited potential to support ground nesting birds with the centre of the disused quarry being the only suitable habitat, as the embankment to the north and east and woodland to the south provide predator perches. Birds recorded on site during the NVC survey include flocks of goldfinch (*Carduelis carduelis*) and a common pheasant (*Phasianus colchicus*) and young pheasants.

5.5.6 Bats

5.5.6.1 Roosting

GLNP returned records of brown long-eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and noctule (*Nyctalus noctula*) within 2km of the site including roost records of brown long-eared and common pipistrelle bats at a minimum distance of approximately 0.3km from the site.

Buildings present on site are limited to those located within the active lime quarry to the north of the rail line. The site contains an active lime kiln which is operational 24/7 and generates noise. In addition, the site on the active quarry is covered in chalky dust and as such any buildings here are considered unsuitable for bats. Additionally, impacts to the north of the rail line are limited to directional drilling underground beneath the rail line and digging of a trench on existing hard standing from this location to the existing lime kiln.

Trees on site include immature, scrubby trees on the northern rail embankment (see Photograph 18 for an example). These trees are unlikely to contain potential roost features due to their small size. Furthermore, no direct above ground impacts will occur in this location and the trees are already subject to levels of noise disturbance being adjacent to the operational quarry site and rail line.

Scrub and trees are present on the southern rail embankment (see Photograph 19) adjacent to the location of the proposed hydrogen facility. Whilst some trees are sizeable enough that they may contain potential roost features, these trees are fairly immature and any suitability for bats is likely to be limited. Whilst present within the site boundary no direct impacts are anticipated above ground in this location.

Photograph 18: Scrubby trees on the northern rail embankment

Photograph 19: trees and scrub on southern rail embankment

The woodland adjacent to the A18 (see Photograph 8) is largely young woodland with the majority of trees small in girth. However, slightly larger trees are present including trees with potential to contain potential roost features. Numerous trees within the

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woodland were covered by dense ivy. The ivy was not dense enough that the stems would act as a PRF themselves, however the dense coverage may obscure PRFs on the trees.

One tree (tree 4) classified as PRF-I (see Table 2) was identified within the woodland on the border of the area of woodland removal as identified within the arboricultural impact assessment [26]. As such on a precautionary basis this tree is considered to be lost to the proposed development to facilitate construction of the site access.

Table 7 includes details of trees noted within the woodland with dense ivy (also shown in Photographs 20 - 23), whose girth suggests they may be of an age to support hidden PRFs, and tree 4. The locations of these trees are shown on Figure 1.

Table 7. Trees with PRFs in woodland adjacent to A18

Tree ref.	Roosting Potential	Species	Notes
Tree group 1	PRF-I	Sycamore, ash and standing deadwood	Three sycamore, one ash and a standing deadwood with dense ivy which may obscure PRFs.
Tree 2	PRF-I	N/A	Semi-mature tree, potentially ash however identification difficult due to dense ivy, high foliage and surrounding tree foliage. Dense ivy which may obscure PRFs.
Tree 3	PRF-I	Ash	Semi-mature tree with dense ivy which may obscure PRFs.
Tree 4	PRF-I	Sycamore	Vertical slit on north face of main stem from approximately 3m – 6m height (from base of tree which is located on the edge of an embankment). Potential cavity at top of vertical slit. The vertical feature observed is shallow and there is a lack of staining which would be expected should the tree be used by significant numbers of bats. The size (girth) and age of the tree is such that any cavities or crevices present would be small internally. Furthermore, the tree's location next to a busy road subjects it to a certain level of noise disturbance. As such any PRF's present would be considered PRF-I.

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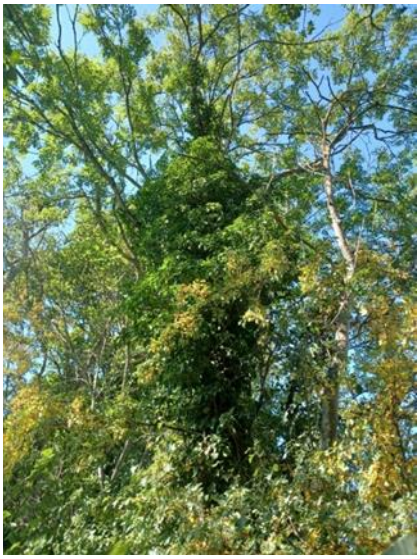
Photograph 20: standing deadwood tree from tree group 1

Photograph 21: tree 2



Photograph 22: tree 3

Photograph 23: tree 4

A further three trees (see photographs 24 – 26) were identified outside of the established ZOI and survey area (see sections 4.3 and 4.7.2 and Figure 1). These trees were incidentally recorded however will not be impacted by the proposed development. As such no further surveys or mitigation is required for these trees.

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Table 8. Further trees incidentally identified outside the ZOI

Tree ref.	Roosting Potential	Species	Notes
Tree 5	FAR	Sycamore	Potential cavity on north face of main stem at approximately 3m high.
Tree 6	FAR	Ash	Potential cavity midway up vertical split feature on north face of stem. Potential cavity approximately 1m high from base of tree (which is on an embankment).
Tree 7	PRF-I	Standing deadwood	Cavity at top of stem on north face open at the both the top and bottom and therefore exposed to the elements. Potentially large enough for a bat to enter.

Photograph 24: tree 5

Photograph 25: tree 6

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Photograph 26: tree 7

5.5.6.2 Commuting and Foraging

The part of the site to the north of the rail line is considered largely unsuitable for bats.

The site to the south of the rail line includes suitable foraging habitat for bats in the grassland, sparsely vegetated land and other broadleaved woodland habitat on and adjacent to the disused quarry. The wooded/scrubby rail line, eastern embankments and the woodland adjacent to the A18 also offer foraging habitat and commuting routes for bats across the site.

Given the limited connectivity to significant resources in the wider area, the site is assessed as being of low suitability for commuting and foraging bats.

5.5.7 Badger

GLNP returned four records of badger within 2km of the site dated between 2016 and 2019. Distances from site are not included here for confidentiality reasons.

Habitat on site has potential to support foraging and commuting badger, including grassland, sparsely vegetated land and other broadleaved woodland habitats. The majority of the site is considered sub-optimal habitat for sett-building (i.e. sparsely vegetated land habitats). However, the woodland adjacent to the A18, and further scrub and woodland habitats within the badger survey area (up to 30m outside of the site) are more suited to sett creation.

The badger survey undertaken on 10 September 2025 identified one disused badger sett ((sett 1 on Figure 3) see photograph 27) approximately 14m west of the site within the woodland adjacent to the A18. The badger sett is fenced and gated, and due to the vegetation growing over the fencing and lack of any signs of recent activity (badger or human) around the area it is considered disused.

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Photograph 27: disused badger sett within the ZOI

In addition to the identified disused sett, one dung pit was recorded on site during the NVC survey, in the south-east corner of the site adjacent to the eastern embankment and one further dung pit was identified during reptile surveys to the west of the site (see Figure 3).

5.5.8 Hedgehog

GLNP returned seven records of hedgehog dated 2015 – 2022 with one record located on site (note, this record may potentially just be within the same 1km grid square as the site as only a four-figure grid reference was submitted).

Habitats on site have potential to support hedgehog including grasslands and woodland habitat. The woodland and scrub habitats adjacent to site also have the potential to support the species and offer refugia and potential hibernation habitat, albeit a lot of this habitat is less accessible due to the cliffs and embankments.

5.5.9 Brown Hare

GLNP returned no records of brown hare.

The site has the potential to support brown hare in the grassland and adjacent woodland edge habitats and is situated within a wider arable landscape suitable for brown hare. However, the site is somewhat isolated for the species due to the embankment to the east, A18 to the south and rail line to the north providing potential obstacles to commuting.

5.5.10 Invasive Non-native Species

No INNS listed on Schedule 9 of the WCA 1981 (as amended) were identified during the survey or returned by GLNP within 2km of the site. As such INNS on Schedule 9 are not considered a constraint to the proposed development and will not be further considered within this assessment.

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6 Assessment of Effects

The evaluation in this section is based on the site surveys in July, August and September 2025. For purposes of the evaluation, it is assumed there has been no change in the condition of the site since the site survey (unless otherwise stated).

6.1 Important Ecological Features for which No Effect is Anticipated

6.1.1 Designated Sites

Melton Ross Road Verge LWS and New Barnetby Road Verges, South LWS are a significant distance from the site with no hydrological connection to the site. As such no direct or indirect impacts are anticipated from the proposed development and the two LWS's are scoped out of this assessment.

6.1.2 Priority Habitats

No impacts are anticipated from the proposed development on the identified calcareous grasslands off-site within the road verge LWS's mentioned above or the open mosaic habitat on previously developed land or lowland calcareous grassland to the west of the site, due to distance from the site and lack of a hydrological connection.

The priority habitat other native hedgerows on site are considered important at a 'site' level only, and as such are not detailed within Table 9.

6.2 Important Ecological Features and Potential Effects

The features which are considered important in the context of the site and so will be the subject of the EcIA are listed in Table 9, along with their geographic importance. Potential effects are identified in the absence of mitigation.

Whilst badger are considered not important at a local level, due to badger being a widespread, common species, they have been included in Table 9 and an impact assessment provided as they are a legally protected species under the Protection of Badgers Act (1992) (PBA). Hedgehog and brown hare, whilst not important at a local level, have also been included as they are priority species for conservation as listed under Section 41 of the NERC Act 2006.

Table 9. Important Ecological Features and Their Geographic Importance

Important Ecological Feature	Legislation/ Policy	Geographic Importance of Ecological Feature	Potential Effects
Melton Ross Quarry LWS	NPPF	County	Construction effects include habitat loss and degradation due to hydrological impacts. Operational effects include degradation

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Important Ecological Feature	Legislation/ Policy	Geographic Importance of Ecological Feature	Potential Effects
			due to hydrological impacts.
Wild chicory	NERC	Local	Construction effects include loss of habitat for the species and habitat degradation due to hydrological impacts. Operation effects include habitat degradation due to hydrological impacts.
Invertebrates	NERC	Local	Construction effects include loss and fragmentation of habitat and habitat degradation due to hydrological impacts. Operational effects include degradation due to hydrological impacts.
Breeding birds	WCA WCA Sch 1 WCA Sch1-2 BoCC Red / Amber	Local	Effects are limited to construction only and include damage and destruction of nests, eggs and/or chicks during site clearance, loss of nesting habitat and disturbance.
Bats	WCA Sch 5 NERC HabRegs	Local	Impacts are largely limited to construction only and include killing/injury of bats, loss of bat roosts, loss of potential future roosting resource, loss of commuting and foraging habitat, disturbance due to noise and lighting and

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Important Ecological Feature	Legislation/ Policy	Geographic Importance of Ecological Feature	Potential Effects
			fragmentation of commuting routes. Operational impacts in the absence of mitigation include light disturbance.
Badger	PBA	Not important at a local level	Impacts are limited to those during construction and include loss of habitat, killing/injury of individuals and noise disturbance.
Hedgehog	NERC	Not important at a local level	Impacts are limited to those during construction only and include killing/injuring and loss and fragmentation of habitat.
Brown hare	NERC	Not important at a local level	Impacts are limited to those during construction only and include killing/injuring and loss and fragmentation of habitat.

WCA - Wildlife and Countryside Act 1981 (as amended). **WCA Sch 1** - Wildlife and Countryside Act 1981 (as amended) Schedule 1. **WCA Sch 1-2 -** Part 2 of the Wildlife and Countryside Act 1981 (as amended). **WCA Sch 5** - Wildlife and Countryside Act 1981 (as amended) Schedule 5 (killing, injuring and sale of animals). **NERC** - Natural Environment and Rural Communities Act 2006 Section 41. Species/habitats of principal importance. **PBA** - Protection of Badgers Act (1992). **BoCC Red/Amber** - Birds of Conservation Concern - Red or Amber listed. **NPPF** – National Planning Policy Framework. **HabRegs** – Conservation of Habitats and Species Regulations 2017 (as amended), Annex II and Annex IV of the Habitats Directive.

6.3 Avoidance

The site boundary is located within herbaceous vegetation within the Melton Ross Quarry LWS and does not include any direct impacts on the embankments and associated rocky slopes, woodland and scrub habitats mentioned on the citation. The exception to this is the directional drilling location which is a small cross section of these habitats only and will not have direct impacts above-ground.

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Directly adjacent to the north of the site in the north-east corner of the disused quarry is other neutral grassland (ONG1 (see Section 5.4.9)). The layout of the proposed hydrogen facility has been moved further south to avoid impacts to much of this parcel of habitat of moderate distinctiveness, which now sits outside of the site boundary. A small section of this other neutral grassland would still be impacted to facilitate the proposed drilling across the rail line.

Movement of the proposed hydrogen facility south has also avoided impacts to the 'near threatened' species wild strawberry and the habitat it is located within (see Section 5.5.1).

If feasible, the construction programme would include vegetation clearance timed to avoid the core nesting bird season (March to August, inclusive), which would avoid direct (killing, injuring, nest destruction) impacts to breeding birds. As the construction programme is not known at the time of writing, this avoidance measure cannot be confirmed, and mitigation for breeding birds during vegetation clearance in the core breeding season (March to August, inclusive) is included below.

6.4 Mitigation

Habitat loss has been minimised as far as feasible within the proposed development design, reducing habitat lost from Melton Ross Quarry LWS and for terrestrial invertebrates, breeding birds, commuting and foraging bats, badger, hedgehog and brown hare.

Pollution prevention measures would be in place during construction and operation. This would mitigate adverse impacts from hydrological changes upon Melton Ross Quarry LWS, off-site priority habitats (open mosaic to the west), and habitats on site and those species reliant upon them (including wild chicory and terrestrial invertebrates).

The above mitigation has been detailed here to avoid repetition in the relevant sections below.

6.4.1 Protected and Notable Species

6.4.1.1 Invertebrates

Landscaping on site has been designed to include native species with abundant nectar sources chosen to extend the flowering season. Open mosaic habitat, including grassland rich in native species, will be created to provide foraging habitat for invertebrates, and the varying component habitats are expected to naturally achieve height variations which would provide varying microclimates. Woodland creation on site would also provide habitat for invertebrates, including log piles as deadwood is naturally formed over time. These measures would mitigate habitat loss for terrestrial invertebrates.

6.4.1.2 Birds

It is a mandatory requirement that nesting birds (or their nests or eggs), including ground nesting birds, would not be killed or injured or their active nests destroyed as a result of activities on site.

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Where feasible clearance of vegetation that is suitable for nesting birds would be undertaken outside the core nesting bird season (March to August inclusive) and if the works programme cannot be amended to facilitate this, a pre-works check for nesting birds would be undertaken by suitably qualified ecologist no more than 48 hours prior to works. If active nests were found, there would be no other option but to delay works in this immediate area until chicks have fledged, as confirmed by an ecologist, which could be a period of up to ten weeks. Should it be preferred, a nesting bird check can be undertaken one week ahead of the onset of the works (i.e. enabling works including vegetation clearance), and then again a maximum of 48 hours prior to works, to reduce the risk of stand down following mobilisation.

Landscaping would include creation of woodland which, when matured, would provide suitable nesting habitat for birds, in addition to foraging habitat. Other habitats created providing foraging for birds include a native hedgerow, individual trees and grassland within open mosaic habitat.

To provide a net gain for breeding birds and mitigate any temporary loss of nesting habitat whilst planted woodland develops, five bird boxes suited to the birds likely to be present in the area would be installed on retained trees within the Singleton Birch ownership. The locations would be agreed with an ecologist, however a potential location for the boxes would be within retained areas of woodland adjacent to the A18, on the site side away from the road as shown on the landscape plans produced by Sweco (653216371_SWE_XX_XX_D_L_0001_Landscape and Ecological Proposals Plan Revision P02). Details of bird boxes, their installation and management would be included within a Landscape and Ecology Management Plan. Trees within this woodland are largely young and as such may not yet have developed natural cavities for cavity-dwelling species to utilise.

6.4.1.3 Bats

Night working and lighting during construction would be minimised as far as feasible. Any required night lighting would be hooded and directed away from retained habitats including woodland and scrub habitats on embankments adjacent to the disused quarry.

The proposed development during operation includes no permanent operational lighting. Lighting during operation would only be in the event of an emergency or lighting when the asset is manned and for security (e.g. 4pm during winter months). The majority of works would take place during daylight hours, and as such the frequency and duration of any lighting is anticipated to be minimised. As such, any disturbance impacts upon bats would be minimised. To mitigate lighting disturbance impacts on commuting, foraging and roosting bats, the operational lighting would be designed, through liaison with a suitably qualified ecologist, to be low impact, sensitive lighting to minimise disturbance, utilising guidance in the Bat Conservation Trust Guidance Note 08/23 [27].

To mitigate loss of potential roosting habitat through removal of trees with ivy and one PRF-I tree (tree 4) within the woodland adjacent to the A18 four bat boxes would be installed on retained trees within the Singleton Birch ownership. These boxes would be installed in the woodland adjacent to the A18 on the site side away from the road prior the onset of construction and loss of the trees due to vegetation clearance. Two Schwegler 2FN bat box 55's suitable for cavity roosting species and two Schwegler

1FF Flat bat box suitable for crevice dwelling species would be installed in groups of two on varying aspects (however, not north-facing) of a tree to provide roosting opportunities with varying climatic conditions. Should alternative boxes be required (e.g. due to product availability) these should be advised by an ecologist. Details of bat boxes, their installation and management would be included within a Landscape and Ecology Management Plan.

Woodland creation, and further landscaping proposals, would mitigate loss of foraging and commuting habitat.

To mitigate potential killing/injury of bats during construction through removal of the woodland adjacent to the A18, the woodland removal would occur during the bat active season (April to September) and under the supervision of a suitably qualified bat licensed ecologist. Sensitive felling measures would be utilised on trees with dense ivy cover and PRF-I tree 4, including those detailed in section 5.5.6 and shown on the bat GLTA drawing, as a precautionary measure.

Should felling/partial felling of PRF-I tree 4 be required (as assumed within this EcIA due to it's presence on the boundary of the woodland loss area), the tree will be subject to a pre-felling inspection by a bat licensed ecologist to check for roosting bats on the same day as the works would take place, with pruning/felling then undertaken prior to sunset. This pre-commencement check would comprise if feasible endoscope inspections, with aerial assessment where required.

If aerial assessment and endoscope survey is not feasible (i.e. due to health and safety) a re-entry survey, using night vision aids and in accordance with guidance [19], should be undertaken the dawn of the day of pruning/felling to check for roosting bats in the tree prior to impact.

If a roost is found during the pre-commencement check (aerial/endoscope or dawn re-entry survey) no works should be undertaken on the tree or within a 5m exclusion zone until a European Protected Species mitigation licence is granted from Natural England for loss of the roost.

If bats are confirmed absent through the aerial/endoscope or inspection/re-entry survey, the tree may be soft felled by an experienced arboriculturist under supervision by a suitably qualified bat licensed ecologist before sunset the same day. An endoscope inspection of the feature should be undertaken once felled. Should it not be possible to fully inspect the feature, it should be left intact and undisturbed on the ground for one night prior to removal from site.

6.4.1.4 Badger

Badgers are protected under the Protection of Badgers Act 1992.

A pre-construction badger survey would be undertaken, in accordance with CIEEM guidelines [28], approximately three months prior to construction. Badger are a very mobile species, and identification of a dung pit during the surveys on site evidences their presence. Undertaking an update survey would reduce the risk to the construction programme should a sett be identified which requires a licence. Further surveys if required would be identified following the survey, as would the need for mitigation and a licence.

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A suitably qualified ecological clerk of works (ECoW) would undertake a walkover immediately prior to the onset of vegetation clearance to check for badger, with appropriate mitigation should any active setts be identified.

To prevent the entrapment of badger and other wildlife all excavations and trenches should be covered, and all pipes capped overnight during the construction phase. Should this not be feasible, ramps should be inserted into the excavation/trench overnight at a 45-degree angle to allow animals an exit route.

Where construction lighting cannot be avoided, dark corridors should be maintained in adjacent woodland and scrub habitat to facilitate safe commuting and foraging routes for badger.

6.4.1.5 Hedgehog and Brown Hare

European hedgehog and brown hare are listed in the NERC Act (2006) under Section 41 but afforded no other legal protection.

Habitats with potential to support hibernating hedgehog are present on site only within the unimpacted woodland and scrub habitats on the rail land and within the woodland adjacent to the A18. The woodland habitat would ideally be cleared in September and in suitable weather conditions, outside of the hedgehog and bat hibernation seasons and the core breeding bird season. The woodland would be cleared under the supervision of an ECoW to mitigate killing/injuring hedgehog.

Proposed landscaping would mitigate habitat loss for hedgehog and brown hare, with proposed woodland and woodland edge habitat being suitable.

6.5 Residual Effects

Melton Ross Quarry LWS would see a permanent and temporary loss of habitat during construction. However, the habitats and mosaic which the LWS was designated for were found largely absent from the site within the baseline. Additionally, the proposed development design has minimised impacts to habitats listed on the LWS citation (including the woodland and scrub habitats on many of the embankments surrounding the disused quarry and the rock outcrops, south-facing slopes and steep slopes) and therefore there it is considered that there is **no effect** on qualifying habitats of the LWS. The proposed landscaping includes woodland and open mosaic habitat including grassland, broad habitats listed on the LWS citation and will improve the condition of the landscaped areas of the LWS for wildlife.

Residual effects include permanent and temporary habitat loss during construction, and with regards to proposed woodland whilst landscaped habitats mature. This temporary habitat loss would impact wild chicory, terrestrial invertebrates, breeding birds, bats, badger, hedgehog and brown hare. This habitat loss, whilst a residual effect, is **not significant** given the areas of habitat lost and the availability of suitable habitat in the wider area, including those connected to the site.

Some habitat fragmentation would occur due to the construction of the access road and the facility, however this fragmentation, impacting invertebrates, breeding birds, bats, badger, hedgehog and brown hare, is **not significant**. The facility and access track location is situated to the east in the disused quarry maintaining the connected area of habitat to the west.

Noise disturbance during construction would occur and potentially impact breeding birds, hedgehog and brown hare. Considering the temporary nature of this impact, and the availability of habitat in the wider area, this is **not significant**.

6.6 Cumulative Effects

A review of the North Lincolnshire Planning Portal [29] has identified no cumulative effects, considering the residual effects from the proposed development identified above. Within approximately 1.5km, a number of householder applications were identified, however impacts from these are not anticipated to result in cumulative impacts with those above. An application regarding a proposed road realignment along the A18 corridor to the west of the site was also identified within 1.5km, however given the magnitude of residual effects from the proposed development no significant cumulative impacts are anticipated with any future road re-alignment development.

6.7 Compensation

As no significant effects have been identified on ecological features from the proposed development no compensation is required.

6.8 Securement of Mitigation

Pollution prevention measures to mitigate hydrological impacts can be secured through a planning condition or similar, for measures during construction and operational measures which can be mitigated through design.

Habitat creation and ongoing management can be secured through a landscape and habitat management plan or equivalent secured by a planning condition or similar.

These general measures have been detailed above to prevent repetition in the Table 10 as they pertain to multiple ecological features.

Table 10. Recommendations for Securing Ecological Mitigation

Important Ecological Feature	Avoidance/ Mitigation	Possible method for securing
Invertebrates	Landscaping to include native species with nectar sources extending the flowering season, structural diversity, variation in sward height and wood and stone habitat piles.	Landscape and habitat management plan secured by planning condition or similar.

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Important Ecological Feature	Avoidance/ Mitigation	Possible method for securing
Breeding birds	Clearance outside of the core season (March to August inclusive) where feasible. Pre- construction check of features. Installation of five boxes into retained woodland within Singleton Birch ownership.	Planning condition for inclusion in Construction Environment Management Plan or similar. Landscape and habitat management plan secured by planning condition or similar.
Bats	Night working and lighting during construction to be minimised and sensitively designed. Sensitive lighting plan for emergency operational lighting designed through liaison with an ecologist. Supervision of woodland clearance by a bat licensed ecologist. Pre-felling check of PRF-I tree 4.	Planning condition for inclusion in Construction Environment Management Plan or similar. Detailed lighting plan and impact assessment secured by planning condition or similar.
Badger	Pre-construction badger survey three months in advance of construction. A walkover immediately prior to onset of works by an ECoW. Covering of trenches and excavations overnight, and sensitive construction lighting.	Planning condition for inclusion in Construction Environment Management Plan or similar.
Hedgehog	Clearance of woodland in September if feasible. Clearance under supervision of an ECoW.	Planning condition for inclusion in Construction Environment Management Plan or similar.

6.9 Enhancement

The landscape proposals include installation of log and stone habitat piles for invertebrates. Given the absence of refugia features across much of the site pre-development this can be considered an enhancement for invertebrates and may also be used by small mammals.

6.10 Monitoring

As no protected species licence is required there is understood to be no monitoring requirements at this stage, beyond any requirements identified in a post-application habitat management and monitoring plan (HMMP) for biodiversity net gain (BNG).

6.11 Biodiversity Net Gain

BNG calculations have been undertaken and reported on separately (within 65216285-SWE-XX-XX-T-J-2002-BNG-C04). The calculations undertaken demonstrate that the proposed development can achieve +21.43% for area-based habitats and +161.43% for linear hedgerow habitats.

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Drawings

65216285-SWE-XX-XX-D-J-0001: Figure 1: UK Habitat Classification Survey Results and Bat Roost Potential

65216285-SWE-XX-XX-D-J-0002: Figure 2: National Vegetation Classification Survey

65216285-SWE-XX-XX-D-J-0003: Figure 3: Badger Survey Results

65216285-SWE-XX-XX-D-J-0004: Figure 4: Reptile Survey Results

65216285-SWE-XX-XX-D-J-0005: Figure 5: Designated Sites and Priority Habitats

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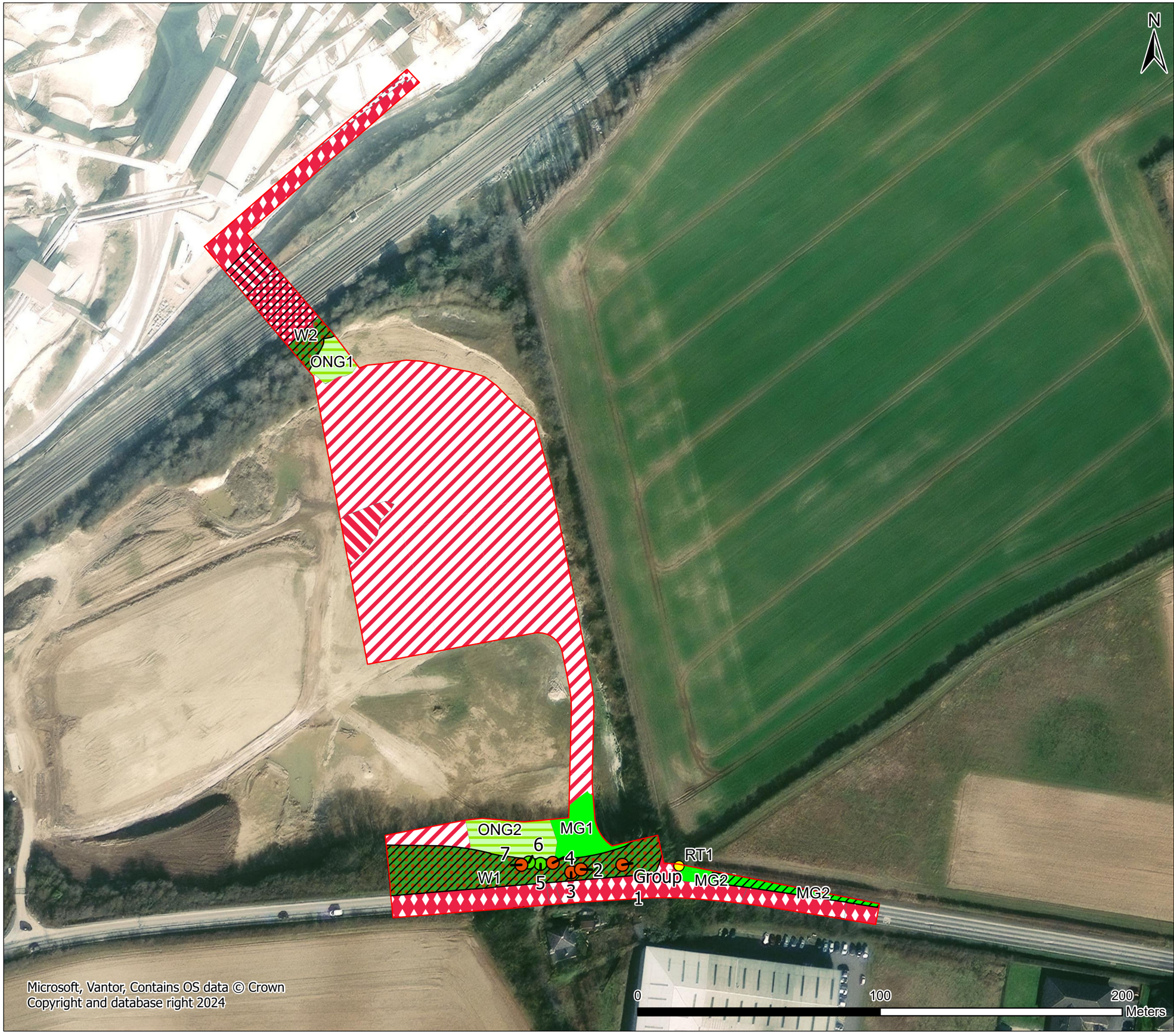

Legend

- Red Line Boundary
- Inaccesible Areas

Bat Ground Level Tree Assessment

- FAR
- PRF-I

UK Habitat Classification

- g3c - other neutral grassland
- g4 - modified grassland
- u1 838 16 - disused quarry with tall forbs
- u1f 16 - sparsley vegetated urban land with tall forbs
- u1b5 - buildings
- u1b6 - other developed land
- u1c 802 - artificial unvegetated unsealed surface - railway
- w1g - other woodland, broadleaved
- w 200 - individual tree
- h2a6 - other native hedgerow

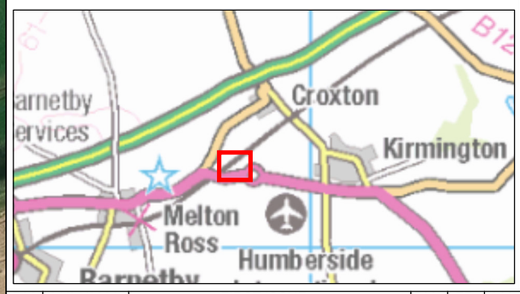

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FIGURE 1: UK HABITAT CLASSIFICATION SURVEY RESULTS AND BAT ROOST POTENTIAL

Project Stage
N/A

Status	Status Description
S2	FOR INFORMATION

Drawn	Designed	Checked	Approved
BM	BM	LW	LM

Sheet Size	Scale	Sweco Ref	Revision
A3	1:1,500	65216285	P02

Drawing Number 65216285-SWE-XX-XX-DR-J-0004

Legend

- Red Line Boundary
- NVC Quadrat Location

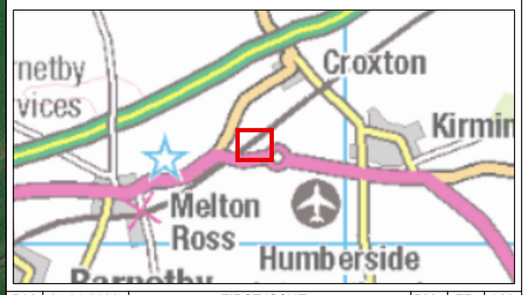

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FIGURE 2: NATIONAL VEGETATION CLASSIFICATION SURVEY

Project Stage: N/A

Status	Status Description
S2	FOR INFORMATION

Drawn	Designed	Checked	Approved
BM	BM	ER	LM

Sheet Size	Scale	Sweco Ref	Revision
A3	1:1,400	65216285	P02

Drawing Number: 65216285-SWE-XX-XX-DR-J-0002

Legend

- Red Line Boundary
- 30m Buffer
- Inaccessible
- Badger Dung Pits
- Badger - Disused Sett

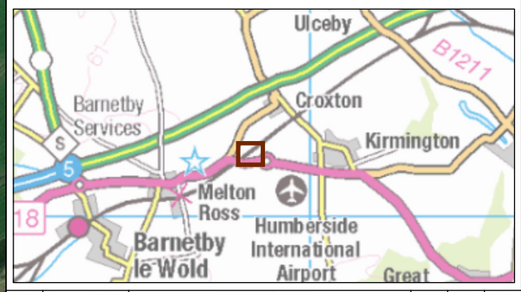

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FIGURE 3: BADGER SURVEY RESULTS

Project Stage	N/A
Status	S2
Status Description	FOR INFORMATION

Drawn	Designed	Checked	Approved
BM	BM	ER	LM

Sheet Size	Scale	Sweco Ref	Revision
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Drawing Number 65216285-SWE-XX-XX-DR-J-0003

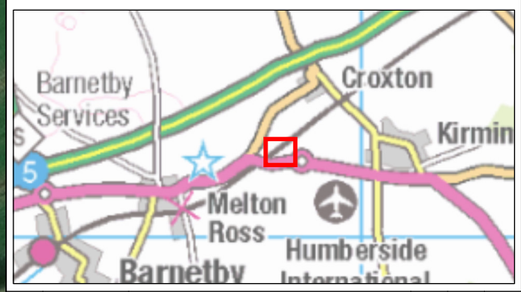

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FIGURE 4: REPTILE SURVEY RESULTS

Project Stage
N/A

Status	Status Description
S2	FOR INFORMATION

Drawn	Designed	Checked	Approved
BM	BM	ER	LM

Sheet Size	Scale	Sweco Ref	Revision
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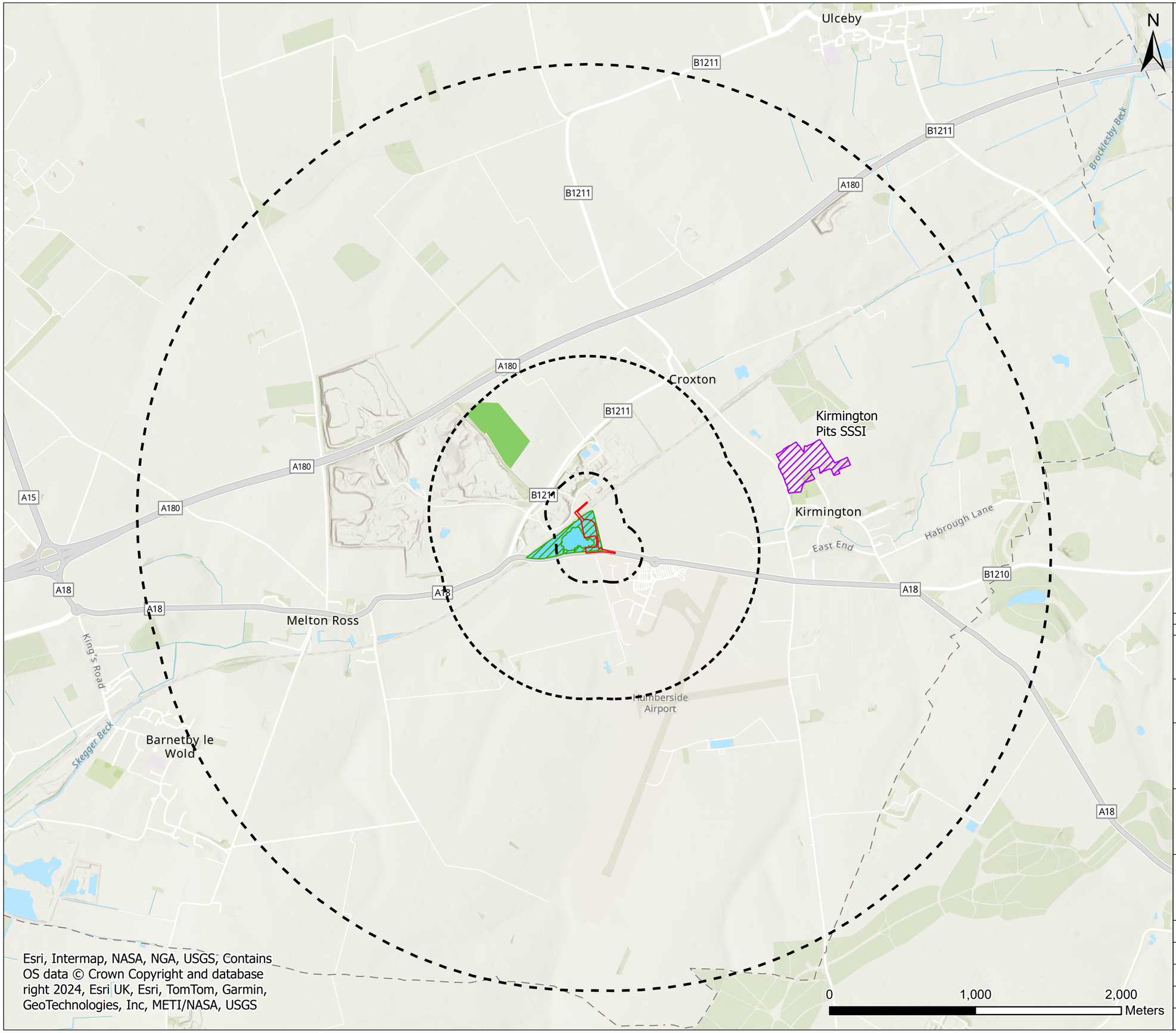
Drawing Number
65216285-SWE-XX-XX-DR-J-0004



Legend

- 200m Buffer
- 1km Buffer
- 3km Buffer

Designated Sites

- Sites of Special Scientific Interest (SSSI)

Priority Habitat Inventory

- Deciduous woodland
- Lowland calcareous grassland
- Open Mosaic Habitat on Previously Developed Land

Note: priority habitats are shown on the map to 1km only, in accordance with the zone of influence which is established as 200m or 1km where a downstream hydrological connection with the site exists. All priority habitats within 1km are shown, including where there is no downstream hydrological connection with the site.

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FIGURE 5: DESIGNATED SITES AND PRIORITY HABITATS

Project Stage: N/A			
Status: S2	Status Description: FOR INFORMATION		
Drawn: BM	Designed: BM	Checked: ER	Approved: LM
Sheet Size: A3	Scale: 1:25,000	Sweco Ref: 65216285	Revision: P02

Drawing Number: 65216285-SWE-XX-XX-DR-J-0005

Appendix A – Habitat Condition Assessments

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Condition Sheet: GRASSLAND Habitat Type (medium, high and very high distinctiveness)

UK Habitat Classification (UKHab) Habitat Types

Grassland - Lowland calcareous grassland
Grassland - Lowland dry acid grassland
Grassland - Lowland meadows
Grassland - Other lowland acid grassland
Grassland - Other neutral grassland
Grassland - Tall herb communities (H6430) [Not to be confused with the Tall forbs secondary code – see UKHab guidance for details.]
Grassland - Upland acid grassland
Grassland - Upland calcareous grassland
Grassland - Upland hay meadows
Sparsely vegetated land - Calaminarian grassland

Habitat Description

ukhab – UK Habitat Classification												
On-site or off-site, site name and location	Singleton Birch - on-site	**Survey date and Surveyor name**	August - Martin Brammah (ONG1) September - Beth Mell (ONG2)									
		Survey reference (if relating to a wider survey)										
Limitations (if applicable)		**Habitat parcel reference**										
		ONG1	ONG2									
Condition Assessment Criteria		**Grid reference**										
		Criterion passed (Yes or No)										**Notes (such as justification)**
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description).[1] **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	Yes	No									ONG2 is species-poor
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	No	Yes									
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens[2].	Yes	Yes									
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	Yes	Yes									
E	Combined cover of species indicative of suboptimal condition[3] 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. If any invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) are present, this criterion is automatically failed.	Yes	No									
Additional Criterion - must be assessed for all non-acid grassland types												
F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 3 and 5 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	No	No									

Essential criterion for Good condition achieved (for non-acid grassland) (Yes or No)		No	No									
Number of criteria passed		4	3									
Condition Assessment Result	**Condition Assessment Score**	**Score Achieved ×/✓**										
Acid grassland types (Result out of 5 criteria)												
Passes 5 criteria	Good (3)											
Passes 3 or 4 criteria	Moderate (2)											
Passes 2 or fewer criteria	Poor (1)											
Non-acid grassland types (Result out of 6 criteria)												
Passes 5 or 6 criteria, including essential criterion A and additional criterion F.	Good (3)											
Passes 3 - 5 criteria, including essential criterion A.	Moderate (2)	Moderate										
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.	Poor (1)		Poor									

Suggested enhancement interventions to improve condition score

Notes

Footnote 1 - Professional judgement should be used alongside the UKHab description.

Footnote 2 – For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover.

Footnote 3 - Species indicative of suboptimal condition for this habitat type include: creeping thistle *Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , creeping buttercup *Ranunculus repens* , greater plantain *Plantago major* , white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris* . There may be additional relevant species local to the region and or site.

Footnote 4 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement.

Footnote 5 – Wildlife and Countryside Act 1981 (as amended).

Condition Sheet: WOODLAND Habitat Type

UK Habitat Classification (UKHab) Habitat Types

Woodland and forest - Lowland beech and yew woodland
Woodland and forest - Lowland mixed deciduous woodland
Woodland and forest - Native pine woodlands
Woodland and forest - Other coniferous woodland
Woodland and forest - Other Scot's pine woodland
Woodland and forest - Other woodland; broadleaved
Woodland and forest - Other woodland; mixed
Woodland and forest - Upland birchwoods
Woodland and forest - Upland mixed ashwoods
Woodland and forest - Upland oakwood
Woodland and forest - Wet woodland

Habitat Description

ukhab – UK Habitat Classification

This condition sheet is based on the England Woodland Biodiversity Group (EWBG) Woodland Condition Survey Method, available here:

Woodland Wildlife Toolkit (sylva.org.uk)

IMPORTANT: This biodiversity metric woodland condition assessment must be used to assess woodland being input into the biodiversity metric. The outputs of this condition assessment are not equivalent to, nor are they comparable with the scores from the EWBG condition assessment, because the EWBG assessment has been adapted for the biodiversity metric, including the removal of EWBG Indicator 7 (Proportion of favourable land cover around woodland) and Indicator 14 (Size of woodland), and minor changes to other indicators.

On-site or off-site, site name and location	Singleton Birch - on-site	**Survey date and Surveyor name**	July 2025 Beth Mell
Limitations (if applicable)	Limitations on access to survey due to woodland being on a steep embankment adjacent to a busy road.	**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	W1

Condition Assessment Criteria

	Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator	Notes (such as justification)
A	**Age distribution of trees**	Three age-classes[1] present.	Two age-classes[1] present.	One age-class[1] present.	2	
B	**Wild, domestic and feral herbivore damage**	No significant browsing damage evident in woodland[2].	Evidence of significant browsing pressure is present in less than 40% of whole woodland[2].	Evidence of significant browsing pressure is present in 40% or more of whole woodland[2].	3	
C	**Invasive plant species**	No invasive species[3] present in woodland.	Rhododendron *Rhododendron ponticum* or cherry laurel *Prunus laurocerasus* not present, and other invasive species[3] <10% cover.	Rhododendron or cherry laurel present, or other invasive species[3] ≥10% cover.	3	
D	**Number of native tree species**	Five or more native tree or shrub species[4] found across woodland parcel.	Three to four native tree or shrub species[4] found across woodland parcel.	Two or less native tree or shrub species[4] across woodland parcel.	2	

E	**Cover of native tree and shrub species**	>80% of canopy trees and >80% of understory shrubs are native[5].	50 - 80% of canopy trees and 50 - 80% of understory shrubs are native[5].	<50% of canopy trees and <50% of understory shrubs are native[5].	3	
F	**Open space within woodland**	10 - 20% of woodland has areas of temporary open space[6]. Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted[7].	21 - 40% of woodland has areas of temporary open space[6].	<10% or >40% of woodland has areas of temporary open space[6]. But if woodland <10ha has <10% temporary open space, please see Good category[7].	3	
G	**Woodland regeneration**	All three classes present in woodland[8]; trees 4 - 7 cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland[8].	No classes or coppice regrowth present in woodland[8].	2	
H	**Tree health**	Tree mortality 10% or less, no pests or diseases and no crown dieback[9].	11% to 25% tree mortality and or crown dieback or low-risk pest or disease present[9].	Greater than 25% tree mortality and or any high-risk pest or disease present[9].	3	
I	**Vegetation and ground flora**	Recognisable NVC plant community[10] at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community[10] at ground layer present.	No recognisable woodland NVC plant community[10] at ground layer present.	1	
J	**Woodland vertical structure**	Three or more storeys across all survey plots, or a complex woodland[11].	Two storeys across all survey plots[11].	One or less storey across all survey plots[11].	2	
K	**Veteran trees**	Two or more veteran trees[12] per hectare.	One veteran tree[12] per hectare.	No veteran trees[12] present in woodland.	1	
L	**Amount of deadwood**	50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities[13].	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	1	
M	**Woodland disturbance**	No nutrient enrichment or damaged ground evident[14].	Less than 1 hectare in total of nutrient enrichment across woodland area, and or less than 20% of woodland area has damaged ground[14].	1 hectare or more of nutrient enrichment, and or 20% or more of woodland area has damaged ground[14].	3	
				Total Score (out of a possible 39)	29	

Condition Assessment Result	Condition Assessment Score	Result Achieved
Total score >32 (33 to 39)	Good (3)	Moderate
Total score 26 to 32	Moderate (2)	
Total score <26 (13 to 25)	Poor (1)	

Suggested enhancement interventions to improve condition score

Condition sheet: HEDGEROW Habitat Types

Habitat Type

Native hedgerow
Native hedgerow - associated with bank or ditch
Native hedgerow with trees
Native hedgerow with trees - associated with bank or ditch
Species-rich native hedgerow
Species-rich native hedgerow - associated with bank or ditch
Species-rich native hedgerow with trees
Species-rich native hedgerow with trees - associated with bank or ditch

Habitat Description

ukhab – UK Habitat Classification

On-site or off-site, site name and location	Singleton Birch - on-site	**Survey date and Surveyor name**	August and September 2025 - Beth Mell
Limitations (if applicable)	Safe access to H1 was not possible due to the hedgerow being on a road verge. Survey of H1 was done using aerial	**Survey reference (if relating to a wider survey)**	H1, H2, H3

Condition Assessment Details

A series of ten attributes, representing key physical characteristics are used for this assessment. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.

This assessment is based on the Hedgerow Survey Handbook[1] and Favourable Conservation Status document[2]. For further clarification please refer to the Hedgerow Survey Handbook.

Best practice would be to record the species, age, spacing and other key information about all trees present along a hedgerow within the 'Habitat Description' box, as well as other key features of the hedgerow.

Hedgerow favourable condition attributes

			Habitat parcel reference	

Attributes and functional groupings (A, B, C, D and E)		Criteria - the minimum requirements for 'favourable condition'	Criteria description	H1	H2	H3								
				Grid reference										
Core groups - applicable to all hedgerow types				**Criterion passed (Yes or No)**										**Notes (such as justification)**
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. 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). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	No	Yes	Yes								
A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn *Prunus spinosa* suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	No	Yes	Yes								

B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	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 (see page 65 of the Hedgerow Survey Handbook).	Yes	Yes	Yes								
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). 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).	No	Yes	Yes								
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow 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.	No	No	No								

C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles *Urtica* spp., cleavers *Galium aparine* and docks *Rumex* spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	No	No	No								
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA[3]) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website[4], as well as the BSBI website[5] where the 'Online Atlas of the British and Irish Flora'[6] contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website[7].	Yes	No	Yes								
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (for example, excessive hedgerow cutting).	Yes	Yes	Yes								
Additional group - applicable to hedgerows with trees only														

E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient[8]), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.												
E2.	Tree health	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.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.												

The hedgerow condition assessment generates a weighting (score) ranging from 1 - 3, which is used within the Statutory Biodiversity Metric. The scores for each are set out in the tables below.

Condition categories for hedgerows without trees		
Category	**Category Requirements**	**Metric Score**
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 4 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and C2 = Moderate condition).	2
Poor	Fails a total of more than 4 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1
	Score achieved:	

Condition categories for hedgerows with trees		
Category	**Category Requirements**	**Metric score**
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 5 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1, C2 and E1 = Moderate condition).	2
Poor	Fails a total of more than 5 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1
	Score achieved:	

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)													
UK Habitat Classification (UKHab) Habitat Type													
Grassland - Modified grassland													
Habitat Description													
ukhab – UK Habitat Classification													
On-site or off-site, site name and location	Singleton Birch - on-site	**Survey date and Surveyor name**	August 2025 - Martin Brammah (MG1) September 2025 - Beth Mell (MG2)										
		Survey reference (if relating to a wider survey)											
Limitations (if applicable)		**Habitat parcel reference**											
		MG1	MG2										
		Grid reference											

	Condition Assessment Criteria	**Criterion passed (Yes or No)**										**Notes (such as justification)**
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m^2 (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	No	Yes									
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	No	Yes									
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Yes	No									
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Yes	No									
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)[2].	Yes	Yes									
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Yes	Yes									
G	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]).	Yes	Yes									
	Essential criterion achieved (Yes or No)	No	Yes									
	Number of criteria passed	5	5									

Condition Assessment Result (out of 7 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**									
Passes 6 or 7 criteria including passing essential criterion A	Good (3)										
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)		Moderate								
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)	Poor									

Condition Sheet: URBAN Habitat Type

Habitat Types

Sparsely vegetated land - Ruderal/Ephemeral
Sparsely vegetated land - Tall forbs
Urban - Allotments
Urban - Biodiverse green roof
Urban - Bioswale
Urban - Cemeteries and churchyards
Urban - Facade-bound green wall
Urban - Ground based green wall
Urban - Intensive green roof
Urban - Open mosaic habitats on previously developed land
Urban - Rain garden
Urban - Sustainable drainage system (SuDS)
Urban - Vacant or derelict land
Urban - Bare ground

Habitat Description

See the Statutory Biodiversity Metric User Guide for green roofs, and UK Habitat Classification (UKHab) for other habitats:			ukhab – UK Habitat Classification									
On-site or off-site, site name and location	Singleton Birch - on-site	**Survey date and Surveyor name**	July 2025 Beth Mell (u1f 10, u1f 16) August 2025 Martin Brammah (u1 838 16)									
		Survey reference (if relating to a wider survey)										
Limitations (if applicable)	Limitations on assessment of u1f 10 due to chalky residue on habitat adjacent to operational lime kilns.	**Habitat parcel reference**										
		u1 838 16	u1f 16	u1f 10								
		Grid reference										
Condition Assessment Criteria												
		Criterion passed (Yes or No)										**Notes (such as justification)**
Core Criteria - must be assessed for **all urban habitat types**:												
A	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.	Fail	Fail	Pass								
B	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.	Pass	Fail	Fail								
C	Invasive non-native plant species (listed on Schedule 9 of WCA[1]) and others which are to the detriment of native wildlife (using professional judgement)[2] cover less than 5% of the total vegetated area[3]. **Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).**	Pass	Pass	Fail								
Additional Criterion - must be assessed for **Open mosaic habitat on previously developed land** only:												
D	The parcel shows spatial variation and forms a mosaic of bare substrate PLUS: - At least four early successional communities (a) to (i); Communities: (a) annuals; (b) mosses/liverworts; (c) lichens; (d) ruderals; (e) inundation species; (f) open grassland; (g) flower-rich grassland; (h) heathland, (i) pools.											
Additional Criteria - must be assessed for **Bioswale and SuDS** habitat types only:												
E1	Plant species are mostly native. If non-native species are present, they should not be detrimental to the habitat or native wildlife[4].											
E2	The vegetation is comprised of plant species suited to wetland or riparian situations.											
Additional Criterion - must be assessed for **Intensive green roofs** only:												
F	The roof has a minimum of 50% native and non-native wildflowers. 70% of the roof area is soil and vegetation (including water features).											
Additional Criterion - must be assessed for **Biodiverse green roofs** only:												

G	The roof has a varied depth of 80 – 150 mm; at least 50% is at 150 mm and is planted and seeded with wildflowers and sedums or is pre-prepared with sedums and wildflowers. **Note – to achieve Good condition, some additional habitat, such as sand piles, stones, logs etc. are present.**												
Essential criteria relevant for habitat type achieved (Yes or No)		Yes	Yes	No									
Number of criteria passed		2	1	1									
Condition Assessment Result	**Condition Assessment Score**	**Score Achieved ×/✓**											
Results for habitats requiring assessment of **3 core criteria** only **(all listed urban habitats except Open mosaic habitat on previously developed land, Bioswale, SuDS and Green roofs)**:													
• Passes all 3 core criteria; AND • Meets the requirements for Good condition within criterion C.	Good (3)												
• Passes 2 of 3 core criteria; OR • Passes 3 of 3 core criteria but does not meet the requirements for Good condition within criterion C.	Moderate (2)	Moderate											
• Passes 0 or 1 of 3 core criteria.	Poor (1)		Poor	Poor									
Results for **Green roofs** and **Open mosaic habitat on previously developed land** (requiring assessment of **4 criteria** only - core criteria plus additional criterion specified for habitat type):													
• Passes all 3 core criteria; AND • Meets the requirements for Good condition within criterion C; AND • Passes additional criterion relevant to specific habitat type (D, F or G).	Good (3)												
• Passes 2 or 3 of 4 criteria; OR • Passes 4 of 4 criteria but does not meet the requirements for Good condition within criterion C.	Moderate (2)												
• Passes 0 or 1 of 4 criteria.	Poor (1)												
Results for **Bioswale or SuDS** (requiring assessment of **5 criteria** - core criteria plus additional criteria specified for habitat type):													
• Passes all 3 core criteria; AND • Meets the requirements for Good condition within criterion C; AND • Passes all additional criteria relevant to specific habitat type (Group E)	Good (3)												
• Passes 3 or 4 of 5 criteria; OR • Passes 5 of 5 criteria but does not meet the requirements for Good condition within criterion C.	Moderate (2)												
• Passes 2 or fewer of 5 criteria.	Poor (1)												
Suggested enhancement interventions to improve condition score													
Footnotes													

Condition Sheet: INDIVIDUAL TREES Habitat Type

Habitat Types

Individual trees – Urban trees
Individual trees – Rural trees
Complete a condition sheet for each tree or block of trees.

Please see the separate Line of trees condition sheet for a line of rural trees. You should only use the Line of trees condition assessment and record that habitat type in rural locations.

Habitat Description

Individual trees (description applied to the urban or rural environment):
Young trees over 7.5 cm in diameter at breast height whose canopies are not touching.

Urban Perimeter / Linear Blocks and Groups (description applied to the urban environment only):
Groups or stands of trees (size requirement as defined above) within and around the perimeter of urban land. This includes those along urban streets, highways, railways and canals, and also former field boundary trees incorporated into developments. Canopies should predominantly overlap continuously. Groups of urban trees that don't match the descriptions for woodland may be assessed within this category.

On-site or off-site, site name and location	Singleton Birch - on-site	**Survey date and Surveyor name**	August 2025 - Beth Mell
		Survey reference (if relating to a wider survey)	
Limitations (if applicable)		**Habitat parcel reference**	RT1
		Grid reference	

	Condition Assessment Criteria	**Criterion passed (Yes or No)**	**Notes (such as justification)**
A	The tree is a native species (or at least 70% within the block are native species).	No	
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Yes	
C	The tree is mature (or more than 50% within the block are mature)[1].	No	
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Yes	
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	Yes	
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Yes	
	Number of criteria passed	4	

Condition Assessment Result (out of 6 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 5 or 6 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	M
Passes 2 or fewer criteria	Poor (1)	

Note that 'Fairly Good and Fairly Poor' condition categories are not available for this broad habitat type.

Suggested enhancement interventions to improve condition score[2]

Appendix B – Plant Species Lists

Urban – disused quarry with tall forbs (u1 838 16)

Common Name	Scientific Name
Perennial rye-grass	*Lolium perenne*
White clover	*Trifolium repens*
Weld	*Reseda luteola*
Scentless mayweed	*Tripleurospermum inodorum*
Narrow-leaved ragwort	*Senecio inaequidens*
Ribwort plantain	*Plantago lanceolata*
Teasel	*Dipsacus fullonum*
Bristly oxtongue	*Helminthotheca echioides*
Yorkshire fog	*Holcus lanatus*
Spear thistle	*Cirsium vulgare*
Black medick	*Medicago lupulina*
Viper's bugloss	*Echium vulgare*
Greater plantain	*Plantago major*
Creeping thistle	*Cirsium arvense*
Broadleaved dock	*Rumex acetosa*
Great willowherb	*Epilobium hirsutum*
Common fleabane	*Pulicaria dysenterica*
Canadian fleabane	*Conyza canadensis*
Hoary willowherb	*Epilobium parviflorum*
Creeping buttercup	*Rancunculus repens*
Tufted hair grass	*Deschampsia cespitosa*
Prickly sowthistle	*Sonchus asper*
Selfheal	*Prunella vulgaris*
Water figwort	*Scrophularia auriculata*
Sycamore	*Acer pseudoplatanus*
Dandelion	*Taraxacum agg. sp.*
Red bartsia	*Odontites vernus*
Common vetch	*Vicia sativa*
Butterfly-bush	*Buddleja davidii*
Bramble	*Rubus fruticosus*
Red clover	*Trifolium pratense*
Autumn hawkbit	*Scorzoneroides autumnalis*
Prickly lettuce	*Lactuca serriola*
Colt's foot	*Tussilago farfara*
Bulbous buttercup	*Ranunculus bulbosus*
Smooth sow-thistle	*Sonchus oleraceus*
Mugwort	*Artemisia vulgaris*
Perforate St John's-wort	*Hypericum perforatum*
Comfrey	*Symphytum officinale*

Common Name	Scientific Name
Tall fescue	*Lolium arundinaceum*
Verbena	*Verbena officinalis*
Wild mignonette	*Reseda lutea*

Sparsely vegetated urban land with tall forbs (u1f 16)

Common Name	Scientific Name
Weld	*Reseda luteola*
Scentless mayweed	*Tripleurospermum inodorum*
Narrow-leaved ragwort	*Senecio inaequidens*
Ribwort plantain	*Plantago lanceolata*
Hairy buttercup	*Ranunculus sardous*
Willowherb sp.	*Epilobium* sp.
Teasel	*Dipsacus fullonum*
Bristly oxtongue	*Helminthotheca echioides*
Yorkshire fog	*Holcus lanatus*
Spear thistle	*Cirsium vulgare*
Creeping cinquefoil	*Potentilla reptans*
Black medick	*Medicago lupulina*
Creeping bent	*Agrostis stolonifera*
Viper's bugloss	*Echium vulgare*
Mullein	*Verbascum thapsus*
Common chicory	*Cichorium intybus*

Modified grassland (g4)

Common Name	Scientific Name	Parcel
Perennial rye-grass	*Lolium perenne*	MG1
White clover	*Trifolium repens*	MG1
Creeping bent	*Agrostis stolonifera*	MG1
Bulbous buttercup	*Ranunculus bulbosus*	MG1
False oat grass	*Arrhenatherum elatius*	MG2
Common bent	*Agrostis capillaris*	MG1
Timothy	*Phleum pratense*	MG1
Hard rush	*Juncus inflexus*	MG1
Dock sp.	*Rumex* sp.	MG1
Cock's-foot	*Dactylis glomerata*	MG2
Common couch	*Elymus repens*	MG1
Pendulous sedge	*Carex pendula*	MG1
Hedge bindweed	*Calystegia sepium*	MG1
Narrow-leaved ragwort	*Senecio inaequidens*	MG1

Common Name	Scientific Name	Parcel
Yorkshire fog	*Holcus lanatus*	MG1
Tufted hair grass	*Deschampsia cespitosa*	MG1
Dandelion	*Taraxacum agg. sp.*	MG1
Bramble	*Rubus fruticosus*	MG2
Smooth sow-thistle	*Sonchus oleraceus*	MG1
Field bindweed	*Convolvulus arvensis*	MG2
Common nettle	*Urtica dioica*	MG2
Ground ivy	*Glechoma hederacea*	MG2

Other neutral grassland (g3c)

Common Name	Scientific Name	Parcel
Perennial rye-grass	*Lolium perenne*	ONG1
White clover	*Trifolium repens*	ONG1, ONG2
Ribwort plantain	*Plantago lanceolata*	ONG1
Bristly oxtongue	*Helminthotheca echioides*	ONG1
Yorkshire fog	*Holcus lanatus*	ONG1, ONG2
Black medick	*Medicago lupulina*	ONG1
Creeping thistle	*Cirsium arvense*	ONG1
Broadleaved dock	*Rumex acetosa*	ONG1, ONG2
Creeping buttercup	*Rancunculus repens*	ONG1, ONG2
Dandelion	*Taraxacum agg. sp.*	ONG1
Red bartsia	*Odontites vernus*	ONG1
Common vetch	*Vicia sativa*	ONG1
Bramble	*Rubus fruticosus*	ONG1
Red clover	*Trifolium pratense*	ONG1
Colt's foot	*Tussilago farfara*	ONG1
Bulbous buttercup	*Ranunculus bulbosus*	ONG1
Mugwort	*Artemisia vulgaris*	ONG1
Creeping bent	*Agrostis stolonifera*	ONG1, ONG2
Cock's-foot	*Dactylis glomerata*	ONG1
Hedge bindweed	*Calystegia sepium*	ONG1
Ox-eye daisy	*Leucanthemum vulgare*	ONG1
Dock sp.	*Rumex* sp.	ONG1
Wild carrot	*Daucus carota*	ONG1
Common ragwort	*Senecio jacobeae*	ONG1
Clustered dock	*Rumex conglomeratus*	ONG1
False oat grass	*Arrhenatherum elatius*	ONG1, ONG2
Knotgrass	*Polygonum aviculare*	ONG2
Soft rush	*Juncus effusus*	ONG2
Common bent	*Agrostis capillaris*	ONG2
Tufted hair grass	*Deschampsia cespitosa*	ONG2

Common Name	Scientific Name	Parcel
Curled dock	*Rumex crispus*	ONG2
Timothy	*Phleum pratense*	ONG2
Thistle sp.	*Cirsium* sp.	ONG2
Narrow leaved ragwort	*Senecio inaequidens*	ONG2
Willowherb sp.	*Epilobium* sp.	ONG2

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Appendix C – NVC Results

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Site name	Singleton Birch
Date	01-Aug-25
Surveyors	Martin Brammah
Weather	

Grid ref	
Q1	
Q2	
Q3	
Q4	
Q5	

Domin	% cover
10	91-100
9	76-90
8	51-75
7	34-50
6	26-33
5	11-25
4	4-10
3	Many individuals
2	Several individuals
1	Few individuals

Common name	Latin name	Domin % cover					Notes
		Q1	Q2	Q3	Q4	Q5	
Creeping bent	Agrostis stolonifera	9	9	9	9	9	
White clover	Trifolium repens	3					
Greater willowherb	Epilobium hirsutum	1		2			
Bulbous buttercup	Rancunuculus bulbosus	4				1	
Bramble	Rubus fruticosus	1		2	1		
Dandelion	Taraxacum	1					
False oat grass	Arrhenatherum elatius	1					
Yorkshire fog	Holcus lanatus	4		1	3		
Common bent	Agrostis capillaris	1				7	
Smooth sowthistle	Sonchus oleraceus	1					
Timothy	Phleum pratense		5		3	2	
Hard rush	Juncus inflexus			1	1		
Tufted hair grass	Deschampsia cespitosa			2	1		
Dock sp.	Rumex sp.			2			Dessicated
Cock's-foot	Dactylis glomerata				1		
Perennial rye-grass	Lolium perenne				2		
Common couch	Elymus repens				1		
Pendulous sedge	Carex pendula				1		
Narrow leaved ragwort	Senecio inaequidens				1		
Hedge bindweed	Calystegia sepium				1		

Site name	Singleton Birch
Date	01-Aug-25
Surveyors	Martin Brammah
Weather	

Grid ref	
Q1	
Q2	
Q3	
Q4	
Q5	

Domin	% cover
10	91-100
9	76-90
8	51-75
7	34-50
6	26-33
5	11-25
4	4-10
3	Many individuals
2	Several individuals
1	Few individuals

Common name	Latin name	Domin % cover					Notes
		Q6	Q7	Q8	Q9	Q10	
Creeping bent	Agrostis stolonifera	4	6	2	2	3	
White clover	Trifolium repens		1			1	
Greater willowherb	Epilobium hirsutum	1			1	1	
Bulbous buttercup	Rancunuculus bulbosus				1		
Bramble	Rubus fruticosus			1			
Dandelion	Taraxacum		1				
Yorkshire fog	Holcus lanatus				2	1	
Smooth sowthistle	Sonchus oleraceus					1	
Tufted hair grass	Deschampsia cespitosa	1	1		1		
Perennial rye-grass	Lolium perenne		1	1	2	1	
Narrow leaved ragwort	Senecio inaequidens		1				
Teasel	Dipsacus fullonum	1	2	1			
Greater plantain	Plantago major	3	1	1	2	2	
Ribwort plantain	Plantago lanceolata	1	2				
Creeping thistle	Cirsium arvense	1	1	2	1	1	
Bristly oxtongue	Helminthotheca echioides	3	2	2		2	
Broadleaved dock	Rumex acetosa	3	1				
Common fleabane	Pulicaria dysenterica		2	1			
Hoary willowherb	Epilobium parviflorum	1		1	1		
Black medick	Medicago lupulina	2	1	2		1	
Scentless mayweed	Tripleurospermum inodorun	1	1	1	1	1	
Creeping buttercup	Ranunculus repens	3	1	1	3		
Prickly sowthistle	Sonchus asper	1	1		3		
Viper's bugloss	Echium vulgare	1					
Water figwort	Scrophularia auriculata	2		1			
Selfheal	Prunella vulgaris	1		1		1	
Sycamore	Acer psuedoplatanus		2				Seedlings
Spear thistle	Cirsium vulgare		1		1		
Red bartsia	Odontites vernus		1				
Common vetch	Vicia sativa		1				Dried out
Butterfly bush	Buddleja davidii			1	1		
Red clover	Trifolium arvense			1			
Autumn hawkbit	Scorzoneroides autumnalis			3		1	
Common ragwort	Senecio jacobeae				1		
Prickly lettuce	Lactuca serriola				1		
Canadian fleabane	Conyza canadensis	2					
Colt's foot	Tussilago farfara				1		
Mugwort	Artemisia vulgaris					1	

Site name	Singleton Birch
Date	01/08/2025
Surveyors	Martin Brammah
Weather	

Grid ref	
Q1	
Q2	
Q3	
Q4	
Q5	

Domin	% cover
10	91-100
9	76-90
8	51-75
7	34-50
6	26-33
5	11-25
4	4-10
3	Many individuals
2	Several individuals
1	Few individuals

Common name	Latin name	Domin % cover					Notes
		Q11	Q12	Q13	Q14	Q15	
Creeping bent	Agrostis stolonifera	9	9	4	8	8	
White clover	Trifolium repens	2	3	6			
Bulbous buttercup	Rancunuculus bulbosus			1	3	2	
Bramble	Rubus fruticosus		1				
Dandelion	Taraxacum	1	1				
Yorkshire fog	Holcus lanatus	1	4	9	6	6	
Perennial rye-grass	Lolium perenne			2	3		
Ribwort plantain	Plantago lanceolata	2	3		3	3	
Creeping thistle	Cirsium arvense	1	2	1	1	2	
Bristly oxtongue	Helminthotheca echioides		1				
Broadleaved dock	Rumex acetosa				1		
Black medick	Medicago lupulina	3	7		2	2	
Creeping buttercup	Ranunculus repens	2	2		4		
Red bartsia	Odontites vernus	1	2		3		
Common vetch	Vicia sativa	3			2		
Common ragwort	Senecio jacobeae		1				
Colt's foot	Tussilago farfara	1	1			1	
Mugwort	Artemisia vulgaris			1			
Cock's foot	Dactylis glomerata	1		3	1	2	
Hedge bindweed	Calystegia sepium	1			3	3	
Ox-eye daisy	Leucanthemum vulgare	1					
Dock sp.	Rumex sp.	1					Dry
Wild carrot	Daucus carota		1				
Clustered dock	Rumex conglomeratus			1	1	2	
False oat grass	Arrhenatherum elatius					2	