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INDUSTRIA BRAND ENERGY LTD

KIRKBY SOLAR

PRELIMINARY ECOLOGICAL APPRAISAL

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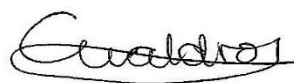
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DECEMBER 2024

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- Appendix 1 Legislation Summary
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Appendix 3 Table of hedgerows on site

DRAWINGS	TITLE	SCALE
LD11099/003	Site Location Plan	1:25,000
LD11099/004	Waterbody Location Plan	1:10,000
LD11099/005	Habitat Plan	1:7,500
LD11099/007	Target Note Location Plan	1:7,500
LD11099/008	Local Conservation Sites	1:25,000

EXECUTIVE SUMMARY

Wardell Armstrong LLP (WA) was commissioned by Industria Brand Energy LTD to undertake a Preliminary Ecological Appraisal (PEA) in support of a proposed solar farm at New Cut Farm Cut Lane, Kirkby, Liverpool. The Site is predominantly composed of arable land, with peaty topsoil. There are two parcels of land, the larger of which lies to the north of Cut Lane with a much smaller parcel to the south. There is a wind turbine placed centrally within the northern land parcel. The northern land parcel also contains two local Wildlife Sites (LWS), which include degraded raised bog (Mossland West of Johnsons Cottage, LWS) and dense broadleaved woodland (Moss Plantation and Brown Birches LWS).

The following conservation sites, habitats, and species (receptors) have been evaluated as being subject to potential adverse effects (constraints) in the absence of mitigation and/or further survey or assessment:¹:

- Non statutory designated sites (Local Wildlife Sites): Charley Wood, Moss Plantation and Brown Birches, Mossborough Moss woodland and land, Brown Birches, and Mosslands, West of Johnsons Cottage LWS);
- NERC² Section 41 (s.41) Priority habitats: Lowland Mixed Deciduous Woodland, Native Hedgerows, Ponds and Degraded Raised Bog;
- Protected Species: Badger, Bats, Breeding and Wintering Birds, Great Crested Newt and other amphibians, and Water Vole; and
- Invasive Non-native Species.

Additional ecology assessments, surveys and pre-construction checks are recommended as necessary to fully inform the planning application:

- Pre-construction surveys for badger setts;
- Presence/absence surveys for Great Crested Newt;
- National Vegetation Classification (NVC) Survey;
- Breeding bird surveys; and
- Wintering bird surveys.

Regarding Biodiversity Net Gain, a Biodiversity Statement will be required to accompany the planning submission. In the event that 'significant' biodiversity enhancement on site or off site measures are required, a Habitat Management and Monitoring Plan (HMMP) and s.106 agreement will also be required. Other mandatory BNG requirements include digital mapping

¹ Note: the Preliminary Ecological Appraisal Report provides an overview of likely effects and therefore may not be sufficient to support a planning application on its own. Specialist surveys may be required to fully investigate effects and/or to support an Ecological Impact Assessment (EcIA).

² As defined under Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006.

showing baseline and post intervention habitats and the completed Statutory Metric. Although these measures may not be required until after consent is granted, it is recommended that details are provided early in the planning process for full transparency. Opportunities for ecological enhancements are set out in section 5 of this report.

In conclusion, given the identified evidence of presence and/or likely presence of ecological constraints, further surveys and/or assessments are required to inform a full evaluation of adverse effects. The results of further protected species surveys and evaluations may need to be considered within an Ecological Impact Assessment (EclA) report, in line with standard industry practice (CIEEM 2018, updated 2022). This report should include a formal assessment of impacts and will be suitable to fully inform the planning application.

This report is valid for 18 months from the date the habitat survey was undertaken.

1 INTRODUCTION

1.1 Terms of Reference

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Industria Brand Energy Ltd in October 2024 to undertake a Preliminary Ecological Appraisal (PEA) in support of a proposed solar development at New Cut Farm. The project is located at Cut Lane, Kirkby, Liverpool, L33 3AH, centred on approximate National Grid Reference (NGR) SJ 45249 98107.

1.1.2 This report has been produced with reference to current guidelines for UK Habitat (UKHAB) Classification V2 (UKHab, 2023), Guidelines for Preliminary Ecological Appraisal (CIEEM 2017³) and Biodiversity – Code of Practice for Planning and Development (BSI 2013⁴).

1.2 Scope of Report

1.2.1 The purpose of the PEA is in broad terms to undertake the following:

- Identify and report to the project team the likely ecological constraints associated with a project, such that the site design can adequately take account of ecological features;
- Identify any mitigation measures likely to be required, following the ‘Mitigation Hierarchy’⁵;
- Identify any additional surveys that may be required to inform an Ecological Impact Assessment (EcIA); and
- Identify the opportunities offered by a project to deliver ecological enhancement.

1.2.2 Certain species, habitats and nature conservation sites receive legislative protection which is detailed fully within Appendix 1. Other species/groups and habitats are notable due to their identification in national and/or local planning policy or via local records. An indicative assessment of potential adverse effects to such receptors is provided, although this is not a substitute for full EcIA (CIEEM 2018) which may be

³ Chartered Institute of Ecology and Environmental Management (CIEEM 2017).

⁴ British Standard BS 42020:2013 (BSI 2013).

⁵ As defined in BS 42020:2013 (BSI 2013).

required to fully inform any subsequent planning application along with additional surveys and assessments.

- 1.2.3 Provisional mitigation and enhancement opportunities are also discussed, where appropriate.
- 1.2.4 Biodiversity Net Gain (BNG) requirements are briefly highlighted in this report although separate reports with parallel BNG assessments will be provided in due course. It is anticipated that such assessments will contribute towards an iterative design process and hence will need to be updated sequentially until a final BNG report or Biodiversity Gain Plan is provided to support the planning application. The mitigation, compensation and enhancement recommendations made in the final sections of this report may contribute towards the overall assessment of BNG but may be superseded by specific requirements arising from the BNG assessment process.

1.3 Site Context

- 1.3.1 The site is situated in Kirkby as shown on Drawing Number LD11099/003 (Site Location Plan).
- 1.3.2 The planning application area is located entirely within the administrative boundaries of Knowsley Metropolitan Borough Council (KMBC), covering approximately 64 hectares (henceforth known as the Application Site). The study site (the Site) includes all land within the Application Site plus additional land 50m from the site boundary, where accessible. The site is intersected within the south by Cut Lane and is bounded to the east by New Cut Lane. The town of Kirkby lies to the near west, with the towns of Prescot and St Helens to the south and east respectively. Agricultural land dominates the wider landscape.

1.4 Description of Development

- 1.4.1 The Proposed Development comprises the installation of ground mounted Photo Voltaic (PV) panels to generate renewable electricity on land within the red line boundary of the site. It is anticipated that the development will involve arrays of ground mounted photo-voltaic (PV) panels, access tracks, a sub-station building and perimeter fencing.
- 1.4.2 For the purposes of this report, it is anticipated that the solar panels will avoid all structures, watercourses, boundary hedgerows, woodlands and Local Wildlife Sites.

1.5 National Planning Policy Framework (NPPF)

- 1.5.1 The NPPF⁶ requires the Planning Authority to have a responsibility to promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan. In addition, the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological that are more resilient to current and future pressures.

⁶ <https://www.gov.uk/government/publications/national-planning-policy-framework--2> (last updated 20/07/2021).

2 METHODOLOGY

2.1 Desk Study

2.1.1 The desk study was informed by review of existing available information provided by Merseyside Biobank (BioBank), Lancashire Environment Records Network (LERN), the South Lancashire Bat Group, and from available internet-based resources for a 2km search radius from the Site boundary. The search area was extended to 5km for bats and. Ordnance Survey (OS) and satellite mapping was also used to gain contextual habitat information.

2.1.2 Specific information was sought for:

- Statutory designated sites⁷;
- Locally designated sites;
- Ancient woodland⁸;
- Protected and priority species;
- Priority (s.41) Habitats and Species⁹;
- Local Biodiversity Action Plan (LBAP) priority habitats and species.

2.1.3 The ecological desk study was carried out by a competent Ecologist who is a qualifying member of CIEEM and has undertaken numerous ecological desk studies within the last 3 years.

2.2 Extended UKHab Classification Survey

2.2.1 WA carried out a UK Habitat Classification Survey (UKHab, 2023) of the Site on 23rd October 2024. The survey was carried out by experienced WA ecologists who are both Qualifying members of CIEEM and have undertaken numerous ecological surveys within the last 3 years.

⁷ Locations provided by MAGIC <http://magic.defra.gov.uk/MagicMap.aspx>

⁸ As defined by Natural England in their Inventory of Ancient Woodlands
http://www.gis.naturalengland.org.uk/pubs/gis/tech_aw.htm

⁹ As defined under Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006.

- 2.2.2 The survey followed the 'UK Habitat Classification Version 2' (UKHab, 2023) methodology with each of the main habitats classified according to the relevant criteria including vegetation composition expressed according to the DAFOR¹⁰ system.
- 2.2.3 In addition to the mapping and description of habitats, the survey was 'extended' to include the incidental observations of protected and/or notable species and the potential for such species to occur on Site (and in the surrounding landscape where relevant) were also recorded onto secure digital media for mapping and data collection. The extended element of the survey was based on professional judgement.
- 2.2.4 Specific habitats are mapped on Drawing Number LD11099/005 (Habitat Plan) but additional features or constraints that were discovered during the PEA survey can be found marked as target notes (TN1-TN11) on drawing LD11099/007 and are referred to within the report.
- 2.2.5 Information was also collected on any additional features found on site. These were given target note reference numbers, and their location plotted on Drawing Number LD11099/007 (Target Note Location Plan). Individual target notes and the implications are discussed and referred to throughout the report.

2.3 Evaluation and Assessment of Features

- 2.3.1 Evaluation of the importance / likely importance of ecological features and the likelihood of impacts affecting important features was made, where possible, using professional judgement in accordance with published guidance (CIEEM 2017).
- 2.3.2 Protected and s.41 species were evaluated in order to identify potential adverse effects in Table 2, based on the following criteria:
- Desk study records;
 - Evidence found during the survey;
 - Presence, extent, quality and viability of suitable on-site habitat;
 - Ecological connectivity to viable off-site habitats; and
 - Perceived impacts of habitat loss/impact to individuals in relation to proposals.
- 2.3.3 A 'traffic light' system is used in Tables 1, 2 and 3 to highlight potential constraints and opportunities whereby:

¹⁰ D = dominant, A = abundant, F = frequent, O = occasional, R = Rare

- **Green:** No constraint or limited constraint unlikely to be of planning and/or legal significance.
- **Amber:** Potential constraints which require further survey and/or mitigation and may be of planning and/or legal significance depending on the outcome of further survey/assessment.
- **Red:** Constraints which have already been identified by the PEA survey/desk-based assessment and are likely to be of planning and/or legal significance.

2.4 Nomenclature

- 2.4.1 Vascular plant names follow ‘*New Flora of the British Isles*’ (Stace 2019) with vernacular names as provided in the Botanical Society of the British Isles website (BSBI, 2013)¹¹. All other flora and fauna names following the National Biodiversity Network (NBN) Atlas (NBN Atlas Partnership, 2021). The common and scientific name of species/taxa is provided (if available) when first mentioned in the text, with only the vernacular name referred to thereafter.

2.5 Limitations / Deviations

- 2.5.1 Ecological surveys are limited by factors that affect the presence of plants and animals such as time of year, weather, migration patterns and behaviour. The survey was undertaken in October which is outside the optimum recommended April – August, survey period for habitat surveys, and therefore the habitat classifications is considered to be provisional at this stage. It is anticipated that an update habitat and vegetation survey will be undertaken to confirm habitats within the optimal window to support the application. This report is not designed, nor is it required to present a complete inventory of flora/fauna.
- 2.5.2 The absence of desk study records is not relied upon to determine absence of a particular species/habitat. Often, the absence of records is a result of under-recording within the given search area and as such the experience of the ecologist concerned together with a range of additional factors, in particular the presence/absence of potentially supporting habitat; is used to infer likely presence/absence of ecological receptors.

2.6 Quality Assurance & Environmental Management

¹¹ <http://rbg-web2.rbge.org.uk/BSBI/intro.php>

- 2.6.1 The surveys and assessments have been overseen by and the report checked and verified by a full member of CIEEM, who is bound by its code of professional conduct. All surveys and assessments have been undertaken with reference to the recommendations given in British Standard BS 42020, and as stated within specialist guidance, as appropriate and referenced separately.

3 RESULTS AND EVALUATION

3.1 Statutory and Non-Statutory Designated Sites

- 3.1.1 Desk study results for designated sites are evaluated in Table 1, below.
- 3.1.2 Designated sites which are considered potentially sensitive to the development proposals by virtue of their supported species or habitat assemblages, the distance/ecological connectivity to the Site and the nature of the perceived impacts are discussed in detail in the final sections of the report.
- 3.1.3 Designations for which potential adverse effects are not anticipated are excluded from further assessment.

Table 1: Designated Sites Evaluation			
Site Name and Status¹²	Distance and direction from Site	Reason for Designation/identification	Potential Constraints
Acornfield Plantation LNR	910m west	Predominantly mature broadleaf woodland of birch, oak and sycamore. The centre of the site has a lowland basin mire dominated by sphagnum moss and soft rush. Other habitats include a pond, stream, drainage channels, acidic and neutral grasslands, bracken and rhododendron thickets.	The site lies outside the designated area (all infrastructure will be at least 900m distant). No direct impacts to habitats shall occur as a result of the proposed development. The site is not ecologically connected to the designated area.
Brown Birches LWS	Immediately adjacent	A mixed deciduous and coniferous plantation. This woodland is an important site for both breeding birds and red squirrels.	The site is predominantly adjacent to the LWS, with some overlap expected at the borders of the designation/site. Temporary short-term disturbance impacts may be expected during the construction phase (i.e. sound/and accidental pollution. Access requirements would have to be carefully considered to avoid any vegetation removal within the LWS.
Charley Wood LWS	950m west	A woodland dominated by broadleaf trees on acid peat soils. There is much variation in tree and shrub cover with large glades apparent. Rhododendron has been planted and is thriving. Invertebrate interest is high.	The site lies outside the designated area (all infrastructure will be at least 950m distant). No direct impacts to habitats shall occur as a result of the proposed development. The site is, however ecologically connected to the designated area via a stream running east/west between the site and LWS. Impacts could include spread of invasive species and accidental pollution/sediment release during the construction phase.
Emma Wood LWS	930m east	A mixed deciduous and coniferous plantation containing a number regionally and locally important habitats as well as English Bluebell. The woodland is an important site for breeding birds.	The site lies outside the designated area (all infrastructure will be at least 930m distant). No direct impacts to habitats shall occur as a result of the proposed development. The site is not ecologically connected to the designated area.

¹² **SPA** – Specially Protected Area, **SAC** – Special Area for Conservation, **Ramsar** – site designated under the Ramsar Convention, **SSSI** – Site of Special Scientific Interest, **NNR** – National Nature Reserve, **LNR** – Local Nature Reserve.

Table 1: Designated Sites Evaluation			
Site Name and Status¹²	Distance and direction from Site	Reason for Designation/identification	Potential Constraints
Knowsley Park LWS	230m south	Ancient parkland and estate on a mix of acidic(peat) and neutral soils with sandstone exposures along the brooks. Much coniferous planting has taken place although several of the woodlands contain plants indicative of ancient semi-natural woodland. Other habitats include dams with open water, acidic grassland, remnant heath and mire. The Park also has populations of bats and other protected species.	The site lies outside the designated area (all infrastructure will be at least 200m distant). No direct impacts to habitats shall occur as a result of the proposed development. The site is not ecologically connected to the designated area due to the presence of the A580 road which separates the site from the LWS.
Moss Plantation and Brown Birches LWS	On Site	A coniferous plantation on peat with much rhododendron and relict raised bog vegetation.	The LWS is within the RLB although it will be retained and not be subject to direct adverse effects. Temporary short-term impacts are to be expected during the construction phase including noise disturbance and potential impacts to tree root protection areas.
Mossborough Moss woodland and land LWS	100m east	A mixed plantation with Scots Pine and an understorey of Rhododendron. The woodland is an important breeding site for woodland birds.	The Site is within 100m of the LWS. Short term temporary impacts include accidental pollution and noise disturbance during construction
Mosslands, west of Johnson's Cottage LWS	On Site	A relict raised mire with birch-dominated woodland and rhododendron. One of only two relict raised mires in Knowsley.	This LWS may meet the criteria of EU Annex 1 habitat (degraded raised bog). The habitat will be entirely retained but indirect constraints on the LWS may include incidental pollution, site drainage (changes to hydrology).

3.1.4 The search area is extended to allow for the inclusion of Impact Risk Zones (IRZs) for SSSIs¹³. IRZs define areas around SSSIs which could be impacted by development schemes. The zones vary depending on the particular sensitivities of the features for which the SSSI is notified and indicate the types of development proposal which could potentially have adverse impacts. The desk study shows that the application site falls within the IRZ for Ravenhead Brickworks SSSI. As this site is designated for geology, and the site lies wholly outside of the SSSI, no adverse impacts are anticipated to be caused by the proposed works, however due to the development being a solar farm with a footprint larger than 0.5ha¹⁴, additional consultation with Natural England will be required.

3.2 Habitats

- 3.2.1 All habitats within the Site are described in Table 2, below, together with an indication of their s.41 status and status and reference within the North Merseyside Biodiversity Action Plan¹⁵.
- 3.2.2 Habitats which could be subject to adverse effects (amber or red) are discussed in the latter sections of the report. Habitats for which potential adverse effects are not anticipated are excluded from further assessment. The location and extent of habitats are shown on Drawing Number LD11099/005 (Habitat Plan).
- 3.2.3 A review of OS data has identified 1 waterbody and a number of ditches within 250m of the Site, as shown on Drawing Number LD11099/004 (Waterbody Location Plan).

¹³ <https://data.gov.uk/dataset/sssi-impact-risk-zones>

¹⁴

[https://irz.geodata.org.uk/IRZ/step2.html?irzcode=3111221002000¬es=&location=345136,401747%20\(IRZ%20polygon%20centre\)](https://irz.geodata.org.uk/IRZ/step2.html?irzcode=3111221002000¬es=&location=345136,401747%20(IRZ%20polygon%20centre))

¹⁵ <https://www.merseysidebiodiversity.org.uk/f>

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
Non cereal crop with peaty topsoil Large wet arable fields dominate the application site with evidence of non-cereal crop having been previously present. Occasional speedwell <i>Veronica persica</i> and rosebay willowherb <i>Chamaenerion angustifolium</i> present with frequent perennial ryegrass <i>Lolium perenne</i>, clover <i>Trifolium sp</i>, common ragwort <i>Senecio jacobaea</i> and dandelion sp <i>Taraxacum sp</i>. Occasional common vetch <i>Vicia sativa</i> was also present.	<u>Primary Code</u> c1d non-cereal crop <u>Secondary code:</u> Seasonally wet (502) Waterlogged (504)	Parcel 13 (504)  Parcel 16 (502) 	None	This habitat will be partially lost to facilitate the proposed development. Impacts include direct habitat loss, and indirect impacts from the on-site construction. Due to the local abundance of this habitat and limited ecological value, removal of the habitat will not cause an adverse effect.

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
<u>Other broadleaved woodland</u> Large parcel to south of the site and second parcel to the north that was difficult to access due to the presence of the deep ditch at the arable field edge. The dominant species are rhododendron <i>Rhododendron arboreum</i> but also consisted of silver birch <i>Betula pendula</i>, bracken <i>Pteridium aquilinum</i>, elder <i>Sambucus nigra</i> and goat willow <i>Salix caprea</i>. Some deadwood is apparent, caused by localised fires.	<u>Primary Codes</u> Other broadleaved woodland (w1g) <u>Secondary Code</u> Invasive non-native species (524) Standing deadwood abundant (215)		BAP	The woodlands are not expected to be directly impacted by the works, however indirect impacts may arise as a result of pollution, sediment transfer and runoff. Impacts to mature tree root protection zone (RPZ) may occur without appropriate mitigation.

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
<u>Other Lowland mixed deciduous woodland</u> This woodland is located in the east of the Site and has a waterbody at its centre. Species here include the canopy species: abundant alder <i>Alnus glutinosa</i>, silver birch <i>Betula pendula</i> and goat willow <i>Salix caprea</i>, with frequent ground species: Aster sp. <i>asteraceae</i>, doc <i>Rumex spp</i>, thistle <i>Cirsium arvense</i>, bramble <i>Rubus fruticosus</i> and dogwood <i>Cornus sanguinea</i> and occasional saplings of elder <i>Sambucus nigra</i> and oak <i>Quercus robur</i>. Ground flora also included occasional bracken <i>Pteridium aquilinum</i>, soft rush <i>Juncus effusus</i> and broom <i>Cytisus scoparius</i> and frequent <i>cotoneaster</i> shrub species were observed throughout.	<u>Primary Codes</u> Other Lowland mixed deciduous woodland (w1f7) <u>Secondary Codes</u> Wet (503)	It's a 	BAP	The woodlands are not expected to be directly impacted by the works, however indirect impacts may arise as a result of pollution, sediment transfer and runoff.

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
<u>Neutral Grassland</u> Narrow margins around field edges support species poor neutral grassland. The majority of the fields have narrow less than 0.5-1m wide margins. In addition, parcels of various size and compositions of neutral grassland were present on Site, some of which compromised species reflective of ruderal and ephemeral habitat namely: abundant nettle <i>Urtica dioica</i>, and rosebay willowherb <i>Chamaenerion angustifolium</i>, occasional broad-leaved dock <i>Rumex obtusifolius</i>, field bindweed <i>Convolvulus arvensis</i>, common chickweed <i>Stellaria media</i>, spear thistle <i>Cirsium vulgare</i> and ribwort plantain <i>Plantago lanceolata</i>. Some neutral grassland parcels contained scattered scrub - including elder <i>Sambucus nigra</i> and bramble <i>Rubus fruticosus</i>.	<u>Primary Code</u> Other neutral grassland (g3c) <u>Secondary code</u> Ruderal and ephemeral (81) Scattered trees (32) Frequently mown (108)	 	None	The loss of stands of this habitat is inevitable given its location within the anticipated panel areas. However this habitat is common and widespread in a national and local context. Although Arable field margins are listed as a s.41 and LBAP Priority Habitat. The margins on site do not meet the criteria to qualify as UK BAP Arable Margins. (i.e. the habitat is less than 2m wide and not actively managed for wildlife). Therefore, no adverse effect is anticipated.

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
Additional external factors such as being waterlogged also resulted in some neutral grassland being dominated by soft rush <i>Juncus effusus</i> , tufted hair grass <i>Deschampsia cespitosa</i> , cinquefoil <i>Potentilla reptans</i> and burr sp <i>Arctium lappa</i> .				
Acid Grassland A stand of waterlogged grassland dominated by common bent <i>Agrostis capillaris</i> with frequent soft rush <i>Juncus effusus</i> and occasional herbs present. The community is growing over a corner of a larger arable field previously cultivated but now left fallow. Given its previously cultivated status, the land is unlikely to be permanently waterlogged but is consistent with calcifugous communities overlaying peaty topsoil.	<u>Primary Code</u> Acid Grassland (g1)			This habitat is common and widespread in a national and local context.

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
<u>Willow scrub</u> Dense scrub between arable field ditch and woodland consisting mainly of dominant Willow <i>Salix spp</i>, abundant marsh woundwort <i>Stachys palustris</i>, frequent rosebay willowherb <i>Chamaenerion angustifolium</i>, nettle <i>Urtica dioica</i>, birch <i>Betula pendula</i> saplings, spear thistle <i>Cirsium vulgare</i>, and occasional hogweed <i>Heracleum sphondylium</i>,	<u>Primary Code</u> Willow scrub (h3j)	Parcel 14 	None.	The scrub is not expected to be directly impacted by the works, however temporary vegetation removal may be required to facilitate access. If required, impacts would be direct habitat loss or introduction of invasives. The impact of habitat loss is considered low due to the widespread availability of the habitat.
<u>Degraded raised bog</u> Potential EU Annex 1 Priority Habitat consisting of dominant bent species <i>Agrostis</i>, frequent perineal ryegrass <i>Lolium perennial</i>, rosebay willowherb <i>Chamaenerion angustifolium</i> and purple moor grass <i>Molinia caerulea</i>, occasional birch <i>Betula pendula</i> tufts of soft rush <i>Juncus effusus</i>, hawthorn <i>Crataegus monogyna</i> and goat	<u>Primary Code</u> Degraded raised bog (f1b6) <u>Secondary code</u> Scattered trees (32)	Parcel 21 	Annex 1 and Priority Habitat.	This community is likely to be Annex 1 and Priority Habitat. It is strongly recommended that the habitat is retained and does not form part of the infrastructure layout.

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
willow <i>Salix caprea</i> , as well as bramble <i>Rubus fruticosus</i> and thistle <i>Cirsium arvense</i> .				
<u>Bramble Scrub</u> Bramble <i>rubus fruticosus</i> dominant with an understory consisting of Occasional ribwort plantain <i>p.lanceolata</i> , doc species <i>Rumex obtusifolius</i> , cinquefoil <i>Potentilla reptans</i> , and common vetch <i>Vicia sativa</i> .	<u>Primary Code</u> Bramble scrub (h3d)	Parcel 5 	None	This habitat may be modified by the development proposals, but the impact of habitat loss is considered low due to the widespread availability of the habitat.
<u>Mixed Scrub</u> Small patch of mixed scrub assumed present due to limited access for agriculture due to close proximity to pylon. Species consists of dominant Bramble <i>Rubus fruticosus</i> , frequent doc species <i>Rumex obtusifolius</i> , thistle <i>Cirsium spp</i> , hogweed <i>Heracleum sphondylium</i> and nettle <i>Urtica</i>	<u>Primary Code</u> Mixed scrub (h3h)	Parcel 2 	None	The scrub is not expected to be directly impacted by the works due to the close proximity to the pylon, however temporary vegetation removal may be required to facilitate access during construction or to prevent scrub spread. If required, impacts would be direct habitat loss. The impact of habitat loss is considered low

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
<i>dioica</i> , with occasional willowherb <i>Chamaenerion augustifolium</i> , dandelion sp <i>Taraxacum officinale</i> , and cocksfoot <i>Dactylis glomerata</i> .				due to the widespread availability of the habitat.
<u>Waterbodies</u> There were 3 waterbodies on site including a pond in the wet woodland to the southern and two ponds within the northern woodland area. See Appendix 2 for full descriptions of all waterbodies on site	<u>Primary Code</u> Other standing water (r1g) <u>Secondary Code</u> Ditch (50)	See Appendix 2 for photos of all waterbodies	LBAP and s.41	It is unlikely that these waterbodies shall be directly affected by proposed works. However, indirect impacts such as pollution from sediment run off may occur because of the proposed works. It is also not possible to rule out the possibility of the ponds on site being priority habitat based on presence of a schedule 5/8 species; therefore, additional surveys will be required prior to assessment of impacts caused by the works.

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
<u>Other developed land</u> Substrate appears to be recycled glass, possibly used during construction of adjacent wind turbine. Vegetation is patchy and sparse but consists of frequent butterfly bush <i>buddleia davidii</i>, willowherb <i>Epilobium hirsutum</i>, broadleaf plantain <i>Plantago major</i>, dock species <i>Rumex obtusifolius</i>, chamomile <i>Matricaria chamomilla</i>, ragwort <i>Senecio jacobaea</i>, arugula <i>Eruca sativa</i>, and occasional Sheep's Fescue <i>Festuca ovina</i>, and mugwort <i>Aartemisia vulgaris</i>.	<u>Primary Code</u> Sparsely vegetated urban land (u1f)		None.	This habitat is of limited intrinsic conservation value.,
<u>Buildings</u> 3 small flat roofed cabins are present.	<u>Primary Code</u> u1b5 <u>Secondary codes</u> Fence (69) Neglected (518)		None.	The buildings have intrinsically low ecological value.

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
		 		

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
Gravel Substrate Surface covered with pebbles/gravel used as recreational space for 'airsoft'.	<u>Primary Code</u> Artificial unvegetated, unsealed surface (u1c)		None.	This habitat is of low ecological value and common and widespread in a national and local context.
<u>Native Hedgerows</u> Hedgerows are fully described in Appendix 3. There are 4 main mature boundary hedgerows throughout the site, dominated by willow <i>Salix caprea</i> species and bramble <i>Rubus fruticosus</i> , occasional alder <i>Alnus glutinosa</i> , birch <i>Betula pendula</i> , hawthorn <i>Crataegus monogyna</i> and elder <i>Sambucus nigra</i> with understory species comprising of frequent hogweed <i>Heracleum sphondylium</i> , nettle <i>Urtica dioica</i> , willowherb <i>Chamaenerion angustifolium</i> ,	<u>Primary Code</u> Native hedgerow (h2a5) Species rich native hedgerow (h2a6) <u>Secondary Codes</u> Ditch (50) Unmanaged (521)		S.41 and LBAP	Hedgerows are Priority habitats and should be retained.

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
dandelion sp <i>Taraxacum officinale</i> , occasional cocksfoot <i>Dactylis glomerata</i> , false oat <i>Arrhenatherum elatius</i> , mugwort <i>Artemisia vulgaris</i> , herb Robert <i>Geranium robertianum</i> , common vetch <i>Vicia sativa</i> chickweed <i>Stellaria media</i> , creeping thistle <i>Cirsium arvense</i> , bracken <i>Pteridium aquilinum</i> and rare horsetail <i>Equisetum arvense</i> , aster species <i>Asteraceae</i> , ragwort <i>Senecio jacobaea</i> and gorse <i>Ulex euroaeus</i> .				

Table 2: Habitat Descriptions and Evaluation				
Habitat Description	UK Hab Classification	Photograph	Local BAP/s.41	Potential Constraints
<u>Ditches /drainage ditches</u> Drainage ditches are present throughout the modified grassland fields, with saturation ranging from dry to flowing water. Ditches contain ruderal/ephemeral vegetation at field edges: abundant nettle <i>Urtica dioica</i>, and rosebay willowherb <i>Chamaenerion angustifolium</i>, occasional Bitter Dock <i>Rumex obtusifolius</i>, bindweed <i>Convolvulus arvensis</i> and occasional white campion <i>Silene latifolia</i>.	<u>Primary Code</u> Other rivers and streams (r2b) <u>Secondary Code</u> Freshwater – heavily modified (48) Ditch (50)		None	It has been advised that all ditches on site are being retained, however if this changes or if any of the ditches require part or short term-removal then constraints would be direct habitat loss and mitigation would need to be reassessed.

3.3 Species

3.3.1 Protected and s.41 species are evaluated to identify potential adverse effects in Table 3 below, based on the following criteria:

- Desk study records;
- Evidence found during the survey;
- Presence, extent, quality, and viability of supporting on-site habitat;
- Ecological connectivity to viable off-site habitats; and
- Perceived impacts of habitat loss/impact to individuals in relation to proposals.

3.3.2 Species for which adverse effects are predicted (amber or red) are discussed in more detail in the Discussion and Recommendations section. Species/taxa for which potential adverse effects are not anticipated (green) are excluded from further assessment.

Table 3: Protected and Notable Species Evaluation					
Receptor (species/taxa)	Desk Study records	Status¹⁶	Evaluation	Supporting Habitat(s)Present	Potential Constraints
Badger <i>Meles meles</i>	✓ ¹⁷	BA		No setts recorded during survey. Foraging habitat in the form of hedgerows and woodland. Woodland also provides viable opportunities for sett creation.	Development may result in impacts to any newly created setts within 30m of infrastructure.
Bats <i>Chiroptera</i>	Common Pipistrelle <i>Pipistrellus pipistrellus</i> Soprano Pipistrelle <i>Pipistrellus pygmaeus</i> Brown Long-eared Bat <i>Plecotus auritus</i> Noctule <i>Nyctalus noctula</i> <i>Myotis spp.</i> <i>Nathusius pipistrellus nathusii</i>	EPS, WCA, s.41,	Site	Good bat habitat on Site for roosting (standing deadwood in woodland to north of site and small buildings). Good commuting habitat in the form of ditches/hedgerows. Wide range of potential roosting habitat for all species within adjacent habitat.	Loss/disturbance of potential roost sites and foraging commuting habitats may occur without appropriate mitigation/compensation.
Birds	Other records relevant to the site include and recorded within the last 20 years: Barn Owl <i>Tyto alba</i> Crossbill <i>Loxia curvirostra</i>	s.41, WCA BoCC	Site	Foraging and breeding habitat in habitats around periphery of Site and waterbodies throughout.	Potential breeding and overwintering habitat may be lost/disturbed by proposals. Foraging habitat may also be lost. Skylark identified on site, likely to be displaced by panel arrays.

¹⁶ **EPS** – European Protected Species, **WCA** – Wildlife and Countryside Act, **WCA (9)** – species listed under Schedule 9, **A1** – Annex 1 (Birds Directive), **BA** – Protection of Badgers Act, **s.41** – species listed under section 41 of the NERC Act as species of principal importance, **BoCC** – Birds of Conservation Concern.

¹⁷ Locations of badger activity are confidential due to the sensitivity of this species

Table 3: Protected and Notable Species Evaluation					
Receptor (species/taxa)	Desk Study records	Status ¹⁶	Evaluation	Supporting Habitat(s) Present	Potential Constraints
	Bullfinch <i>Pyrrhula pyrrhula</i> Corn Bunting <i>Emberiza calandra</i> Cuckoo <i>Cuculus canorus</i> Dunnock <i>Prunella modularis</i> Grey Partridge <i>Perdix perdix</i> House Sparrow <i>Passer domesticus</i> Lapwing <i>Vanellus vanellus</i> Lesser redpoll <i>Acanthis cabaret</i> Lesser spotted woodpecker <i>Dryobates minor</i> Linnet <i>Carduelis cannabina</i> Reed Bunting <i>Emberiza schoeniclus</i> Skylark <i>Alauda arvensis</i> Tree Sparrow <i>Passer montanus</i> Willow Tit <i>Poecile montanus</i> Yellow Wagtail <i>Motacilla flava</i> Yellowhammer <i>Emberiza citrinella</i>				
Brown hare <i>Lepus europaeus</i>	Multiple records.	s.41	Site	This species favours open expanses of pastoral farmland.	No adverse effect anticipated due to vast availability of habitat in the surrounding area and likely enhancement of Site habitats after construction.

Table 3: Protected and Notable Species Evaluation					
Receptor (species/taxa)	Desk Study records	Status¹⁶	Evaluation	Supporting Habitat(s) Present	Potential Constraints
European hedgehog <i>Erinaceus europaeus</i>	Multiple records.	s.41	Site	Hedgerows and scrub.	Adverse effects through minor habitat losses are unlikely to be significant due to the vast availability of equivalent supporting habitats elsewhere on site and likely enhancement of Site habitats after construction.
Great crested newt <i>Triturus cristatus</i>	Multiple records on site.	EPS, WCA, s.41	Site	Waterbodies present in the form of 3 ponds and multiple ditches. Viable terrestrial habitat in the form of woodland and neutral grassland.	Due to their presence in the local area and the habitat connectivity with other sites, the presence of GCN cannot be ruled out on site (especially in non-cultivated areas) without further survey. If presence, in the absence of mitigation incidental harm may occur without mitigation.
Other amphibians	Common toad <i>Bufo bufo</i>	s.41	Site	Ponds present on site and temporary pools on arable fields.	Toads may be present on site and in the absence of mitigation the clearance of suitable habitat is likely to result in incidental harm to toads.
Common Reptiles	None.	WCA, s.41	Site	Grassland, scrub and woodland edge.	Supporting habitat is primarily associated with grassland margin to woodland edge. It is assumed that this habitat will be retained in compliance with tree root protection requirements.
Red Squirrel <i>Sciurus vulgaris</i>	Multiple records.	EPS, WCA, s.41	Site	Supporting habitat present on site in the form of woodland.	Woodland will be retained; hence impacts will be avoided.

Table 3: Protected and Notable Species Evaluation					
Receptor (species/taxa)	Desk Study records	Status¹⁶	Evaluation	Supporting Habitat(s)Present	Potential Constraints
Invertebrates (Protected and notable species)	Azure Damselfly <i>Coenagrion puella</i> Banded Demoiselle <i>Calopteryx splendens</i> Blue-tailed Damselfly <i>Ischnura elegans</i> Broad-bodied Chaser <i>Libellula depressa</i> Brown Hawker <i>Aeshna grandis</i> Common Blue Damselfly <i>Enallagma cyathigerum</i> Common Darter <i>Sympetrum striolatum</i> Common Hawker <i>Aeshna juncea</i> Emerald Damselfly <i>Lestes sponsa</i> Emperor Dragonfly <i>Anax imperator</i> Four Spotted Chaser <i>Libellula quadrimaculata</i> Buff Ermine <i>spilosoma lutea</i> Large Red Damselfly <i>Pyrrhosoma nymphula</i> Migrant Hawker <i>Aeshna mixta</i>	WCA, s.41 and LBAP	Site	LBAP, S.41 (buff ermine (1) and sallow (1)) identified on site. Woodland areas with standing deadwood of potential value to saproxylic invertebrates. Arable farmland of limited value other than temporarily during periods of reduced agricultural activity.	Wet and broadleaved woodland areas are anticipated to support potentially notable invertebrate assemblages; however, these areas will be retained.

Table 3: Protected and Notable Species Evaluation					
Receptor (species/taxa)	Desk Study records	Status¹⁶	Evaluation	Supporting Habitat(s)Present	Potential Constraints
	Ruddy Darter <i>Sympetrum sanguineum</i> Southern Hawker <i>Aeshna cyanea</i> Sallow <i>Cirrhia icteritia</i>				
Otter <i>Lutra lutra</i>	None.	EPS, WCA, s.41	Negligible	No supporting habitat	No adverse impacts anticipated
Water vole <i>Arvicola amphibius</i>	Multiple records within the search radius.	WCA, s.41	Negligible	Ditches present throughout the site.	If all ditches are retained with a suitable (minimum 5m from bank top) buffer is retained, no impacts are predicted save for incidental habitat degradation due to sedimentation and incidental pollution.
White-clawed crayfish <i>Austropotamobius pallipes</i>	None.	EPS, WCA, s.41	Negligible	None present	No adverse impacts anticipated
Protected and notable fish species	None.	N/A	Negligible	None present	No adverse impacts anticipated
Protected and notable plant species	Only those recorded within the last 10 years have been noted below Cornflower <i>Centaurea cyanus</i> Bluebell	WCA, LBAP, s.41	Site	Ponds present on site to support aquatic vegetation, edge and woodland habitat suitable to support some species.	Presence of notable species is considered unlikely within areas to be developed.

Table 3: Protected and Notable Species Evaluation					
Receptor (species/taxa)	Desk Study records	Status¹⁶	Evaluation	Supporting Habitat(s)Present	Potential Constraints
	Water germander <i>Teucrium scordium</i>				
Non-native invasive species (INNS)	Himalayan Balsam <i>Impatiens glandulifera</i> Water fern <i>Azolla filiculoides</i> Japanese Knotweed <i>Fallopia japonica</i> Rhododendron ponticum <i>Rhododendron ponticum</i> Ruddy duck <i>Oxyura jamaicensis</i> Grey squirrel <i>Sciurus carolinensis</i>	WCA (9)	Site	Himalayan Balsam and rhododendron confirmed on site (target notes 3 & 5 on drawing LD11099/007 Target Note Location Plan)	Stands of invasive species will be avoided by the development proposals. If layout changes occur it may be necessary to treat invasive plants in advance of works.

4 DISCUSSION AND RECOMMENDATIONS

4.1 Sensitive Receptors

4.1.1 The following conservation sites, habitats, and species (receptors) have been evaluated as being subject to potential adverse effects and hence can be constraints to the proposals:

- Non-statutory Conservation Sites; Brown birches LWS, Charley Wood LWS, Moss Plantation and Brown Birches LWS, Mossborough Moss Woodland and land LWS, and Mosslands, West of Johnsons Cottage LWS).
- Priority habitats: Lowland Mixed Deciduous Woodland, Native Hedgerows, Degraded raised bog, and Ponds.
- Priority Species: Badger, Birds, Bats, Great Crested Newt (& other amphibians), Invertebrates, Water Vole.
- Invasive Non-Native Species

4.1.2 The nature of potential effects, requirements for further surveys and proposed mitigation/compensation are discussed below for each of the identified receptors.

4.2 Non-Statutory Conservation Sites

4.2.1 Local Wildlife site Moss Plantation and Brown Birches is located within the north of the site and immediately adjacent to the northeast. Mosslands, west of Johnson's cottage (LWS) is also present on the east of the site. Charley Wood (LWS) is 950m west and Mossborough Moss Woodland (LWS) is 100m east. Drawing number LD11099/008 maps these in relation to the Site.

4.2.2 These sites are designated for various reasons, including grassland, rush pastures, wet and woodland habitats. It is recommended that these sites are retained in full. Further assessment may be needed to assess impacts arising from the proposed development either directly (for example habitat loss if exclusion is unavoidable) or indirectly (e.g. recreational impacts or pollution).

4.2.3 A Construction and Environmental Management Plan (CEMP) is recommended to outline mitigation and protected of the watercourses on site during the construction phase. The report should encompass impacts to any protected species in which the watercourses may support.

4.3 Habitats

s.41 Woodland (Lowland Mixed and Wet Woodland)

- 4.3.1 All woodland is listed as a North Merseyside BAP habitat. To ensure there are no direct impacts to the woodland and to protect the root systems, a root protection zone (RPZ) should be created around the periphery of all existing woodland on site. An arboricultural assessment of the tree resource on site(s) should be undertaken and the appropriate RPZ incorporated into the site design where possible, unless a nominal RPZ of at least 15m (from canopy edge) can be maintained.

s.41 Hedgerows

- 4.3.2 It is recommended that the hedgerows are retained where possible and protected in accordance with BS 5837:2012 Trees in Relation to Design, Demolition and Construction and in accordance with any Tree Protection Plans approved by the Local Authority.
- 4.3.3 Where hedgerow removal cannot be avoided, additional surveys should be conducted on all hedgerows to be removed to confirm the status of the hedgerow so that any losses can be compensated for by the provision of a like-for-like hedgerow elsewhere on Site of at least equivalent length. In this event, appropriate woody species of local provenance should be selected.

Annex 1 Degraded Raised Bog

- 4.3.4 It is recommended that all degraded raised bog is retained on site. To do this, a National Vegetation Classification (NVC) survey and assessment should be undertaken to determine species richness and type of raised bog habitat.
- 4.3.5 NVC surveys should be undertaken between May and early September (inclusive), depending on geographic location, with the ideal survey season extending between late May and early August (inclusive).

s.41 Ditches /Dykes

- 4.3.6 Field drains / ditches should be retained in situ with an appropriate buffer of at least 10m. If drain/dykes are required to be culverted to facilitate access routes into site, like for like habitat should be created.
- 4.3.7 Where drain habitat is not associated as a component of a hedgerow or waterbody (e.g. ditches 2, 3 and 4) and plan to be removed, a detailed condition assessment will be required to inform the BNG assessment. This requirement will apply to all such ditches within 10m of the application site boundary.

s.41 Ponds

- 4.3.8 Field ponds are listed as a Local BAP habitat and, until further survey, we cannot rule out the classification of priority habitat under the definition of priority habitat containing a species protected under the WCA act. It is recommended therefore that additional surveys are conducted to identify whether GCN are present (additional information in GCN section below). Regardless, it is recommended where possible that ponds/waterbodies are retained on site and enhanced for the benefit of wildlife. Where this cannot be achieved pond loss will need to be accounted for within the BNG metric and like for like habitat provided.

4.4 Protected Species

Badger

- 4.4.1 No badger setts or evidence of badgers was recorded on site except a mammal run that could have been badger (unconfirmed). The site does, however, support habitats suitable for sett creation and foraging. It is anticipated that most boundary features shall be retained, and the development is likely to retain grassland around the solar panels which could be used for foraging.
- 4.4.2 The development is not expected to result in the loss of favourable conservation status if indeed badgers are present within the wider area.
- 4.4.3 No further surveys are considered necessary however, to ensure compliance with the relevant legislation, it is recommended that a check for the presence of mammal burrows with an entrance diameter exceeding 100mm should be undertaken prior to the onset of works. In the event that such mammal burrows are recorded clearance operations should cease until advice has been sought from a suitably qualified ecologist.

Breeding and Non-breeding Birds

- 4.4.4 As breeding and foraging habitat for birds are located within the Site including open arable land, which is favoured by waterbirds, it is recommended that further bird surveys are carried out.
- 4.4.5 Breeding Bird Surveys (BBS) should be undertaken to identify all notable breeding bird species, and the likely number of territories present within the survey area. The surveys entail 6 visits between March to July inclusive.

- 4.4.6 Wintering bird surveys are currently being undertaken to record the presence, abundance and distribution of any wintering bird species of conservation concern within the site. The results of the surveys shall be reported separately.

General Nesting Birds Provisions

- 4.4.7 In order to avoid works affecting breeding birds, it is recommended that any vegetation clearance should be avoided during breeding bird season (generally March-August inclusive). If such timescales cannot be accommodated, it is recommended that a check for the presence of active nests and nesting birds should be undertaken by a suitably qualified ecologist no more than 48hrs prior to the commencement of works. Any active nests should be identified and protected subject to the relevant legal provisions until the nesting attempt is complete.

Great crested newt / Common toad

- 4.4.8 Waterbodies on site (WB1, WB2 and WB3) have suitability to support GCN and the terrestrial habitats provide opportunities for foraging and commuting. Where possible it is recommended that all waterbodies should be retained with an appropriate buffer, providing connections to verge habitats and green infrastructure.
- 4.4.9 Further surveys of waterbodies are required in order to assess the impacts to GCN which may use the open fields as dispersal habitat and the hedgerows (underground voids within the root-mass) during periods of winter torpor, if present in the ponds. In order to determine presence/infer absence it is recommended that environmental DNA (eDNA) surveys are undertaken on all ponds within 250m of the application site.

Water vole

- 4.4.10 The wet ditches/dykes on site provide suitable habitat for water vole. The implementation of a 10m buffer (from bank top) and CEMP control of incidental pollution/sediment transfer would negate the need for surveys.

Bats - Roost surveys

- 4.4.11 All buildings on site are being retained. Buildings 1 and 3 had negligible potential for bats and building 2 had low potential. However, there are numerous trees located in the woodland to the north (lots of standing dead wood) and within field boundaries that are suitable for use by roosting bats. In the event that there is any doubt regarding the retention of trees, it is recommended that a preliminary ground based potential roost feature (PRF) assessment is carried out to map the location of the potential tree roost resource across the sites. Once a layout is finalised this will help

identify the specific trees that may be directly impacted by proposed works to reduce the requirement for further climbed aerial inspection/dusk emergence surveys.

Bats - Activity surveys

- 4.4.12 The overall site is deemed to be of low habitat quality for foraging and commuting bats due to the dominance of arable land. If all boundary habitats, watercourses and woodlands can be avoided with the appropriate buffer it is unlikely that bat activity surveys will be required. This approach should be confirmed by the local Council.
- 4.4.13 Any foraging / commuting bats flying within the Site could be disturbed by the construction works should these works be undertaken at night through noise and light disturbance. It is therefore recommended that night working is avoided and lighting, if required, is directed away from hedgerows, woodland and mature trees.
- 4.4.14 Should lighting be permanently introduced as part of the development, it is recommended that the lighting is designed with input from an ecologist and with reference to the IJP and BCT Guidelines on Bats and Artificial Lighting (IJP & BCT, 2018).

Invasive Non-Native Species

- 4.4.15 Himalayan Balsam and rhododendron are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), both of which were recorded on site. In the interests of preserving native habitats and preventing spread into the wild beyond the Site boundary (which would be an offence), it is recommended that these species are eradicated under the guidance of a specialist contractor.

4.5 General Recommendations

- 4.5.1 If the Site boundary alters and any other habitats are identified to be lost or affected by the development, then further surveys for habitats and protected species may be required.
- 4.5.2 Night-time work should be avoided whenever possible to limit the potential for disturbance to nocturnal animals.

5 BIODIVERSITY NET GAIN AND ENHANCEMENTS

5.1 Introduction

- 5.1.1 Schedule 14 of the Environment Act 2021 mandates that all developments, with limited exceptions, must provide a minimum of 10% net gain in biodiversity. As this development is for a commercial development of a red line boundary over 1 ha, mandatory Biodiversity Net Gain (BNG) will apply.
- 5.1.2 Percentage gains must be demonstrated by use of the Statutory Biodiversity Metric (DEFRA, 2023), and it is recommended that development designs should be biodiversity/landscape-led with an iterative design process, taking account of the BNG Metric rules and the Mitigation Hierarchy.
- 5.1.3 A Biodiversity Statement will be required to accompany the planning submission, to confirm that mandatory BNG will be applicable (assuming this is the case) and to confirm the requirements for habitat management. In the event that 'significant' biodiversity enhancement on site or off-site measures are required, a Habitat Management and Monitoring Plan (HMMP) and s.106 agreement will also be required for which it would be pertinent to provide indicative Heads of Terms with the planning application. Other mandatory BNG requirements include digital mapping showing baseline and post intervention habitats and the completed Statutory Metric.

5.2 Habitat Condition Assessment

- 5.2.1 In order to inform a BNG assessment, each habitat within the Site, will be subject to a condition assessment. The condition assessment determines the current condition of each habitat and is broken down into sub-sections, where differences in condition within the wider habitat are recorded. The condition assessment of each habitat parcel will be reported in a separate Biodiversity Net Gain Plan/Report.

5.3 Biodiversity Enhancement

- 5.3.1 In accordance with the requirements of the NPPF and BSI 42020:2013 ecological enhancements should be proposed that are over and above measures required to mitigate effects on biodiversity. Such enhancements could include the provision of the following, in addition to any measures required as mitigation (with exact specifications to be determined at the detailed design stage):
- Bird boxes, including a variety of designs, such as 45mm entrance boxes, 32mm entrance boxes, sparrow terraces, owl/kestrel boxes and swift boxes/house

martin cups on trees and the installation of integrated bird bricks directly into the brickwork of new buildings/structures.

- Bat boxes including for a variety of species and for a variety of seasons, to be installed on retained mature trees and use of integrated bat boxes directly into the brickwork of new buildings and structures.
- Creation of insect and invertebrate houses/hotels, or management of retained standing and fallen deadwood.
- Provision of hedgehog houses within suitable habitats.
- Planting of native trees and shrubs of local provenance which naturally occur within the local area. To include berry, pollen and nectar producing species.
- Areas of green spaces planted with diverse native flora and linked to the wider landscape character.
- Creation of wildlife ponds to provide habitats for invertebrates and amphibians.

5.3.2 In addition to the above, it may be necessary to utilise an external offset provision to compensate for any habitat losses, such that a 10% overall gain and no net loss of s.41 or high distinctiveness habitats is ensured. This may involve the identification, assessment and securing of a nominated external offsetting area or the contribution to a National or Regional offsetting scheme.

5.3.3 It is recommended that all future establishment and management of habitats is detailed within a Landscape and Biodiversity Management Plan (LBMP), with habitat development targets set in accordance with the Target Habitat Condition proposed in the Metric as part of the BNG assessment.

6 CONCLUSION

6.1.1 Given the identified evidence of presence and/or likely presence of ecological receptors which may be adversely impacted by the development scheme, further surveys and/or assessments have been recommended in order to inform a full evaluation of adverse effects. Consequently, additional protected species survey and assessment reports will be required to compliment the planning application. Additionally, the results of further protected species surveys and evaluations should be considered within an Ecological Impact Assessment (EclA) report, in line with standard industry practice (CIEEM 2018). This report should include a formal assessment of impacts and will be suitable to fully inform the planning application.

6.2 Report Validity

- 6.2.1 In general, this report remains valid for a period of 18 months following the date of the habitat survey.
- 6.2.2 If the Site boundary or layout is subsequently modified and any other habitats are identified to be lost or affected by the development, then further surveys for habitats and protected species may be required.

8 REFERENCES

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APPENDICES

Appendix 1

Legislation and Policy Summary

Legislation for Habitats/Sites

Designated Site/Habitat	Status
Ramsar Sites	Ramsar Sites are wetlands of international importance designated following the Ramsar Convention. RAMSAR sites have the same level of protection as SACs and SPAs under the Wildlife and Countryside Act 1981 (as amended).
SPA (Special Protection Areas)	SPAs seek to protect the habitats of rare and vulnerable European and UK birds. The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended) protect such sites in the UK.
SAC (Special Areas for Conservation)	SACs are strictly protected areas which represent important and threatened habitats in Europe and the UK. The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended) protect such sites in the UK.
SSSI (Sites of Special Scientific Interest)	SSSIs protect the best examples of the UK's flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were renotified under the Wildlife and Countryside Act 1981 (as amended). Modified provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000.
NNR (National Nature Reserves)	NNRs are examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. NNRs are declared by the statutory country conservation agencies under the National Parks and Access to the Countryside Act 1949 or the Wildlife and Countryside Act 1981 (as amended). Legal protection of NNRs is provided under the Wildlife and Countryside Act 1981 (as amended).
Hedgerows	All hedgerows are protected by the Hedgerows Regulations 1997, under which it is an offence to remove or destroy certain hedgerows without planning consent or permission from the Local Planning Authority. These regulations do not apply to any hedgerow within the curtilage of, or marking the boundary of the curtilage of, a dwelling house.
LNR (Local Nature Reserves)	Designated by the National Parks and Access to the Countryside Act 1949, LNRs may be declared for nature conservation by local authorities after consultation with the relevant statutory nature conservation agency. Legal protection of LNRs is provided under the Wildlife and Countryside Act 1981 (as amended).

Legislation for Species

Species	Legal Status
Creeping Marshwort, Early Gentian, Fen Orchid, Floating-leaved Water Plantain, Killarney Fern, Lady's Slipper, Shore Dock, Slender Naiad, Yellow Marsh Saxifrage	Under the Conservation of Habitats and Species Regulations 2017 (as amended), it is illegal to deliberately pick, collect, uproot or destroy any such species.
Bats, Dormouse, Otter, Wild Cat, Great Crested Newt, Natterjack Toad, Sand Lizard, Smooth Snake, Large Blue Butterfly	These animals and their breeding sites or resting places are protected under Regulation 41 of the Conservation of Habitats and Species Regulations 2017 (as amended), which makes it illegal to: • Deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs. • Deliberately disturb¹⁸ such an animal; and • Damage or destroy a breeding site or resting place of such an animal. European Protected Species (EPS) licenses can be granted by Natural England in respect of development to permit activities that would otherwise be unlawful under the Conservation Regulations, providing that the following 3 tests (set out in the EC Habitats Directive) are passed, namely: • The development is for reasons of overriding public interest; • There is no satisfactory alternative; and • The favourable conservation status of the species concerned will be maintained and/or enhanced. LPAs must consider the above 3 'tests' when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations.
Bats, Dormouse, Great Crested Newt, Heath Fritillary, High Brown Fritillary, Large Blue, Marsh Fritillary, Natterjack Toad, Pine Martin, Otter, Red Squirrel, Sand Lizard, Smooth Snake, Swallowtail, Water Vole, Wildcat	These animals receive full protection under the Wildlife and Countryside Act 1981 (as amended), which makes it illegal (subject to certain exceptions) to: • Intentionally kill, injure or take any such animal; • Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection; and

¹⁸ Under the Conservation Regulations, disturbance of protected animals includes in particular any disturbance which is likely to: (i) impair their ability to survive, breed or reproduce, or to rear or nurture their young or to hibernate or migrate; (ii) significantly affect the local distribution or abundance of the species in question.

Species	Legal Status
	Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.
Adder, Common Lizard, Grass Snake, Slow Worm, White-clawed Crayfish	These animals receive partial protection under the Wildlife and Countryside Act 1981 (as amended), which provide protection against intentional killing or injury of any such animal.
Nesting Birds	All wild birds (as defined by the act) are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it illegal (subject to exceptions) to: - Intentionally kill, injure or take any wild bird; - Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.
Wildlife and Countryside Act 1981 (as amended) Schedule 1 listed Birds	Additional protection is provided to birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In addition to the offences detailed above relating to all wild birds, it is illegal to intentionally or recklessly disturb any bird listed on Schedule 1, or their dependent young while nesting.
Badgers	The Protection of Badgers Act 1992 makes it illegal to wilfully kill or injure a Badger or attempt to do so and to intentionally or recklessly interfere with a Badger sett. This includes: - damaging or destroying an active sett; - obstructing access to a sett; and - disturbing a Badger while it is occupying a sett. Licences can be granted to permit sett closure and/or disturbance between July and November inclusive (i.e. outside the sow pregnancy/birth period).
Wild Mammals	The Wild Mammals (Protection) Act 1996 provides legal protection to all wild mammals (as defined by the act) against the following actions: mutilate, kick, beat, nail, or otherwise impale, stab, burn, stone, drown, crush, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.
Wildlife and Countryside Act 1981 (as amended) Schedule 9 listed invasive animals (Part 1) and plants (part 2)	Certain species of plants and animals that do not naturally occur in Great Britain have become established in the wild and represent a threat to the natural fauna and flora. Section 14 of the Wildlife and Countryside Act 1981 (as amended) prohibits the release or allowed escape of animals listed in Schedule 9 to the Act and planting, or allowed growth, of any plant listed in Schedule 9 to the Act.

Policy Summary

Section 40 of the Natural Environment and Rural Communities (NERC) Act imposes a legal duty on Planning Authorities to ‘have regard’ to the conservation of biodiversity when considering planning applications.

Section 41 of the NERC Act requires the Secretary of State to publish a list of species and habitats of principal importance for conserving biodiversity in the UK. Such Biodiversity Action Plan (BAP) Habitats and Species (2007) do not offer the species any specific protection but help to highlight the species importance at a national level. This list is used by Local Planning Authorities to identify the species and habitats that should be afforded priority when applying the requirements of the National Planning Policy Framework (NPPF).

The NPPF underpins the Government’s planning policies for England and how these are to be applied. The central theme of the NPPF is a presumption in favour of sustainable development. This presumption does not apply where development requiring Appropriate Assessment because of its potential impact on a habitats site is being planned or determined.

The NPPF states:

When determining planning applications, local planning authorities should apply the following principles:

- *If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- *Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁶³ and a suitable compensation strategy exists; and*

- *Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.*
- *The following should be given the same protection as habitats sites:*
 - a) *potential Special Protection Areas and possible Special Areas of Conservation;*
 - b) *listed or proposed Ramsar sites; and*
 - c) *sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.*

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

The NPPF requires the Planning Authority to have a responsibility to promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan. In addition, the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

Appendix 2

Table of waterbodies (including wet ditches) on site

Waterbody number and description	Photos
<u>WB1</u> Medium sized pond. No aquatic vegetation, stagnant water, nutrient rich and eutrophic. Lots of leaf litter present, 0.5m at deepest point, 100m curved length with gently sloping sides. 100% in shadow.	
<u>WB2</u> Small pond 3x3m, heavily polluted full of tyres, gently sloping sides and rush growing throughout. Seasonally dry.	
<u>WB3</u> Medium sized pond, 15mx8m, heavily polluted but with good vegetation, deep and surrounded by soft rush <i>juncus effusus</i>, rhododendron <i>rhododendron arboreum</i>, alder <i>alnus glutinosa</i>, brambles, butterfly bush, hairy willow herb, bramble <i>rubus fruticosus</i> and bracken <i>pteridium aquilinum</i>.	

<u>Ditch 5</u> Deep ditch with shallow water and steep vegetated banks in between arable fields. Slow flowing water.	
<u>Ditch 6</u> Ditch separating arable fields with steep unvegetated banks, slow flowing, approximately 10cm deep.	
<u>Ditch 7</u> Small amount of slow flowing water under field- potentially a field drain. Surrounded by ruderal vegetation (abundant nettle <i>Urtica dioica</i>, and rosebay willowherb <i>Chamaenerion angustifolium</i>, occasional Bitter Dock <i>Rumex obtusifolius</i>, bindweed <i>Convolvulus arvensis</i>) with steep ditch sides.	

Ditch 8

Stagnant stinky ditch with shallow vegetated sides.
Non-flowing shallow water.



Ditch 9

Outside RLB, shallow with slow flowing water and
sloped vegetated sides.



Appendix 3
Table of Hedgerows on site

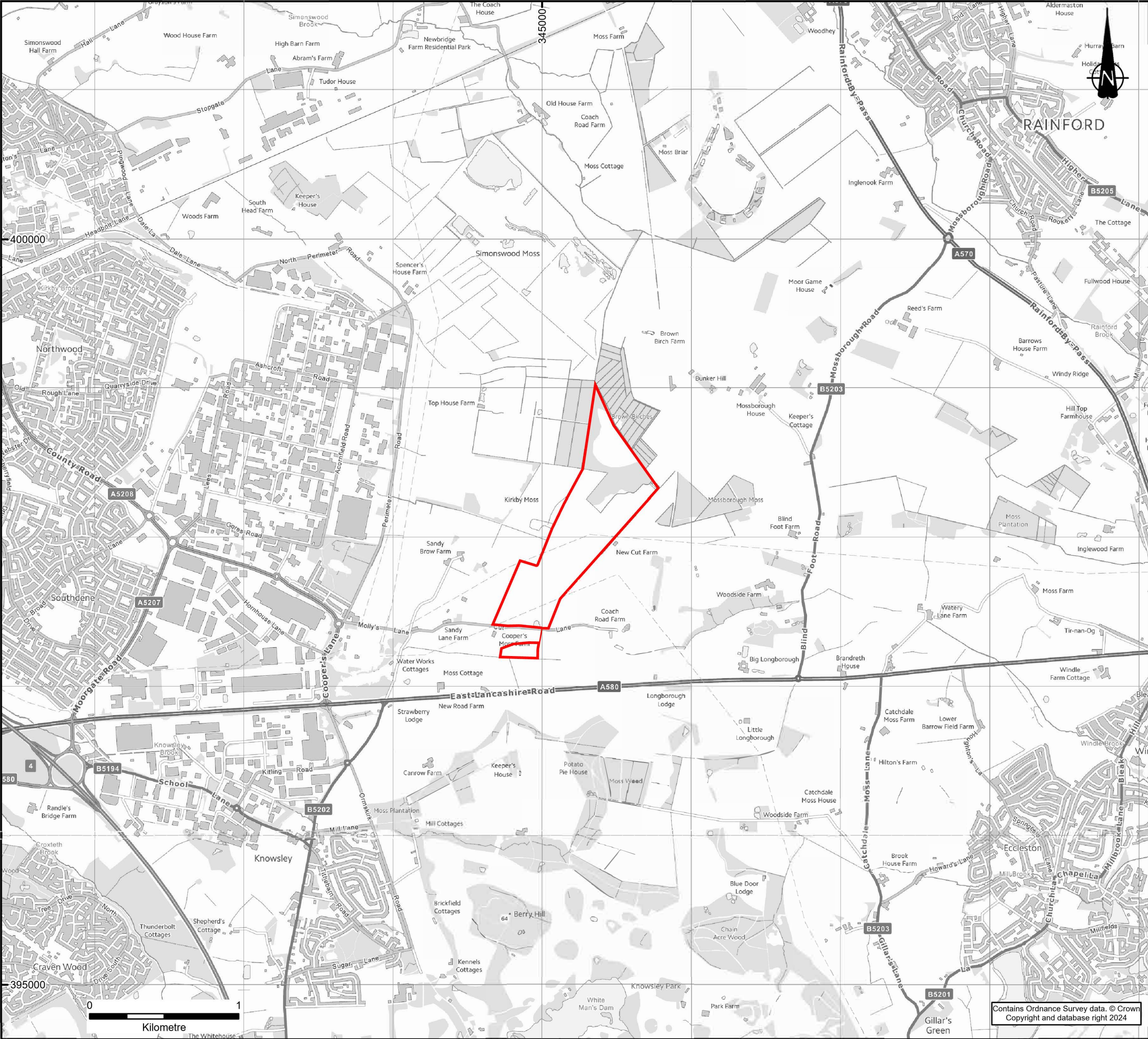
<u>Hedgerow number and description</u>	<u>Photo</u>
<u>Hedgerow 1- species rich native hedgerow</u> Defunct hedge with wet ditch 1. Species includes dominant willow <i>Salix caprea</i> species and bramble <i>Rubus fruticosus</i>, occasional alder <i>Alnus glutinosa</i>, birch <i>Betula pendula</i> and elder <i>Sambucus nigra</i> and hawthorn <i>Crataegus monogyna</i> with understory species comprising of frequent hogweed <i>Heracleum sphondylium</i>, nettle <i>Urtica dioica</i>, willowherb <i>Chamaenerion augustifolium</i>, dandelion sp <i>Taraxacum officinale</i>, occasional cocksfoot <i>Dactylis glomerata</i>, false oat <i>Arrhenatherum elatius</i>, mugwort <i>Artemisia vulgaris</i>, herb Robert <i>Geranium robertianum</i>, common vetch <i>Vicia sativa</i> chickweed <i>Stellaria media</i>, creeping thistle <i>Cirsium arvense</i>, bracken <i>Pteridium aquilinum</i> and rare horsetail grass <i>Equisetum arvense</i>, aster species <i>Asteraceae</i>, ragwort <i>Senecio jacobaea</i> and gorse <i>Ulex euroaeus</i>.	
<u>Hedgerow 2- native hedgerow</u> Defunct hedgerow with dominant hawthorn <i>Crataegus monogyna</i>, frequent bramble <i>Rubus Fruticosus</i> occasional bindweed <i>Convolvulus arvensis</i> and bracken <i>Pteridium aquilinum</i> and rare mugwort <i>Artemisia vulgaris</i>. No ditch.	
<u>Hedgerow 3- native hedgerow</u> Defunct hedgerow with scrub understory vegetation. Fewer species than hedge 1 and 2, with dominant hawthorn <i>Crataegus monogyna</i>. No ditch.	

Hedgerow 4

Defunct hedgerow with scrub understory vegetation. Fewer species than hedge 1 and 2, with dominant hawthorn *Crataegus monogyna*. No ditch.



DRAWINGS



KEY

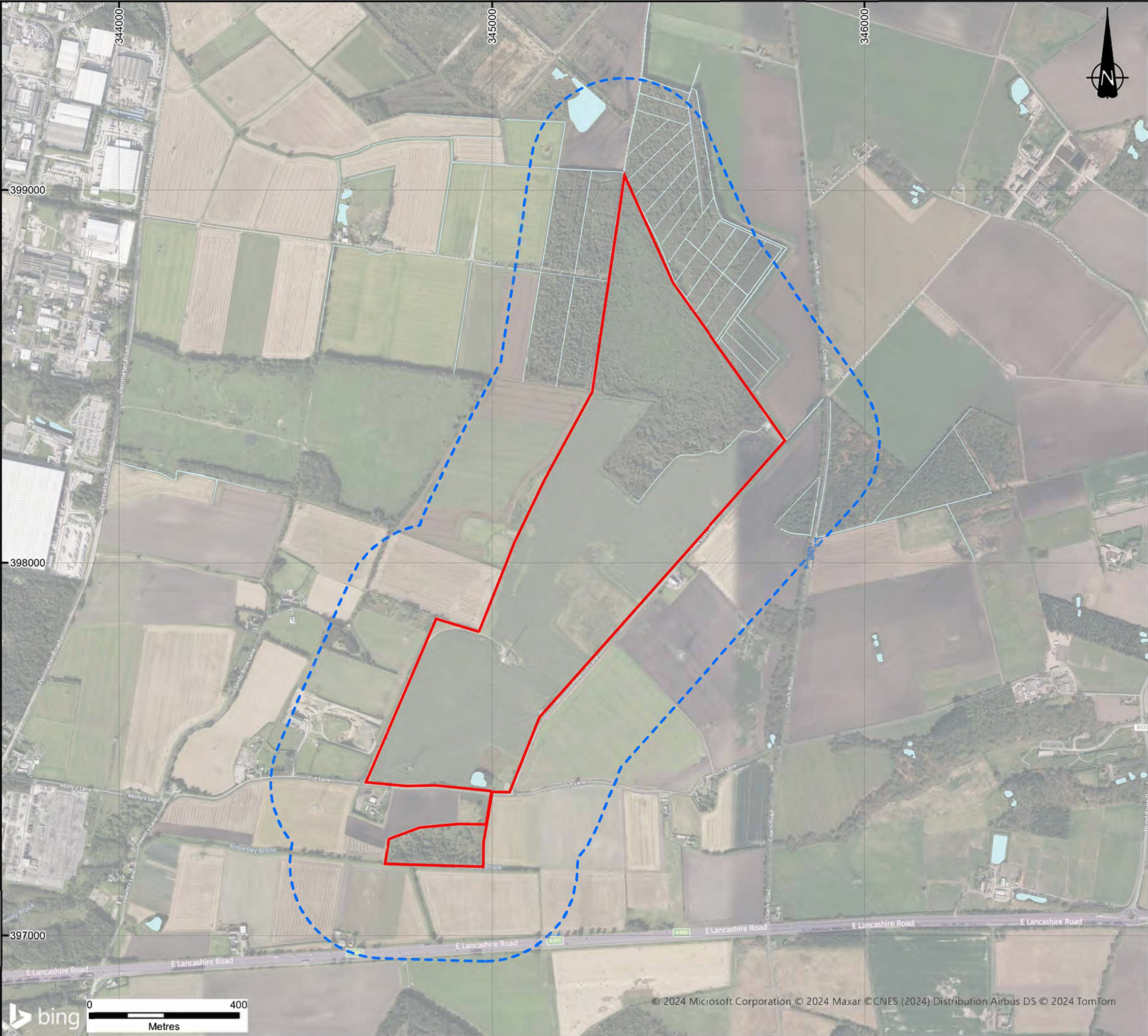
Site Boundary

Notes:

Boundaries are indicative.

REVISION	DETAILS	DATE	DRAWN	CHECKED	APPROVED
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IBE KIRKBY LIMITED					
PROJECT					
NEW CUT FARM SOLAR					
DRAWING TITLE					
SITE LOCATION PLAN					
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DRG SIZE		A3		SCALE	1:25,000
DRAWN BY		SRW		DATE	12/12/2024
		CHECKED BY		EW	APPROVED BY
				TP	

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KEY

- Site Boundary
- 250 m Buffer
- Waterbodies

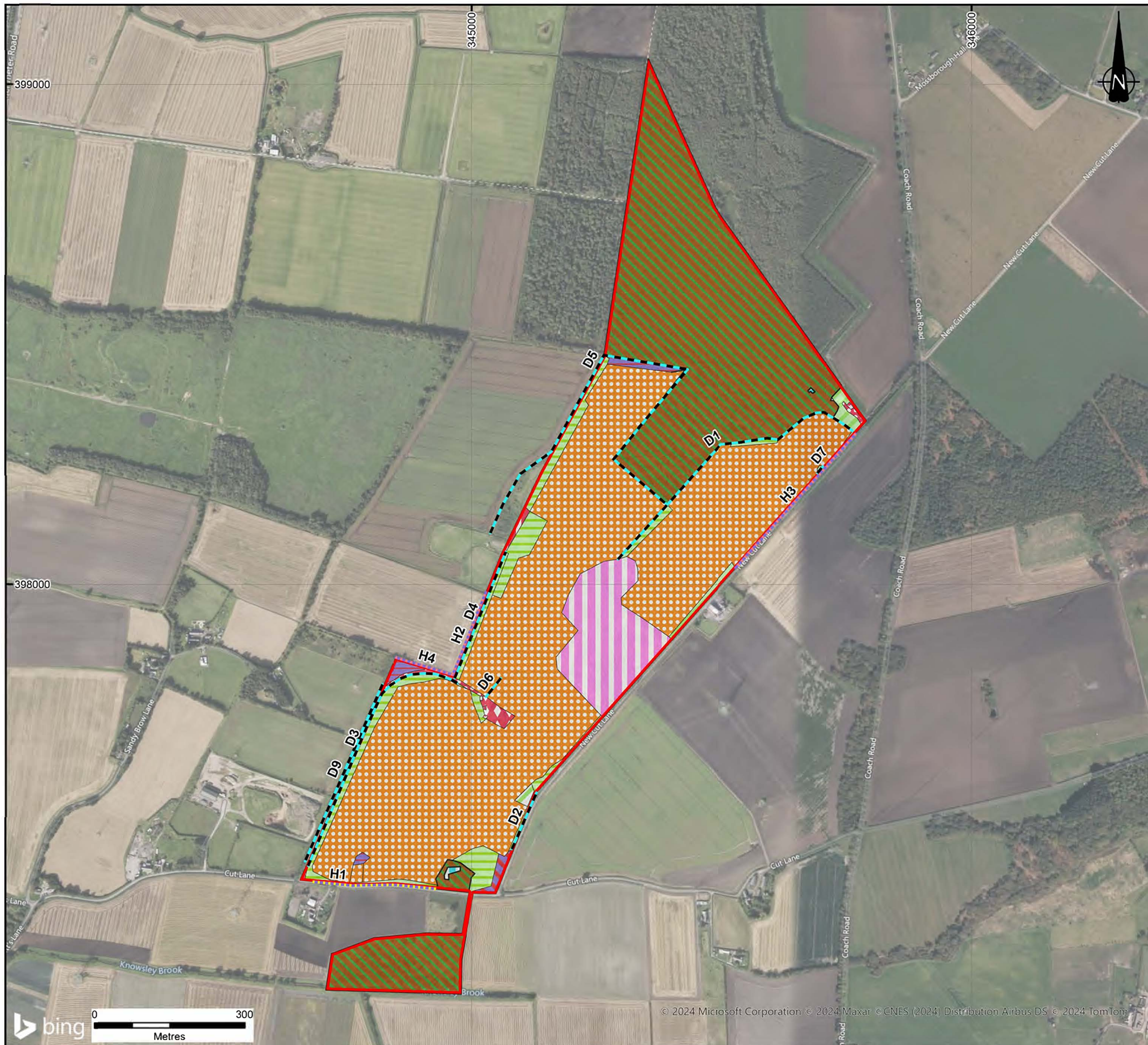
Notes:

Boundaries are indicative. Aerial imagery shown for context purposes only. Contains Ordnance Survey data. © Crown Copyright and database right 2024.

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DRAWING TITLE	WATERBODY LOCATION PLAN			
DRG No.	LD11099/004	REV	A	SUIT. CODE
DRG SIZE	A3	SCALE	1:10,000	DATE
DRAWN BY	SRW	CHECKED BY	EW	APPROVED BY
				TP







KEY

- Site Boundary
- c1d - Non-cereal crops
- f1b6 - Degraded raised bog (H7120) still capable of natural regeneration
- g1 - Acid grassland
- g3 - Neutral grassland
- g3c - Other neutral grassland
- h3d - Bramble scrub
- h3h - Mixed scrub
- r1g - Other standing water
- u1b - Developed land, sealed surface
- u1b5 - Buildings
- u1b6 - Other developed land
- u1c - Artificial unvegetated, unsealed surface
- w1g7 - Other broadleaved woodland types
- h2a5 - Species-rich native hedgerow
- h2a6 - Other native hedgerow
- r2b - Other rivers and streams

Notes:

Boundaries are indicative. Aerial imagery shown for context purposes only.

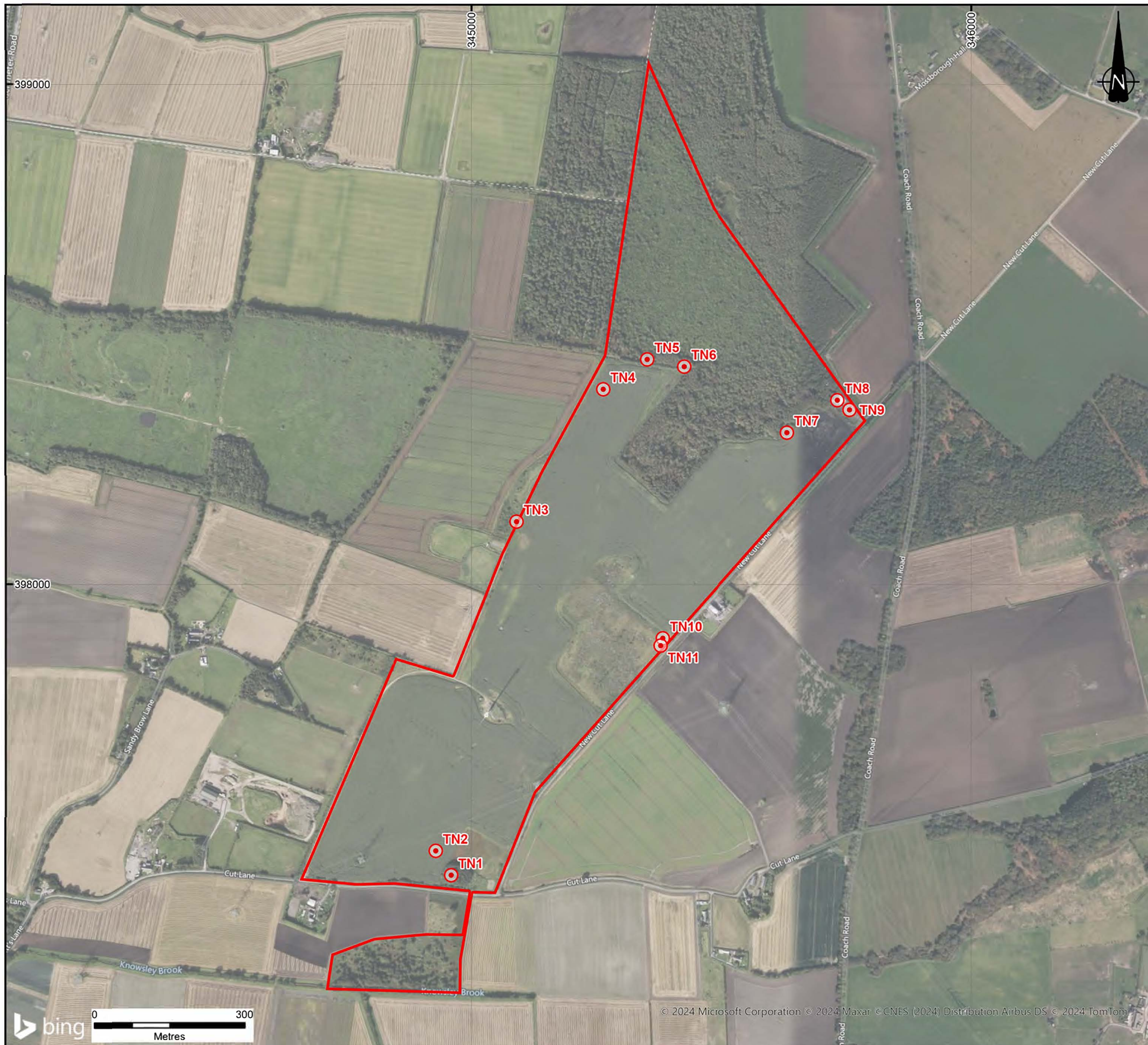
REVISION	CSM S	DATE	CHANGED	APPROVED
CLIENT	IBE KIRKBY LIMITED			

PROJECT	NEW CUT FARM SOLAR			
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DRAWING TITLE	HABITAT PLAN			
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DRG No.	LD11099/005		REV	A	SUIT. CODE
DRG SIZE	A3	SCALE	1:7,500	DATE	12/12/2024
DRAWN BY	SRW	CHECKED BY	EW	APPROVED BY	TP





KEY

- Site Boundary
- ⊙ Target note

Notes:

Boundaries are indicative. Aerial imagery shown for context purposes only.

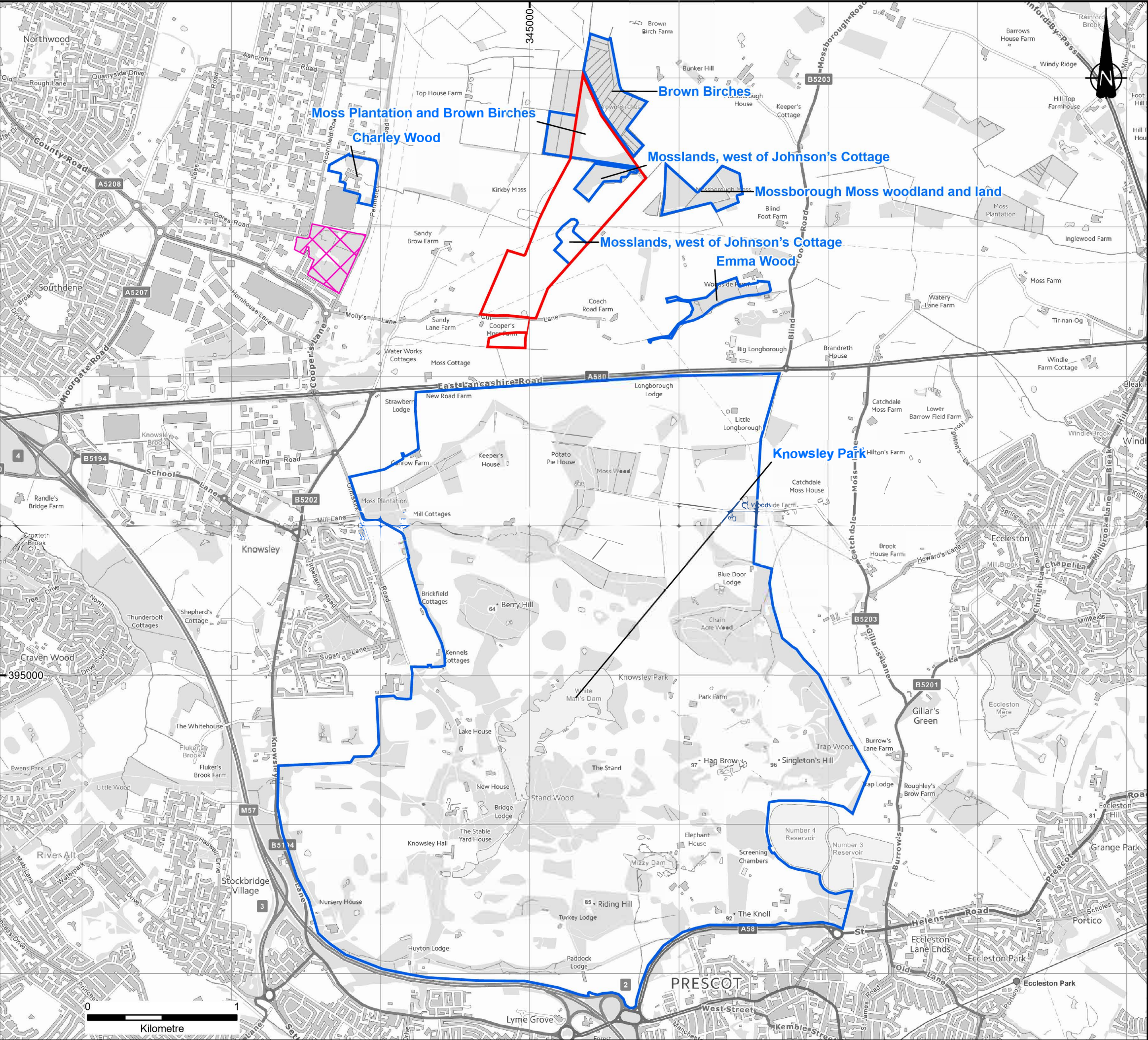
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CLIENT	IBE KIRKBY LIMITED				

PROJECT	NEW CUT FARM SOLAR				
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DRAWING TITLE	TARGET NOTE LOCATION PLAN				
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DRG No.	LD11099/007		REV	A	SUIT. CODE
DRG SIZE	A3	SCALE	1:7,500	DATE	12/12/2024
DRAWN BY	SRW	CHECKED BY	EW	APPROVED BY	TP





KEY

- Site Boundary
- Acornfield Plantation Local Nature Reserve
- Local Wildlife Sites

Notes:

Boundaries are indicative.

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REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
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IBE KIRKBY LIMITED					
PROJECT					
NEW CUT FARM SOLAR					
DRAWING TITLE					
LOCAL CONSERVATION SITES					
DRG No.		LD11099/008		REV	A
DRG SIZE		A3		SUIT. CODE	---
SCALE		1:25,000		DATE	12/12/2024
DRAWN BY		SRW		APPROVED BY	TP

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