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MEERDYKE SOLAR FARM BIODIVERSITY NET GAIN ASSESSMENT REPORT

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EXECUTIVE SUMMARY

Ramboll UK Limited was commissioned by JLL (the 'Client') to undertake a Biodiversity Net Gain (BNG) Assessment, using Natural England biodiversity metric v3.1, of a Site located 1.3 km east of Wisbech and 500 m to the east of the A47 trunk road, on land at Blunts Drove, Walton Highway, Norfolk, PE14 7DL, national grid reference TF 50368 10343 (the 'Site') on behalf of Downing Renewable Developments LLP (the Beneficiary Client). This assessment has been prepared to accompany a planning application for the development of the Site. The development would comprise the installation of solar panels and associated infrastructure, which would have a generation capacity of up to 49.9 megawatts (MW) (Proposed Development).

BNG is a process whereby development leaves biodiversity in a measurably better state than before and is a planning policy requirement in England under the 2019 National Planning Policy Framework. BNG will soon become a legal requirement in England with the Environment Act (2021) setting out a mandatory 10% net gain in biodiversity for new development. The aim of this report is to provide the results of the BNG assessment in relation to the Site including the associated construction works and landscape plans for the proposed development. This has been achieved through calculating the biodiversity change as a result of the proposed development in terms of net loss, no net loss or a net gain and including recommendations to assist the proposed development to minimise biodiversity impacts and maximise biodiversity outputs.

Based on the current landscape designs, it would be possible to achieve a 10% biodiversity net gain at the Site. The current calculated change is 176.12% (329.20 Biodiversity Units) net gain for area-based habitats, a 1100.96% net gain (13.17 Hedgerow Units) for hedgerows and a 29.05% net gain (1.74 River Unit) for rivers is achievable through the enhancements suggested in this report.

1. INTRODUCTION

1.1 Background

Ramboll UK Limited was commissioned by the Client to undertake a Biodiversity Net Gain (BNG) assessment, using Natural England biodiversity metric v3.1, for the proposed development of a Site located 1.3 km east of Wisbech and 500 m to the east of the A47 trunk road, on land at Blunts Drove, Walton Highway, Norfolk, PE14 7DL, national grid reference TF 50368 10343 (the 'Site') as shown in Figure 1c.

This assessment has been prepared to accompany a planning application for the installation of solar panels and associated infrastructure with a generation capacity of up to 49.9 megawatts (MW) (Proposed Development). The Site is located within the administrative boundary of King's Lynn and West Norfolk Borough Council.

The BNG assessment presented in this report has been informed by a Habitat Condition Assessment (HCA)¹ undertaken by Mark Tarrant (MEECW) of Ramboll on 6th May 2022, a Preliminary Ecological Appraisal (PEA)² and desk study undertaken in June 2022. A Habitat Management Plan (HMP)³ and an Ecological Impact Assessment (EcIA)⁴ have also been produced to support the planning application.

Figure 1: Site Location (reproduced in full in Appendix 1)



¹ Ramboll, 2022. Meerdyke Solar Development, Habitat Condition Assessment. R1620013921_1_Meerdykes HCA.

² Ramboll, 2022. Meerdyke Solar Development, Preliminary Ecological Assessment. R1620013921_1_Meerdykes PEA.

³ Ramboll, 2022. Meerdyke Solar Development, Habitat Management Plan. R1620013921_1_Meerdykes HMP.

⁴ Ramboll, 2022. Meerdyke Solar Development, Ecological Impact Assessment. R1620013921_1_Meerdykes EcIA.

1.2 Biodiversity Net Gain

BNG is a process whereby development leaves biodiversity in a measurably better state than before and is a policy requirement under the National Planning Policy Framework (NPPF; 2021)⁵. BNG will soon become a legal requirement in England⁶ with the Environment Act (2021) setting out a mandatory 10% net gain in biodiversity for new development⁷.

The BNG process is governed by a set of UK good practice principles (2016)⁸ along with industry guidance which outlines the practical implementation of the principles (2019)⁹. The key principle is the application of a mitigation hierarchy, which sets out that development should first avoid biodiverse habitats, then mitigate/minimise impacts upon habitats, then restore/reinstate habitats. As a last resort, once the mitigation hierarchy has been maximised on-Site, the project may use biodiversity offsetting to compensate for any residual biodiversity impacts due to the project. The principles require use of a metric e.g. Natural England (NE) Metric v3.1, to assess and quantify net biodiversity change. Applying this process enables transparent reporting on biodiversity outputs to demonstrate delivery against the current policy requirement for BNG.

Ramboll has in-house biodiversity specialists who have worked at the forefront of BNG across the UK since 2017. Our specialists have in-depth experience of applying BNG assessments to residential, road, rail and energy infrastructure developments, using the Defra metric, Natural England Metric v3.1 and specific client-adapted metrics.

1.3 Objectives

The aim of this report is to provide the results of the BNG assessment in relation to the Proposed Development. The structure and content of the report is based on current BNG good practice and reports on the following:

- The biodiversity baseline of the development Site;
- The predicted post-development biodiversity of the development Site; and
- The calculation of overall biodiversity change.

The objectives of this report are to:

- calculate the biodiversity change as a result of the proposed development in terms of net loss, no net loss or a net gain; and
- include recommendations to assist the proposed development to minimise biodiversity impacts and maximise biodiversity outputs.

The report is supported by the following appendices:

- Appendix 1: Figures
- Appendix 2: Post Construction Habitats
- Appendix 3: Baseline Habitat Descriptions

⁵ Ministry of Housing, Communities & Local Government (2021). National Planning Policy Framework (NPPF). Accessed from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

⁶ Department for Environment Food & Rural Affairs (2020). Environment Bill 2020: Policy Statement. Accessed from: <https://www.gov.uk/government/publications/environment-bill-2020/30-january-2020-environment-bill-2020-policy-statement>

⁷ Department for Environment Food & Rural Affairs (2020). Environment Bill 2020: Nature and conservation covenants (parts 6 and 7). Accessed from: <https://www.gov.uk/government/publications/environment-bill-2020/10-march-2020-nature-and-conservation-covenants-parts-6-and-7>

⁸ CIEEM, CIRIA, IEMA (2016) Biodiversity Net Gain: Good practice principles for development. Accessed from: <https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf>

⁹ CIEEM, CIRIA, IEMA (2019) Biodiversity Net Gain: Good practice principles for development. A practical guide. Accessed from: <https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf>

- Appendix 4: Habitat Condition Assessment

1.4 Proposed Development

The Proposed Development would comprise approximately 125,000 solar panels with a generation capacity up to 49.9 megawatts (MW) and a maximum height of 3.1 m, along with associated infrastructure, including battery storage, as illustrated in Appendix 1, Figure 2: Soft Landscaping Plans. The Proposed Development would include the following key components:

- ground mounted solar panels;
- a substation container;
- 10x battery energy storage containers;
- a transformer including housing;
- a switchgear including housing;
- perimeter fencing, security fencing and CCTV;
- lighting;
- access Tracks 5m wide; and
- two temporary Site construction compounds.

Several areas of existing habitat, including boundary vegetation, central hedgerows, an area of bramble scrub and lowland fens will be retained as part of the completed development as shown in Appendix 2, Figure 2: Post Development Habitat Plan.

1.5 Local Plan Policy

The King's Lynn and West Norfolk Local Plan 2011¹⁰ includes policy that relates to biodiversity as follows.

CS12 Environmental Assets: Proposals to protect and enhance our historic environment and landscape character, biodiversity and geodiversity will be encouraged and supported. The Borough Council will work with partners to ensure an integrated network of green infrastructure throughout the urban and rural areas (identified through the Green Infrastructure Management Plan and Econet map) is successfully created and managed to:

- Meet the environmental, social and economic needs of local communities and the wider borough;
- Create a high-quality environment for biodiversity and geodiversity to flourish; provide opportunities for species to adapt to the impacts of climate change;
- Contribute to an improved quality of life for current and future residents and visitors; areas identified as being deficient in multi-functional green space will be targeted; and
- The incorporation of Sustainable Drainage Systems with new development will also be promoted to encourage new habitats.

The historic and built environment play a crucial role in delivering environmental quality and well-being. Therefore, the Council will preserve and where appropriate enhance its qualities and characteristics. The Council and its partners will support a range of initiatives, including Biodiversity Action Plans and proposals that will improve areas of poor-quality lacking in biodiversity and geodiversity as well as maintaining, enhancing and linking areas of good quality. Development should seek to avoid, mitigate or compensate for any adverse impacts on biodiversity, geodiversity and heritage as well as seeking to enhance Sites through the creation of features of new biodiversity, geodiversity and heritage interest. The design of new development should be sensitive to the surrounding area, and not detract from the inherent quality of the environment.

¹⁰ King's Lynn & West Norfolk Borough Council, 2011. Local Development Framework – Core Strategy. Accessed From: https://www.west-norfolk.gov.uk/downloads/file/594/core_strategy_adopted_version_2011

Proposals for development will be informed by and seek opportunities to reinforce the distinctive character areas and potential habitat creation areas identified in the King's Lynn and West Norfolk Landscape Character Assessment, the West Norfolk Econet Map and other character assessments. Development proposals should demonstrate that their location, scale, design and materials will protect, conserve and, where possible, enhance the special qualities and local distinctiveness of the area (including its historical, biodiversity and cultural character), gaps between settlements, landscape setting, distinctive settlement character, landscape features and ecological networks.

2. METHODOLOGY

The methodology used for this assessment follows the published UK BNG guidance and Biodiversity Metric guidance:

- CIEEM, CIRIA, IEMA, 2016. Biodiversity Net Gain: Good practice principles for development¹¹;
- CIEEM, CIRIA, IEMA, 2019. Biodiversity Net Gain: Good practice principles for development. A practical guide¹²;
- Natural England, 2022. Biodiversity Metric 3.1: User guide (detailed)¹³;
- Natural England, 2022. Biodiversity Metric 3.1: Technical supplement¹⁴; and
- Natural England, 2022. Biodiversity Metric 3.1: Calculation tool (spreadsheet)¹⁵.

2.1 Desk Study

The following has been considered:

- Designated Sites within and up to 2 km from the Site: including Special Areas of Conservation (SAC), Special Protection Areas (SPA), and Sites of Special Scientific Interest (SSSI);
- Other Sites of importance for biodiversity, including National Nature Reserves (NNR), Local Nature Reserves (LNR) and SINC's within and up to 2 km from the Site; and
- Irreplaceable habitats including ancient woodland and ancient/veteran trees within the Site.

In line with BNG guidance, any SAC, SPA, SSSI or irreplaceable habitats identified within the Site will not be included within the baseline calculations. Due to their high importance for biodiversity, impacts to these Sites/habitats should be avoided at all costs as it is not possible to compensate for them within a reasonable management timeframe.

2.2 Baseline Biodiversity Assessment

2.2.1 Habitat Survey, Irreplaceable Habitats and Condition Assessment

A UK Habitat survey, of the Site was undertaken by Mark Tarrant (MEECW) of Ramboll on 6th May 2022. Mark has a BSc in Biology and has worked professionally as a consultant ecologist since 2008.

The main habitats present were recorded using the UK Habitat survey methodology. In addition to general habitat classification, a list was compiled of observed plant species (using the nomenclature of Stace, 2019¹⁶, with common and Latin names referred to in the first instance after which only the common names are used). Habitat descriptions are provided in Appendix 3.

A HCA was undertaken and is presented in Appendix 4. The HCA was undertaken, as described in the relevant Natural England Biodiversity Metric v3.1 Habitat Condition Assessment sheet.

2.2.2 Habitat Distinctiveness and Strategic Significance

Distinctiveness per habitat type was determined by the pre-set values within the Natural England metric.

¹¹ CIEEM, CIRIA, IEMA, 2016. Biodiversity Net Gain: Good practice principles for development. Accessed From: <https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf>

¹² CIEEM, CIRIA, IEMA, 2019 Biodiversity net Gain: Good practice principles for development. A practical guide. Accessed from: <https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf>

¹³ Natural England 2022. Biodiversity Metric 3.1: User Guide. Accessed from: <http://nepubprod.appspot.com/publication/6049804846366720>

¹⁴ Natural England 2022. Biodiversity Metric 3.1: User Technical supplement. Accessed from: <http://nepubprod.appspot.com/publication/6049804846366720>

¹⁵ Natural England 2022. Biodiversity Metric 3.1: Calculation tool. Accessed from: <http://nepubprod.appspot.com/publication/6049804846366720>

¹⁶ Stace C, 2019. New Flora of the British Isles 4th Edition. Cambridge University Press

The strategic significance rating was assigned based upon the biodiversity value of the local surroundings, as determined by the desk study with checks of local biodiversity plans and Sites (Local Biodiversity Action Plans, Nature Recovery Areas, LNRs, SINC, etc) and checking if any of the habitats were strategically significant for rare species (e.g. critical for home range, functionally important for the species, etc). The following significance levels apply:

- Within area formally identified in local strategy = high significance
- Location desirable but not in local strategy = medium significance
- Area/compensation not in local strategy/no local strategy = low significance

2.2.3 Baseline Biodiversity Calculation

The biodiversity unit (BU) score per area-based habitat was calculated via the metric using the quality factors (distinctiveness, condition and strategic significance) and their assigned values. The sum of all the BUs provided the area-based habitat biodiversity baseline.

Linear features are calculated using the same quality factors. For hedgerows, they are recorded as hedgerow units (HU) and for rivers recorded as river units (RU).

Any singular/street trees found on-Site which did not form part of a habitat type were noted and entered into the 'Street Tree Helper' section of the metric to determine the area of street trees. This area was then added to the metric as an area-based habitat.

2.3 Post-development Biodiversity Assessment

2.3.1 Post-development Habitats and Target Condition

Post-development landscape plans have been produced by Ramboll architects and are provided in Appendix 2. The target condition of the post-development habitats has been assigned based upon the expert judgement of the ecologist and the future management aspirations of the Site.

No singular trees that did not form part of a distinct habitat were identified in the post development landscape plans.

2.3.2 Habitat Distinctiveness and Strategic Significance

The distinctiveness was again assigned by the metric based upon the habitat types entered in the post-development sections of the metric. Strategic significance values were assigned following the methodology described in Section 2.2.

2.3.3 Temporal and Difficulty Risk Factors

The relevant risk factors for the 'time to target condition' and the 'difficulty to create' were assigned by the Natural England Biodiversity Metric and are deemed appropriate for the proposed development.

2.3.4 Habitat Creation, Enhancement and Accelerated Succession

The BNG process includes a consideration of whether habitats will be newly created, retained and enhanced or, in limited cases, will undergo accelerated succession. The following actions were considered for each habitat polygon on-Site and the action entered into the metric:

- Habitat lost to permanent development;
- Habitat lost during construction and created post-development;
- Habitat retained (no improvement); and
- Habitat retained and enhanced.

2.4 Biodiversity Metric

Biodiversity Metric v3.1. is the currently utilised metric published in March 2022.

2.5 Limitations

It should be noted that availability and quality of the data obtained during desk studies is reliant on third party responses. This varies from region to region and for different species groups. Furthermore, the comprehensiveness of data often depends on the level of coverage, the expertise and experience of the recorder and the submission of records to the local recorder. Accordingly, the conclusions in this report are valid only to the extent that the information provided to Ramboll was accurate, complete and available to Ramboll within the reporting schedule.

The UK Habitat survey provides a snapshot of ecological conditions and does not record plants that may be present on-Site at different times of the year but were absent at the time of the survey. The absence of a particular species cannot definitely be confirmed by a lack of field signs and only concludes that an indication of its presence was not located during the survey effort.

A river condition assessment is not considered necessary. The drainage ditch within the Site is man-made and often lacks water dependent on the time of year and level of rainfall. It therefore is not suitable to be considered a stream and does not require a river condition assessment. A ditch is described as, 'a linear excavated channel which may or may not hold water for part of the year'¹⁷, where as a stream 'must be a watercourse within 2.5 km of its furthest source as marked with a blue line on Ordnance Survey (OS) maps'¹⁸.

The habitat areas measured for the purposes of the metric are based on areas measured at the time of the UK Habitat survey and may change due to changes in land use. The habitats measurements have not been undertaken with calibrated instruments and are therefore not to a precise scale.

This BNG assessment has been undertaken without reference to detailed landscape plans and subsequently, any calculations may need to be redone if detailed designs become available that reflect differences in species compositions and extent.

¹⁷ Natural England, 2022. Biodiversity Metric 3.1 Auditing and accounting for biodiversity – Technical Supplement. Accessed from: <http://publications.naturalengland.org.uk/publication/6049804846366720>

¹⁸ Ant Maddock, 2008. UK Biodiversity Action Plan Priority Habitat Descriptions - Rivers. Accessed From: <https://data.jncc.gov.uk/data/01d6ab5b-6805-4c4c-8d84-16bfebe95d31/UKBAP-BAPHabitats-45-Rivers-2011.pdf>

3. BIODIVERSITY BASELINE WITHIN DEVELOPMENT SITE

3.1 Desk Study: Designated Sites and Irreplaceable Habitats

There are no statutory designated Sites within the Site boundary or within 2 km of the Site. The closest SSSI is Islington Heronry SSSI, 8.1 km from the Site boundary. Islington Heronry SSSI comprises a small, isolated oak woodland designated for its significant breeding grey heron *Ardea cinerea* population¹⁹.

The Site falls within the Impact Risk Zone for Islington Heronry SSSI. SSSI Impact Risk Zones are defined zones around each SSSI which reflect the sensitivities of the features for which it is notified and indicate the types of development that could potentially have adverse impacts. The types of development include infrastructure (airports, helipads and other aviation proposals).

There are no non-statutory Sites located within the Site boundary or within a 2 km radius of the Site.

3.2 Irreplaceable Habitats

There are no irreplaceable habitats within the Site. There are however habitats of ecological value including hedgerows and lowland fens. This habitat is of Local Level ecological importance and further described as a Habitat of Principal Importance (in accordance with Natural Environment and Rural Communities (NERC) Act 2006 Section 41). These habitats are not being removed within the development proposals.

3.3 Habitat Survey and Condition Assessment

The habitats found in the development Site are shown in Appendix 2, Figure 1: Pre -Development Habitat Plans, and detailed in Table 3.1, with the UK Habitat type and code, as determined during the UK Habitat survey. The condition rating and score of each habitat is also shown.

Table 3.1: Baseline Habitats and Condition (Development Site)

Ref. Code (refer to Figure)	UK Hab code	UK Hab Habitat Type	Area of Habitats (ha) Length (km)	Condition Rating	Condition Score
Area Habitats					
h3d		Bramble Scrub	0.90	N/A	1
f2a		Lowland Fens	0.47	Moderate	2
c1c		Cereal Crops	86.03	N/A	1
h3h		Mixed Scrub	0.17	Moderate	2
g3		Other Neutral Grassland	0.19	Poor	1
Total (area)			87.76	N/A	N/A
Hedgerow					
	H2a	Native Hedgerow – associated with bank or ditch	0.13	Moderate	2
Total (Hedgerow)			0.13	N/A	N/A
Rivers					

¹⁹ Natural England (1984) Islington Heronry SSSI. Available at: <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000618.pdf> (Accessed: 28/04/22).

Ref. Code (refer to Figure)	UK Hab code	UK Hab Habitat Type	Area of Habitats (ha) Length (km)	Condition Rating	Condition Score
	191	Other Rivers and Streams - Ditches	0.65	Moderate	2
Total (Rivers)			0.65	N/A	N/A

3.4 Habitat Distinctiveness and Strategic Significance

Table 3.2 shows the assigned distinctiveness and strategic significance of each habitat type, as determined using the methodology given in Section 2.2.

For areas of scrub, the strategic significance has been determined as 'location ecologically desirable but not in Local strategy', as it is not currently a designated Site, but may be of value to protected species. The lowland fens, native hedgerows and ditch have been determined as 'Formally identified in the local strategy' as they are habitats listed in the local plan²⁰.

Table 3.2: Habitats, Distinctiveness and Strategic Significance

UK Hab Habitat Type	Habitat Distinctiveness	Strategic Significance
Area Habitats		
Bramble Scrub	Medium	Location ecologically desirable but not identified in the local strategy
Lowland Fens	Very High	Formally identified in local strategy
Cereal Crops	Low	Area/compensation not in local strategy/ no local strategy
Mixed Scrub	Medium	location ecologically desirable but not in local strategy
Other Neutral grassland	Medium	Area/compensation not in local strategy/no local strategy
Hedgerow		
Native Hedgerow	Low	Formally identified in local strategy
Rivers		
Ditches	Medium	Formally identified in the local strategy

3.5 Biodiversity Baseline Score

Table 3.3 details the ecological baseline score, as determined by the metric, with the UK Hab habitats shown in order of BU, HU, or RU value.

²⁰ King's Lynn & West Norfolk Borough Council, 2011. Local Development Framework - Core Strategy. Available From: https://www.west-norfolk.gov.uk/downloads/download/68/core_strategy_document

Table 3.3: Biodiversity Baseline

UK Hab Habitat Type	Suggested Action to Address Habitat Losses	Total Biodiversity Units, Hedgerow Units, River Units (BU, HU, RU)	Area of Habitats (ha) Length (km)
Area Habitats			
Bramble Scrub	Same broad habitat or a higher distinctiveness habitat	3.96	0.9
Lowland Fens	Bespoke compensation likely to be required	8.65	0.47
Cereal Crops	Same distinctiveness habitat or better	172.06	86.03
Mixed scrub	Same broad habitat or a higher distinctiveness habitat	1.50	0.17
Other neutral grassland	Same broad habitat or a higher distinctiveness habitat	0.76	0.19
Total (Area)		186.93	87.76
Hedgerows			
Native hedgerow	Same distinctiveness band or better	1.20	0.13
Total (Hedgerow)		1.20	0.13
River			
Ditches	Restore	5.20	0.65
Total (River)		5.20	0.65

3.6 Trees

There are no trees present on the development Site.

4. POST-INTERVENTION BIODIVERSITY WITHIN SITE

This section assesses the post-intervention biodiversity of the compensation areas and retained habitat areas. The opportunities for new and enhanced habitats have been determined based upon the professional judgement of the ecologist.

4.1 Completed Development Habitats, Habitat Intervention and UK Habitat Translation

The baseline habitats and the intervention undertaken (with reference to Section 2.3.4) is listed in Table 4.1. The resulting post-development UK Hab habitat types are also listed, based upon the landscape plan and using the professional judgement of a suitably qualified ecologist (SQE). The target habitat condition assigned to each UK Hab habitat type is captured within the metric.

Table 4.1: Habitats, the proposed intervention and UK Hab Translation post-intervention

UK Hab Habitat Type (Baseline)	Habitat Intervention	UK Hab Habitat Type in Same Location (post-intervention)
Bramble Scrub (Condition N/A)	Habitat retained (No change)	Bramble Scrub (Condition N/A)
Lowland Fens (Moderate Condition)	Habitat retained (No change)	Lowland Fens (Moderate Condition)
Cereal Crops (Condition N/A)	Habitat lost during construction and new created post-development	Other Neutral Grassland (Moderate Condition)
	Habitat lost during construction and new created post development	Other Neutral Grassland (Poor Condition)
	Habitat lost during construction and new created post-development	Traditional Orchards (Moderate Condition)
	Lost to permanent development	Urban – Other Developed Land (N/A Condition)
	Lost to permanent development	Urban – Other Developed Land (N/A Condition)
	Lost to permanent development	Urban - Built Linear Features (N/A Condition)
	Habitat lost during construction and new created post-development	Native Hedgerow with Trees (Poor Condition)
	Habitat lost during construction and new created post-development	Native Hedgerow (Poor Condition)
Mixed Scrub (Moderate Condition)	Habitat retained (No change)	Mixed Scrub (Moderate Condition)
	Habitat retained (No change)	Mixed Scrub (Moderate Condition)
Hedgerow – associated with bank or ditch (Moderate Condition)	Habitat retained (No change)	Hedgerow – associated with bank or ditch (Moderate Condition)
Rivers – other rivers and streams; Ditches (Moderate Condition)	Habitat retained and enhanced	Rivers – Other Rivers and Streams (Good Condition)

The development will result in the removal of the cereal crops habitat to facilitate the construction of the solar farm infrastructure. The development has sought to avoid all other habitat areas including a short section of hedgerow that runs along a mostly dry ditch in the northern area of the

Site, an area of mixed scrub to the southern boundary, an area of lowland fen along a ditch in the northern area of the Site and finally a drainage ditch in the northern section of the Site. These habitats will be present post development. To prevent damage to retained habitat caused by construction activities, all hedgerows, scrub, lowland fens trees and drainage ditches would be protected by fencing before any construction takes place. Protective fencing would keep machinery away from roots and branches to prevent damage.

New boundary habitats consisting of native hedgerows will create commuting and foraging habitats for badgers, bats, water voles and local bird species around the boundary of the Site. A detailed lighting strategy, including a lux contour plan, is to be devised to ensure that spillage of artificial light from security lighting onto sensitive ecological areas is minimised.

A variety of different habitat types will be introduced into the proposed development Site including wildflower grassland (neutral grassland). The new grassland would be sown with a high diversity seed mix to achieve moderate condition in unshaded areas (51.54 ha). Any areas shaded by the solar infrastructure would only achieve poor condition (30.19 ha). It would not be mown closely, and marginal areas would be allowed to grow tall. Other new habitat types will include native and non-native hedgerows, orchard trees and native hedgerows with trees. Orchard trees should be planted from November to March with the foresight that crown edges should be less than 20m apart in straight rows on a set pattern and should be managed in a low intensity way including regular weed control, mulching and watering during establishment.

The lowland fens associated alongside the ditch present in the northern section are to be retained within the proposed development Site. The existing Hedgerows will be retained and managed aiming to create a dense Hedgerow to support assemblages of birds, insects and bats. Regular trimming to a set height and width will allow for this. Any gaps in the existing hedgerow will be infilled with native, woody species. The lowland fens will be managed based on a cyclical management regime, cutting back set lengths each year to produce a patchwork habitat providing a more diverse set of microclimates on the Site. The mixed scrub will be retained and managed with a similar methodology to lowland fens.

The aim of the development landscaping will be to enhance the habitat provision for the benefit of locally identified wildlife such as badgers, birds, water voles and insects amongst others. Management techniques will be introduced to improve the long-term diversity of the boundary habitats alongside the inclusion of at least 80% native species in new hedgerow and tree planting.

The aim is to replace the current cereal crops with wildflower planting (Neutral grassland), in moderate condition. A suitable meadow mixture would be sourced to create this habitat. The grassland will be managed to have a long sward, which would be managed for moths to provide invertebrate prey for birds and bats. An increase in wildflower abundances would also benefit pollen and nectar foraging invertebrates and animals that prey on them.

Habitats will be created or retained and managed via the implementation of a Habitat Management Plan.

Bird and bat boxes will be provided at strategic points across the Site to mitigate the impact of the development on nesting birds and roosting bats. At least 5 bird boxes and 3 bat boxes would be provided for this Site placed in strategic locations on the solar infrastructure. These bird and bat boxes would help to aid in the development of the habitat connectivity of the Site.

4.2 Post-intervention Biodiversity

Table 4.2 details the post-development habitats and their corresponding biodiversity unit score based on the current landscape plan and as determined by the metric, with the habitats shown in order of BUs.

Table 4.2: Post-development Habitats, Habitat Action and BU Delivered

UK Hab Habitat Type (post-intervention or post development)	Area of Habitats (ha) Length (km)	Habitat Intervention	Target Condition	Total BU, HU, RU Delivered or Retained
Area Habitat				
Bramble Scrub	0.9	Habitat retained (No change)	N/A	3.96
Lowland Fens (Moderate Condition)	0.47	Habitat retained (No change)	Moderate	8.65
Mixed Scrub	0.17	Habitat Retained (No change)	Moderate	1.50
Other neutral grassland	51.54	Created new post-development	Moderate	379.55
Other neutral grassland	30.01	Created new post-development	Poor	111.78
Built linear features	2.34	Created new post-development	N/A	0
Traditional orchards	1.58	Created new post-development	Moderate	10.69
Developed land; sealed surface	30.76	Created new post-development	N/A	0
Total (Area Habitat)*	117.77	-	-	516.12
Hedgerow				
Native Hedgerow – associated with bank or ditch	0.13	Habitat retained (No change)	Moderate	1.20
Native Hedgerow	4.33	Created new post-development	Poor	9.61
Native hedgerow with trees	0.56	Created new post-development	Poor	2.49
Hedge ornamental non native	1.11	Created new post-development	Poor	1.07
Total (Hedgerow)	6.13	-	-	14.37
Rivers				
Ditches	0.65	Habitat retained and enhanced	Good	7.72
Total (River)	0.65	-	-	7.72
* The total area is 117.77 ha. This is greater than the baseline area habitats owing to the provision of on ground and off ground areas as a result of development. (off-ground areas relate to solar panels with poor condition wildflower planting underneath)				

4.3 Linear Habitats

4.3.1 Hedgerows

Multiple hedgerows will be delivered as part of the proposed landscape plans. This will include a native hedgerow of 4.33 km in length, around the entire Site perimeter. There will also be a native hedgerow with trees 0.65 km in length and a 1.11 km ornamental non-native hedgerow.

Additionally, all of the baseline Native Hedgerow - associated with bank or ditch will be retained as part of the development totalling 0.13 km.

Combined, the retained hedgerows as well as proposed new hedgerows will deliver a total of 14.37 HUs.

4.3.2 Watercourses

The 0.65 km ditch in the northern section of the Site will be enhanced in condition to achieve a net gain during and post development. Management resulting in enhancement will include maintaining vegetation to prevent habitats encroaching and overshadowing the watercourse

4.4 Trees

No individual trees not within a specific area/linear habitat have been proposed in the development landscape plans.

5. CALCULATION OF BIODIVERSITY CHANGE

5.1 Quantitative Biodiversity Change

This section details the biodiversity unit changes between the baseline and the post-development Site. Table 5.1 shows the calculation of change for area-based habitats and linear features at the development Site, pre-development and post-development, with the outcome for biodiversity.

Table 5.1: Baseline Biodiversity, Post-development Biodiversity and Biodiversity Change

Biodiversity Feature	Baseline (area/length)	Baseline Units	Post-development (area/length)	Post-development	Outcome
Area-based Habitats	87.76 ha	186.92 BU	117.77 ha*	516.13 BU	176.12% Net Gain
Hedgerows	0.13 km	1.20 HU	6.22 km	14.36 HU	1100.96% Net Gain
River	0.65 km	5.98 RU	0.65 km	7.72 RU	29.05% Net Gain
* The total area is 117.77 ha. This is greater than the baseline area habitats owing to the provision of on ground and off ground areas as a result of development. (off-ground areas relate to solar panels with poor condition wildflower planting underneath)					

The final change is a 176.12% net gain for area-based habitats and a 1100.961% net gain in hedgerows. The ditch can be enhanced as part of the development and subsequently a 29.05% net gain can be achieved with appropriate management.

Table 5.2 shows the broad habitat changes for area-based habitats, highlighting where like-for-like or like-for-better compensation has been achieved, along with the overall outcome.

Table 5.2: Baseline Biodiversity, Post-development Biodiversity and Biodiversity Change per Habitat Group

Total Site Units	Baseline (Pre-development)		Post-development		Overall Change	
Habitat Group	Baseline Area/Length	Baseline Units	Post-development Area/Length	Post-development Units	Area Change	BU Change
Cropland	86.03 ha	172.06 BU	0 ha	0 BU	-86.03 ha	-172.06
Heathland and Shrub	1.07 ha	5.46 BU	1.07 ha	5.46 BU	0 ha	0
Wetland	0.47 ha	8.65 BU	0.47 ha	9.16 BU	0 ha	+0.51
Grassland	0.19 ha	0.76 BU	81.55 ha	491.33 BU	+81.36 ha	+490.57
Urban	0 ha	0 BU	33.10 ha	0 BU	+32.92 ha	0
Hedgerows	0.13 km	1.20 HU	6.13 km	14.37 HU	+6.00 km	+13.17
Ditch	0.65 km	5.20 RU	0.65 km	6.71 RU	0 km	+1.51

Comparisons of the broad habitat groups pre- and post-development show positive results for high, medium and low distinctiveness habitats grouped in Heathland and Shrub, Wetland, Grassland, Hedgerows, Ditches and urban. The only habitat exhibiting a negative result was low distinctiveness habitat of Cropland which has been removed as part of the development.

Overall, the provision and net gain achieved for Grassland will assist to compensate for the reduction in Cropland. The proposed Grassland habitat types will offer better habitat characteristics and distinctiveness.

5.2 Qualitative Biodiversity Change

The introduction of new habitats within the development area would bring additional benefits for biodiversity, with features such as hedgerows, providing habitats for birds, bats and badgers; traditional orchards providing foraging and nesting/roosting habitat for breeding birds and roosting bats; and wildflower-rich planting providing nectar and pollen suitable for pollinators (which meets with the UK Government's aspirations in the National Pollinator Strategy²¹). The grassland will be managed to have a long sward, which would be managed for moths to provide invertebrate prey for birds and bats.

²¹ Department for Environment, Food & Rural Affairs, 2018. National Pollinator Strategy: Implementation Plan, 2018-2021 [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/766200/nps-implementation-plan-2018-2021.pdf

6. DISCUSSION

6.1 Recommendations

Section 5 of this report shows that with the current proposals, which retain a proportion of the existing habitats on the Site, and reinstate and enhance other habitats, will result in a significant gain for the biodiversity of the Site.

For Hedgerows, an increase of 6 km in linear extent will provide extensive ecological and biodiversity benefits to the wider environment increasing connectivity between the habitats created within the Site and the wider environment.

Overall, this assessment has found that it is possible to deliver a net gain in biodiversity on Site under the proposed landscape plans via the like-for-like and like-for-better compensatory actions outlined within this report.

The introduction of bat boxes and bird boxes could bring additional benefits for biodiversity within the development Site.

6.2 Management and Monitoring

Habitats delivered in the landscape scheme should be sympathetically managed for biodiversity to ensure they develop appropriately. A HMP has been produced which should describe the long-term management and monitoring of habitats and features suitable for use by wildlife. It includes measures to increase the ecological value of the Site following completion of the development and for the long term, such as reduced mowing of wildflower grassland areas. It would be handed over and explained to maintenance company or staff responsible for ongoing management of the Site.

The HMP sets out the management for a 30-year period, with the management prescriptions reviewed by a SQE after 10 years to ensure they are still relevant and appropriate to the site conditions. The native hedgerow with trees, traditional orchards and grassland habitats in particular would take time to mature, and management would need to be ongoing to ensure that the habitats present develop appropriately and reach their target condition. Management and monitoring of the habitats over a 30-year period would be required to ensure correct development and management of the habitats, in line with the BNG principles.

6.3 Conclusion

The development has sought to retain, enhance and create additional habitats within the development Site. With these measures, it is possible to achieve a net gain of 10% and biodiversity offsetting is not required. Overall, the current calculated change is 176.12% (329.20 Biodiversity Units) net gain for area-based habitats, a 1100.96% net gain (13.17 Hedgerow Units) for hedgerows, 29.05% net gain (1.74 River Units) for rivers is achievable through the enhancements suggested in this report.

APPENDIX 1

FIGURES

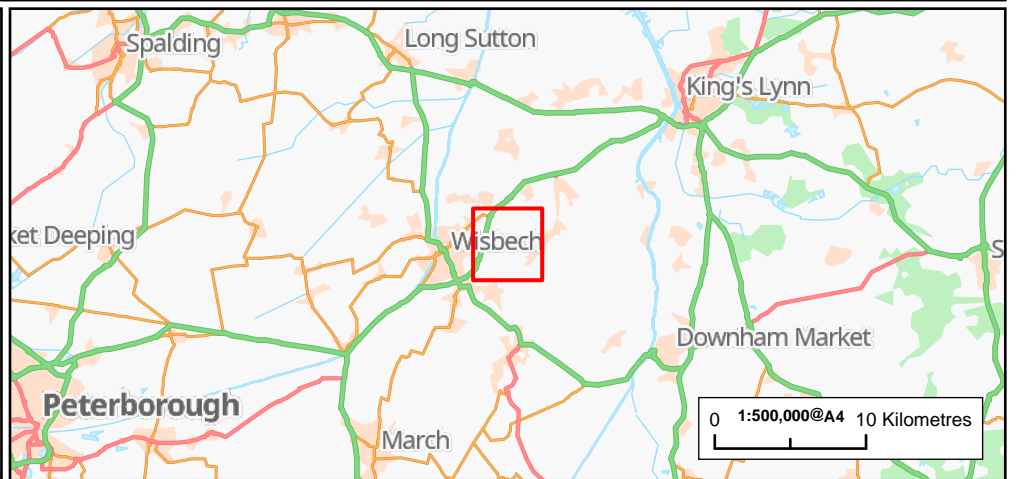
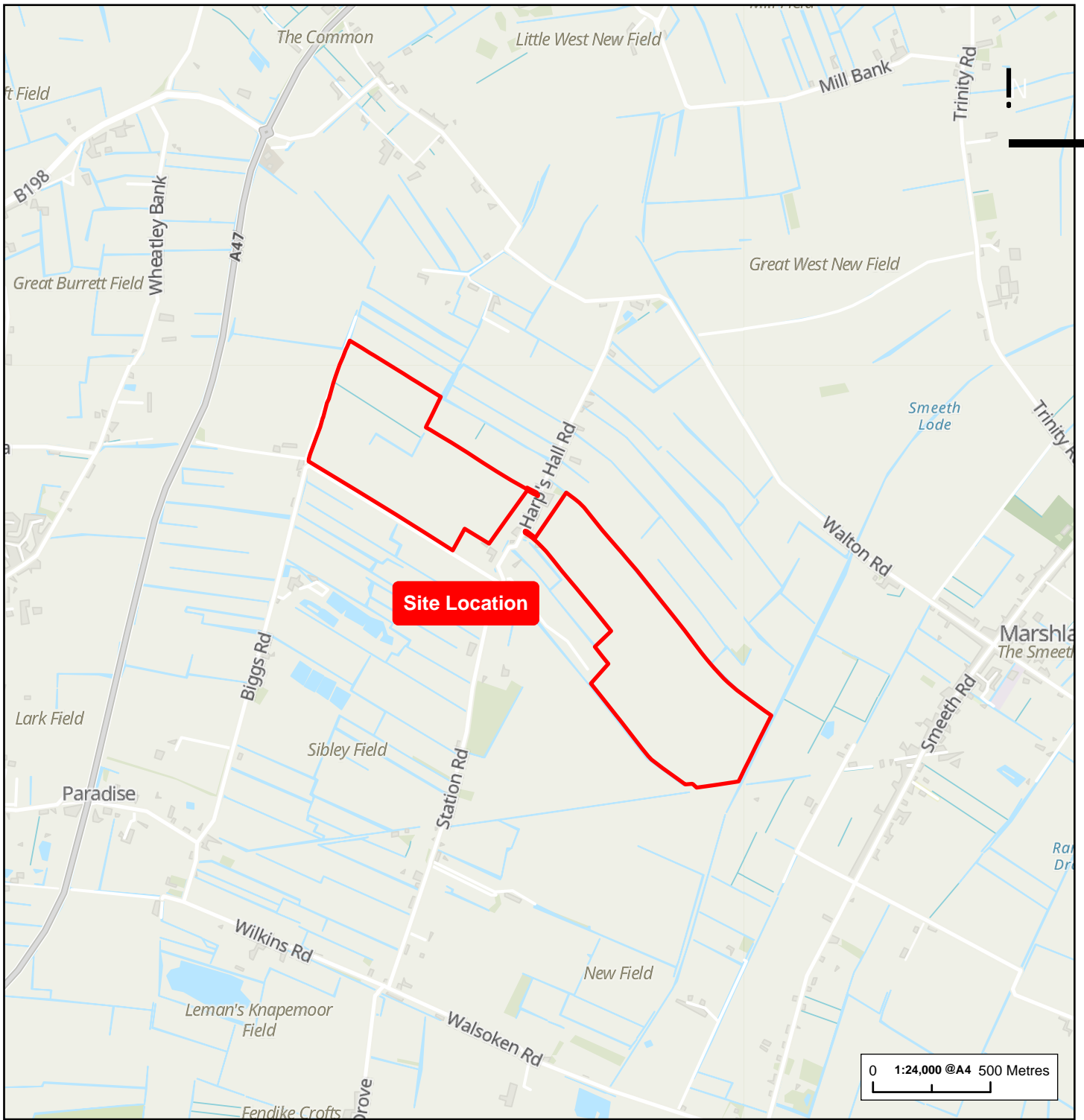


Figure Title Figure 1: Site Location	Project Name Meerdyke Solar Farm	Date October 2022	
		Scale As shown	
Project Number 1620013921	Client Downing Renewable Developments	Issue 1	Prepared By CT



1620013921-RAM-MA-ES-00001_SiteLocation_05.page



Legend

- Redline Boundary
- Tracks
- Solar Modules
- Solar Infrastructure
- Wildflower Mix
- Native Orchard Mix
- Existing Scrub
- Retained Habitat
- Evergreen Hedgerow
- Native Hedgerow
- Native Hedgerow With Trees
- Existing Field Drain
- Existing Hedgerow

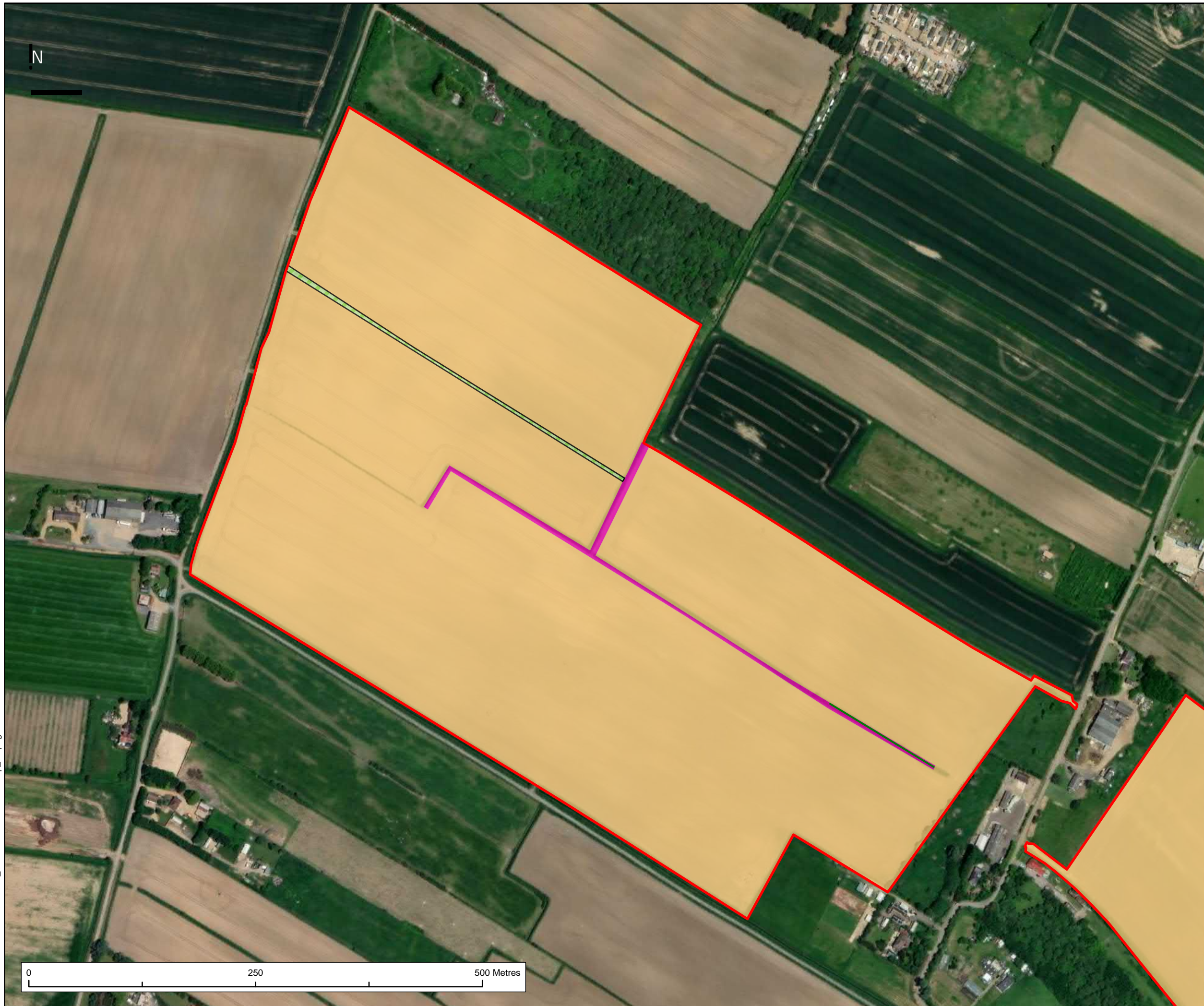
Note: There will be a 5 m buffer between hedgerow and fenceline for maintenance purposes

Figure Title	
Soft Landscape Plans	
Project Name	
Meerdyke Solar Farm	
Project Number	Figure No.
1620013921	2
Date	
October 2022	CT
Scale	Issue
1:7,583 @A3	1
Client	
Downing Renewable Developments	

1620013921-RAM-MA-ES-00005_LandscapeMitigation_04.pagx

APPENDIX 2

POST CONSTRUCTION HABITAT



Legend






	Site Boundary
	h2 - Hedgerow
	c1c - Cereal Crops
	f2a - Lowland Fens
	g3 - Neutral Grassland

Figure Title
UKHab Pre-development Habitat Map

Project Name
Meerdyke Solar Farm

Project Number 1620013921	Figure No. 1a
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Date October 2022	Prepared By CT
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Scale 1:4,000 @ A3	Issue 1
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Client
Downing Renewable Developments



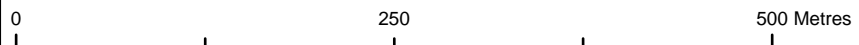
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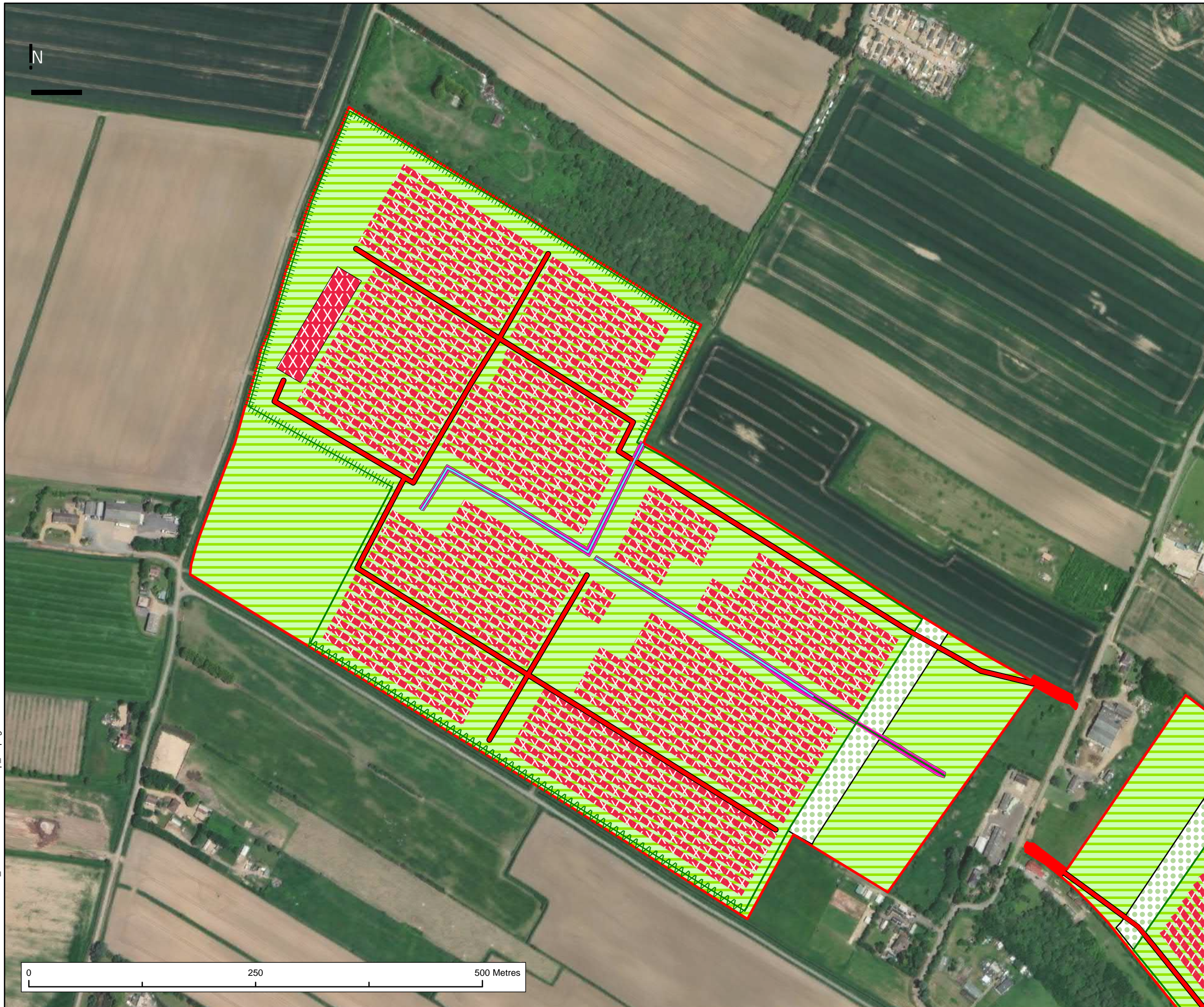
Legend

- Site Boundary
- h2 - Hedgerow
- c1c - Cereal Crops
- f2a - Lowland Fens
- h3d - Bramble Scrub
- h3h - Mixed Scrub

Figure Title	
UKHab Pre-development Habitat Map	
Project Name	
Meerdyke Solar Farm	
Project Number	Figure No.
1620013921	1b
Date	Prepared By
October 2022	CT
Scale	Issue
1:5,000 @ A3	1
Client	
Downing Renewable Developments	




1620013921-RAM-MA-ES-00007_UKHabPreDevHabitatMap_03.pagx

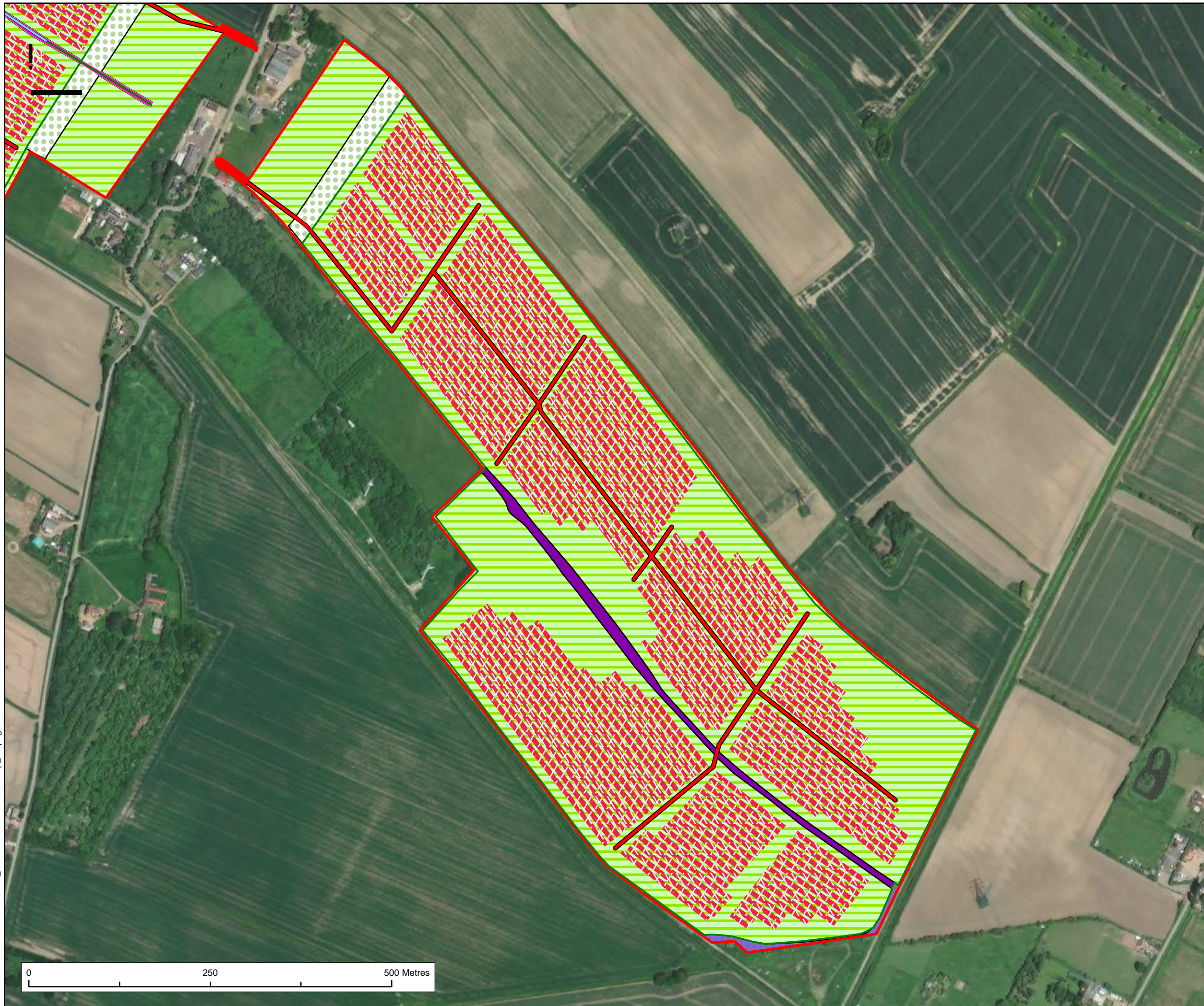


Legend

- Redline Boundary
- h2 - Hedgerow
- h2a - Retained Native Hedgerow with Trees
- h2b - Other Hedgerow
- r2b - Other Rivers and Streams
- 21 - Traditional Orchards
- f2a - Lowland Fens
- g3c - Other Neutral Grassland
- u1b6 - Other Developed Land
- u1e - Built Linear Features

Figure Title	
UKHab Post-development Habitat Map	
Project Name	
Meerdyke Solar Farm	
Project Number	Figure No.
1620013921	2a
Date	Prepared By
October 2022	CT
Scale	Issue
1:4,000 @ A3	1
Client	
Downing Renewable Developments	
	

1620013921-RAM-MA-ES-00008_UKHabPostDevHabitatMap_03.pagx



Legend

- Redline Boundary
- h2 - Hedgerow
- h2a - Retained Native Hedgerow with Trees
- r2b - Other Rivers and Streams
- 21 - Traditional Orchards
- f2a - Lowland Fens
- g3c - Other Neutral Grassland
- h3h - Mixed Scrub
- h3d - Bramble Scrub
- u1b6 - Other Developed Land
- u1e - Built Linear Features

Figure Title
**UKHab Post-development
 Habitat Map**

Project Name
Meerdyke Solar Farm

Project Number 1620013921	Figure No. 2b
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Date October 2022	Prepared By CT
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Scale 1:5,000 @ A3	Issue 1
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Client
Downing Renewable Developments



1620013921-RAM-MA-ES-00008_UKHabPostDevHabitatMap_03.pagx

APPENDIX 3

BASELINE HABITAT DESCRIPTIONS

Arable and Horticulture – Cereal Crops

The majority of the Site has been subject to ground preparation and planting in the recent past, with no crops/vegetation currently showing. The condition of this habitat is considered to be poor.

Scrub - Bramble Scrub

There is a small area of dense bramble *Rubus fruticosus* scrub in the east of the Site in poor condition. The bramble runs the length of a dry ditch and is interspersed with occasional hawthorn *Crataegus monogyna*. The understorey vegetation consists of nettle *Urtica dioica*, spear thistle *Cirsium vulgare*, broad-leaved dock *Rumex obtusifolius*, and Common hogweed *Heracleum sphondylium*.

Scrub – Mixed Scrub

There is a small area of dense mixed scrub in the south west corner of the Site in poor condition. It contains hawthorn *Crataegus monogyna*. The understorey vegetation consists of nettle *Urtica dioica*, spear thistle *Cirsium vulgare*, broad-leaved dock *Rumex obtusifolius*, and Common hogweed *Heracleum sphondylium*.

Other neutral grassland

There is a narrow strip of poor condition neutral grassland in the west of the Site that represents a boundary between fields, it is approximately 1m at its widest. The area is dominated by a mix of sweet vernal grass *Anthoxanthum odoratum*, red fescue *Festuca rubra*, perennial rye grass *Lolium perenne*. With occasional nettle *Urtica dioica* and white dead nettle *Lamium album*.

Lowland Fens

A small area of moderate condition lowland fen is present in the western extent of the Site. This habitat follows drains that were dry at time of survey. The area was dominated with common reed *Phragmites australis* with frequent common hogweed *Heracleum sphondylium*, nettle *Urtica dioica* and white dead nettle *Lamium album* along the edge of the arable crops.

Hedgerow (Priority habitat) – Native hedgerow associated with bank or ditch

A short section of hedgerow runs along a mostly dry ditch in the East Section of the Western Array. The hedgerow is of good condition, is unmanaged and is approximately 6m in height by 3m in width. The hedgerow consists solely of hawthorn.

Ditch

The Site is bordered on most sides by drainage channels (ditches). These all flow out to connect to Smeeth Lode on the southeast boundary of the Site. Common reed dominates the emergent vegetation.

APPENDIX 4

HABITAT CONDITION ASSESSMENT

Habitat Descriptions and Condition Assessment Meerdyke Solar Farm June 2022

Habitats

The site is located across two fields

The Site is split into two separate areas totalling 87.53 ha. These two areas are separated by Harps Hall Road and a small number of residential properties. The Site consists almost entirely of agricultural land, that has recently been prepared and seeded, with associated drainage ditches and one small section of hedgerow. There is an area of lowland fens alongside the drainage ditches in the northern section of the Site and areas of Bramble scrub and mixed scrub in the southern section of the site.

Grassland – Neutral Grassland

Condition: Poor

Other neutral grassland G3c

There is a narrow strip of poor condition neutral grassland in the west of the site that represents a boundary between fields, it is approximately 1 m at its widest. The area is dominated by a mix of sweet vernal grass *Anthoxanthum odoratum*, red fescue *Festuca rubra*, perennial rye grass *Lolium perenne*. With occasional nettle *Urtica dioica* and white dead nettle *Lamium album*.

Table 1: HCA criteria for Neutral grassland

1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.	No
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	No
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	No
4	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Yes
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition ¹ and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	No
Additional Criteria – Non-Acid grasses		
6	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	
Passes 5 or 6/6 criteria including non-negotiable criteria 1 and 6 = Good		
Passes 3 or 4 of 6 criteria, including essential criterion 1 = Moderate		
"Passes 0, 1, 2 criteria of 6 criteria; OR Passes 3 or 4 criteria excluding criterion 1 and 6" = Poor		

The Neutral Grassland habitat passed criteria 4. As a total of 1 criteria have been met the habitat has achieved a 'Poor' score.

Native Hedgerow – Associated with bank or ditch

Condition: Moderate

A short section of hedgerow runs along a mostly dry ditch in the East Section of the Western Array. The hedgerow is of good condition, is unmanaged and is approximately 6 m in height by 3 m in width. The hedgerow consists solely of hawthorn.

Table 2: HCA criteria for Native Hedgerow

A1. Height	>1.5 m average along length	<p>The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees.</p> <p>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).</p> <p>A newly planted hedgerow does not pass this criterion (unless it is > 1.5 m height).</p>	Yes
A2. Width	>1.5 m average along length	<p>The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees.</p> <p>Outgrowths (e.g. blackthorn suckers) are only included in the width estimate when they >0.5 m in height.</p> <p>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 practice⁴).</p>	yes
B1. Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees')	<p>This is the vertical gappiness of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth.</p> <p>Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).</p>	No
B2. Gap - hedge canopy continuity	<ul style="list-style-type: none"> · Gaps make up <10% of total length and · No canopy gaps >5 m 	<p>This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small).</p> <p>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).</p>	Yes
C1. Undisturbed ground and perennial vegetation	<ul style="list-style-type: none"> >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 hedge (at least) 	<p>This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small).</p> <p>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).</p>	Yes

C2. Undesirable 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 (<i>Urtica</i> spp.), cleavers (<i>Galium aparine</i>) and docks (<i>Rumex</i> spp.). Their presence, either singly or together, should not exceed the 20% cover threshold.	No
D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non- native and neophyte species	Neophytes are plants that have naturalised in the UK since AD 1500. For information on neophytes see the JNCC website and for information on invasive non-native species see the GB Non-Native Secretariat website.	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 (e.g. excessive hedge cutting).	Yes
No more than two failures in total, and no more than one in any functional group = Good			
No more than four failures in total, and does not fail both attributes in more than one functional group = Moderate			
Fails a total of more than 4 attributes, or fails both attributes in more than one functional group = Poor			

The habitat has a condition of Moderate

Ditches (Ditch)

Condition: Poor

The Site is bordered on most sides by drainage channels (ditches). These all flow out to connect to Smeeth Lode on the southeast boundary of the Site. Common reed dominates the emergent vegetation. There is a dry ditch within the northern section bound by native hedgerow and lowland fens.

Table 3: HCA criteria for Ditches

1	The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	Yes
2	A range of emergent, submerged and floating leaved plants are present. As a guide >10 species of emergent, floating or submerged plants in a 20 m ditch length.	No
3	There is less than 10% cover of filamentous algae and/or duckweed (these are signs of eutrophication).	Yes
4	A fringe of marginal vegetation is present along more than 75% of the ditch.	Yes
5	Physical damage evident along less than 5% of the ditch, such as excessive poaching, damage from machinery use or storage, or any other damaging management activities.	Yes
6	Sufficient water levels are maintained; as a guide a minimum summer depth of approximately 50 cm in minor ditches and 1 m in main drains.	No
7	Less than 10% of the ditch is heavily shaded.	Yes
8	There is an absence of non-native plant and animal species ¹ .	Yes
Passes 8 of 8 = Good (3)		
Passes 6 or 7 of 8 = Moderate (2)		
Passes 0, 1, 2, 3, 4 or 5 of 8 = Poor (1)		

The habitat has passed six criteria and therefore scored a Moderate condition

Wetland – Lowland Fens

Condition: Poor

A small area of lowland fen is present in the western extent of the Site. This habitat follows drains that were dry at time of survey. The area was dominated with common reed *Phragmites australis* with frequent common hogweed *Heracleum sphondylium*, nettle *Urtica dioica* and white dead nettle *Lamium album* along the edge of the arable crops.

Table 4: HCA criteria for Wetland – Lowland Fens

1	"The water table is at or near the surface throughout the year, this could be open water or saturation of soil at the surface. There is no artificial drainage, unless specifically to maintain water levels as specified above. NB - this criterion is essential for achieving good condition."	Yes
2	The appearance and composition of the vegetation closely matches characteristics of the specific wetland habitat type (see UKHab definition linked above). Indicator species for the specific wetland habitat type ¹ are very clearly and easily visible.	Yes
3	The water supplies (groundwater, surface water and/or rainwater) to the wetland are of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	Yes
4	Cover of scrub and scattered trees less than 10%.	Yes
5	Cover of bare ground less than 5%.	No
6	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition ¹ make up less than 5% of ground cover.	No
Passes 8 of 8 = Good (3)		
Passes 6 or 7 of 8 = Moderate (2)		
Passes 0, 1, 2, 3, 4 or 5 of 8 = Poor (1)		

4 Criterion Passed = Poor Condition.

Scrub – Mixed Scrub

Condition Poor

There is a small area of mixed scrub in the south west corner of the Site in poor condition. It contains hawthorn *Crataegus monogyna* and elder *Sambucus nigra*. The understorey vegetation consists of bramble *Rubus fruticosus*, nettle *Urtica dioica*, broad-leaved dock *Rumex obtusifolius*, cleavers *Galium aparine* and cow parsley *Anthriscus sylvestris*.

Table 5: HCA criteria for Wetland – Mixed Scrub

1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).	N
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	N
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.	N
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Y
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.	N
Passes 5 of 5 criteria = Good		

Passes 3 or 4 of 5 criteria	= Moderate
Passes 0, 1 or 2 of 5 criteria	= Poor

Condition = Poor

Arable – Cereal Crops

Condition: N/A

The majority of the Site has been subject to ground preparation and planting in the recent past, with no crops/vegetation currently showing. The condition of this habitat is considered to be poor.

Scrub – Bramble Scrub

Condition: N/A

There is a small area of dense bramble *Rubus fruticosus* scrub in the east of the Site in poor condition. The bramble runs the length of a dry ditch and is interspersed with occasional hawthorn *Crataegus monogyna*. The understorey vegetation consists of nettle *Urtica dioica*, spear thistle *Cirsium vulgare*, broad-leaved dock *Rumex obtusifolius*, and Common hogweed *Heracleum sphondylium*.