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1. Introduction

- 1.1.1 AECOM was commissioned by Longfield Solar Farm Ltd to undertake a Biodiversity Net Gain ('BNG') assessment for the proposed Longfield Solar Farm located approximately 5.7km south-west of Chelmsford, Essex (referred to as the 'Scheme'). The Scheme will comprise the construction, operation and maintenance, and decommissioning of a solar photovoltaic (PV) electricity generating facility with a total capacity exceeding 50 megawatts (MW), an energy storage facility and an export/import connection to the National Grid, via an extension of the existing Bulls Lodge Substation. The Scheme will be located within the 'Order limits' and is the subject of the DCO Application.
- 1.1.2 For the planting proposals see the ***Outline Landscape and Ecological Management Plan (OLEMP) [EN010118/APP/7.13(B)]***.
- 1.1.3 The BNG assessment has been undertaken to quantify the overall effect on biodiversity and to inform the habitat mitigation requirement for the Proposed Development using Biodiversity Metric 3.1 in accordance with the accompanying guidance and best practice principles (Ref 1, Ref 2, Ref 3). The report sets out the results of the BNG assessment. The methodology for the assessment is outlined in Section 2, the results in Section 3 and the conclusions are provided in Section 4.

1.2 Proposed Development

- 1.2.1 Longfield Solar Farm is a new solar farm scheme which will use ground mounted solar photovoltaic (PV) panel arrays to generate electricity energy from the sun and combine these with a Battery Energy Storage System (BESS). The Scheme will be connected to the national electricity transmission network by an underground cable and includes an extension to the existing Bulls Lodge Substation.
- 1.2.2 The principal infrastructure will be located within the Order limits and will include:
- a. Solar Photovoltaic Generating Station up to 275.26ha, known as 'The Solar Farm Site' for ease of reference;
 - b. Battery Energy Storage System (BESS) up to 5.2ha
 - c. Longfield Substation: up to 1.66ha;
 - d. Grid Connection Route including access tracks and temporary construction laydown areas: up to 22.90ha;
 - e. Bulls Lodge Substation Extension including electricity switching station (up to 4.62ha) and temporary overhead line alterations (up to 3.72);
 - f. Works (up to 370.09ha) including
 - electrical cables (underground);
 - fencing, gates, boundary treatment and other means of enclosure;

- works for the provision of security and monitoring measures such as CCTV columns, lighting columns and lighting, cameras, weather stations, communication infrastructure, and perimeter fencing;
 - landscaping and biodiversity mitigation and enhancement measures including planting;
 - improvement, maintenance and use of existing private tracks; and
 - laying down of internal access tracks, ramps, means of access, footpaths, permissive paths, cycle routes and roads, including the laying and construction of drainage infrastructure, signage and information boards;
 - temporary footpath diversions;
 - earthworks;
 - SuDs Ponds, runoff outfalls, general drainage and irrigation infrastructure and improvements or extensions to existing drainage and irrigation systems;
 - up to 10 secondary temporary construction compounds, both within the permanent work area and outside the permanent work area;
 - works to divert and underground existing electrical overhead lines.
- g. Temporary construction and decommissioning compounds (up to 6.9ha), secondary temporary construction compounds within the Solar Farm Site, and temporary construction laydown for the Bulls Lodge Substation Extension (up to 7.21ha);
- h. Ancillary Buildings, being office, warehouse and plant storage building: up to 0.61ha;
- i. Works to facilitate site access to the Solar Farm Site and the Bulls Lodge Substation Extension up to 5.11ha; and
- j. Habitat Management Areas: a minimum of 55.8ha.

1.3 Site Descriptions

- 1.3.1 The Order limits is 453 ha in size and is located approximately 5.7km south-west of Chelmsford, Essex. The central Ordnance Survey grid reference for the Order limits is TL 763 134.
- 1.3.2 The Order limits is dominated by arable fields with improved pasture fields to the north-west. There are mature trees and hedges, small, wooded copse and ponds within the Order limits. The River Ter, within adjacent woodland and grassland bisects the Order limits to the north, west of the village of Terling, Essex. The Order limits is surrounded mainly by arable land and mature broadleaved woodland (plantation, semi-natural and ancient). There are individual and clusters of residential properties located within and adjacent to the Order limits. The Order limits is located within areas administered by Braintree District Council and Chelmsford City Council. The Order limits is

within the South Suffolk and North Essex Clayland National Character Area (wholly within Essex) (Ref 4).

1.4 Planning context

- 1.4.1 It is government policy that planning decisions should minimise impacts on and provide net gain for biodiversity (National Planning Policy Framework 2019) (Ref 5). The Essex Green Infrastructure Strategy (2020) (Ref 6) for Essex County Council proposes to ‘*Use planning policy to secure multi-functional green spaces within and beyond development site boundaries through the application of biodiversity net gain, biodiversity off-setting and the creation of compensation habitat and other green infrastructure promotion schemes*’.
- 1.4.2 In addition, the Environment Act (Ref 7) which has recently received royal assent (9th November 2021) includes provisions which, when in force, will make biodiversity net gain (BNG) a mandatory requirement within the planning system in England (including for Nationally Significant Infrastructure Projects) requiring all relevant developments to achieve a minimum 10% net gain in biodiversity units relative to the Order limit’s baseline biodiversity value from 2025.

2. Methodology

2.1 Biodiversity Metric 3.1

- 2.1.1 A BNG assessment involves making a comparison between the biodiversity value of habitats present within the Order limits prior to development (i.e. the ‘baseline’) and the predicted biodiversity value of habitats following the completion of the development (i.e. ‘post-development’). The comparison is made in terms of ‘biodiversity units’, with a ‘biodiversity metric’ providing the mechanism to allow biodiversity values to be calculated and compared.
- 2.1.2 Biodiversity Metric 3.1 (Ref 1) calculates the overall loss or gain of biodiversity of development projects by assessing the distinctiveness (i.e. type of habitat and its value), condition, extent, and strategic significance of habitats on Order limits pre- and post-development including any temporary or permanent loss of habitat. To achieve biodiversity net gain, the biodiversity unit score must have a post-development score higher than the baseline score.
- 2.1.3 When calculating the post-development biodiversity units, the metric includes a series of standard ‘risk multipliers’ to account for the inherent risk of creating and restoring habitats, the time taken to establish habitats and the location of the mitigation in relation to the habitats lost on site. The risk multipliers have the effect of reducing the value of the proposed habitats, which means larger areas, habitats of higher distinctiveness, and/or condition are required to achieve net gain.
- 2.1.4 The metric assesses and generates separate outputs for area-based habitats¹ (this includes all area-based terrestrial and intertidal habitats. All habitats from

¹ This includes all area-based terrestrial and intertidal habitats. All habitats from the low water mark to the high-water mark can and should be assessed using Metric 3.0 where they are impacted by development. Any marine habitats beyond the low water mark cannot be assessed using Metric 3.0.

the low water mark to the high-water mark can and should be assessed using Metric 3.1 where they are impacted by development. Any marine habitats beyond the low water mark cannot be assessed using Metric 3.1 and are measured in habitat units) and linear based habitats, including hedgerows (measured in hedgerow units) and rivers (measured in river units). To claim a net gain in biodiversity, there must be an increase across all habitats, hedgerow and river units; the units cannot be summed to give an overall biodiversity unit value (i.e., an increase in habitat and hedgerow units cannot be used to offset a loss in river units).

2.1.5 The information required to undertake the calculation is described below.

2.2 Baseline Data

2.2.1 The Phase 1 habitat data collected by AECOM in April 2021 (see **Appendix 8B: Preliminary Ecological Appraisal** of the ES [EN010118/APP/6.2] (hereafter referred to as 'the baseline') have been utilised to determine the baseline area-based and linear -based habitats (hedgerows). Further surveys in August 2022 (submitted as part of Deadline 3) updated these assessments to ensure habitat condition data was compliant with guidance accompanying the DEFRA 3.1 Metric and has been taken into account in the metric. All the habitats recorded within the Order limits were converted from standard Phase 1 habitat types to UK Habitat Classification categories (see **Appendix D**), before being digitised in Geographic Information System (GIS) to provide area and length measurements of each habitat type (the Baseline Habitat Plan is provided in **Appendix A**).

2.2.2 All baseline habitats defined within the Order limits were assigned a condition retrospectively post-survey, based on assumptions informed by baseline information available for the Order limits, professional judgement and application of the condition assessment criteria outlined in the Biodiversity Metric 3.1 – Technical Supplement (Ref 2). The data was aggregated and entered into the metric to calculate the baseline biodiversity units.

2.3 Post-Development Data

2.3.1 The Landscape Masterplan (Appended to the OLEMP) has been used to determine the extent and type of habitats to be lost, retained and created post-development. Habitats in the Landscape Plan were converted to UK Habitat Classification categories before being digitised into GIS to produce the 'Post-Development' Plan (see **Appendix B**). Target condition scores for the proposed habitats were selected in accordance with Biodiversity Metric 31 User Guide and Technical Supplement (Ref 2) using professional judgement to ensure the condition scores selected were realistic. The data was utilised to predict the post development biodiversity units.

2.4 River Habitats

2.4.1 Habitat categories, associated distinctiveness and condition scores are approached differently for rivers. In line with current guidance (Ref 2), a desk study was undertaken to identify all river habitats present within the Order limits using the 'Discovering Priority Habitat in England' river data map (Ref 8). Following this, where data was available, river habitats were assigned a

habitat category and distinctiveness using Section 41 of the NERC Act's Priority Habitat descriptions (Ref 9).

- 2.4.2 As data was not available for all river habitats present within the Order limits, a River Condition Assessment was undertaken on 20 July 2021. This survey aimed to capture data to determine the habitat condition of all stretches of river on site and within 10 m of the Order limits. To assess condition of rivers, Modular River Physical (MoRPh) Survey methodologies were utilised in line with Natural England Guidance. These surveys assess river condition based on morphological features. Rivers within 10m of the Post-Development boundary have been included within this assessment due to the implementation of the 10m riparian zone buffer which is applied to all river habitats.
- 2.4.3 The river condition assessment survey utilises the MoRPh5 survey methodology which assesses watercourse condition based on its morphological features and not the biological elements of river condition; these are assessed in other reports associated with the Scheme.

2.5 Strategic Significance

- 2.5.1 Metric 3.1 requires that the strategic significance of all baseline and post-development habitats be defined. Strategic significance refers to strategic locations for local biodiversity and nature improvements, identified within local planning policies (**Appendix F**). As part of this assessment, the following local planning policy documents were reviewed to determine the strategic significance of the habitats within the Order limits:
- a. Chelmsford Biodiversity Action Plan (Ref 10);
 - a. Chelmsford Local Plan 2013-2026 (adopted May 2020) (Ref 11);
 - b. Braintree District Local Plan 2013-2033 (Ref 12); and
 - c. The South Suffolk and North Essex Clayland National Character Area profile (Ref 4).

2.6 Assumptions

- 2.6.1 In undertaking the calculation, the following assumptions have been made:
- a. The assessment is based on the **Illustrative Concept Design (Figure 2-5** of the ES [EN010118/APP/6.3(A)] which is also presented in the Landscape Masterplan (Appended to the OLEMP) and includes any permanent and temporary loss of habitats. It is acknowledged that the Works Plans allow a degree of flexibility with the detailed design but the Illustrative Concept Design provides maximum footprints for proposed infrastructure and is expected to represent a reasonable worst case scenario. For example, in the event that equipment such as the BESS has a smaller footprint, the BNG is expected to be better than presented in this report. Minor changes in track and cable locations are not expected to have material effects on the findings of this report;
 - b. Strategic significance has been assessed using the documents identified in Section 2.5 Habitats within the within Boreham Road Gravel Pits County Wildlife Site (CWS) and habitats with specific plans within the

Chelmsford Local Biodiversity Action Plan (Ref 10) (lowland mixed deciduous woodland, ponds and hedgerows) have been assigned 'high' strategic significance;

- c. The dry ditch within the Order limits has included within the adjacent habitat for this assessment, and excluded from the river metric assessment as it fails to meet the definition for a ditch with the metric;
- d. Habitats created as part of the Scheme will be subject to appropriate ongoing management and monitored to ensure correct establishment and growth, and that remedial action will be taken if this does not proceed as expected, otherwise the target conditions used in the calculations may not be met and the biodiversity units may not be achieved. This will be secured by the **Outline Construction Environmental Management Plan** (OCEMP) [EN010118/APP/7.10(B)], the **Outline Operational Environmental Management Plan** (OOEMP) [EN010118/APP/7.11(B)], and the **Decommissioning Strategy** [EN010118/APP/7.12(A)];
- e. Grassland located under photovoltaic (PV) solar panels is assumed to have a target condition of 'poor';
- f. Grassland located between fence and panels that will be either regularly mown or grazed is assumed to have a target condition of 'moderate' to reflect the proposed management; and
- g. There are no permanent impacts to watercourses as the temporary impacts to habitats in Boreham tributary will be reinstated within two years therefore it assumed these habitats are retained, refer to 3.1.2.

2.7 Constraints

- 2.7.1 All habitat areas and lengths included within the assessment have been measured manually using ArcGIS based on the Phase 1 Habitat Plan and the General Arrangement drawing, as such habitat areas are approximations only. However, the approximations are not viewed to impact the results of the assessment.

3. Results

3.1 Biodiversity Metric 3.1 Calculation Tool Output

- 3.1.1 The results of the assessment for the Order limits are summarised below. Full details of all habitats including baseline, retained, lost and created are presented within the accompanying biodiversity metric calculations for the Scheme, refer to **Appendix C**.

On-site Baseline Habitats

- 3.1.2 Within the Order limits for Longfield Solar Farm there is a total habitat area of 452.94 ha. The habitats identified within the Order limits prior to development vary in ecological value, ranging from very low to high distinctiveness. The most dominant habitat on site is arable habitat which covers approximately 387ha, 21km of hedgerow habitat is also present in the baseline and 1.56km

of river habitats (0.12km of the River Ter and 1.292km of Boreham Tributary, along with 0.15km of ditches).

3.1.3 As outlined in Section 2.1.4, Strategic Significance has been assigned to all baseline habitats present within the Site. 'High' Strategic Significance has been assigned to the following habitats as they are situated within the Boreham Road Gravel Pits CWS:

- a. Woodland and Forest – Lowland Mixed Deciduous Woodland ;
- b. Grassland – Other neutral grassland ;
- c. Heathland and shrub – Mixed scrub
- d. Other Rivers and Streams; and
- e. Native Hedgerows .

3.1.4 The following habitats have been identified within the Environmental Statement as being suitable for protected/notable species and have therefore been assigned a 'Medium' SS:

- a. Cropland – cereal crops;
- b. Lakes – Ponds (Priority Habitat);
- c. Urban – Developed land; sealed surface (partial);
- d. Woodland and forest – Lowland mixed deciduous woodland;
- e. Woodland and forest – Other woodland; broadleaved; and
- f. All hedgerows

3.1.5 The conversion between Phase 1 Habitat Survey typology and UKHab is presented in **Appendix D**. The following descriptions provide a summary of the baseline habitats and their condition (further justifications of habitat condition scores are provided in **Appendix E**).

Cropland – Cereal crops (Cultivated/disturbed land – Arable)

3.1.6 Arable fields form the majority of habitat on the Order limits. These consist of a number of different crops including oilseed rape (*Brassica napus*), wheat (*Triticum aestivum*), potato (*Solanum tuberosum*) and sugar beet (*Beta vulgaris spp. vulgaris*). This habitat was categorised as the UK Hab category 'Cropland – Cereal crops' and has a default condition of 'N/A – Agriculture' within the metric.

Grassland – Modified Grassland (Poor semi-improved grassland)

3.1.7 The poor semi-improved grassland mainly comprises of conservation margins and edge habitats alongside hedges and roads. Dominant species comprise false oat grass (*Arrhenatherum elatius*), Yorkshire fog (*Holcus lanatus*), rough meadow grass (*Poa trivialis*), perennial rye-grass (*Lolium perenne*) and common couch (*Elymus repens*). This habitat was categorised as the UK hab category 'Grassland – Modified Grassland' and has been assigned a condition of 'moderate' within the metric.

Grassland – Modified Grassland (Improved grassland)

- 3.1.8 This improved grassland mainly occurs in the cattle grazed fields to the north of the Order limits. The fields are dominated by perennial rye-grass with occasional other species including Yorkshire fog, cocksfoot (*Dactylis glomerata*), common couch, creeping thistle (*Cirsium arvense*), cow parsley, dandelion and meadow buttercup (*Ranunculus acris*). This habitat was categorised as the UK hab category 'Grassland – Modified Grassland' and has been assigned a condition of 'moderate' within the metric.

Woodland and Forest – Lowland mixed deciduous woodland (Broad-leaved semi-natural woodland)

- 3.1.9 There are a few small areas of broadleaved semi-natural woodland within the Order limits, within approximately 13 larger woodlands within 50m of the Order limits, most of which are Local Wildlife Sites. These woodlands are often dominated by pedunculate oak, hornbeam, field maple, ash, with abundant elder (*Sambucus nigra*) and hawthorn (*Crataegus monogyna*) and classified as ancient woodland. The ground flora has patches where bluebell is abundant. Other ancient woodland indicators recorded include three-nerved sandwort (*Moehringia trinervia*), wood millet (*Milium effusum*), wood speedwell (*Veronica montana*) and climbing corydalis (*Ceratocarpus claviculata*). This habitat was categorised as the UK hab category 'Woodland and Forest – Lowland mixed deciduous woodland' and has been assigned a condition of 'high' within the metric.

Woodland and Forest – Other woodland; broadleaved (Broad-leaved plantation woodland)

- 3.1.10 A few small areas of plantation woodland are present on site. Species include pedunculate oak (*Quercus robur*) and hornbeam (*Carpinus betulus*), with some wild cherry (*Prunus avium*), field maple (*Acer campestre*) and ash planted in rows. This habitat was categorised as the UK hab category 'Woodland and Forest – Other woodland; broadleaved' and has been assigned a condition of 'moderate' within the metric.

Heathland and Shrub – mixed scrub (Scrub)

- 3.1.11 There are numerous small patches of dense and scattered scrub especially surrounding ponds as well as along boundaries including adjacent to trainline to the south of the Order limits. These scrub habitats are dominated by woody species such as bramble, silver birch (*Betula pendula*), butterfly-bush (*Buddleja davidii*), hornbeam, hawthorn, elder and blackthorn. This habitat was categorised as the UK hab category 'Heathland and Shrub – mixed scrub' and has been assigned a condition of 'moderate' within the metric.

Lakes – Pond (priority habitat) (Standing water)

- 3.1.12 There are 27 ponds located across the Order limits with most being heavily shaded from trees and scrub. No submerged macrophytes were observed in the ponds. A few ponds have emergent vegetation and marginal species including water cress (*Nasturtium officinale*), reedmace (*Typha latifolia*) and soft rush (*Juncus effusus*). There are a couple of wet ditches with reedmace, fine-leaved water dropwort (*Oenanthe aquatica*) and water-starwort (species of *Callitriche*). This habitat was categorised as the UK hab category 'Lakes –

Pond (priority habitat)' and has been assigned both 'moderate' and 'poor' condition within the metric.

Sparsely vegetated land - Ruderal/Ephemeral (Tall ruderal)

- 3.1.13 Areas of tall ruderal herbs were observed between cultivated arable fields on banks of ditches or between arable fields and other habitats such as woodland and hedge boundaries. These habitats are dominated with willowherb species (species of *Epilobium*), common nettle, cow parsley, white dead nettle, broad-leaved dock, common thistle, wild teasel and hogweed. Other species include soft brome, dandelion, common field speedwell (*Veronica persica*), meadow buttercup, red campion and ground ivy (*Glechoma hederacea*). This habitat was categorised as the UK hab category 'Sparsely vegetated land - Ruderal/Ephemeral' and has been assigned a condition of 'moderate' within the metric.

Hedgerow habitats

- 3.1.14 Hedgerows border many of the fields within the Order limits. These ranged from defunct to intact hedges, species poor or species rich and with or without standard trees. Some have associated features such as ponds, ditches and connection to woodland habitats. Many hedges have been less intensively managed and had been allowed to grow tall. There is also a range of species diversity with woody species recorded within the hedges including pedunculate oak, hawthorn, elder, dog rose, spindle (*Euonymus europaeus*), blackthorn (*Prunus spinosa*), field maple, English elm (*Ulmus procera*) and small leaved lime (*Tilia cordata*) as well as wild service tree (*Sorbus torminalis*) within two hedgerows. The ground flora of these hedgerows consists of cow parsley, hogweed, common nettle, perennial rye-grass, dock, cleavers (*Galium aparine*), rosebay willowherb, barren brome (*Anisantha sterilis*) and garlic mustard.
- 3.1.15 Hedgerows have been categorised as the UK hab category 'Native Species Rich Hedgerow', 'Native Species Rich Hedgerow - Associated with bank or ditch', 'Native Hedgerow', 'Native Hedgerow - Associated with bank or ditch', 'Native Species Rich Hedgerow with trees', 'Native Species Rich Hedgerow with trees - Associated with bank or ditch', 'Native Hedgerow with trees' and have been assigned 'moderate' and 'poor' conditions.

Running water

- 3.1.16 The River Ter flows west to east through the northern section of Order limits, approximately 100m is within the Order limits. The stretch surveyed is naturally meandering and slow flowing. The steep banks were densely vegetated by a mixture of trees, short-creeping herbaceous plants and short and tall grasses. No invasive non-native plant species were recorded along the stretch surveyed. The River Ter was assigned 'fairly good' condition.
- 3.1.17 Boreham Tributary flows north to south through the southern section of the Order limits, and a total of 200 m is within the Order limits. The stretch surveyed was quite straight, possibly having been historically realigned for development. The most upstream survey stretch was choked with emergent macrophytes however, the downstream stretch was heavily shaded by broadleaved trees and shrubs and therefore macrophyte abundance was limited to traces along the bank face channel margins. Banks were gently

sloping and vegetated by a mixture of trees, shrubs, tall herbaceous plants and grasses. No invasive non-native plant species were recorded along the stretch surveyed. Boreham Tributary was assigned 'fairly good condition'. River habitat has been assigned as 'high' strategic significance as rivers are mentioned with the local biodiversity plan for Chelmsford (Ref 10).

- 3.1.18 Based on available evidence, all habitats were considered to be in 'poor' to 'moderate' condition with developed and agricultural habitats not being allocated a condition score, refer to see **Table 3-1**.
- 3.1.19 Strategic significance of habitats was mostly classed as being from 'low' to 'high', with habitats present within the Order limits being identified as priority habitat in local plans such as lowland mixed deciduous woodland, ponds and hedgerows, see **Appendix F**.

3.2 On-site Baseline Habitat Units

- 3.2.1 The baseline biodiversity value for area-based and linear habitats are provided in **Table 3-1**, **Table 3-2**, and **Table 3-3**. In total, the baseline biodiversity value of the habitats present was calculated as 1,1027.75 habitat units, 276.80 hedgerow units and 24.97 river units.

Table 3-1: Baseline area-based habitats

Habitat type (UK Habitats)	Distinctiveness	Condition	Area (ha)	Strategic Significance	Habitat Units
Cropland – Cereal crops	Low	Condition Assessment N/A	390.57	Medium	859.25
Cropland – Cereal crops (Riparian Zone)	Low	Condition Assessment N/A	0.66	Medium	1.45
Grassland - Modified Grassland	Low	Poor	44.49	Low	88.98
Grassland - Modified Grassland	Low	Moderate	0.03	Low	0.12
Grassland - Modified Grassland	Low	Good	1.11	Low	6.66
Grassland - Modified Grassland (Riparian Zone)	Low	Moderate	0.99	Low	3.96
Grassland – Other neutral grassland	Medium	Moderate	0.27	High	2.48
Heathland and shrub – Mixed scrub	Medium	Moderate	1.21	Low	9.68
Heathland and shrub – Mixed scrub	Medium	Moderate	0.02	Low	0.16

Heathland and shrub – Mixed scrub	Medium	Moderate	0.29	High	2.67
Lakes – Ponds (Priority Habitat)	High	Moderate	0.11	Medium	1.45
Lakes – Ponds (Priority Habitat)	High	Poor	0.45	Medium	2.97
Sparsely vegetated land – Ruderal/Ephemeral	Low	Moderate	1.06	Low	4.24
Urban – Developed land; sealed surface	V.Low	N/A-Other	0.03	Medium	0.00
Urban – Developed land; sealed surface	V.Low	N/A-Other	6.22	Low	0.00
Urban – Developed land; sealed surface (Riparian Zone)	V.Low	N/A-Other	0.00*	Low	0.00
Urban – Introduced shrub	Low	Condition Assessment N/A	0.01	Low	0.02
Urban – Vacant/derelict land/bare ground	Low	Poor	1.58	Low	3.16
Urban – Vacant/derelict land/bare ground	Low	Poor	0.00*	Low	0.00
Woodland and forest – Lowland mixed deciduous woodland	High	Moderate	1.04	Medium	13.73
Woodland and forest – Lowland mixed deciduous woodland	High	Moderate	0.38	High	5.24
Woodland and forest – Lowland mixed deciduous woodland (Riparian Zone)	High	Moderate	0.19	Medium	2.51
Woodland and forest – Lowland mixed deciduous woodland (Riparian Zone)	High	Moderate	0.23	High	3.17
Woodland and forest – Other woodland; broadleaved	Medium	Moderate	1.48	Medium	13.02
Woodland and forest – Other woodland; broadleaved (Riparian Zone)	Medium	Moderate	0.32	Medium	2.82
Total	-	-	452.74*	-	1,027.75

*areas that are <0.01 ha are assessed as being 0.00 ha within the metric but are included above for completeness

Table 3-2: Baseline hedgerow habitats

Hedgerow type (UK Habitats)	Distinctiveness	Condition	Strategic Significance	Length (km)	Hedgerow Units
Native Hedgerow	Low	Poor	Medium	0.13	0.29
Native Hedgerow	Low	Moderate	Medium	0.31	1.36
Native Hedgerow	Low	Good	Medium	3.03	20.00
Native Hedgerow (Riparian Zone)	Low	Good	Medium	0.12	0.79
Native Hedgerow – Associated with bank or ditch	Medium	Moderate	Medium	0.49	4.31
Native Hedgerow – Associated with bank or ditch	Medium	Good	Medium	0.95	12.54
Native Hedgerow with trees	Medium	Good	Medium	1.47	19.40
Native Hedgerow with trees – Associated with bank or ditch	High	Moderate	Medium	0.17	2.24
Native Hedgerow with trees – Associated with bank or ditch	High	Good	Medium	0.36	7.13
Native Species Rich Hedgerow	Medium	Good	Medium	0.91	12.01
Native Species Rich Hedgerow – Associated with bank or ditch	High	Good	Medium	0.94	18.61
Native Species Rich Hedgerow with trees	High	Moderate	Medium	0.17	2.24
Native Species Rich Hedgerow with trees	High	Good	Medium	3.91	77.42
Native Species Rich Hedgerow with trees (Riparian Zone)	High	Good	Medium	0.01	0.20
Native Species Rich Hedgerow with trees – Associated with bank or ditch	V. High	Good	Medium	2.72	71.81
Hedge Ornamental Non-native	V. Low	Poor	Medium	0.16	0.18
Line of Trees	Low	Moderate	Medium	0.14	0.62

Line of Trees	Low	Moderate	Medium	3.42	15.05
Line of Trees (Riparian Zone)	Low	Moderate	Medium	0.02	0.09
Line of Trees – Associated with bank or ditch	Low	Moderate	Medium	2.39	10.52
Total	-	-	-	21.82	276.80

Table 3-3: Baseline river habitats

River habitat	Length (km)	Distinctiveness	Condition	Strategic Significance	Watercourse or Riparian encroachment	River Units
River Ter	0.121	High	Fairly Good	High	No encroachment	2.09
Boreham Tributary	1.292	High	Fairly Good	High	No encroachment	22.29
Ditches	0.15	Medium	Poor	Low	No encroachment	0.6
Total length (km)	1.56	-	-	-	-	24.97

3.3 Post-Development Habitats

- 3.3.1 The proposed Landscape Masterplan includes provision of several habitats including mixed scrub, neutral grassland, mixed woodland plantation, broadleaved woodland plantation, hard standing and hedgerows. These habitats vary in ecological value, ranging from very low to high distinctiveness.
- 3.3.2 Habitats to be retained onsite, either entirely or partially include arable land, improved grassland, poor semi-improved grassland, scrub, ponds, ruderal and ephemeral, hardstanding, semi-natural broadleaved woodland, broadleaved woodland plantation, marshy grassland, hedgerows and all river habitats.
- 3.3.3 The entire length of the River Ter (121m) is assumed to be retained at current condition within the Order limits. No enhancements or habitat creation is proposed for this stretch within the current design proposal.
- 3.3.4 The entire length of Boreham Tributary (1.29 km) is assumed to be retained at current condition within the Order limits. No enhancements are proposed for this stretch within the current design proposal. It is assumed that there is one temporary impact proposed for Boreham Tributary in the form of construction of a cable route across the watercourse. This will involve digging a trench (which will be a maximum of 5m wide) through both the banks and the watercourse and temporarily diverting the water via a pipe. The

watercourse will be reinstated after the cable is laid which will only be likely to take up to a week. No permanent impacts are proposed for Boreham Tributary. Due to the temporary nature of the proposed works and the fact that the watercourse will be restored to at least baseline condition within two years, it is considered as no loss of river habitat units within the metric.

3.3.5 The created habitats include neutral grassland split across three areas of the Proposed Development, the ecologically enhanced area, which is set aside, the proposed species rich grass mix located under the photovoltaic (PV) solar panels and the regularly mown grassland between fence and panels. There is proposed scrub planting in the corner of the fields, a proposed native tree belt and a natural regeneration buffer to the mixed woodland and pond edges - 15-25m wide. There is also 7.54 km of native species rich hedgerow with trees to be planted.

3.3.6 The management regime required for the created habitats to reach their target condition in the specified timeframe is provided in **Appendix G**. Justification for how the BNG Principles have been applied during this net gain assessment is provided in **Appendix H**.

Post-Development habitat units

3.3.7 The Post-Development biodiversity value of the habitats (retained value + created value) was calculated as 1,923.47 habitat units, 337.02 hedgerow units and 24.97 river units. **Table 3-4**, **Table 3-5**, and **Table 3-6** show retained habitats. **Table 3-7**, **Table 3-8**, and **Table 3-9** show habitats that are enhanced and created.

Table 3-4: Retained habitats on-site - area habitats

Habitat type (UK Habitats)	Distinctiveness	Condition	Strategic significance	Area retained (ha)	Habitat Units
Cropland – Cereal crops	Low	Condition Assessment N/A	Medium	7.78	17.12
Cropland – Cereal crops (Riparian Zone)	Low	Condition Assessment N/A	Medium	0.62	1.36
Grassland – Modified grassland	Low	Poor	Low	11.61	23.22
Grassland – Modified grassland (Riparian Zone)	Low	Moderate	Low	0.46	1.84
Grassland – Other neutral grassland	Medium	Moderate	High	0.27	2.48

Heathland and shrub – Mixed scrub	Medium	Moderate	Low	0.03	0.24
Heathland and shrub – Mixed scrub	Medium	Moderate	Low	0.02	0.16
Lake – Ponds (priority Habitat)	High	Moderate	Medium	0.11	1.45
Lake – Ponds (priority Habitat)	High	Poor	Medium	0.45	2.97
Sparsely vegetated land – Ruderal/ephemeral	Low	Moderate	Low	0.56	2.24
Urban – developed land sealed surface	V. Low	N/A Other	Low	5.52	0
Urban – developed land sealed surface	V. Low	N/A Other	Low	0	0
Urban – introduced shrub	Low	N/A	Low	0.01	0.02
Urban – bare ground	Low	Poor	Low	0.11	0.22
Urban – bare ground	Low	Poor	Low	0	0
Woodland and forest – Lowland mixed deciduous woodland	High	Moderate	High	0.37	5.11
Woodland and forest – Lowland mixed deciduous woodland	High	Moderate	Medium	0.19	2.511
Woodland and forest – Other woodland broadleaved	Medium	Moderate	Medium	0.32	2.82
Woodland and forest – Lowland mixed deciduous woodland	High	Moderate	High	0.23	3.17
Woodland and forest – other woodland broadleaved	Medium	Moderate	Medium	1.47	12.94
Mixed scrub	Medium	Moderate	High	0.29	2.67
Total	-	-	-	30.42	82.53

Table 3-5: Retained habitats on-site - hedgerow habitats

Hedgerow type (UK Habitats)	Distinctiveness	Condition	Strategic significance	Length retained (km)	Hedgerow Units
Native Hedgerow	Low	Poor	Medium	0.13	0.29
Native Hedgerow	Low	Moderate	Medium	0.31	1.01
Native Hedgerow	Low	Good	Medium	3.03	3.03
Native Hedgerow (Riparian Zone)	Low	Good	Medium	0.12	0.79
Native Hedgerow – Associated with bank or ditch	Medium	Moderate	Medium	0.49	4.31
Native Hedgerow – Associated with bank or ditch	Medium	Good	Medium	0.72	9.50
Native Hedgerow with trees	Medium	Good	Medium	1.25	16.50
Native Hedgerow with trees – Associated with bank or ditch	High	Moderate	Medium	0.17	2.24
Native Hedgerow with trees – Associated with bank or ditch	High	Good	Medium	0.33	6.53
Native Species Rich Hedgerow	Medium	Good	Medium	0.88	11.62
Native Species Rich Hedgerow – Associated with bank or ditch	High	Good	Medium	0.89	17.62
Native Species Rich Hedgerow with trees	High	Moderate	Medium	0.17	2.24
Native Species Rich Hedgerow with trees	High	Good	Medium	3.91	77.42
Native Species Rich Hedgerow with trees- Associated with bank or ditch	V.High	Good	Medium	2.62	69.17
Line of trees	Low	Moderate	Medium	3.18	13.99

Line of Trees – Associated with bank or ditch	Low	Moderate	Medium	2.39	10.52
Total	-	-	-	20.51	263.76

Table 3-6: Retained habitats on-site - river habitats

River type (UK Habitats)	Distinctiveness	Condition	Strategic Significance	Length retained (ha)	River Units
Other Rivers and Streams	High	Fairly good	High	0.121	2.09
Other Rivers and Streams	High	Fairly good	High	1.292	22.29
Ditches	Medium	poor	Low	0.15	0.60
Total			-	1.56	24.97

Table 3-7: Enhanced Area-Based Habitats

Habitat type (UK hab)	Distinctiveness	Condition	Strategic Significance	Area (ha)	Habitat Units
Woodland and forest – Lowland mixed deciduous woodland	High	'Moderate' to 'Good'	Medium	0.98	13.98
Total			-		13.98

Table 3-8: Created Post-Development habitat data

Habitat type (UK Habitats)	Distinctiveness	Target Condition	Strategic Significance	Time to target condition (yrs)	Area created (ha)	Habitat Units
Grassland – Other neutral grassland	Medium		Low	5	83.45	558.67
Grassland – Other neutral grassland	Medium		Low	2	275.24	1,025.24
Grassland – Other neutral grassland	Medium		Low	2	23.16	155.05
Heathland and shrub – Mixed scrub	Medium		Low	5	0.83	5.56

Urban – Developed land; V.Low sealed surface		Low	0	12.21	0.00
Woodland and forest – Other woodland; broadleaved	Medium	Medium	15	3.96	20.42
Woodland and forest – Other woodland; mixed	Medium	Medium	30	16.74	65.70
Woodland and forest – Lowland mixed deciduous woodland (Riparian Zone)	High	Medium	10	5	6.97
Lakes – Ponds (Priority Habitat)	High	Medium	3	0.08	0.64
Grassland – Other neutral grassland	Medium	Low	5	0.57	3.82
Total	-	-	-	421.25	1,826.96

Table 3-9: Created Post-Development hedgerow data

Hedgerow type (UK Habitats)	Distinctiveness	Target Condition	Strategic Significance	Time to target condition (yrs)	Length created (km)	Hedgerow Units
Line of trees	Low	Moderate	Medium	20	1.65	3.56
Native Species Rich Hedgerow with trees	High	Moderate	Medium	10	7.54	69.70
		Total	-	-	7.64	73.83

3.4 Summary of Results

3.4.1 All baseline habitats and habitats created and retained are present within the accompanying metric assessment for the Proposed Development (**Appendix C**).

3.4.2 A summary of the results is shown in **Table 3-10**. Based on the current Post-Development Plan, the Scheme is predicted to result in a net gain of 895.72

habitat units (+87.15%), +60.21 hedgerow units (+21.75%) and no impact on river units.

- 3.4.3 The trading rules within the metric are a set of rules that try to prevent the 'trading down' of habitat distinctiveness. Under the trading rules losses of habitats are to be compensated for on a "like for like" or "like for better" basis. In this instance the proposed levels of habitat retention, creation and enhancement at the site have satisfied the trading rules.

Table 3-10: Summary of Results

Area/Linear Units	On-site baseline	On-site post-development	Total net unit change	Total net % change
Habitat units	1027.75	1,923.47	+895.72	87.15%
Hedgerow units	276.80	337.02	+60.21	21.75%
River units	24.97	24.97	+0.00	0.00%

4. Conclusion

- 4.1.1 Based on the current proposals and outlined assumptions, the Scheme is predicted to result in an overall gain of approximately 87.15% of habitat units and 21.75% of hedgerow habitats. Therefore, no further habitat mitigation is required in order to achieve a minimum of a 10% net gain in biodiversity for both habitat units and hedgerow units
- 4.1.2 There is 0% net change for river units. For river units, a further 2.50 river units are required to achieve 10% net gain, which would require bespoke enhancements. If 1.16 km of the watercourses were enhanced from 'fairly good' to 'good/condition' this would achieve the 10% net gain.
- 4.1.3 Potential measures regarding river habitats for the River Ter could include:
- Increasing the bank face and bank top tree feature richness by planting with riparian trees of local provenance, potentially including alder *Alnus glutinosa*, willow *Salix sp.* and hazel *Corylus avellana*. Tree and scrub species in the wider riparian corridor could include hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and dog rose *Rosa canina*, for example.
 - Creating bank top water related features such as inset berms planted with marginal species including bulrush *Typha latifolia*, reed sweet grass *Glyceria maxima* and yellow flag *Iris pseudacorus*, ponds and species-rich wet grassland.
 - Widening the natural riparian zone by planting riparian vegetation within the managed ground cover;

- d. Increasing the diversity of the vegetation structure on the bank face;
 - e. Increasing the bank face natural bank profile and material richness;
 - f. Increasing the macrophyte abundance and diversity within the channel;
 - g. Improving channel bed siltation;
 - h. Enhancements to flow types by altering the flow structure using deflectors;
 - i. Improving the channel bed material richness; and
 - j. Enhancement of sections of the watercourse in line with the recommendations of the Water Framework Directive Assessment report to ensure 'no deterioration'.
- 4.1.4 Potential measures regarding river habitats for the Boreham Tributary could include:
- a. Re-naturalising the riparian zone and restoring the vegetation structure diversity along the bank top and bank face after the temporary impacts to Boreham Tributary;
 - d. Restoring the natural channel bed after the temporary impacts to Boreham Tributary;
 - e. Increasing the bank top and bank face tree feature richness;
 - f. Increasing the macrophyte abundance and diversity within the channel;
 - g. Improving channel bed siltation;
 - h. Enhancement to flow types by altering the flow structure using deflectors; and
 - i. Enhancement of sections of the watercourse in line with the recommendations of the Water Framework Directive Assessment report to ensure 'no deterioration'.
- 4.1.5 Due to the limited opportunity to provide additional on-site mitigation as both watercourses are already of 'fairly good' condition, opportunities to undertake off-site mitigation may be considered a potential option to achieve 10% biodiversity net gain. This would need to be agreed with local landowners and stakeholders and assured through an appropriate legal agreement. It is also recommended that consultation with the Environment Agency and other stakeholders is undertaken to maximise opportunities for on-site and off-site mitigation in line with current proposals, as described above.
- 4.1.6 The outputs of the metric are dependent on all created and retained habitats meeting the target conditions, subject to the criteria outlined within Natural England's Biodiversity Metric 3.1 Technical Note (Ref 2)². Management methodology to meet the target condition for each habitat would therefore need to be outlined within an overarching Landscape and Ecology Management Plan for the Proposed Development.
- 4.1.7 Ecological monitoring reports should be prepared to establish the success of the management measures specified and to determine if any further adaptive management is required to ensure the change in condition is achieved.

² Natural England (2021). The Biodiversity Metric 3.0 – User Guide & Technical Supplement

Management & Monitoring Plans would need to be prepared for any on-site and off-site enhancement measures, as set out within the OCEMP **[EN010118/APP/7.10(B)]** and OOEMP **[EN010118/APP/7.11(B)]**.

5. References

- Ref 1 Natural England's Biodiversity Metric 3. 1 (online source).
- Ref 2 Natural England. The Biodiversity Metric 3.1 - JP039 (naturalengland.org.uk)
- Ref 3 Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide (2019).
- Ref 4 NCA Profile 83 NCA Profile: 83 South Norfolk and High Suffolk Claylands - NE544 (naturalengland.org.uk)
- Ref 5 National Planning Policy Framework (2021)
- Ref 6 Essex Green Infrastructure Strategy (2020). Essex County Council
- Ref 7 Environment Act Environment Act 2021 (legislation.gov.uk)
- Ref 8 Discovering Priority Habitat Rivers In England Priority Habitats — Freshwater Biological Association (fba.org.uk)
- Ref 9 NERC Act 2006 Natural Environment and Rural Communities Act 2006 (legislation.gov.uk)
- Ref 10 Chelmsford Biodiversity Action Plan Chelmsford Biodiversity Action Plan 2013-18
- Ref 11 Chelmsford Local Plan Adopted Local Plan (chelmsford.gov.uk)
- Ref 12 Braintree District Council Local Plan About the New Local Plan – The Emerging Local Plan – Braintree District Council

6. Appendices

6.1 Appendix A – Baseline Habitat Plan



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- County Wildlife Site (CWS)
- Riparian Zone
- UK Habitat Classification
- Woodland and forest - Lowland mixed deciduous
- Woodland and forest - other woodland; mixed
- Heathland and shrub - Mixed shrub
- Grassland - Modified grassland
- Lakes - Pond (Priority Habitat)
- Sparsely vegetated land - Ruderal/Ephemeral
- Cropland - Cereal crops
- Urban - Developed land; sealed surface
- Urban - Vacant/derelict land/bareground
- Rivers - Rivers and Streams (other)
- Urban - Urban trees
- Native Species Rich Hedgerow
- Native Hedgerow
- Native Species Rich Hedgerow with trees
- Native Hedgerow with trees

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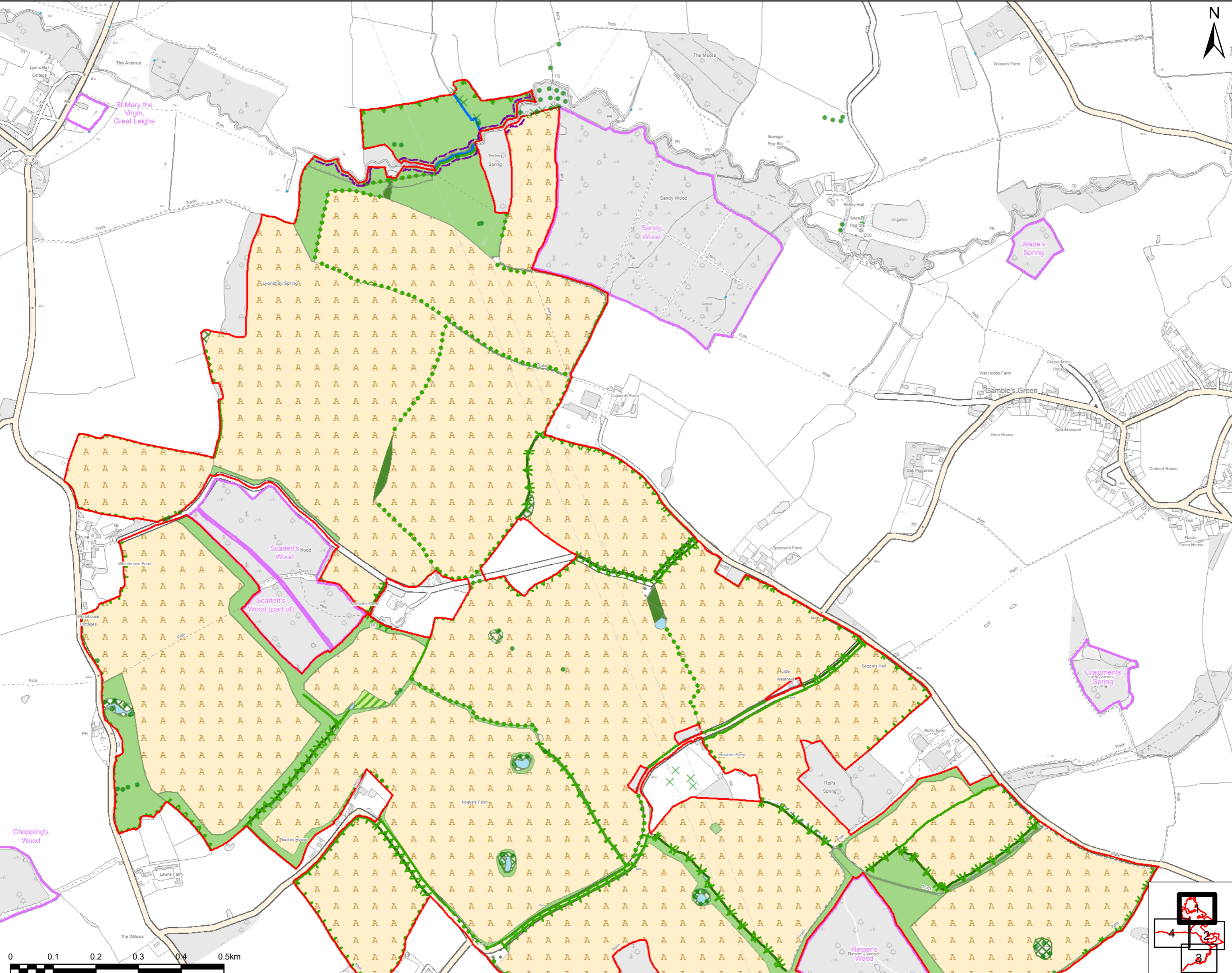
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SHEET TITLE

Baseline Habitat

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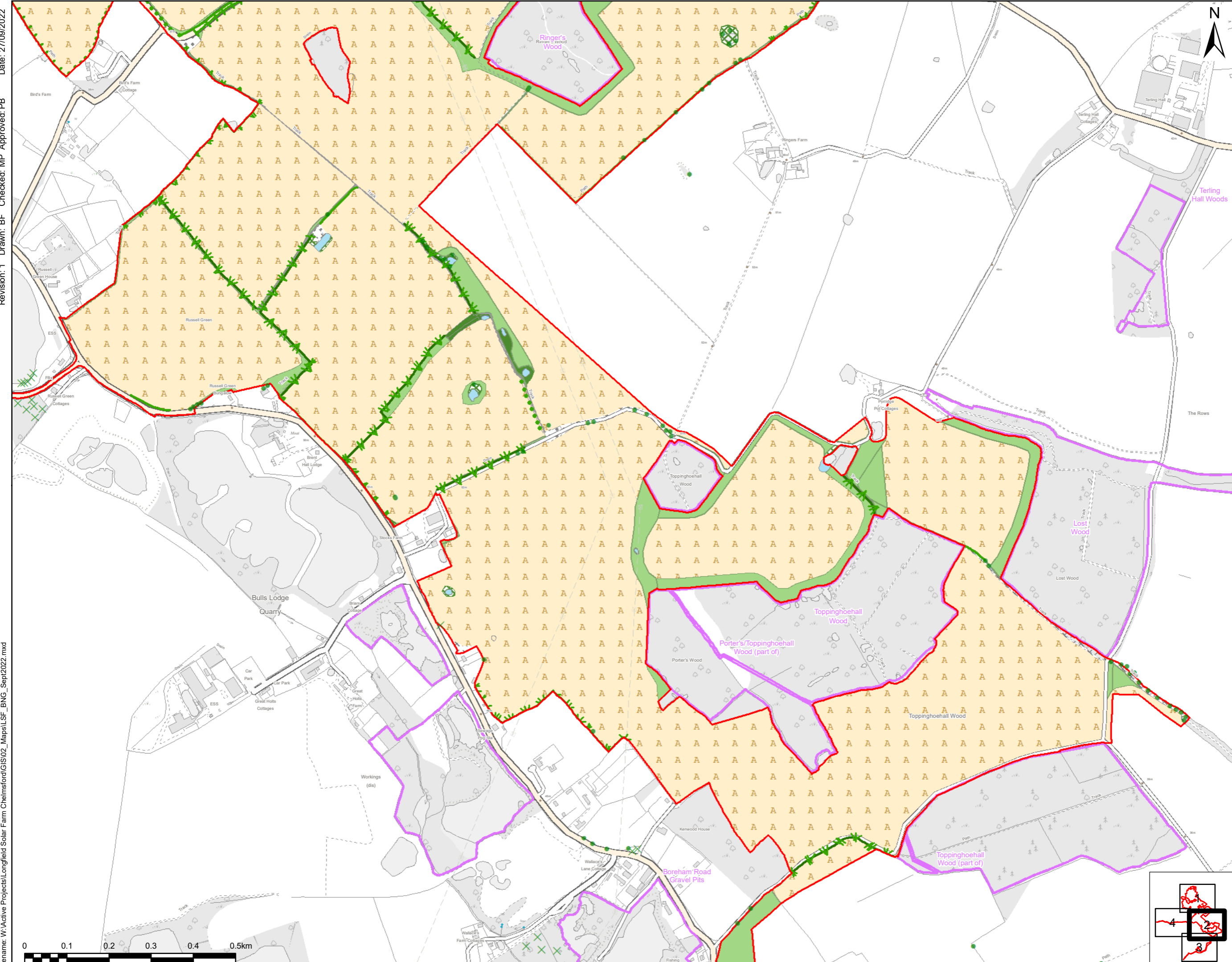
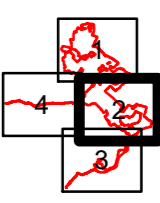




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 - Sparsely vegetated land - Ruderal/Ephemeral
 - Cropland - Cereal crops
 - Urban - Developed land; sealed surface
 - Urban - Vacant/derelict land/bareground
 - Urban - Vacant/derelict land/barehabitat
 - Urban - Urban trees
 - Native Hedgerow
 - Native Species Rich Hedgerow with trees
 - Native Hedgerow with trees

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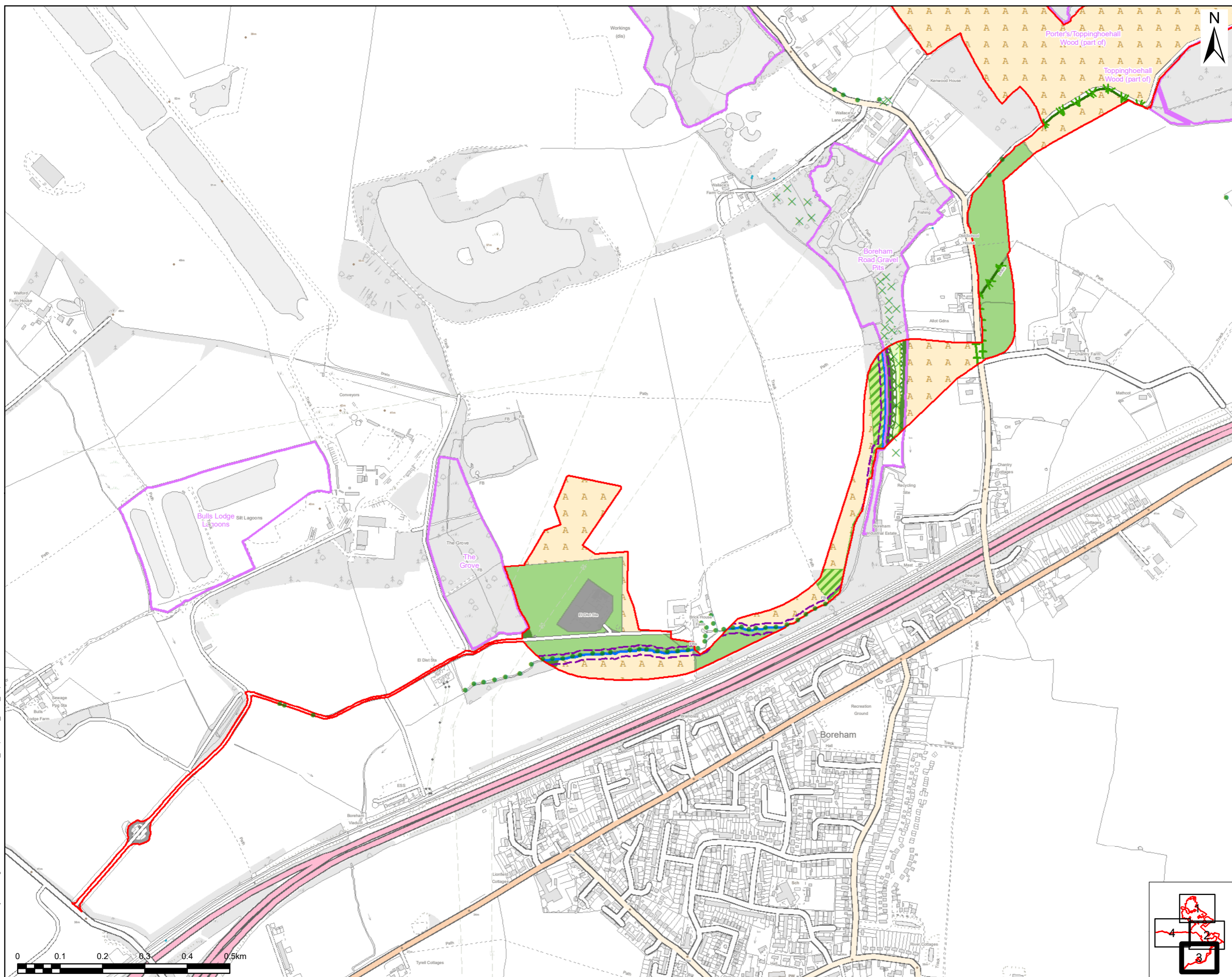




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 - Grassland - Modified grassland
 - Cropland - Cereal crops
 - Urban - Developed land; sealed surface
 - Urban - Vacant/derelict land/bareground
 - Rivers - Rivers and Streams (other)
 - Native Species Rich Hedgerow with trees
 - Native Hedgerow with trees

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- Heathland and shrub - Mixed shrub
- Grassland - Modified grassland
- Sparsely vegetated land - Ruderal/Ephemeral
- Cropland - Cereal crops
- Urban - Introduced shrub
- Urban - Developed land; sealed surface
- Urban - Vacant/derelict land/barehabitat
- Urban - Urban trees
- Native Species Rich Hedgerow
- Native Hedgerow
- Native Species Rich Hedgerow with trees
- Native Hedgerow with trees

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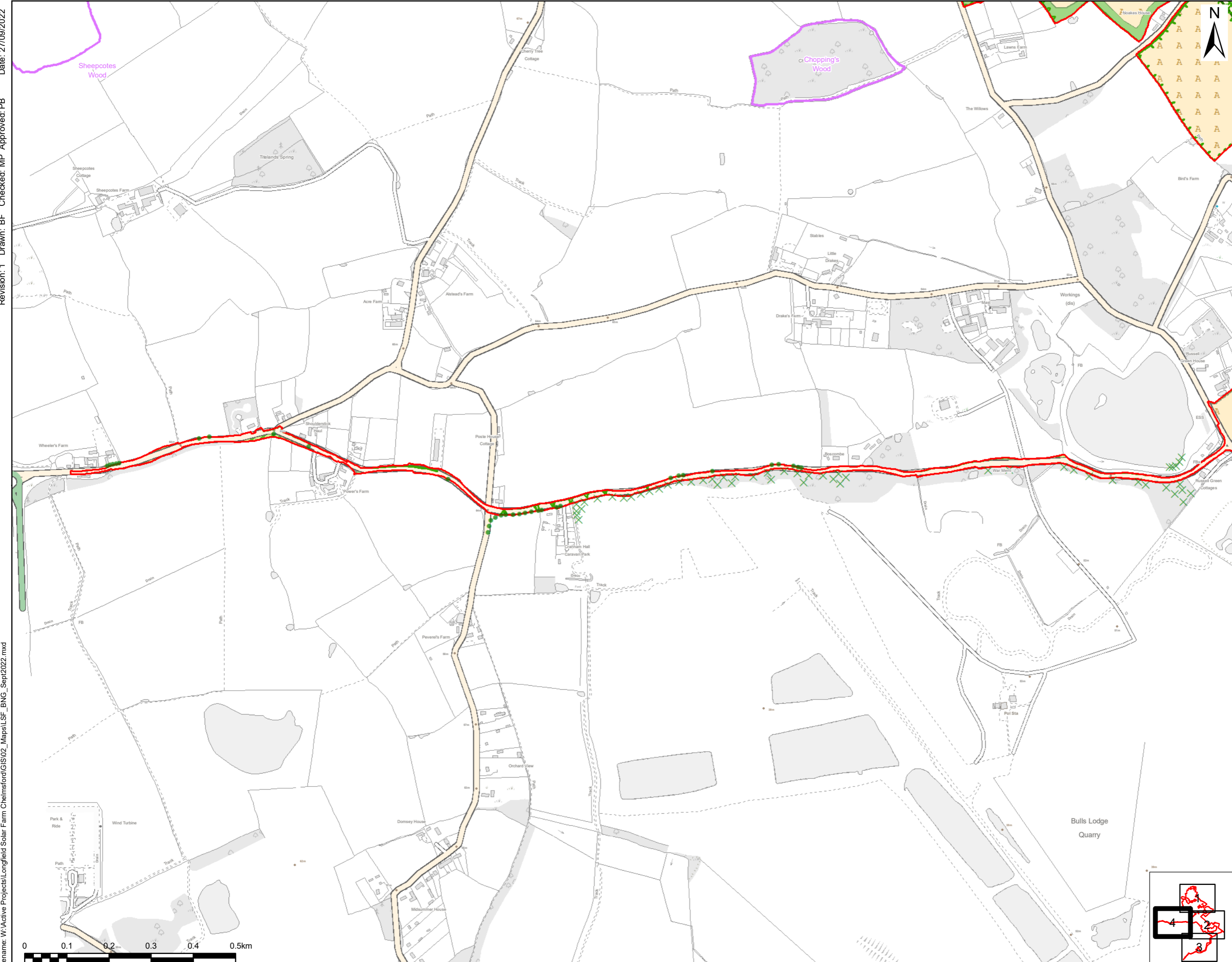
Baseline Habitat

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Figure 4.4

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6.2 Appendix B – Post-Development Habitat Plan



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 - Heathland and shrub - Mixed shrub
 - Grassland - Other neutral grassland
 - Lakes - Ponds (Priority Habitat)
 - Urban - Developed land; sealed surface
 - Unclassified
- Rivers - Rivers and Streams (other)
- Ditches
- Urban - Urban trees
- Line of trees (Ecologically Valuable) - with Bank or Ditch
- Native Species Rich Hedgerow - Associated with bank or ditch
- Native Species Rich Hedgerow - Associated with bank or ditch
- Native Species Rich Hedgerow with trees
- Native Species Rich Hedgerow with trees - Associated with bank or ditch
- Native Hedgerow with trees
- Native Hedgerow with trees - Associated with bank or ditch

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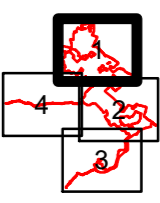
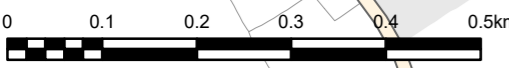
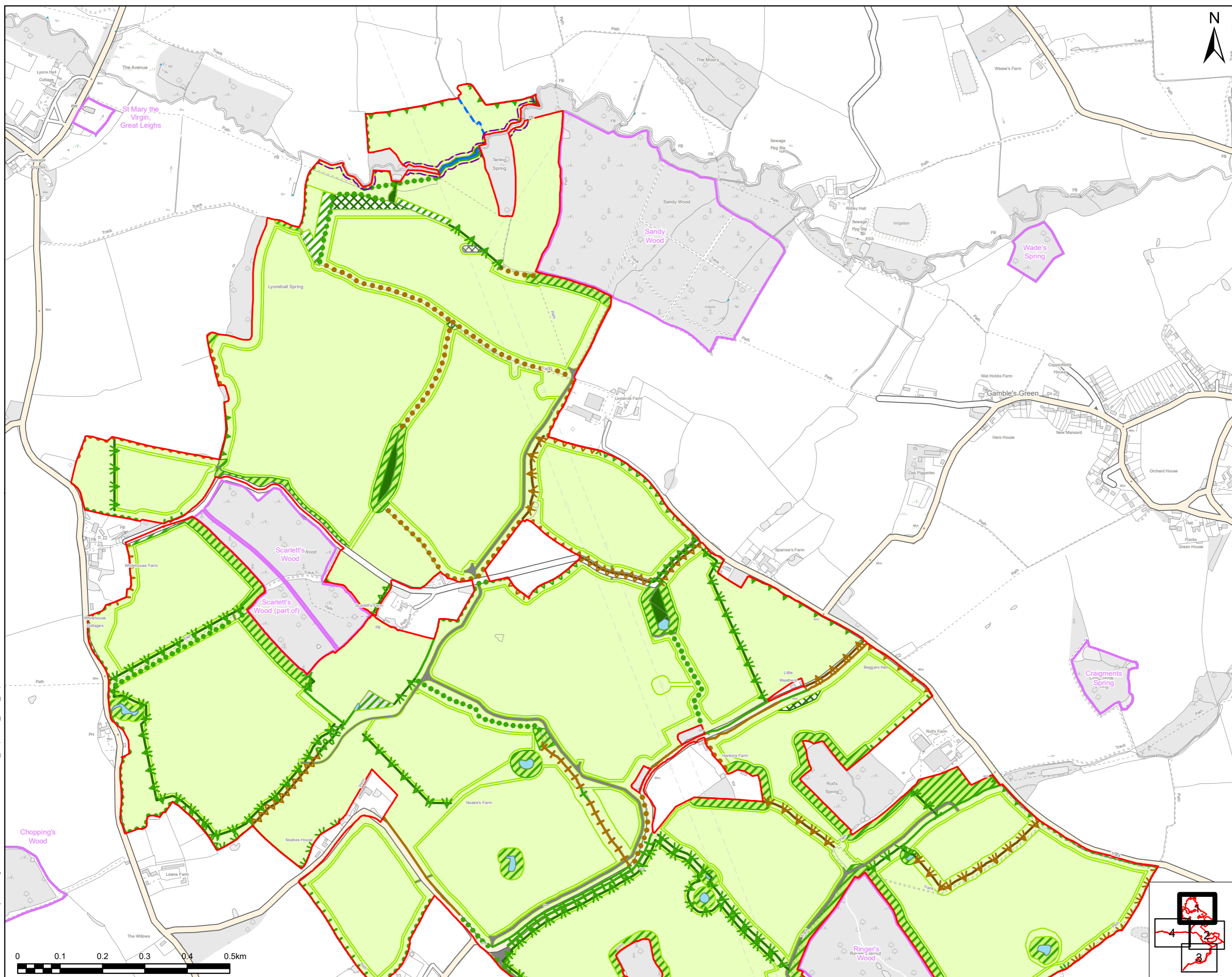
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Post Development Habitat

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Figure 4.1



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- Grassland - Modified grassland
- Lakes - Ponds (Priority Habitat)
- Cropland - Cereal crops
- Urban - Developed land; sealed surface
- <all other values>
- Urban - Urban trees
- Native Hedgerow
- Native Hedgerow - Associated with bank or ditch
- Native Species Rich Hedgerow with trees
- Native Species Rich Hedgerow with trees - Associated with bank or ditch
- Native Hedgerow with trees

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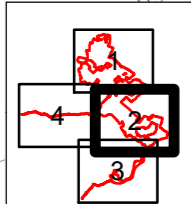
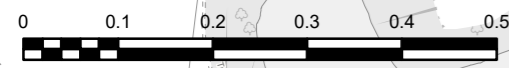
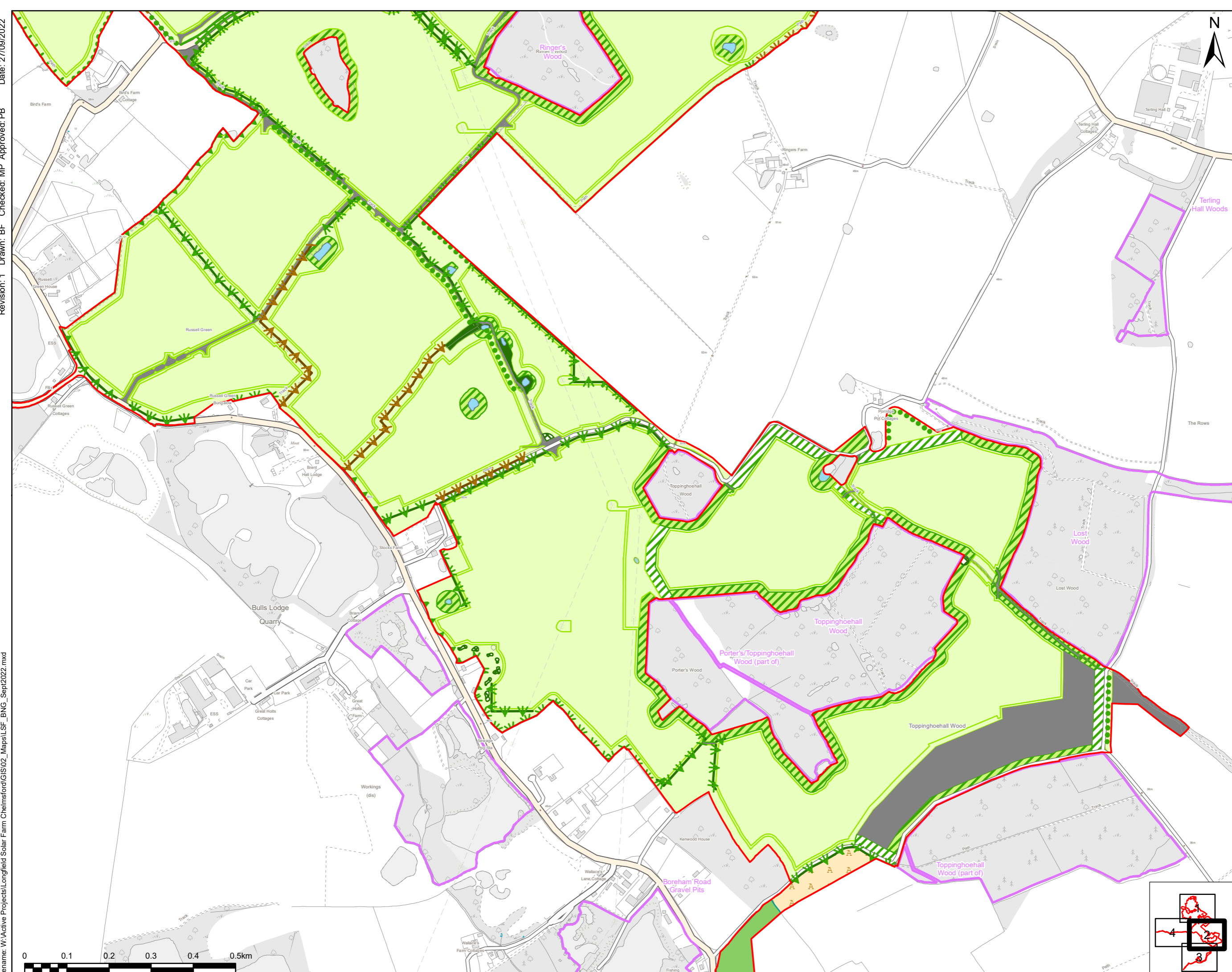
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Post Development Habitat

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Figure 4.2



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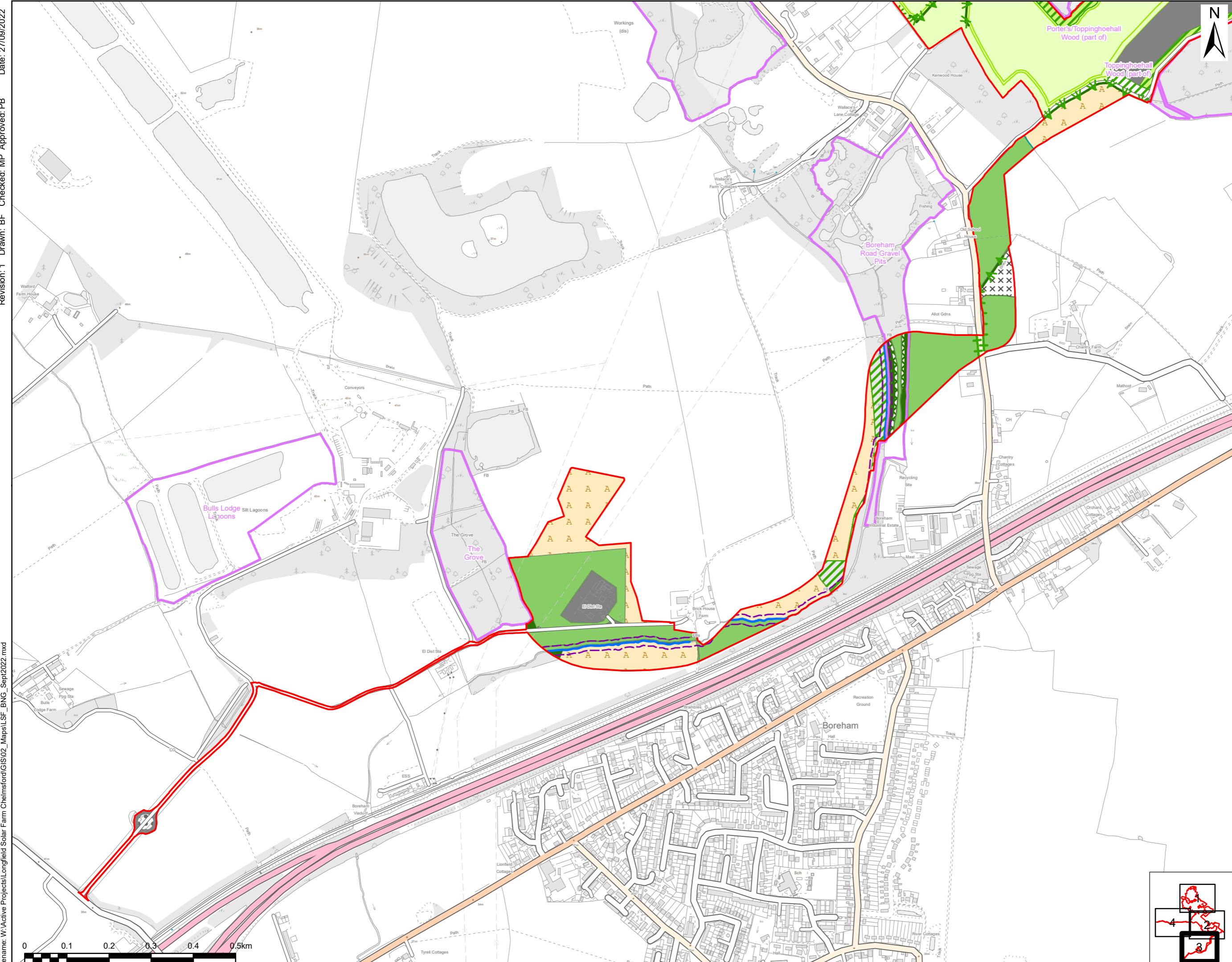
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- Woodland and forest - Lowland mixed deciduous
- Woodland and forest - other woodland; broadleaved
- Woodland and forest - other woodland; mixed
- Heathland and shrub - Mixed shrub
- Grassland - Other neutral grassland
- Grassland - Modified grassland
- Sparsely vegetated land - Ruderal/Ephemeral
- Cropland - Cereal crops
- Urban - Developed land; sealed surface
- Urban - Vacant/derelict land/bareground
- <all other values>
- Rivers - Rivers and Streams (other)
- Native Species Rich Hedgerow with trees
- Native Hedgerow with trees

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60624362

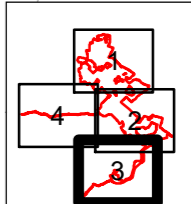
Post Development Habitat

Figure 4.3



Revision: 1 Drawn: BF Checked: MP Approved: PB Date: 27/09/2022

Filename: W:\Active Projects\Longfield Solar Farm Chelmsford\GIS\02_Maps\LSF_BNG_Sept2022.mxd



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PROJECT

Longfield Solar Farm.

CLIENT



CONSULTANT

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Cambridge, CB3 0NA
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www.aecom.com

LEGEND

- Redline Boundary
- County Wildlife Site (CWS)
- UK Habitat Classification
 - Woodland and forest - other woodland; mixed
 - Grassland - Other neutral grassland
 - Grassland - Modified grassland
 - Sparsely vegetated land - Ruderal/Ephemeral
 - Urban - Introduced shrub
 - Urban - Developed land; sealed surface
 - Urban - Vacant/derelict land/barehabitat
 - <all other values>
- Urban - Urban trees
- Native Species Rich Hedgerow
- Native Species Rich Hedgerow - Associated with bank or ditch
- Native Hedgerow
- Native Hedgerow - Associated with bank or ditch
- Native Species Rich Hedgerow with trees
- Native Hedgerow with trees

NOTES

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ISSUE PURPOSE

FOR INFORMATION

PROJECT NUMBER

60624362

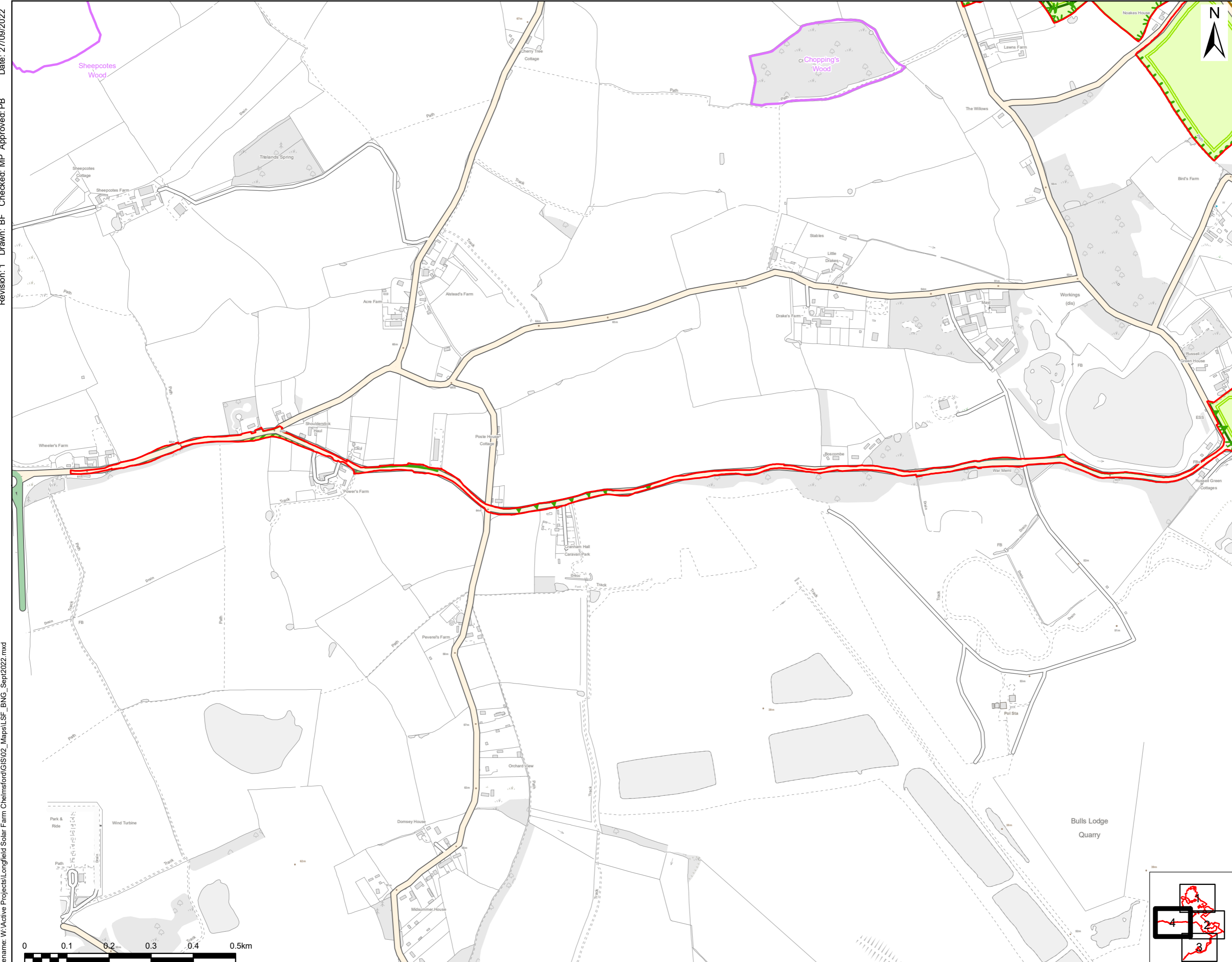
SHEET TITLE

Post Development Habitat

Page 4 of 4

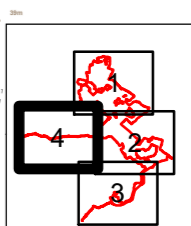
SHEET NUMBER

Figure 4.4



Revision: 1 Drawn: BF Checked: MP Approved: PB Date: 27/09/2022

Filename: W:\Active Projects\Longfield Solar Farm Chelmsford\GIS02_Maps\LSF_BNG_Sept2022.mxd



6.3 Appendix C – Biodiversity Metric 3.1 Calculation

Longfield Solar Energy Farm		Return to results menu
#VALUE!		
On-site baseline	<i>Habitat units</i>	1027.75
	<i>Hedgerow units</i>	276.80
	<i>River units</i>	24.97
On-site post-intervention <small>(Including habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	1923.47
	<i>Hedgerow units</i>	337.02
	<i>River units</i>	24.97
On-site net % change <small>(Including habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	87.15%
	<i>Hedgerow units</i>	21.75%
	<i>River units</i>	0.00%
Off-site baseline	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Off-site post-intervention <small>(Including habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Total net unit change <small>(including all on-site & off-site habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	895.72
	<i>Hedgerow units</i>	60.21
	<i>River units</i>	0.00
Total on-site net % change plus off-site surplus <small>(including all on-site & off-site habitat retention, creation & enhancement)</small>	<i>Habitat units</i>	87.15%
	<i>Hedgerow units</i>	21.75%
	<i>River units</i>	0.00%
Trading rules Satisfied?	Yes ✓	

6.4 Appendix D – Phase 1 to UK hab conversion

Phase 1 habitat classification

UK Habitat Classification

Bare ground	Vacant/derelict land/ bare ground
Broadleaved parkland/scattered trees	Woodland and forest – Wood-pasture and parkland
Broadleaved woodland – plantation	Woodland and forest – Other woodland mixed
Broadleaved woodland – semi-natural	Woodland and forest – Lowland mixed deciduous woodland
Buildings	Urban – Developed land; sealed surface
Cultivated/disturbed land – arable	Cropland – Cereal crops
Cultivated/disturbed land – ephemeral/short perennial	Sparsely vegetated land = Ruderal/Ephemeral
Defunct hedge – native species-rich	Native species rich hedgerow
Defunct hedge – species-poor	Native hedgerow
Dry ditch	N/A (only classified if wet ditch for 4+ months)
Hedge with trees – native species-rich	Native species rich hedgerow with trees
Hedge with trees – species-poor	Native hedgerow with trees
Improved grassland	Grassland – Modified grassland
Intact hedge – native species-rich	Native species rich hedgerow
Intact hedge – species-poor	Native hedgerow
Mixed woodland – semi-natural	Woodland – Lowland mixed deciduous woodland
Other tall herb and fern – ruderal	Sparsely vegetated land -Ruderal/Ephemeral
Poor semi-improved grassland	Grassland – Modified grassland
Running water	Rivers and Streams – Rivers and Streams (Other)
Scrub – dense/continuous	Heathland and scrub – Mixed scrub
Scrub - scattered	Heathland and scrub – Mixed scrub
Standing water	Lakes – Ponds (priority habitat)

6.5 Appendix E – Condition Assessment Rationale

Baseline habitat condition assessment rationale

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Cropland – cereal crops	No assessment required; condition is pre-set.	Phase 1 habitat survey undertaken by AECOM in August 2020	N/A	Pre-set	N/A – Agriculture
Urban - Developed land; sealed surface	No assessment required; condition is pre-set.	Phase 1 habitat survey undertaken by AECOM in August 2020	N/A	Pre-set	N/A - Other
Woodland and forest – Other woodland; broadleaved	One age class present (1), evidence of browsing pressure in less than 40% of woodland (2), no invasive species present (3), 5 or more native tree species (3), >80% of canopy trees and >80% of understorey shrubs are native (3), 10-20% of woodland areas of temporary open space (3), one or two classes only present in woodland (2), tree mortality less than 10%, no pests or diseases and no crown dieback (3), no recognisable NVC community (1), two storeys across all survey plots (2), no veteran trees present in woodland (1), less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps (1), less than 1 hectare in total of nutrient enrichment across woodland areas and/or less	Phase 1 habitat survey undertaken by AECOM in April 2021	Woodland Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	than 20% of woodland area has damaged ground (2). Total = 27 points.				
Woodland and forest – Other woodland; broadleaved	One age class present (1), no significant browsing damage evident (3), no invasive species present (3), 5 or more native tree or shrub species found (3), >80% of canopy trees and >80% of understory shrubs are native (3), 10-20% of woodland has areas of temporary open space (3), no classes or coppice regrowth present in woodland (1), tree mortality less than 10%, no recognisable NVC community (1), one or less storey across all survey plots (1), no veteran trees present in woodland (1), less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps (1), more than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground (1). Total = 26 points.	Phase 1 habitat survey undertaken by AECOM in April 2021	Woodland Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Woodland and forest – Lowland mixed deciduous woodland	Two age classes present (2), evidence of significant browsing pressure is present in <40% of woodland (2), no invasive species present in woodland (3), 5 or more native tree or shrub species found across woodland parcel (3), >80% of canopy trees and >80% of understory shrubs are native (3), 10-20% of woodland has areas of temporary open space (3), 1 or 2 classes only present in woodland (2), greater than 25% tree mortality and or any high risk pest or disease present (1), no recognisable NVC community (1), two storeys	Phase 1 habitat survey undertaken by AECOM in April 2021	Woodland Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	<p>across all survey plots (2), two or more veteran trees per hectare (3), less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/stems and stumps (1), less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground (2). Total = 28 points.</p>				
Woodland and forest – Wet woodland	<p>Two age classes present (2), no significant browsing damage evident in woodland (3), no invasive species present in woodland (3), 5 or more native tree or shrub species found across woodland parcel (3), >80% of canopy trees and >80% of understory shrubs are native (3), 10-20% of woodland has areas of temporary open space (3), all 3 classes present in woodland; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth (3), no recognisable NVC community (1), one or less storey across all survey plots (1), no veteran trees present in woodland (1), between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/stems and stumps (2). No nutrient enrichment or damaged ground evident (3). Total = 31</p>	Phase 1 habitat survey undertaken by AECOM in April 2021	Woodland Habitat Type		Moderate
Grassland - Modified grassland	<p>Appearance and composition of the vegetation does not closely matches characteristics of the specific grassland type (fail), sward height is not varied (fail), cover of bare ground between 1% and 5% including localised areas e.g.</p>	Phase 1 habitat survey undertaken by AECOM in April 2021	Grassland Habitat Type (low distinctiveness)	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	Rabbit warrens (pass), cover of bracken less than 20% and cover of scrub (including bramble) less than 5% (pass), absence of invasive non-native species and combined cover of undesirable species and physical damage accounts for less than 5% of total area (pass). 3/5 criteria passed.				
Grassland – Other neutral grassland	Appearance and composition of the vegetation closely matches characteristics of the specific grassland type (pass), sward height is varied (at least 20% of the sward it less than 7 cm and at least 20 per cent is more than 7 cm) (pass), cover of bare ground between 1% and 5% including localised areas e.g. Rabbit warrens (pass), cover of bracken is more than 20% and/or scrub (including bramble) less than 5% (fail), absence of invasive non-native species, combined cover of undesirable species and physical damage accounts for less than 5% of total area (pass). 4/5 criteria passed.	Phase 1 habitat survey undertaken by AECOM in April 2021	Grassland Habitat Type (high distinctiveness)	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Heathland and shrub - Mixed scrub	Habitat is representative of UKHab description and there is at least 3 woody species with no one species comprising more than 75% of the cover (pass), good age range – all of the following are present: seedlings, young shrubs and mature shrubs (pass), absence of invasive non-native species and undesirable species make up less than 5% of ground cover (pass), scrub has well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s)	Phase 1 habitat survey undertaken by AECOM in April 2021	Scrub Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	(pass), there are no clearings, glades or rides present within the scrub (fail). 4/5 criteria passed.				
Rivers and Streams – Ditches (dry)	Dry ditches are absorbed into the area of the adjacent habitat and is not categorised as it is dry for more than 4 months of the year	Phase 1 habitat survey undertaken by AECOM in April 2021	N/A	N/A	N/A
Lakes – Ponds (Priority Habitat); Ponds 1 & 8	Pond is of good water quality indicating no obvious signs of pollution, turbidity is acceptable if the pond is grazed by livestock (pass), semi-natural habitat is not present for at least 10m from the pond edge (fail), <10% of pond is covered with duckweed or filamentous algae (pass), pond is not artificially connected to other waterbodies (pass), pond water levels fluctuate naturally throughout the year, no obvious dams, pumps or pipework (pass), absence of non-native plant and animal species, pond is not artificially stocked with fish, if naturally stocked it is native species at low densities (pass). 6/7 criteria passed.	Phase 1 habitat survey undertaken by AECOM in April 2021	Lake Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Lakes – Ponds (Priority Habitat); Ponds 2, 3 & 16	Pond is not of good water quality (fail), semi-natural habitat is not present for at least 10m from the pond edge (fail), <10% of the pond is covered with algae (pass), not artificially connected to other waterbodies (pass), water levels are able to fluctuate naturally throughout the year and no obvious dams, pumps or pipework (pass), absence of non-native plant and animal species (pass), pond is not	Phase 1 habitat survey undertaken by AECOM in April 2021	Lake Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	artificially stocked by fish, if naturally stocked it is native species at low densities (pass). 5/7 criteria passed.				
Lakes – Ponds (Priority Habitat); Ponds 4, 5, 6, 7, 17, 19, 21 non-woodland ponds	Pond is not of good water quality (fail), semi-natural habitat is not present for at least 10m from pond edge (fail), less than 10% of the pond is covered with algae (pass), pond is not artificially connected to other waterbodies (pass), water levels fluctuate naturally throughout the year and no obvious dams, pumps or pipework (pass), absence of non-native plant and animal species (pass), pond is not artificially stocked by fish, if naturally stocked it is native species at low densities (pass), plants do not cover at least 50% of the pond in areas less than 3m deep (fail), more than 50% of surface is shaded by woody bankside species (fail). 5/9 criteria passed.	Phase 1 habitat survey undertaken by AECOM in April 2021	Lake Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Poor
Lakes – Ponds (Priority Habitat); Ponds 9, 10, 23, 24, 25 non-woodland ponds	Pond is of good water quality indicating no obvious signs of pollution, turbidity is acceptable if the pond is grazed (pass), semi-natural habitat is not present for at least 10m from pond edge (fail), <10% of the pond is covered with algae (pass), pond is not artificially connected to other waterbodies (pass), pond water levels fluctuate naturally throughout the year and no obvious dams, pumps or pipework (pass), absence of non-native plant and animal species (pass), pond is not artificially stocked by fish, if naturally stocked it is native species at low densities (pass), plants do not cover at least 50% of the	Phase 1 habitat survey undertaken by AECOM in April 2021	Lake Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	pond in areas less than 3m deep (fail), more than 50% of surface is shaded by woody bankside species (fail). 6/9 criteria passed.				
Lakes – Ponds (Priority Habitat); Ponds 18, 61, 62, 63 non-woodland ponds	Pond is of good water quality indicating no obvious signs of pollution, turbidity is acceptable if the pond is grazed (pass), semi-natural habitat is not present for at least 10m from pond edge (fail), >10% of the pond is covered with algae (fail), pond is not artificially connected to other waterbodies (pass), pond water levels fluctuate naturally throughout the year and no obvious dams, pumps or pipework (pass), absence of non-native plant and animal species (pass), pond is not artificially stocked by fish, if naturally stocked it is native species at low densities (pass), plants do not cover at least 50% of the pond in areas less than 3m deep (fail), more than 50% of surface is shaded by woody bankside species (fail). 6/9 criteria passed. 5/9 criteria passed.	Phase 1 habitat survey undertaken by AECOM in April 2021	Lake Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Poor
Lakes – Ponds (Priority Habitat); Pond 20 non-woodland pond	Pond is not of good water quality (fail), semi-natural habitat is not present for at least 10m from pond edge (fail), >10% of the pond is covered with algae (fail), pond is not artificially connected to other waterbodies (pass), pond water levels fluctuate naturally throughout the year and no obvious dams, pumps or pipework (pass), absence of non-native plant and animal species (pass), pond is not artificially stocked by fish, if naturally stocked it is native species at low densities (pass), plants do not cover at least 50% of the pond in areas less than 3m	Phase 1 habitat survey undertaken by AECOM in April 2021	Lake Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Poor

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	deep (fail), more than 50% of surface is shaded by woody bankside species (fail). 4/9 criteria passed.				
Line of trees (ID 1, 3, 8)	More than 70% of trees are native species (pass), tree canopy is predominantly continuous with gaps making up <10% of total area and no individual gap is >5m wide (pass), does not include one or more mature or veteran tree (fail), no undisturbed naturally vegetated strip of at least 6m on both sides (fail), at least 95% of trees are in healthy condition with little or no evidence of adverse impact on tree health by livestock, wild animals, pests diseases or humans (pass). 3/5 criteria passed.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Line of trees (ID 7, 9, 12, 13, 15, 17, 18, 22, 26, 35, 38, 40, 46, 49, 54, 59, 73)	More than 70% of trees are native species (pass), tree canopy is predominantly continuous with gaps making up <10% of total area and no individual gap is >5m wide (pass), includes one or more mature or veteran tree (pass), no undisturbed naturally vegetated strip of at least 6m on both sides (fail), at least 95% of trees are in healthy condition with little or no evidence of adverse impact on tree health by livestock, wild animals, pests diseases or humans (pass). 4/5 criteria passed.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Line of trees (ID 24)	More than 70% of trees are native species (pass), tree canopy is not predominantly continuous with gaps making up >10% of total area and/or no individual gap is <5m wide (fail), includes one or more mature or veteran	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	tree (pass), no undisturbed naturally vegetated strip of at least 6m on both sides (fail), at least 95% of trees are in healthy condition with little or no evidence of adverse impact on tree health by livestock, wild animals, pests diseases or humans (pass). 3/5 criteria passed.				
Line of trees (ID 52)	More than 70% of trees are native species (pass), tree canopy is predominantly continuous with gaps making up <10% of total area and no individual gap is >5m wide (pass), includes one or more mature or veteran tree (pass), undisturbed naturally vegetated strip of at least 6m on both sides (pass), more than 95% of trees are in healthy condition with little or no evidence of adverse impact on tree health by livestock, wild animals, pests diseases or humans (fail). 4/5 criteria passed.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Line of trees (ID 94)	Less than 70% of trees are native species (fail), tree canopy is not continuous with gaps making up >10% of total area and/or no individual gap is <5m wide (fail), does not include one or more mature or veteran tree (fail), no undisturbed naturally vegetated strip of at least 6m on both sides (fail), at least 95% of trees are in healthy condition with little or no evidence of adverse impact on tree health by livestock, wild animals, pests diseases or humans (pass). 1/5 criteria passed.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Poor

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Line of trees – Associated with bank or ditch (ID 62)	More than 70% of trees are native species (pass), tree canopy is predominantly continuous with gaps making up <10% of total area and no individual gap is >5m wide (pass), includes one or more mature or veteran tree (pass), no undisturbed naturally vegetated strip of at least 6m on both sides (fail), at least 95% of trees are in healthy condition with little or no evidence of adverse impact on tree health by livestock, wild animals, pests diseases or humans (pass). 4/5 criteria passed.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Line of trees (ecologically valuable) (ID 4, 5, 30, 43, 75)	More than 70% of trees are native species (pass), tree canopy is predominantly continuous with gaps making up <10% of total area and no individual gap is >5m wide (pass), includes one or more mature or veteran tree (pass), no undisturbed naturally vegetated strip of at least 6m on both sides (fail), at least 95% of trees are in healthy condition with little or no evidence of adverse impact on tree health by livestock, wild animals, pests diseases or humans (pass). 4/5 criteria passed.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Line of trees (ecologically valuable) – Associated with bank or ditch (ID 10, 14, 25, 110)	More than 70% of trees are native species (pass), tree canopy is predominantly continuous with gaps making up <10% of total area and no individual gap is >5m wide (pass), includes one or more mature or veteran tree (pass), no undisturbed naturally vegetated strip of at least 6m on both sides (fail), at least 95% of trees are in healthy condition with little or no evidence of adverse impact on tree health by	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	livestock, wild animals, pests diseases or humans (pass). 4/5 criteria passed.				
Line of trees (ecologically valuable) – Associated with bank or ditch (ID 66a)	More than 70% of trees are native species (pass), tree canopy is not continuous with gaps making up >10% of total area and/or individual gaps are >5m wide (fail), includes one or more mature or veteran tree (pass), no undisturbed naturally vegetated strip of at least 6m on both sides (fail), at least 95% of trees are in healthy condition with little or no evidence of adverse impact on tree health by livestock, wild animals, pests diseases or humans (pass). 3/5 criteria passed.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Native hedgerow (ID 2, 6, 11, 21, 39, 44, 47, 61, 120)	Height is >1.5m average along length and width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length and gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side and plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Pass of all functional groups = Metric score 3.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native hedgerow (ID 16)	Height and width are >1.5m average along length (fail), gap between ground and base of canopy <0.5m for >90% length (fail) and gaps	Phase 1 habitat survey undertaken by	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and	Moderate

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	make up <10% of length with no gaps >5m (pass), >1m width of undisturbed ground with perennial herbaceous vegetation for >90% on at least one side of hedge (pass), plant species indicative of nutrient enrichment dominate <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). 2 fails in 2 separate functional groups and 1 functional group failed = Metric score 2	AECOM in April 2021		assessor professional judgement	
Native hedgerow (ID 33 & 51)	Height is >1.5m average along length and width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length and gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail), plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and/or <90% hedgerow or undisturbed ground is free of human damage (pass). Only 1 fail = Metric score 3.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native hedgerow (ID 45 & 64)	Height is >1.5m average along length (pass), width is not >1.5m average along length (fail), gap between ground and base of canopy <0.5m for >90% of length and gaps make up <10% of total length with no canopy gaps>5m	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	<p>(pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail), plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Only 1 fail = Metric score 3.</p>				
<p>Native hedgerow (ID 48)</p>	<p>Height is >1.5m average along length and width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length and gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail), plant species indicative of nutrient enrichment dominant and <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Fail of 1 functional group = Metric score 2.</p>	<p>Phase 1 habitat survey undertaken by AECOM in April 2021</p>	<p>Hedgerows and Line of Trees Habitat Type</p>	<p>Biodiversity Metric 3.0 condition criteria and assessor professional judgement</p>	<p>Moderate</p>
<p>Native hedgerow (ID 67)</p>	<p>Height is >1.5m average along length and width is >1.5m average along length (fail), gap between ground and base of canopy <0.5m for >90% of length and gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side</p>	<p>Phase 1 habitat survey undertaken by AECOM in April 2021</p>	<p>Hedgerows and Line of Trees Habitat Type</p>	<p>Biodiversity Metric 3.0 condition criteria and assessor professional judgement</p>	<p>Moderate</p>

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	and plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Fail of 1 functional group = 2				
Native hedgerow (ID 71)	Height Is >1.5m average along length and width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length and gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Only 1 fail = 3	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native hedgerow (ID 80)	Height Is >1.5m average along length (pass) ,width is >1.5m average along length (fail), gap between ground and base of canopy <0.5m for >90% of length and gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Only 1 fail = 3				
Native hedgerow (ID 81)	Height is >1.5m average along length (pass), width is >1.5m average along length (fail), gap between ground and base of canopy <0.5m for >90% of length and gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Total of 3 fails with 1 functional group failing = 2	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Native hedgerow (ID 83)	Height is >1.5m average along length (pass), width is >1.5m average along length (fail), gap between ground and base of canopy <0.5m for >90% of length and gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90%	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	hedgerow or undisturbed ground is free of human damage (pass). 2 fails = 3				
Native hedgerow (ID 85)	Height is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length and gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Pass all functional groups = 3	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native hedgerow (ID 100)	Height is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (fail), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	<p>invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Only 1 fail = 3</p>				
Native hedgerow (ID 108)	<p>Height is >1.5m average along length (pass), width is >1.5m average along length (fail), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps >5m (fail), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). 2 fails = 3</p>	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native hedgerow (ID 57a)	<p>Height is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps >5m (fail), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of</p>	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Only 1 fail = 3				
Native hedgerow – Associated with bank or ditch (ID 77, 106)	Height Is >1.5m average along length (pass) ,width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Only 1 fail = 3	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native hedgerow – Associated with bank or ditch (ID 93)	Height Is >1.5m average along length (pass) ,width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	of human damage (pass). Pass all functional groups = 3				
Native hedgerow – associated with bank or ditch (ID 96)	Height Is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). 2 fails in same functional group = 2	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Native hedgerow with trees (ID 23, 63, 74, 121)	Height Is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Pass all functional groups = 3				
Native hedgerow with trees (ID 31)	Height is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Two fails within the same functional group = 2	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Moderate
Native hedgerow with trees (ID 50)	Height is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	<p>indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Only 1 fail = 3.</p>				
Native hedgerow with trees (ID 56)	<p>Height Is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Only 1 fail = 3.</p>	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native hedgerow with trees (ID 69)	<p>Height Is >1.5m average along length (pass), width is >1.5m average along length (pass),</p>	Phase 1 habitat survey	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	<p>gap between ground and base of canopy <0.5m for >90% of length (fail), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). 2 fails = 3.</p>	<p>undertaken by AECOM in April 2021</p>		<p>assessor professional judgement</p>	
<p>Native hedgerow with trees – associated with bank or ditch (ID 78)</p>	<p>Height ls >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (fail), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by</p>	<p>Phase 1 habitat survey undertaken by AECOM in April 2021</p>	<p>Hedgerows and Line of Trees Habitat Type</p>	<p>Biodiversity Metric 3.0 condition criteria and assessor professional judgement</p>	<p>Good</p>

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	livestock, animals, pests, disease or humans (pass). 2 fails = 3.				
Native hedgerow with trees – associated with bank or ditch (ID 82)	Height ls >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Pass all functional groups = 3.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native hedgerow with trees – associated with bank or ditch (ID 112, 117)	Height ls >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	<p>invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Only 1 fail = 3.</p>				
<p>Native hedgerow with trees – associated with bank or ditch (ID 115)</p>	<p>Height Is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (fail), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). 3 fails with 2 in the same functional group = 2.</p>	<p>Phase 1 habitat survey undertaken by AECOM in April 2021</p>	<p>Hedgerows and Line of Trees Habitat Type</p>	<p>Biodiversity Metric 3.0 condition criteria and assessor professional judgement</p>	<p>Moderate</p>
<p>Native hedgerow with trees – associated with bank or ditch</p>	<p>Height Is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make</p>	<p>Phase 1 habitat survey undertaken by</p>	<p>Hedgerows and Line of Trees Habitat Type</p>	<p>Biodiversity Metric 3.0 condition criteria and assessor professional judgement</p>	<p>Moderate</p>

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
(ID 116)	up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). 2 fails within the same functional group = 2.	AECOM in April 2021			
Native species rich hedgerow (ID 19, 27, 34, 36, 60, 65)	Height ls >1.5m average along length (pass) ,width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Pass all functional groups = 3	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Native species rich hedgerow (ID 28, 29)	Height Is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Only 1 fail = 3	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native species rich hedgerow (ID 55)	Height Is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (fail), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). Only 1 fail = 3	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native species rich hedgerow with trees (ID 101, 102, 103, 105)	Height Is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make	Phase 1 habitat survey undertaken by	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	<p>up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Pass all functional groups = 3.</p>	<p>AECOM in April 2021</p>		<p>assessor professional judgement</p>	
<p>Native species rich hedgerow with trees (ID 41)</p>	<p>Height ls >1.5m average along length (pass) ,width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by</p>	<p>Phase 1 habitat survey undertaken by AECOM in April 2021</p>	<p>Hedgerows and Line of Trees Habitat Type</p>	<p>Biodiversity Metric 3.0 condition criteria and assessor professional judgement</p>	<p>Good</p>

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	livestock, animals, pests, disease or humans (pass). Only 1 fail = 3.				
Native species rich hedgerow with trees (ID 42)	Height is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Only 1 fail = 3.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good
Native species rich hedgerow with trees (ID 76)	Height is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (fail), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	<p>invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). 2 fails = 3.</p>				
<p>Native species rich hedgerow with trees – Associated with bank or ditch (ID 20, 53, 58, 68, 70, 72, 79, 84, 86, 87, 88, 89, 90, 92, 97, 99, 114, 118, 57b)</p>	<p>Height Is >1.5m average along length (pass) ,width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Pass all functional groups = 3.</p>	<p>Phase 1 habitat survey undertaken by AECOM in April 2021</p>	<p>Hedgerows and Line of Trees Habitat Type</p>	<p>Biodiversity Metric 3.0 condition criteria and assessor professional judgement</p>	<p>Good</p>
<p>Native species rich hedgerow with trees – Associated with bank or ditch (ID 91, 66b)</p>	<p>Height Is >1.5m average along length (pass) ,width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy</p>	<p>Phase 1 habitat survey undertaken by AECOM in April 2021</p>	<p>Hedgerows and Line of Trees Habitat Type</p>	<p>Biodiversity Metric 3.0 condition criteria and assessor professional judgement</p>	<p>Good</p>

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	<p>gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (pass), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Only 1 fail = 3.</p>				
<p>Native species rich hedgerow with trees – Associated with bank or ditch (ID 98)</p>	<p>Height ls >1.5m average along length (pass) ,width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (fail) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans</p>	<p>Phase 1 habitat survey undertaken by AECOM in April 2021</p>	<p>Hedgerows and Line of Trees Habitat Type</p>	<p>Biodiversity Metric 3.0 condition criteria and assessor professional judgement</p>	<p>Moderate</p>

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	(pass). 2 fails within the same functional group = 2.				
Native species rich hedgerow with trees – Associated with bank or ditch (ID 109)	Height is >1.5m average along length (pass), width is >1.5m average along length (pass), gap between ground and base of canopy <0.5m for >90% of length (pass), gaps make up <10% of total length with no canopy gaps>5m (pass), >1m with of undisturbed ground with perennial vegetation for >90% length on at least on side (pass) plant species indicative of nutrient enrichment dominant <20% of undisturbed ground (fail), >90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species and >90% hedgerow or undisturbed ground is free of human damage (pass). At least 1 mature tree per 30m stretch of hedgerow (pass), at least 95% of trees are in healthy condition with little to no evidence of adverse impacts by livestock, animals, pests, disease or humans (pass). Only 1 fail = 3.	Phase 1 habitat survey undertaken by AECOM in April 2021	Hedgerows and Line of Trees Habitat Type	Biodiversity Metric 3.0 condition criteria and assessor professional judgement	Good

6.6 Appendix F – Strategic Significance

Summary of strategic significance review

Plan	Policy
Chelmsford Biodiversity Action Plan ³	Habitat Action Plans <ul style="list-style-type: none"> • Lowland mixed deciduous woodland • Ponds • Hedgerows
Chelmsford Local Plan 2013-2026 (adopted May 2020) ⁴	Policy DM19 – Renewable and low carbon energy: Planning permission will be granted for renewable or low carbon energy developments provided that they: <ul style="list-style-type: none"> • do not cause demonstrable harm to residential living environment; and • avoid or minimise impacts on the historic environment; and • can demonstrate no adverse effect on the natural environment including designated sites; and • do not have an unacceptable visual impact which would be harmful to the character of the area; and • will not have a detrimental impact on highway safety.
Braintree District Local Plan 2013-2033 ⁵	Shaping principle (SP)7: <ul style="list-style-type: none"> • Incorporate biodiversity creation and enhancement measures SP8: <ul style="list-style-type: none"> • Secure a smart and sustainable approach that fosters climate resilience and a 21st century environment in the design and construction of the garden community to secure net gains in local biodiversity, highest standards of energy efficiency and innovation in technology to reduce the impact of climate change. SP9: <ul style="list-style-type: none"> • Avoidance, protection and/or enhancement of biodiversity assets within and surrounding the Site.
The South Suffolk and	<ul style="list-style-type: none"> • SEO 1: Maintain and enhance the character of this gently undulating, rural landscape by maintaining agricultural productivity and encouraging sustainable land management practices that protect and enhance the landscape, geodiversity and biodiversity assets and benefit carbon storage and water quality, as well as the over-riding sense of place.

³ Chelmsford Biodiversity Action Plan

⁴ Chelmsford Local Plan 2013-2026 (adopted May 2020)

⁵ Braintree District Local Plan 2013-2033 (adopted February 2021)

North
Essex
Clayland
National
Character
Area
profile⁶

- SEO 2: Protect and enhance the area's ancient woodland cover, parkland trees, river valley plantations and ancient hedgerows, through the management of existing woods and the planting of new woods, hedgerows and hedgerow trees to benefit landscape character, habitat connectivity and a range of ecosystem services, including timber provision, the regulation of soil erosion and the strengthening of the sense of place and history.
 - SEO 3: Enhance the slow-flowing, winding rivers and their pastoral valley flood plains that provide linkages through the landscape, including redundant sand and gravel extraction sites, for their ecological, historical and recreational importance. This will support the operation of natural processes and their contribution to biodiversity, geodiversity, soil quality, water availability, regulating water flow and the character of the area.
 - SEO 4: Conserve and enhance the distinctive character of the Dedham Vale Area of Outstanding Natural Beauty with its much-visited 'Constable Country' and improve opportunities for people to enjoy and understand the distinctive assemblage of historic landscapes outside the AONB. Ensure that access and recreational resources are managed to be compatible with the tranquillity of the area and the special qualities of protected landscapes, while providing a valuable health, education and access resource.
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⁶ <http://publications.naturalengland.org.uk/publication/5095677797335040>

6.7 Appendix G – Habitat Management Required to Achieve Target Condition

Habitat type	Habitat measure	Target condition	Time to target condition (years)	Habitat Condition Sheet	Condition Criteria	Associated habitat management requirements
Grassland – Other neutral grassland	Created	Poor	2	Grassland Habitat Types	Target condition is 'Poor' in two year. Cover of bracken less than 20% and cover of scrub and bramble less than 5% Variation of sward height with at least 20% being more than 7cm and 20% being less than 20%.	The grassland is the proposed species rich grass located under photovoltaic (PV) solar panels and the regularly mown grassland between fence and panels.
Grassland – Other neutral grassland	Created	Moderate	5	Grassland Habitat Types	Target condition is 'Moderate' in five years. Undesirable species and physical damage is below 5% cover. Cover of bracken less than 20% and cover of scrub and bramble less than 5% Variation of sward height with at least 20% being more than 7cm and 20% being less than 20%.	<p>Yr 1:</p> <p>June – Spray off or remove competitive/ruderal growth July – power/disc harrow August - Spray off or remove competitive/ruderal growth September to October – Seed with seed mix (Emorsgate EM5 or similar with additional yellow rattle @ 0.1g/m²)</p> <p>Year 2:</p> <p>April to June/July – control annual weeds by pulling or pot treatment July to September – Mow to 5-10cm</p> <p>Year 3 onwards</p>

Habitat type	Habitat measure	Target condition	Time to target condition (years)	Habitat Condition Sheet	Condition Criteria	Associated habitat management requirements
						Cut and collect arisings late July early August
Heathland and shrub – Mixed scrub	Created	Moderate	5	Grassland Habitat Types	<p>Target condition is 'Moderate' in five years.</p> <p>Undesirable species to make up less than 5% of ground cover.</p> <p>Absence of invasive non-native species.</p> <p>Representative of UKHab description and at least 3 woody species with not one comprising more than 75% of the cover.</p> <p>Good age range with seedlings, young shrubs and mature shrubs.</p>	<p>Ensure absence of invasive non-natives, undesirables to be <5% ground cover.</p> <p>At least 3 woody species should be present with not one being more than 75% cover.</p> <p>Clearing glades or rides present within the scrub.</p> <p>Good age range- seedlings, young and mature shrubs present.</p>
Urban – Developed land; sealed surface	Created	N/A – Other	0	Urban Habitat Types	No assessment required; condition is pre-set.	N/A
Woodland and forest – Lowland mixed deciduous woodland	Created	Moderate	30+	Woodland Habitat Types	<p>Target condition of 'Moderate' in 30+ years.</p> <p>Three age classes present.</p> <p>Erect fencing to prevent significant browsing damage evident in woodland.</p> <p>No invasive species present in the woodland.</p> <p>>80% of canopy trees and >80% of understorey shrubs are native.</p> <p>Five or more native tree or shrub species found across the woodland parcel.</p> <p>Open space within the woodland is 20-40% of woodland has areas of temporary open space.</p> <p>Woodland managed to ensure there is low risk pest or disease present.</p>	<p>Seclude the area with fencing to prevent herbivore damage. This will also decrease woodland disturbance.</p> <p>Planting of saplings to give woodland regeneration. Fill in areas of open space.</p>

Habitat type	Habitat measure	Target condition	Time to target condition (years)	Habitat Condition Sheet	Condition Criteria	Associated habitat management requirements
					Less than 1 hectare in total nutrient enrichment across woodland area and/or less than 20% of woodland has damaged ground.	
Woodland and forest – Other woodland; mixed	Created	Moderate	30	Woodland Habitat Types	<p>Target condition of ‘Moderate’ in 30 years.</p> <p>Three age classes present.</p> <p>Erect fencing to prevent significant browsing damage evident in woodland.</p> <p>No invasive species present in the woodland.</p> <p>>80% of canopy trees and >80% of understorey shrubs are native.</p> <p>Five or more native tree or shrub species found across the woodland parcel.</p> <p>Open space within the woodland is 20-40% of woodland has areas of temporary open space.</p> <p>Woodland managed to ensure there is low risk pest or disease present.</p> <p>Less than 1 hectare in total nutrient enrichment across woodland area and/or less than 20% of woodland has damaged ground.</p>	<p>Exclude the area with fencing to prevent herbivore damage. This will also decrease woodland disturbance.</p> <p>Planting of saplings to give woodland regeneration. Fill in areas of open space.</p>
Native Species Rich Hedgerow with trees	Created	Moderate	10	Hedgerow types	<p>Target condition is moderate in 10 years. The condition criteria for hedgerows with trees are as follows, more than 5 failures in total or fails both attributes in more than one functional group, required for poor condition:</p> <ul style="list-style-type: none"> A1. Height. >1.5 m average along length; A2. Width. >1.5 m average along length; 	<p>To meet target condition, it will be necessary to:</p> <ul style="list-style-type: none"> Allow undisturbed ground to develop along the edge of the hedgerow; Carry out planting according to the supplier instructions (Hedgerow - 30% Hawthorn <i>Crataegus monogyna</i>, 30% Blackthorn <i>Prunus spinosa</i>, 10% Bird Cherry <i>Prunus padus</i>, 10% Field

Habitat type	Habitat measure	Target condition	Time to target condition (years)	Habitat Condition Sheet	Condition Criteria	Associated habitat management requirements
					<ul style="list-style-type: none"> • B1. Gap - hedge base. Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees'); • B2. Gap - hedge canopy continuity. Gaps make up <10% of total length and no canopy gaps >5 m; • C1. Undisturbed ground and perennial vegetation. >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: measured from outer edge of hedgerow, and is present on one side of the hedge (at least); • C2. Undesirable perennial vegetation. Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground; • D1. Invasive and neophyte species. >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species; • D2. Current damage. >90% of the hedgerow or undisturbed ground is free of damage caused by human activities; • E1. Tree age. At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species; and, <p>E2. Tree health. At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.</p>	<p>Maple <i>Acer campestre</i>, 10% Dog Rose <i>Rosa canina</i>, 10% Hazel <i>Corylus avellana</i>, Whips planted in a double row. Tree Species - Oak <i>Quercus R.</i> Beech <i>Fagus sylvatica</i> Planted as minimum 14-16cm diameter/4m high)</p> <ul style="list-style-type: none"> • Implement due diligence and do not introduce pernicious or invasive species; • Monitor the planted hedgerow to ensure correct establishment, and take remedial action if growth fails; and, <p>Ensure damaging activities do not take place near to the hedgerow.</p>

6.8 Appendix H – BNG Best Practice Principles

Principle

How has this been applied in the assessment

Principle 1: Apply the Mitigation Hierarchy

The mitigation hierarchy has been applied where possible during the assessment, this has been reflected in the large net gain score. However, at present trading rules are not satisfied indicating habitats of high importance are being lost. Recommendations have been made in order to rectify this.

Principle 2: Avoid losing biodiversity that cannot be offset by gains elsewhere

There is no loss of irreplaceable biodiversity due to take place on site. Areas of ancient woodland occur outside the site boundary and additional woodland planting within the site will strengthen the landscape connectivity of these areas

Principle 3: Be inclusive and equitable

Stakeholder engagement throughout the DCO process has occurred..

Principle 4: Address risks

All risks regarding difficulties of achieving net gains for the project have been mitigated for appropriately by means of sufficient provision of compensatory habitats which have enabled the project to achieve net gains.

Principle 5: Make a measurable Net Gain contribution

Net gains have been achieved on site and this has been done by means of targeting the creation of habitats that are seen to be of ecological significance. For example, the creation of woodland, ponds and neutral grasslands; all of which have been successfully included in the design for the Proposed Development.

Principle 6: Achieve the best outcomes for biodiversity

The project has incorporated a large amount of higher distinctiveness habitat than that at baseline - neutral grassland is of medium distinctiveness and is proposed to be the dominant habitat compared with the low distinctiveness arable habitat at baseline. At present trading rules are not satisfied for the medium and high distinctiveness categories due to the loss of scrub and lowland mixed deciduous woodland indicating habitats of high importance are being lost. Recommendations have been made in order to rectify this.

Principle 7: Be additional

The biodiversity net gain delivered by the proposed development exceeds the minimum net gain requirement of 10% as set out in local planning policy advice.

Principle 8: Create a net gain legacy

A net gain legacy is to be achieved on this site; this is shown by the large net gain score. It is expected that the Proposed Development will be very beneficial for the environmental status of the area by providing a source of renewable energy whilst creating more biodiverse habitats than present at baseline.

Principle 9: Optimise sustainability

The sustainability of the site has been optimised through the proposals for renewable energy sources whilst also providing a much more diverse habitat area including areas of higher distinctiveness and quality.

Principle 10: Be transparent Particular effort has been made to adopt a precautionary and transparent approach when assessing the impacts of the development upon the habitats currently present, particularly in reference to any required losses of hedgerows and woodland. Recommendations have been made within this report to enable all trading rules to be met whilst also providing a much more biodiverse habitat and enabling the success of the Proposed Development.