

A428 Black Cat to Caxton Gibbet improvements

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9.25 Biodiversity Net Gain: Metric 2.0

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**A428 Black Cat to Caxton Gibbet
improvements**
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9.25 Biodiversity Net Gain: Metric 2.0

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1 Introduction

1.1 Background

- 1.1.1 This Biodiversity Net Gain (BNG) Report has been prepared by National Highways (the Applicant) in response to Question 1.3.2 of the Examining Authority's (ExA) First Round of Written Questions **[PD-008]** issued at Deadline 1 of the Examination for the A428 Black Cat to Caxton Gibbet Improvements Scheme (the Scheme).
- 1.1.2 As part of its response to this question, the Applicant made a commitment to calculate and report the BNG assessment score for the Scheme using Natural England's *Biodiversity Metric 2.0* [REF 5-1].
- 1.1.3 During the preparation of the Development Consent Order (DCO) application, the Applicant undertook a BNG assessment using the Highways England BNG metric [REF 5-2] [REF 5-3], the outcomes of which are presented in Appendix 8.19, Biodiversity Net Gain **[APP-206]** of the Environmental Statement. This methodology was applied as, at the time the assessment was undertaken, the *Biodiversity Metric 2.0* [REF 5-1] had not been published.
- 1.1.4 This report accordingly updates this calculation through the application of *Biodiversity Metric 2.0* [REF 5-1], its accompanying *Biodiversity Metric 2.0: User Guide* [REF 5-1] and *Biodiversity Metric 2.0: Technical Supplement* [REF 5-1] and other BNG best practice principles [REF 5-4].
- 1.1.5 The scores presented in this report differ to those presented in Appendix 8.19, Biodiversity Net Gain **[APP-206]** of the Environmental Statement. This is partly due to differences between the *Highways England BNG metric* [REF 5-2] [REF 5-3] and *Biodiversity Metric 2.0* [REF 5-1] calculation tools, and because the calculations undertaken using the former excluded land associated with borrow pits and other land parcels within the Scheme's Order Limits that would experience temporary habitat loss and be returned to former land use and habitats. There are also differences in how the Highways England BNG metric [REF 5-2] [REF 5-3] and the *Biodiversity Metric 2.0* [REF 5-1] categorise linear habitats (i.e. whether habitats are considered as areas or as distances) and how the condition of habitats was treated as part of the calculation.
- 1.1.6 In accordance with the *Biodiversity Metric 2.0* [REF 5-1] methodology, the revised calculations include all temporary and permanent landtake within the Scheme's Order Limits.
- 1.1.7 This report is structured as follows:
- Section 1 – which presents the background to the report and sets out the planning policy position for BNG.
 - Section 2 – which presents details of the methodology followed when applying *Biodiversity Metric 2.0* [REF 5-1].
 - Section 3 – which presents the calculated results of the BNG assessment.
 - Section 4 – which presents the conclusions of the BNG assessment.

- 1.1.8 The report is supported by the following appendices:
- a. Appendix A: Baseline habitat plan.
 - b. Appendix B: Post-development plan.
 - c. Appendix C: Summary of local planning policies and local biodiversity action plans.
 - d. Appendix D: Condition assessment rationale.
 - e. Appendix E: Habitat classification conversion tables.
 - f. Appendix F: Habitat management required to achieve target condition.
 - g. Appendix G: Natural England's Biodiversity Metric 2.0 Calculation.

1.2 Planning policy context

- 1.2.1 The Applicant's biodiversity strategy document *Our plan to protect and increase biodiversity* [REF 5-5] states that the Applicant "... is committed to reducing the net loss of biodiversity across the Strategic Road Network (SRN) by 2020 and to achieving no net loss of biodiversity by 2025".
- 1.2.2 Paragraph 5.23 of the National Policy Statement for National Networks (NPSNN) [REF 5-6] states that "*The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.*"
- 1.2.3 Paragraph 5.25 of the NPSNN [REF 5-6] states that "... development should avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives. The applicant may also wish to make use of biodiversity offsetting in devising compensation proposals to counteract any impacts on biodiversity which cannot be avoided or mitigated. Where significant harm cannot be avoided or mitigated, as a last resort, appropriate compensation measures should be sought."
- 1.2.4 Paragraph 5.36 of the NPSNN [REF 5-6] states that "*Applicants should include appropriate mitigation measures as an integral part of their proposed development, including identifying where and how these will be secured. In particular, the applicant should demonstrate that... opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals, for example through techniques such as the 'greening' of existing network crossing points, the use of green bridges and the habitat improvement of the network verge.*"
- 1.2.5 Although there is no legal obligation or national/local policy requirement for nationally significant infrastructure projects to deliver BNG, the Applicant has undertaken a calculation in line with using *Biodiversity Metric 2.0* [REF 5-1] to identify what losses and gains would result from the Scheme, based on the landscape and biodiversity mitigation and enhancement measures embedded into its design.

- 1.2.6 The application of *Biodiversity Metric 2.0* [REF 5-1] aligns with the aspirations and local planning policies of the Scheme's host authorities (see Appendix C) in relation to assessing the biodiversity losses and gains of large-scale development proposals using an established and recognised methodology.

2 Methodology

2.1 Overview and approach

- 2.1.1 The BNG assessment involved making a comparison between the biodiversity value of habitats present within the Scheme's 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).
- 2.1.2 The comparison is made in terms of 'biodiversity units', with a 'biodiversity metric' (a standard way of measuring) providing the mechanism to allow biodiversity values to be calculated and compared.
- 2.1.3 *Biodiversity Metric 2.0* [REF 5-1] was used to calculate the overall loss or gain of biodiversity of the Proposed Development by assessing the distinctiveness (i.e. type of habitat and its value), condition, extent, ecological connectivity and strategic significance of habitats within the Scheme pre- and post-development/construction.
- 2.1.4 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. 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.
- 2.1.5 The metric assessed and generated separate outputs for area-based habitats (measured in habitat units) and linear based habitats, including hedgerows (measured in hedgerow units) and rivers (measured in river units). 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 *Biodiversity Metric 2.0* [REF 5-1] where they are impacted by development.
- 2.1.6 All habitats within the Scheme's Order Limits have been included within the calculation to provide the baseline and post-development biodiversity values. The assessment has been based on the Scheme design illustrated on Figure 2.4, Environmental Masterplan [APP-091] of the Environmental Statement and includes both permanent and temporary loss of habitats.
- 2.1.7 In accordance with the *Biodiversity Metric 2.0: User Guide* [REF 5-1], biodiversity gains or losses the different biodiversity unit types have been reported separately and have not been summed to give an overall biodiversity unit value.
- 2.1.8 The information used to undertake the calculation is described below.

2.2 Baseline data

- 2.2.1 Phase 1 Habitat survey data collected in June and July 2016 (see Appendix 8.20, Phase 1 Habitat Survey **[APP-207]** of the Environmental Statement) and more recent data collected from walkover surveys undertaken in 2018, 2019 and 2020 (the 'baseline data') were used to determine the baseline area-based habitats and linear habitats.
- 2.2.2 All baseline habitats defined within the Scheme's Order Limits were assigned a condition retrospectively post-survey based on the baseline data and assumptions informed by baseline information available, professional judgement and application of the condition assessment criteria outlined in the *Biodiversity Metric 2.0: User Guide* [REF 5-1] and *Biodiversity Metric 2.0: Technical Supplement* [REF 5-1].
- 2.2.3 The habitats were converted from standard Phase 1 Habitat types [REF 5-7] to UK Habitat Classification categories [REF 5-8] (see Appendix E) and digitised using GIS techniques to generate area and length measurements of each habitat type.
- 2.2.4 The Baseline habitat plan is presented in Appendix A.
- 2.2.5 The data was aggregated and entered into the *Biodiversity Metric 2.0* [REF 5-1] to calculate the baseline biodiversity units.

2.3 River habitats

- 2.3.1 Habitat categories, associated distinctiveness and condition scores are approached differently for rivers.
- 2.3.2 Due to the absence of specific modular river surveys [REF 5-9] (see Section 2.7), where data were available, river habitats were assigned a habitat category, distinctiveness and condition score using a combination of habitat descriptions, assumptions and drainage information presented on the Scheme General Arrangement Plans **[APP-011]**.

2.4 Post-development data

- 2.4.1 The information presented in Figure 2.4, Environmental Masterplan **[APP-091]** of the Environmental Statement was used to determine the extent and type of habitats to be retained, created and enhanced post-development of the Scheme.
- 2.4.2 Habitats were first assigned to a Phase 1 Habitat survey code before being digitised using GIS techniques so that area and length measurements could be produced. The habitats were subsequently converted into UK Habitat Classification categories (see 'Post-development plan' in Appendix B).
- 2.4.3 Target condition scores for the proposed habitats were selected in accordance with the *Biodiversity Metric 2.0: User Guide* [REF 5-1] and *Biodiversity Metric 2.0: Technical Supplement* [REF 5-1] using professional judgement to ensure the condition scores selected were realistic. The data were then used to predict the post-development biodiversity units.

2.5 Connectivity

- 2.5.1 Connectivity scores for all habitats required for Biodiversity Metric 2.0 [REF 5-1] were determined following the approach outlined within the *Biodiversity Metric 2.0: User Guide* [REF 5-1] and *Biodiversity Metric 2.0: Technical Supplement* [REF 5-1]. Using this guidance, scores were assigned according to distinctiveness as follows:
- High or Very High distinctiveness – medium connectivity.
 - Low to Moderate distinctiveness – low connectivity.
 - Very low distinctiveness – not applicable (N/A).

2.6 Strategic significance

- 2.6.1 *Biodiversity Metric 2.0* [REF 5-1] requires that the strategic significance of all baseline and post-development habitats be defined. Strategic significance refers to areas of local priority for biodiversity and nature improvement, identified within local planning policies.
- 2.6.2 As part of this assessment, the following local development plan documents were reviewed to determine the strategic significance of the habitats within the Order Limits (see Appendix C):
- Central Bedfordshire Local Plan 2015 – 2035*. Central Bedfordshire Council (July 2021) [REF 5-10].
 - Local Plan 2030: Planning for the future*. Bedford Borough Council (January 2020) [REF 5-11].
 - South Cambridgeshire Local Plan*. South Cambridgeshire District Council (September 2018) [REF 5-12].
 - Huntingdonshire's Local Plan to 2036*. Huntingdonshire District Council (May 2019) [REF 5-13].

2.7 Limitations and assumptions

- 2.7.1 As *Biodiversity Metric 2.0* [REF 5-1] was not published at the time of undertaking baseline surveys, certain data required to complete parameters within the metric was not collected and recorded by the Applicant. Accordingly, habitat conditions were assigned retrospectively with all habitat areas and lengths measured manually using GIS techniques based on the information presented on the Phase 1 Habitat Plan within Appendix 8.20, Phase 1 Habitat Survey [APP-207] of the Environmental Statement and on Figure 2.4, Environmental Masterplan [APP-091] of the Environmental Statement. As such, habitat areas are approximations only and there is a 0.01% area discrepancy (0.09 ha) between the habitats lost (665.85 ha) and created (665.49 ha). This discrepancy is not considered to have any effect on the results..
- 2.7.2 Area, linear and unit values presented in the report are rounded in the *Biodiversity Metric 2.0* [REF 5-1] calculator to two decimal places. In combining these rounded values, the sum of some calculated values presented total up to a +/- 0.1 difference.

- 2.7.3 In undertaking the *Biodiversity Metric 2.0* [REF 5-1] calculation, the following assumptions were made:
- a. Where habitat condition was assigned retrospectively using Phase 1 habitat survey data, a reasonable precautionary approach has been adopted to prevent underestimating the value of the baseline habitat (see Appendix D).
 - b. The Black Cat Quarry (Breedon Quarry) restoration plan (see Figure 2 in Appendix 8.19, Biodiversity Net Gain [APP-206] of the Environmental Statement) forms a future baseline position adopted within the Environmental Impact Assessment (EIA) undertaken for the Scheme. This information was included in the baseline assessment as the restored quarry habitats would replace the existing habitats identified from field survey. As the condition of the restoration is not known but is expected to be young and not well established, the condition assessment of the habitats was set to poor.
 - c. All habitats that would be lost temporarily would be reinstated to their original habitat and condition, including hedgerows. These habitats are entered as 'created' habitats within the metric.
 - d. No hedgerows are to be retained within the Scheme's Order Limits.
 - e. Habitats created and enhanced as part of the Scheme would be subject to appropriate ongoing management and monitoring to ensure correct establishment and growth, to enable them to reach the assigned target condition.
 - f. In the absence of modular river survey data, all watercourses were assumed to be of moderate condition, and river metric calculations were based on the analysis of previous survey data and assumptions made regarding watercourse and riparian condition.
 - g. All new additional lengths of watercourse due to diversions would be created at "Fairly Poor" condition.
 - h. As all additional lengths of watercourse could encroach / be created right up to the bank top, the highest level of encroachment was applied in the calculation.
 - i. All river habitat enhancements would be of "Fairly Good" condition.

3 Results

3.1 Baseline habitats within the Scheme

- 3.1.1 The Order Limits covers a total area of 666.19 ha and the baseline habitats vary in ecological value, ranging from very low to very high distinctiveness. The most dominant habitat is cropland, which covers 498.9 ha. In addition, 30.85 kilometres of hedgerow and 5.34 kilometres of river habitats were present within the baseline.
- 3.1.2 Based on available evidence, all habitats were considered to be in 'poor' to 'good' condition (see **Table 3-1**). Further justification of the condition scores is presented in Appendix D.

3.2 Strategic significance

- 3.2.1 Strategic significance was assessed using the local development plans listed in Section 2.6, and habitats listed in local biodiversity action plans have been assigned as 'ecologically desirable' (medium strategic significance).
- 3.2.2 Strategic significance of habitats was mostly classed as being from 'low' (Area / compensation not in local strategy / no local strategy) to 'medium', with some of the habitats present being identified as priority habitats in local plans (ecologically desirable).
- 3.2.3 See Appendix C for details of the local development plans and local biodiversity action plans.

3.3 Baseline biodiversity value within the Scheme

- 3.3.1 The respective baseline biodiversity value for area-based and linear habitats are outlined in **Table 3-1** to **Table 3-3**.
- 3.3.2 In total, the baseline biodiversity value of the habitats present was calculated as 1,701.07 habitat units, 211.24 hedgerow units and 70.91 river units.

Table 3-1: Baseline area-based habitat data

Habitat type (UKHab)	Distinctiveness	Condition	Strategic significance	Area (ha)	Habitat Units
Woodland and forest - Lowland mixed deciduous woodland	High	Moderate	Medium	7.42	107.74
Woodland and forest - Other woodland; broadleaved	Medium	Good	Medium	1.21	15.97
Woodland and forest - Other woodland; broadleaved	Medium	Poor	Medium	1	4.40
Woodland and forest - Other coniferous woodland	Low	Poor	Medium	0.2	0.44
Woodland and forest - Other woodland; mixed	Medium	Good	Medium	1.07	14.12
Heathland and shrub - Mixed scrub	Medium	Poor	Medium	18.17	79.95
Woodland and forest - Wood-pasture and parkland	High	Good	Medium	0.31	6.75
Grassland - Other neutral grassland	Medium	Good	Medium	7.38	97.42
Grassland - Modified grassland	Low	Poor	Low	40.4	80.80
Grassland - Modified grassland	Low	Moderate	Low	21.35	85.40
Sparsely vegetated land - Ruderal/Ephemeral	Low	Poor	Low	4.61	9.22
Wetland - Reedbeds	High	Poor	Medium	3.61	26.21
Lakes - Ponds (Non- Priority Habitat)	High	Good	Medium	1.99	43.34
Lakes - Ponds (Non- Priority Habitat)	High	Poor	Medium	8.19	59.46
Lakes - Ditches	Medium	Poor	Medium	2.79	12.28

Habitat type (UKHab)	Distinctiveness	Condition	Strategic significance	Area (ha)	Habitat Units
Cropland - Cereal crops	Low	N/A - Agricultural	Low	480.35	960.70
Cropland - Arable field margins tussocky	Medium	N/A - Agricultural	Medium	18.53	81.53
Urban - Amenity grassland	Low	Poor	Low	2.56	5.12
Lakes - Ditches	Medium	Poor	Medium	0.06	0.26
Urban - Developed land; sealed surface	V.Low	N/A - Other	Low	40.19	0.00
Urban - Vacant/derelict land/ bare ground	Low	Poor	Low	4.8	9.60
Urban – Street tree	Low	Moderate	Low	0.09 ¹	0.36
Total	-	-	-	666.19	1,701.07

Table 3-2: Baseline hedgerow habitat data

Hedgerow type (UKHab)	Distinctiveness	Condition	Strategic significance	Length (km)	Hedgerow Units
Line of Trees	Low	Moderate	Medium	0.96	4.22
Native Species Rich Hedgerow	Medium	Good	Medium	5.87	77.49
Native Species Rich Hedgerow	Medium	Poor	Medium	1.99	8.76
Native Hedgerow	Low	Moderate	Medium	10.21	44.92
Native Species Rich Hedgerow with trees	Medium	Good	Medium	2.71	35.77
Native Hedgerow with trees	Low	Moderate	Medium	9.11	40.08
Total	-	-	-	30.85	211.24

¹ The UK Habitat Classification 'street tree' category once added into the metric accounts for the associated biodiversity units of the trees but does not alter the total area of the site (to avoid double counting of the underlying habitats).

Table 3-3: Baseline river habitat data

River type (UKHab)	Distinctiveness	Condition	Strategic significance	Length (km)	River units
Rivers & Streams (Other)	Medium	Moderate	High	5.038	69.52
Rivers & Streams (Other)	Medium	Poor	High	0.301	1.39
Total	-	-	-	5.34	70.91

3.4 Post-development habitats

- 3.4.1 Figure 2.4, Environmental Masterplan **[APP-091]** of the Environmental Statement illustrates habitats that would be established as part of the Scheme. These include: broadleaved woodland plantation; mixed woodland plantation; scattered scrub; marshy grassland; species rich grassland; ponds; reedbeds; arable land; amenity grassland; and hedgerows.
- 3.4.2 There would also be 1.41 kilometres of created watercourses through the creation of new channels and culverts.
- 3.4.3 Habitats temporarily lost would be reinstated to their original habitat and condition (included in **Table 3-6** and **Table 3-7**), including:
- a. Semi-natural broadleaved woodland (5.85 ha).
 - b. Broadleaved plantation woodland (1.26 ha).
 - c. Mixed plantation woodland (0.47 ha).
 - d. Coniferous plantation woodland (0.18 ha).
 - e. Scrub (scattered and dense) (8.63 ha).
 - f. Broadleaved parkland (0.14 ha).
 - g. Unimproved neutral grassland (>0.01 ha).
 - h. Semi-improved neutral grassland (2.03 ha).
 - i. Improved grassland (20.88 ha).
 - j. Poor semi-improved neutral grassland (9.62 ha).
 - k. Tall ruderals (0.83 ha)
 - l. Reedbeds (<0.01 ha).
 - m. Waterbodies (2.62 ha)
 - n. Arable land (183.62 ha).
 - o. Arable field margins (6.32 ha).
 - p. Amenity grassland (1.79 ha).
 - q. Bare ground (1.65 ha).
 - r. Hardstanding (19.17 ha).

s. Hedgerows (14.62 km).

3.4.4 Habitats where some areas would be retained (**Tables 3-4 and 3-5**) include:

- a. Broadleaved plantation woodland (0.14 ha).
- b. Scrub (0.12 ha).
- c. Poor semi-improved grassland (0.08 ha).
- d. Standing water (0.34 ha).
- e. Arable land (0.02 ha).
- f. Running water (1.41 km).

3.4.5 Gallow Brook, Fox Brook, Wintringham Brook, Hen Brook, South Brook and Rockham Ditch would be enhanced, comprising a total length of 3.61 kilometres. The enhancement of these watercourses contributes 59.16 river units, within the limitations described in Section 2.7.

3.4.6 The habitats present post-development vary in ecological value, ranging from low to very high distinctiveness.

3.4.7 The indicative management actions required for the created habitats to reach their target condition in the specified timeframe are provided in Appendix F.

3.5 Post-development biodiversity value

3.5.1 The respective post-development biodiversity value for area-based and linear habitats are outlined in **Table 3-4** to **Table 3-9**.

3.5.2 In total, the post-development biodiversity value (including retained, created and enhanced habitats) is predicted to be 1,981.37 habitat units, 144.37 hedgerow units and 77.97 river units.

3.5.3 These unit totals are derived as follows:

- a. 1,981.37 habitat units = 10.14 retained + 1,971.22 created habitat units.
- b. 144.37 hedgerow units = 0 retained + 144.37 created hedgerow units.
- c. 77.97 river units = 16.63 retained + 2.18 created + 59.16 enhanced river units.

Table 3-4: Retained area-based habitat data

Habitat type (UKHab)	Distinctiveness	Condition	Strategic significance	Area (ha)	Habitat units
Woodland and forest - Other woodland; broadleaved	Medium	Good	Medium	0.14	1.85
Heathland and shrub - Mixed scrub	Medium	Poor	Medium	0.12	0.53
Grassland - Modified grassland	Low	Moderate	Low	0.08	0.32
Lakes - Ponds (Non-Priority Habitat)	High	Good	Medium	0.34	7.41
Cropland - Cereal crops	Low	N/A - Agricultural	Low	0.02	0.04
Total	-	-	-	0.7	10.14

Table 3-5: Retained river habitat data

Habitat type (UKHab)	Distinctiveness	Condition	Strategic significance	Area (ha)	River units
Rivers & Streams (Other)	Medium	Moderate	High	1.10	15.24
Rivers & Streams (Other)	Medium	Poor	High	0.31	1.39
Total	-	-	-	1.41	16.63

Table 3-6: Created post-development habitat data

Habitat type (UKHab)	Distinctiveness	Target condition	Time to target condition (years)	Area (ha)	Habitat units
Woodland and forest - Other woodland; broadleaved	Medium	Moderate	30	75.04	151.94
Woodland and forest - Other woodland; mixed	Medium	Moderate	25	1.88	4.55

Habitat type (UKHab)	Distinctiveness	Target condition	Time to target condition (years)	Area (ha)	Habitat units
Heathland and shrub - Mixed scrub	Medium	Moderate	3	1.79	14.16
Grassland - Other neutral grassland	Medium	Moderate	10	187.12	1048.29
Wetland - Reedbeds	High	Moderate	10	2.12	14.44
Lakes - Ponds (Non-Priority Habitat)	High	Moderate	3	6.55	85.47
Cropland - Cereal crops	Low	N/A - Agricultural	1	7.71	14.88
Urban - Amenity grassland	Low	Poor	1	37.13	71.66
Urban - Developed land; sealed surface	V.Low	N/A - Other	0	99.07	0.00
Woodland and forest - Lowland mixed deciduous woodland	High	Moderate	32+	5.85	8.96
Woodland and forest - Other woodland; broadleaved	Medium	Good	32+	0.92	2.60
Woodland and forest - Other woodland; broadleaved	Medium	Poor	20	0.34	0.45
Woodland and forest - Other coniferous woodland	Low	Poor	15	0.18	0.23
Woodland and forest - Other woodland; mixed	Medium	Good	32+	0.47	1.33
Heathland and shrub - Mixed scrub	Medium	Poor	1	8.63	36.64
Woodland and forest - Wood-pasture and parkland	High	Good	32+	0.14	0.10
Grassland - Other neutral grassland	Medium	Good	15	2.03	15.70

Habitat type (UKHab)	Distinctiveness	Target condition	Time to target condition (years)	Area (ha)	Habitat units
Grassland - Modified grassland	Low	Poor	1	20.88	40.30
Grassland - Modified grassland	Low	Moderate	10	9.62	26.95
Sparsely vegetated land - Ruderal/Ephemeral	Low	Poor	1	0.83	1.60
Lakes - Ponds (Non-Priority Habitat)	High	Good	5	1.31	23.88
Lakes - Ponds (Non-Priority Habitat)	High	Poor	1	1.31	8.34
Lakes – Ditches	Medium	Moderate	5	1.15	8.47
Cropland - Cereal crops	Low	N/A - Agricultural	1	183.62	354.39
Cropland - Arable field margins tussocky	Medium	N/A - Agricultural	1	6.32	26.83
Urban - Amenity grassland	Low	Poor	1	1.79	3.45
Lakes – Ditches	Medium	Moderate	5	0.04	0.27
Urban - Vacant/derelict land/ bare ground	Low	Poor	1	1.65	3.18
Urban - Street Tree	Low	Moderate	27	1.41 ¹	2.16
Total	-	-	-	665.49	1,971.22

Table 3-7: Created hedgerow habitat

Habitat type (UKHab)	Distinctiveness	Condition	Length (km)	Hedgerow units
Native Species Rich Hedgerow	Medium	Moderate	14.06	63.06
Line of Trees	Low	Moderate	0.76	1.64
Native Species Rich Hedgerow	Medium	Good	3.38	20.93
Native Hedgerow	Low	Moderate	4.43	16.31
Native Species Rich Hedgerow with trees	Medium	Good	1.56	6.77
Native Hedgerow with trees	Low	Moderate	4.44	13.68
Native Species Rich Hedgerow	Medium	Good	0.43	2.42
Native Species Rich Hedgerow with trees	Medium	Moderate	5.21	19.56
Total	-	-	34.27	144.37

Table 3-8: Created river habitats

Habitat type (UKHab)	Distinctiveness	Condition	Length (km)	River units
Rivers & Streams (Other)	Medium	Poor	0.26	0.06
Rivers & Streams (Other)	Medium	Fairly Poor	1.15	2.12
Total	-	-	1.41	2.18

Table 3-9: Enhanced river habitats

Habitat type (UKHab)	Distinctiveness	Baseline condition	Target condition	Length (km)	River units
Rivers & Streams (Other)	Medium	Moderate	Fairly Good	3.61	59.16
Total	-	-	-	3.61	59.16

3.6 Summary of results

3.6.1 A summary of the results of the *Biodiversity Metric 2.0* [REF 5-1] assessment is shown in **Table 3-10**.

Table 3-10: Summary of results

Area/linear Units	Baseline	Post-development	Total net unit change	Total net % change
Habitat units	1,701.07	1,981.37	+280.29	+16.48%
Hedgerow units	211.24	144.37	-66.87	-31.66%
River units	70.91	77.97	+7.06	+9.96%

3.6.2 **Table 3-11** summarises the difference in areas and units for each habitat group.

Table 3-11: Change by broad habitat-type (area-based)

Change by broad habitat type						
Habitat group	Baseline		Post-development		Change	
	Existing area (ha)	Existing value (units)	Proposed area (ha)	Proposed value (units)	Area change (ha)	Unit change
Cropland	498.9	1,042.2	197.7	396.1	-301.2	-646.1
Grassland	69.1	263.3	150.6	868.3	81.5	605.0
Heathland and shrub	18.2	79.4	-7.6	-28.1	-25.8	-107.5
Lakes	13.0	107.9	-2.3	25.9	-15.4	-82.0
Sparsely vegetated land	4.6	9.2	-3.8	-7.6	-8.4	-16.8
Wetland	3.6	26.2	-1.5	-11.8	-5.1	-38.0
Urban	47.6	15.1	93.4	65.4	45.8	50.3
Woodland and forest	11.2	147.6	73.8	24.4	62.5	-123.1

3.6.3 **Table 3-12** summarises the difference in areas and units for each hedgerow habitat.

Table 3-12: Change by broad habitat-type (hedgerow)

Change by broad habitat type						
Habitat group	Baseline		Post-development		Change	
	Existing length (km)	Existing value (units)	Proposed length (km)	Proposed value (units)	Length change (km)	Unit change
Line of trees	0.96	4.22	0.76	1.64	-0.2	-2.58
Native species rich hedgerow	7.86	86.24	17.87	86.42	+10.01	+0.18
Native hedgerow	10.21	44.92	4.43	16.31	-5.78	-28.61
Native species rich hedgerow with trees	2.71	35.77	6.77	33.24	+4.06	-2.53
Native hedgerow with trees	9.11	40.08	4.44	13.68	-4.67	-26.40

3.6.4 **Table 3-10** demonstrates that positive scores (i.e. net gains in biodiversity) would be achieved within the area-based habitats (+16.48%) and river habitats (+9.96%) as a result of the Scheme, when comparing the baseline and post-development values.

3.6.5 For hedgerow habitats, **Table 3-10** demonstrates that a negative score (i.e. a net loss in biodiversity) would occur as a result of the Scheme, when comparing the baseline and post-development values. This net loss is attributed to the following factors:

- a. The extent of established hedgerows within the Scheme's Order Limits that would be impacted by the Scheme, some of which have been assessed within the calculation as being in good condition and exhibiting medium distinctiveness.
- b. The adoption of a worst-case assumption that all existing hedgerows on land within the Order Limits would be lost to the Scheme, with those lost as a consequence of temporary landtake subsequently replaced on a like-for-like basis.
- c. As some types of hedgerow proposed within the Scheme have a 'time to target condition' period of 10 years (i.e. the time taken for habitats to mature), this establishment period has been factored into the calculations.
- d. Some new hedgerows having to be located in areas where landscape integration and/or visual screening functions are necessary, and therefore being less desirable in ecological connectivity terms.

3.6.6 Notwithstanding the negative score for hedgerows, **Table 3-** demonstrates that the Scheme would result in increases in the overall length of native species-rich hedgerows and native species-rich hedgerows with trees within the Order Limits.

-
- 3.6.7 Additionally, it is expected that it would be possible to retain some lengths and sections of hedgerow within the Order Limits. As stated in paragraph 1.8.13 in Annex L: Landscape and Ecology Management Plan (LEMP) of the First Iteration Environmental Management Plan **[APP-234]**, as far as practicable, trees and other vegetation (such as hedgerows) identified as being of value within the Scheme's Order Limits would be retained and protected. Furthermore, paragraphs 2.1.2 and 2.1.3 of the document **[APP-234]** state that the Principal Contractor will protect existing hedgerows to be retained during construction and would use protective measures such as stand-offs. Commitment reference ESS-LV1 within Table 3-6 **[APP-234]** requires the Principal Contractor to develop and implement a LEMP that includes protection measures for retained hedgerows.
- 3.6.8 Full details of all baseline, retained and created habitats are presented within the biodiversity metric calculations for the Scheme in Appendix G.

4 Conclusion

4.1 Summary of BNG assessment

- 4.1.1 Based on the assumptions and limitations presented in Section 2.7, the Scheme is predicted to result in:
- a. A net gain of 16.48% habitat units.
 - b. A net gain of 9.96% of river units.
 - c. As net loss of -31.66% hedgerow units.
- 4.1.2 The outputs of the metric are dependent on all created, retained and enhanced habitats meeting the target conditions, subject to the criteria outlined within the *Biodiversity Metric 2.0: User Guide* [REF 5-1] and *Biodiversity Metric 2.0: Technical Supplement* [REF 5-1].

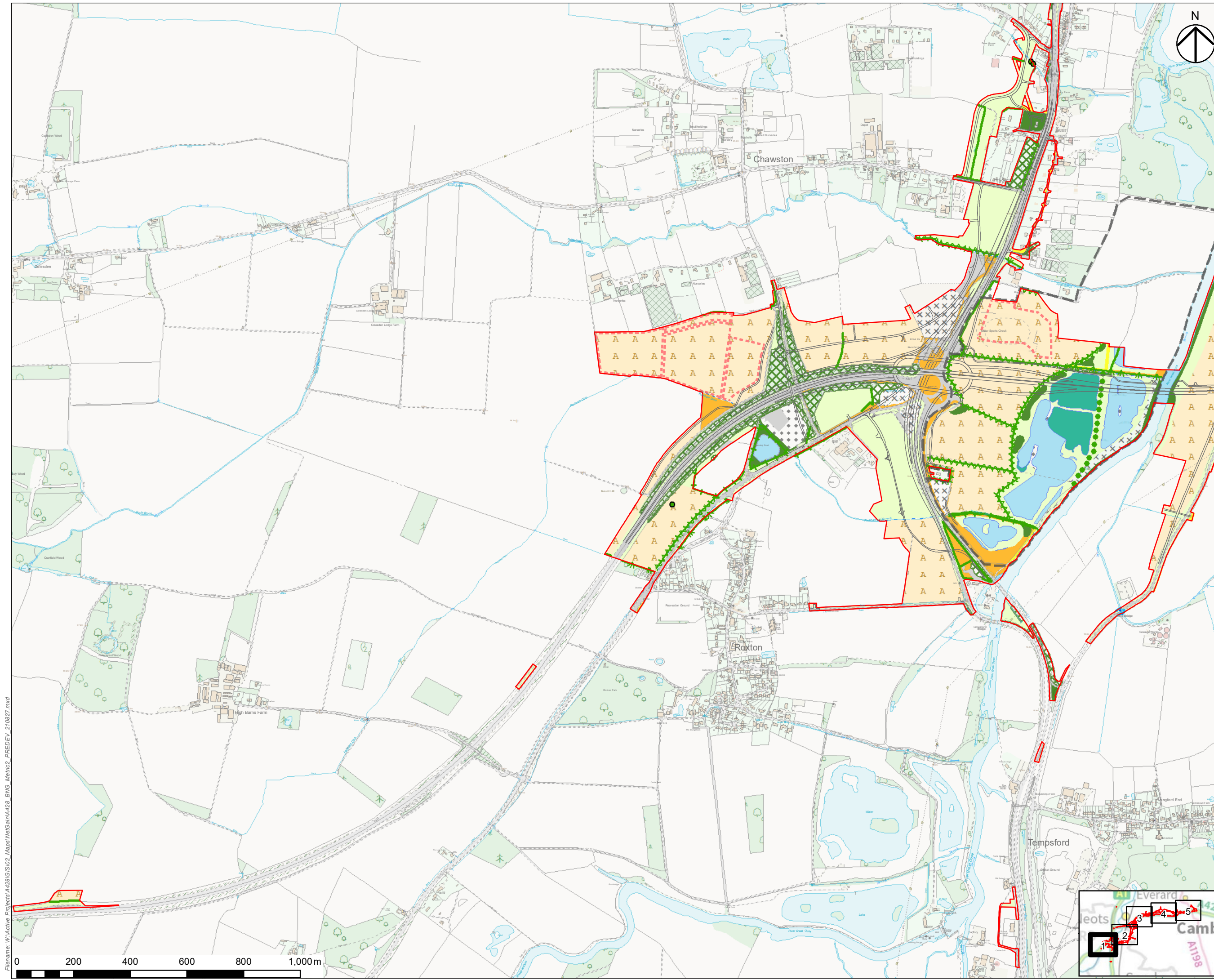
5 References

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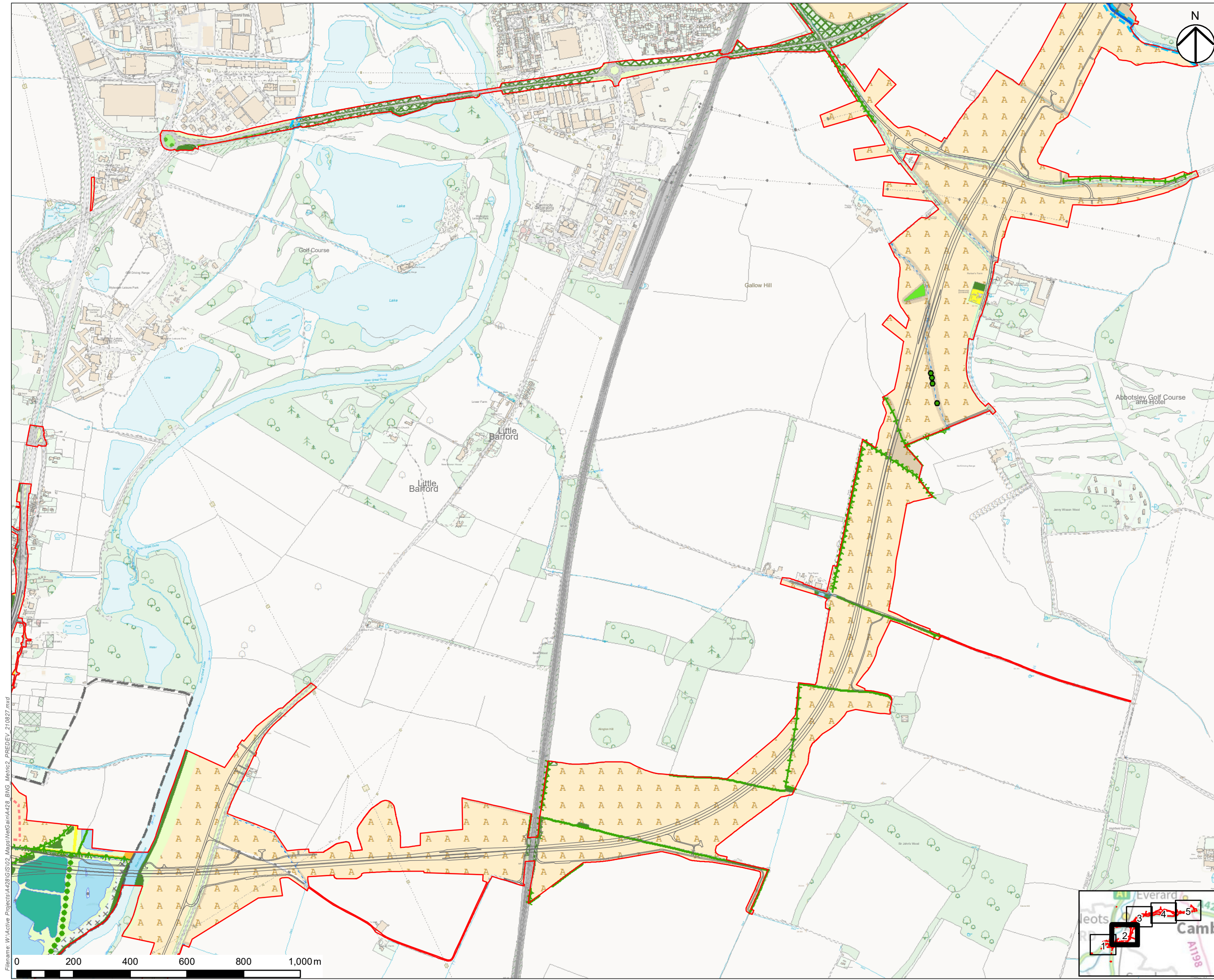
Appendix A: Baseline habitat plan



- LEGEND**
- Order limit
 - The Scheme
 - UK Habitat Classification**
 - Cropland - Arable field margins tussocky
 - Cropland - Cereal crops
 - Grassland - Modified grassland
 - Grassland - Other neutral grassland
 - Heathland and shrub - Mixed scrub
 - Lakes - Ditches
 - Lakes - Ponds (Non- Priority Habitat)
 - Sparsely vegetated land - Ruderal/Ephemeral
 - Urban - Amenity grassland
 - Urban - Developed land; sealed surface
 - Urban - Vacant/derelict land/ bareground
 - Wetland - Fens (upland and lowland)
 - Woodland and forest - Other woodland; broadleaved
 - Broadleaved parkland/scattered trees
 - Lakes - Streams and Brooks
 - Native Hedgerow
 - Native Hedgerow with trees
 - Native Species Rich Hedgerow
 - Native Species Rich Hedgerow with trees
 - Woodland and forest - Wood-pasture and parkland (line of)
 - Extent of Breendon Quarry restoration
 - Extent of borrow pit
 - Riparian zone

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Drawing Title FIGURE 1: BNG METRIC 2.0 BASELINE UK HABITAT CLASSIFICATION PAGE 1 OF 5			
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 - The Scheme
 - UK Habitat Classification**
 - Cropland - Arable field margins tussocky
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 - Lakes - Ponds (Non- Priority Habitat)
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 - Urban - Amenity grassland
 - Urban - Developed land; sealed surface
 - Urban - Vacant/derelict land/ bareground
 - Wetland - Fens (upland and lowland)
 - Woodland and forest - Other coniferous woodland
 - Woodland and forest - Other woodland; broadleaved
 - Woodland and forest - Other woodland; mixed
 - Woodland and forest - Wood-pasture and parkland
 - Broadleaved parkland/scattered trees
 - Lakes - Streams and Brooks
 - Native Hedgerow
 - Native Hedgerow with trees
 - Native Species Rich Hedgerow with trees
 - Native Species Rich Hedgerow with trees
 - Woodland and forest - Wood-pasture and parkland (line of)
 - Extent of Breedon Quarry restoration
 - Extent of borrow pit
 - Riparian zone

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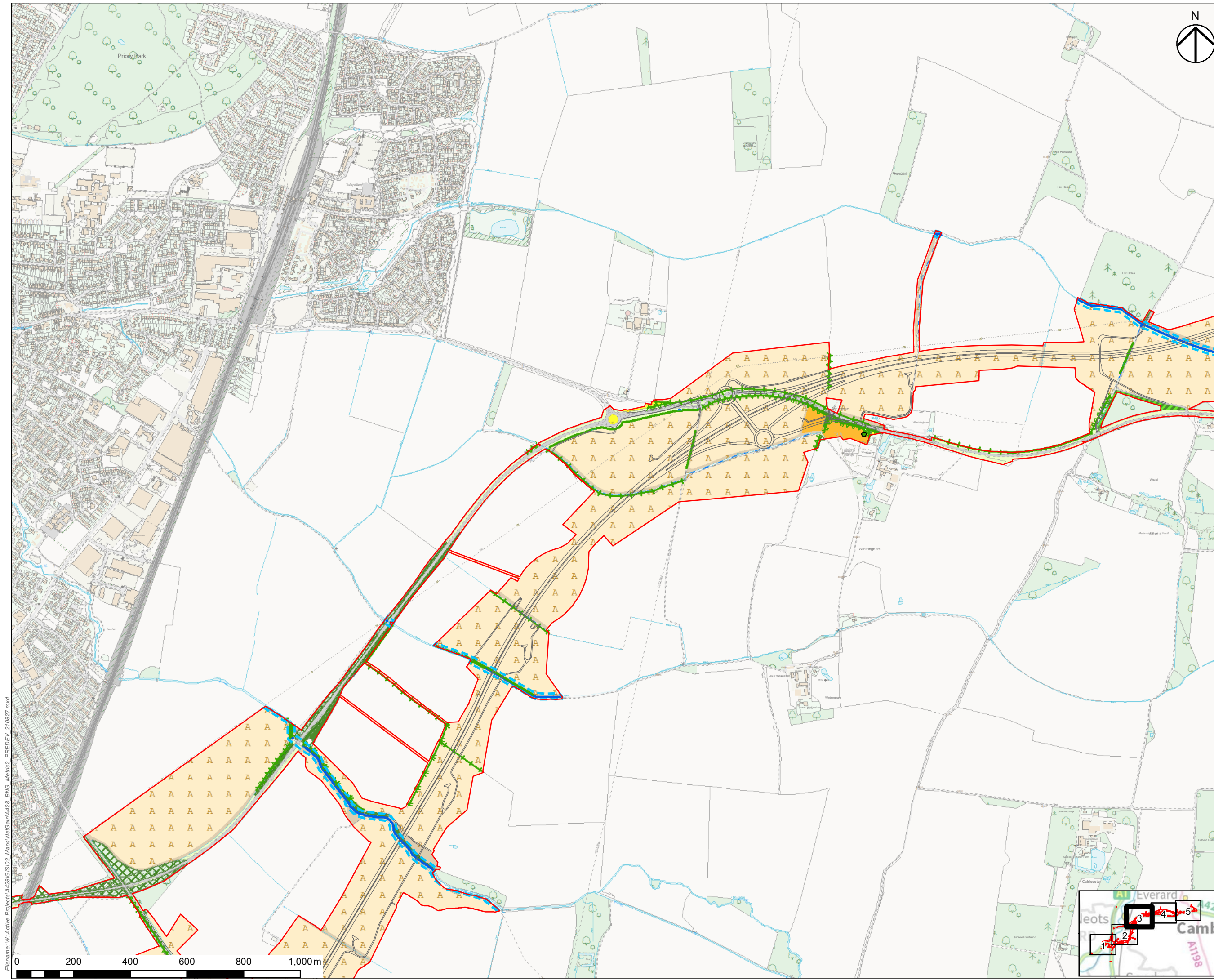
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**FIGURE 1:
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- LEGEND**
- Order limit
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 - UK Habitat Classification**
 - A A Cropland - Arable field margins tussocky
 - A A Cropland - Cereal crops
 - I Grassland - Modified grassland
 - I Grassland - Lowland meadows
 - I Grassland - Other neutral grassland
 - I Heathland and shrub - Mixed scrub
 - I Lakes - Ditches
 - x x x Sparsely vegetated land - Ruderal/Ephemeral
 - I Urban - Amenity grassland
 - I Urban - Developed land; sealed surface
 - I Urban - Vacant/derelict land/bareground
 - I Woodland and forest - Other woodland; broadleaved
 - I Woodland and forest - Other woodland; mixed
 - I Broadleaved parkland/scattered trees
 - Lakes - Streams and Brooks
 - Native Hedgerow
 - Native Hedgerow with trees
 - Native Species Rich Hedgerow
 - Native Species Rich Hedgerow with trees
 - I Riparian zone

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**FIGURE 1:
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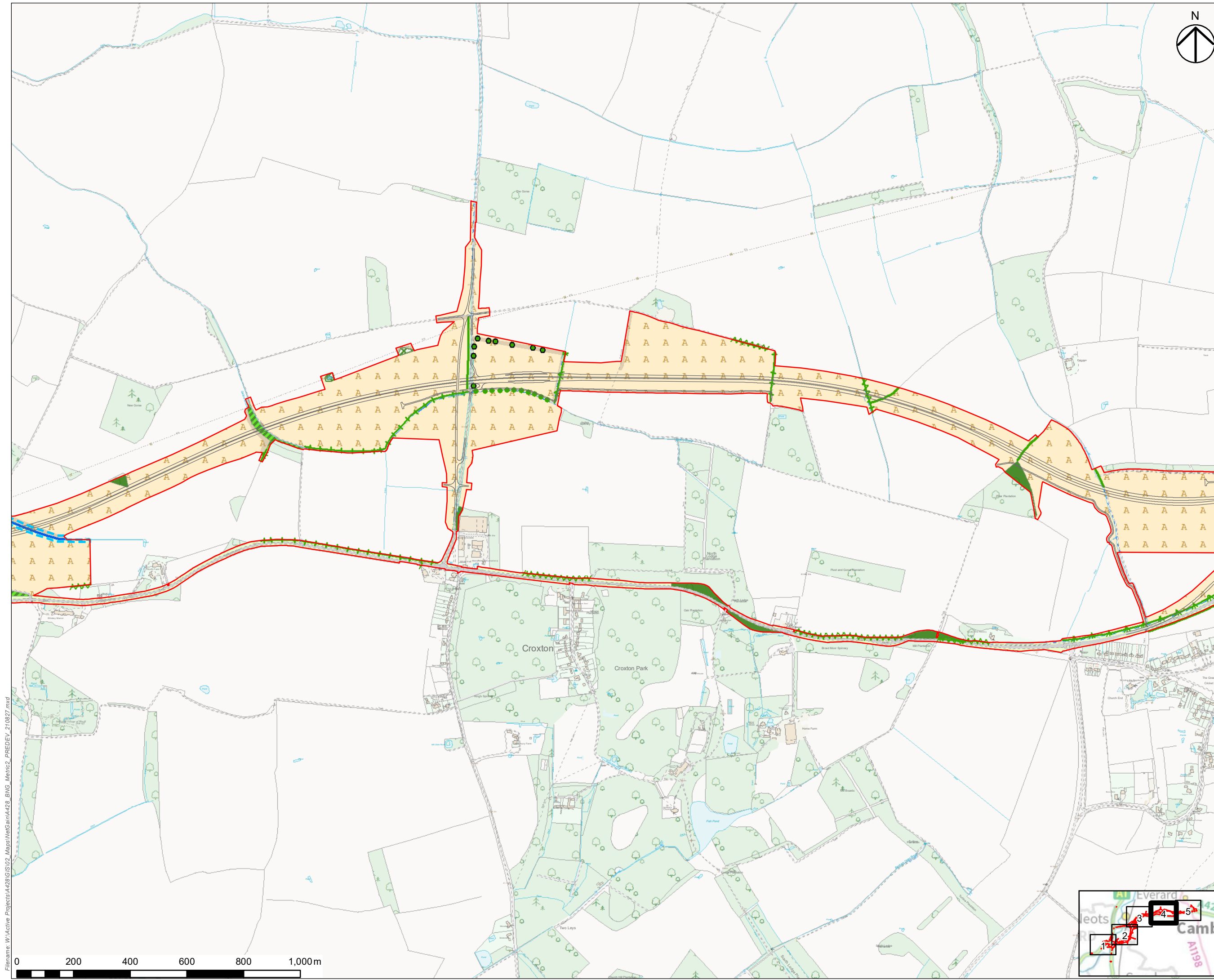
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 - Lakes - Ditches
 - Lakes - Ponds (Non- Priority Habitat)
 - Urban - Amenity grassland
 - Urban - Developed land; sealed surface
 - Urban - Vacant/derelict land/ bareground
 - Woodland and forest - Other woodland; broadleaved
 - Woodland and forest - Other woodland; mixed
 - Woodland and forest - Wood-pasture and parkland
 - Broadleaved parkland/scattered trees
 - Lakes - Streams and Brooks
 - Native Hedgerow
 - Native Hedgerow with trees
 - Native Species Rich Hedgerow
 - Native Species Rich Hedgerow with trees
 - Woodland and forest - Wood-pasture and parkland (line of)
 - Riparian zone

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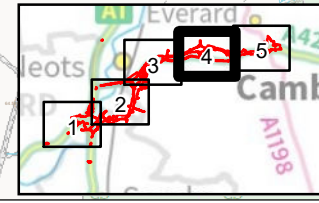
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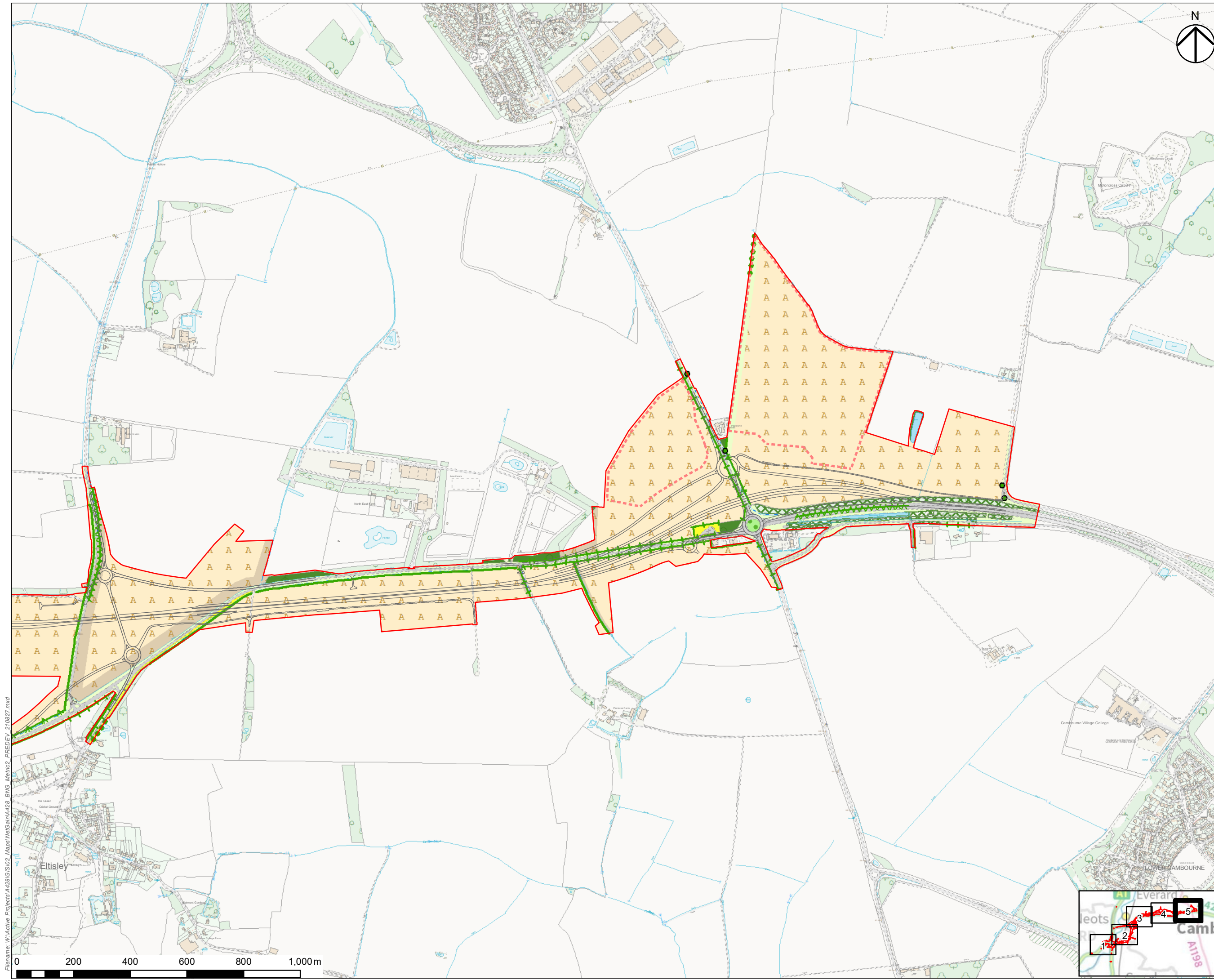
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 - Native Hedgerow with trees
 - Native Species Rich Hedgerow
 - Native Species Rich Hedgerow with trees
 - Woodland and forest - Wood-pasture and parkland (line of)
 - Extent of borrow pit

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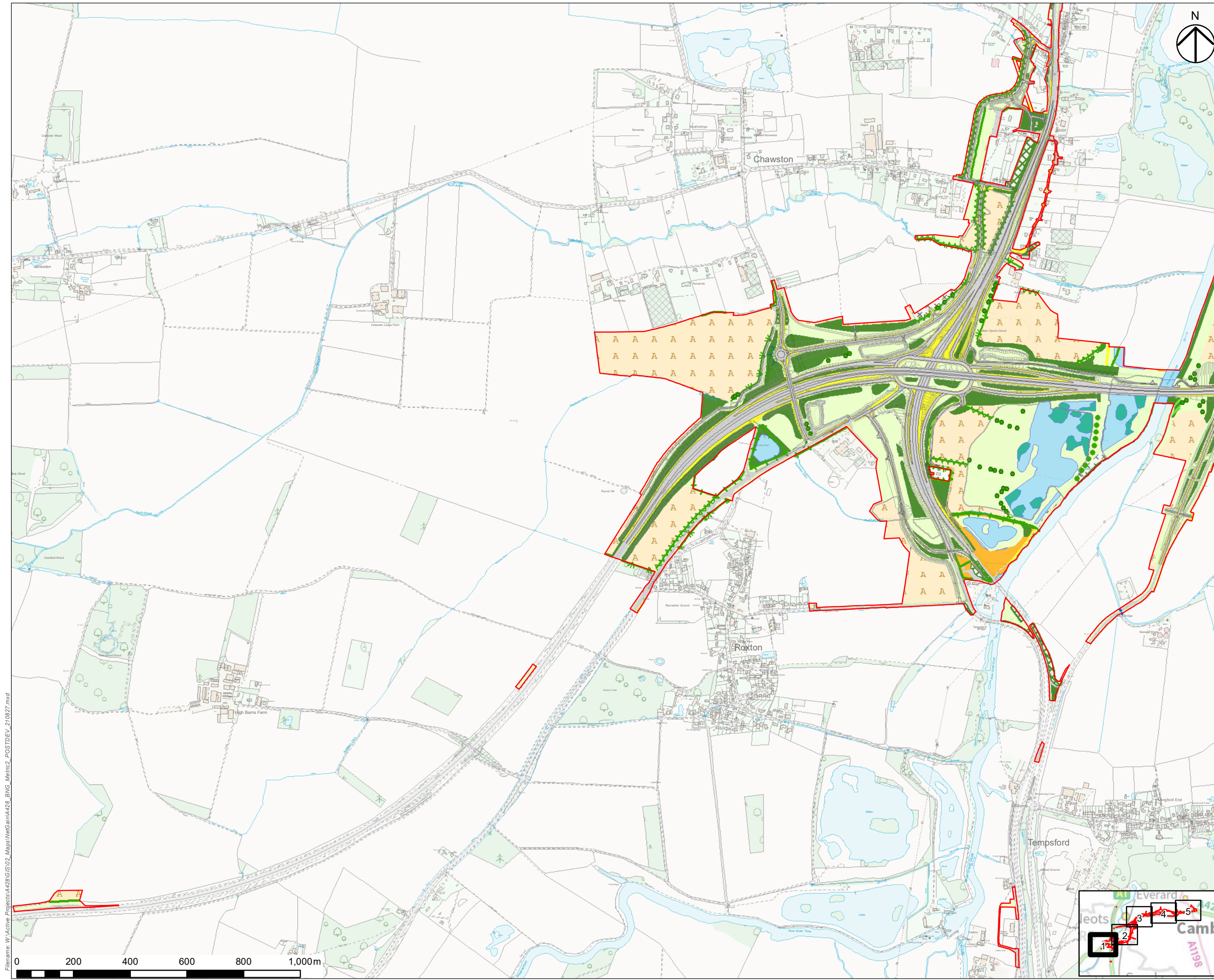
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Appendix B: Post-development plan



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 - Woodland and forest - Wood-pasture and parkland (individual tree)
 - Rivers & Streams - Other
 - Native Hedgerow
 - Native Hedgerow with trees
 - Native Species Rich Hedgerow
 - Native Species Rich Hedgerow with trees
 - Woodland and forest - Wood-pasture and parkland (line of)

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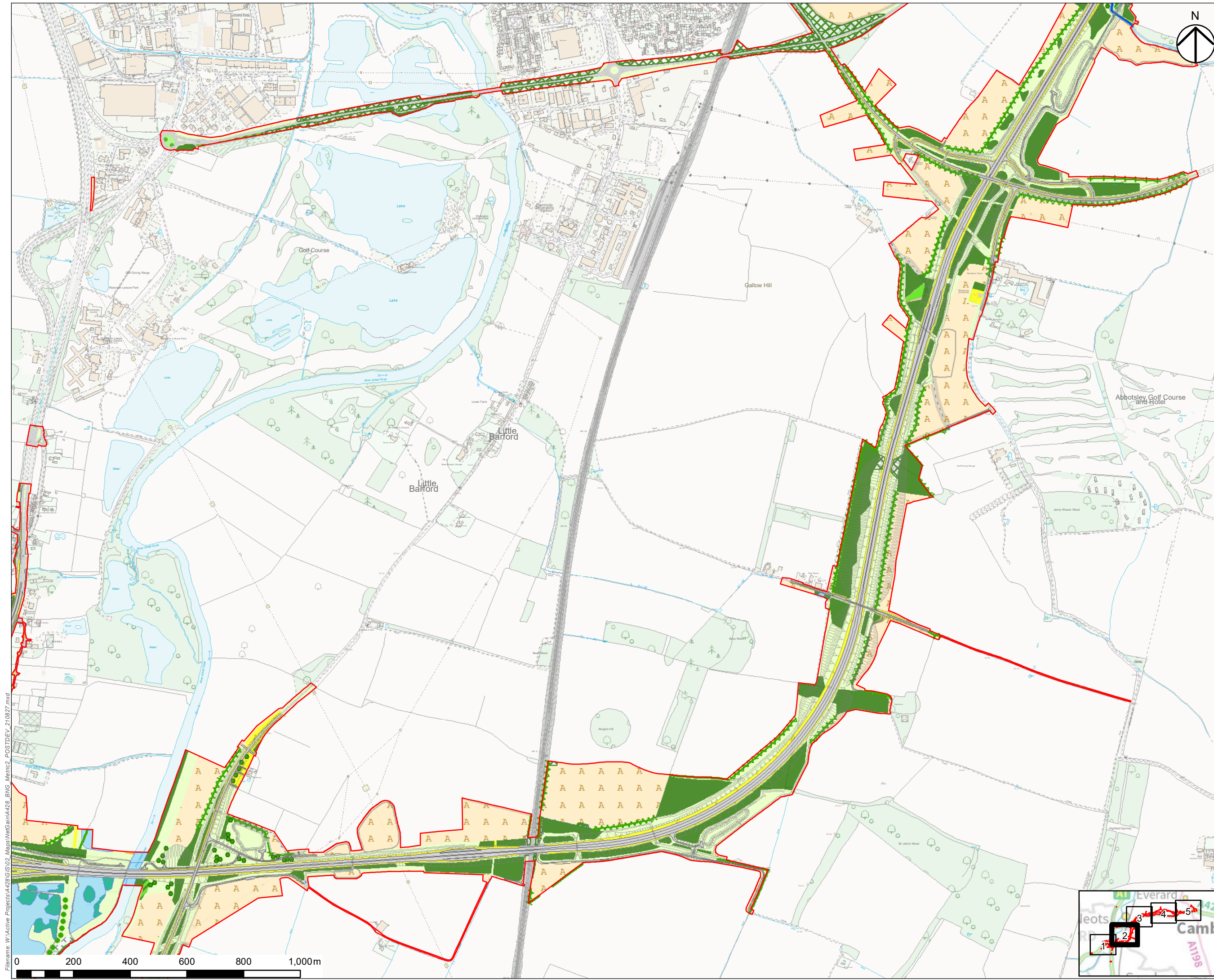
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**FIGURE 2:
BNG METRIC 2.0 POST DEVELOPMENT UK HABITAT CLASSIFICATION
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 - Woodland and forest - Other woodland; mixed
 - Woodland and forest - Wood-pasture and parkland
 - Woodland and forest - Wood-pasture and parkland (individual tree)
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 - Native Hedgerow
 - Native Hedgerow with trees
 - Native Species Rich Hedgerow
 - Native Species Rich Hedgerow with trees
 - Woodland and forest - Wood-pasture and parkland (line of)

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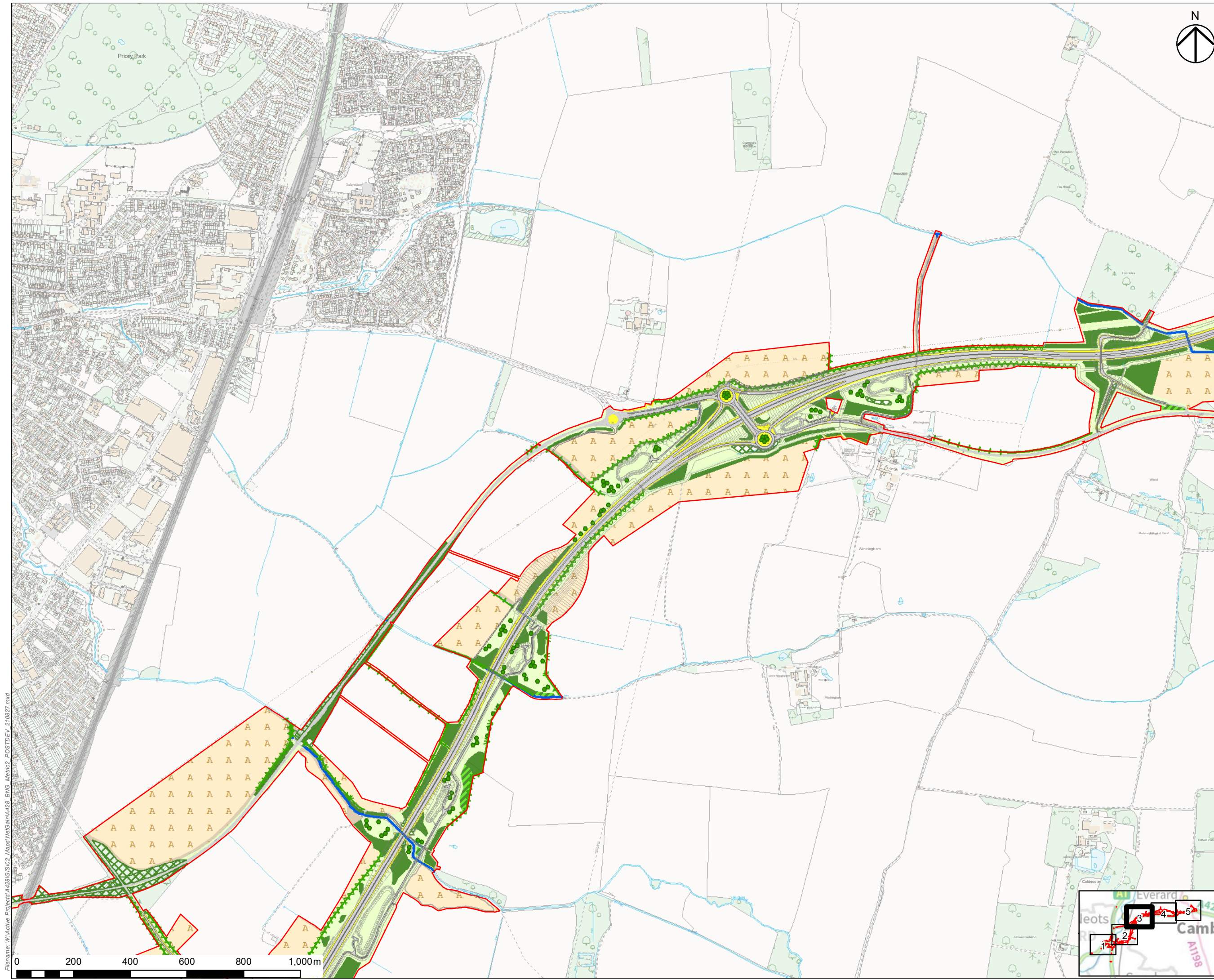
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**FIGURE 2:
BNG METRIC 2.0 POST DEVELOPMENT
UK HABITAT CLASSIFICATION
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Drawing Title
**FIGURE 2:
BNG METRIC 2.0 POST DEVELOPMENT
UK HABITAT CLASSIFICATION
PAGE 3 OF 5**

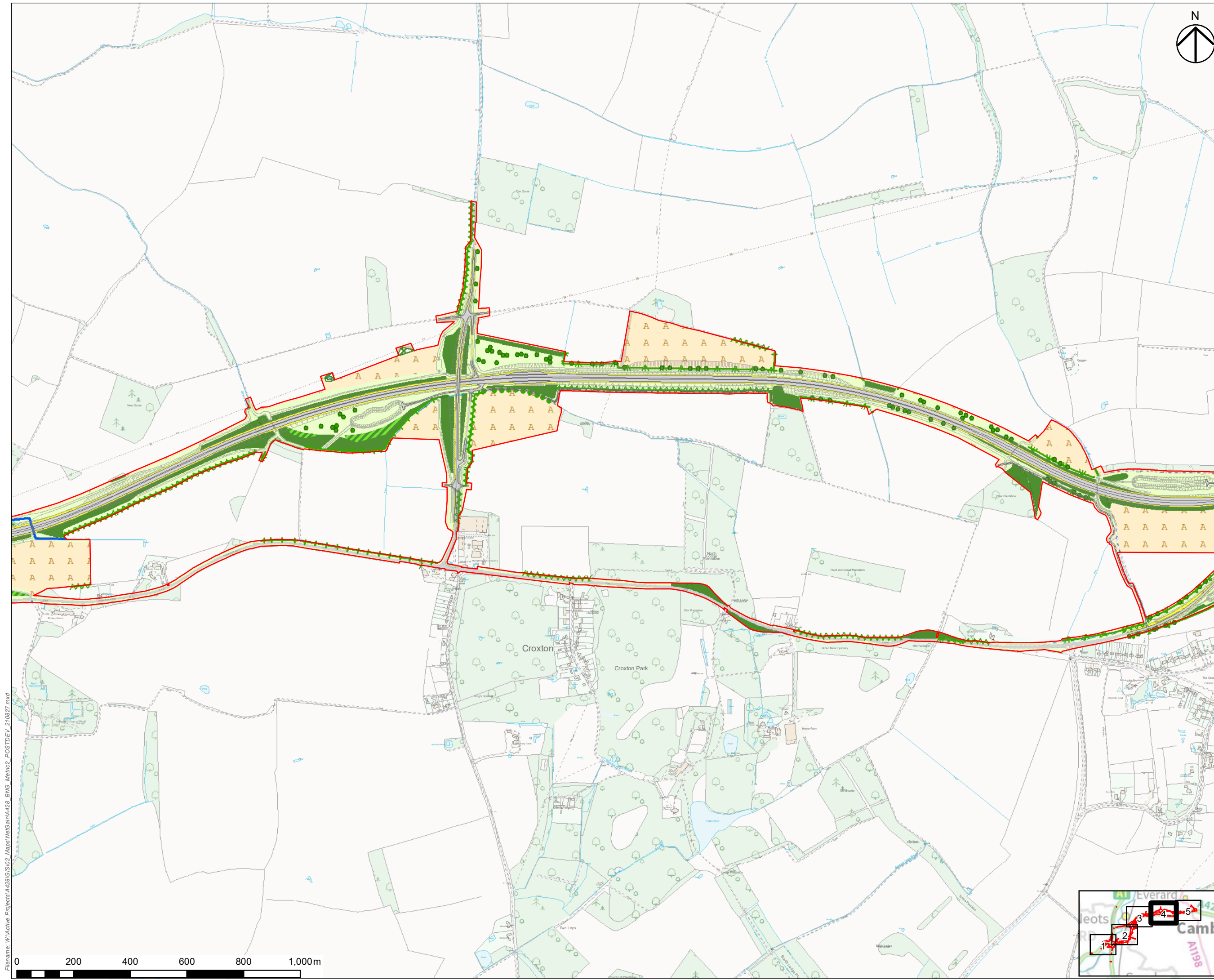
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				P01

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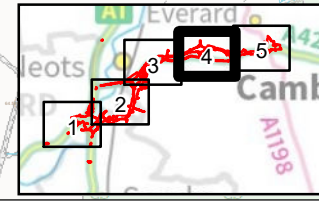
- LEGEND**
- Order limit
 - The Scheme
 - UK Habitat Classification**
 - A A Cropland - Arable field margins tussocky
 - A A Cropland - Cereal crops
 - Grassland - Modified grassland
 - Heathland and shrub - Mixed scrub
 - Lakes - Ditches
 - Lakes - Ponds (Non- Priority Habitat)
 - Urban - Amenity grassland
 - Urban - Developed land; sealed surface
 - Urban - Vacant/derelict land/ bareground
 - Woodland and forest - Other woodland; broadleaved
 - Woodland and forest - Other woodland; mixed
 - Woodland and forest - Wood-pasture and parkland (individual tree)
 - Rivers & Streams - Other
 - Native Hedgerow
 - Native Hedgerow with trees
 - Native Species Rich Hedgerow
 - Native Species Rich Hedgerow with trees
 - Woodland and forest - Wood-pasture and parkland (line of)

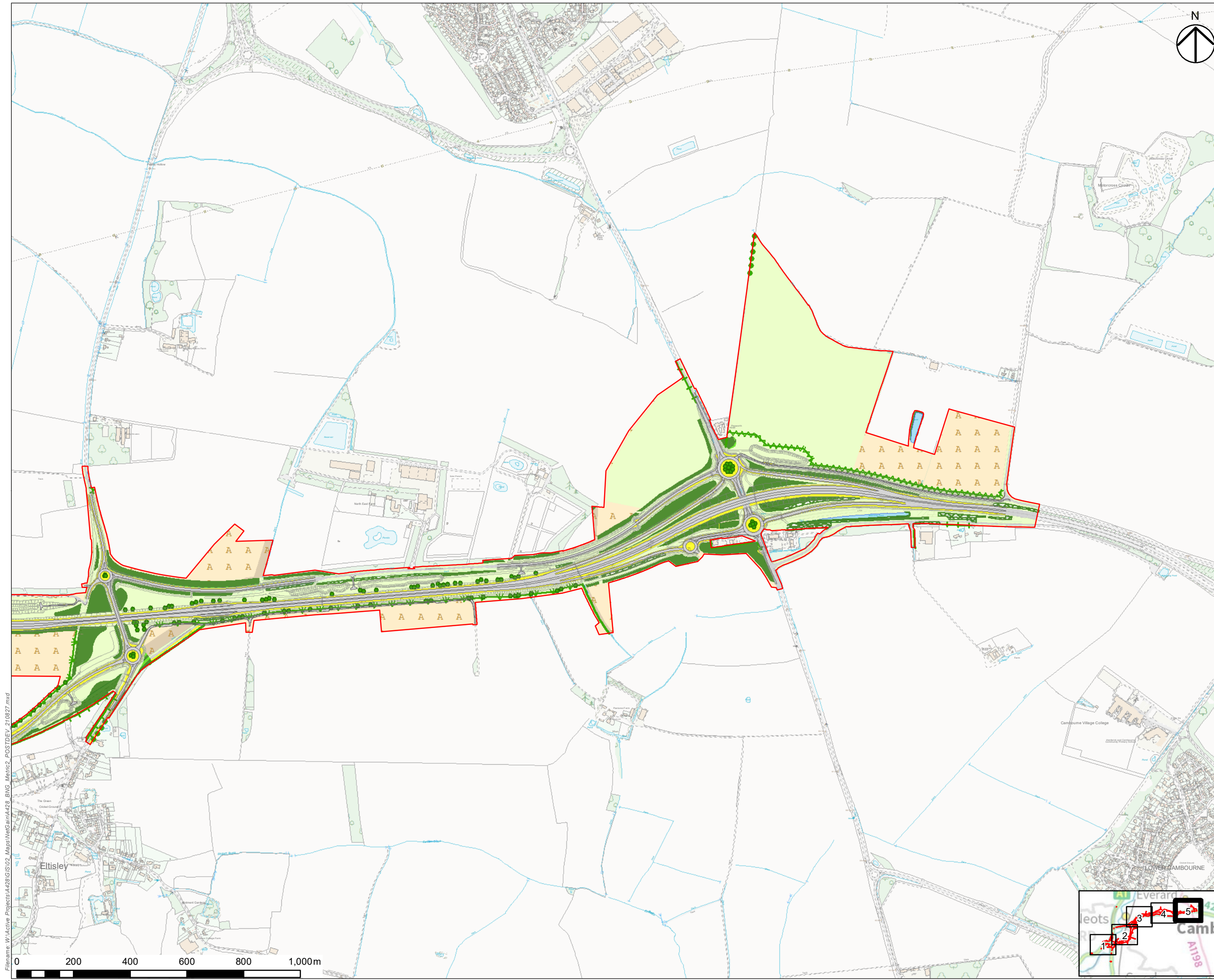
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Revision Details		By	Check	Date	Suffix
Purpose of Issue					
FOR INFORMATION					
Client					
Highways England Woodlands Manton Lane Manton Industrial Estate Bedford MK41 7LW					
Development Consent Order Number					

Project Title					
A428 BLACK CAT TO CAXTON GIBBET IMPROVEMENTS					
Drawing Title					
FIGURE 2: BNG METRIC 2.0 POST DEVELOPMENT UK HABITAT CLASSIFICATION PAGE 4 OF 5					
Designed	Drawn	Checked	Approved	Date	
CL	BF	MW	--	26/02/21	
Internal Project No			Suitability		
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Scale @ A3			Zone		
1:12,000					
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 - Native Hedgerow
 - Native Hedgerow with trees
 - Native Species Rich Hedgerow
 - Native Species Rich Hedgerow with trees
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Client
Highways England
Woodlands
Manton Lane
Manton Industrial Estate
Bedford
MK41 7LW



Development Consent Order Number

Project Title
A428 BLACK CAT TO CAXTON GIBBET IMPROVEMENTS

Drawing Title
**FIGURE 2:
BNG METRIC 2.0 POST DEVELOPMENT
UK HABITAT CLASSIFICATION
PAGE 5 OF 5**

Designed CL	Drawn BF	Checked MW	Approved ---	Date 26/02/21
Internal Project No 60541541	Suitability S1	Scale @ A3 1:12,000		

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Appendix C: Summary of local planning policies and local biodiversity action plans

Document	Policy reference	Purpose
Central Bedfordshire Council Central Bedfordshire Local Plan 2015 – 2035 [REF 5-10]	Policy EE2: Enhancing biodiversity	<p>The Council will work with developers to conserve habitats, species and sites, delivering enhancement and creation of ecological networks. Development proposals will be permitted where they provide a net gain in biodiversity through the conservation, restoration, enhancement and creation of ecological networks of habitats, species and sites (both statutory and non-statutory) or international, national and local importance.</p> <p>Development proposals will be permitted where they avoid negative impacts on biodiversity and geodiversity. Where this is not possible, proposals must mitigate unavoidable impacts and, as a last resort, compensate for residual impacts; delivering a net gain in biodiversity by:</p> <ol style="list-style-type: none"> 1. Incorporating and enhancing existing and creating new biodiversity features within their design; and 2. Maximising opportunities to enhance and create links between ecological networks and habitats of principal importance. Links should be created both on-site and, where possible, with nearby features. <p>Development proposals within, or in close proximity to, an ecological corridor should enhance the functionality and connectivity of the corridor.</p> <p>Development that would impact on the strategic ecological network causing fragmentation or otherwise prejudice its effectiveness will not be permitted.</p>
	Policy EE4: Trees, woodlands and hedgerows	<p>Development Proposals will be permitted where:</p> <ol style="list-style-type: none"> 1. They do not adversely affect ancient woodland and aged and veteran trees; 2. Woodlands, including semi-natural woodlands, planted ancient woodland sites, traditional orchards, hedgerows, and specimen trees found outside woodlands are protected and buffered; 3. Existing hedgerows and trees are incorporated to enhance developments, are integrated within the public realm, and are within a suitable landscape setting to ensure longevity. Hedgerows and treed boundaries should be reinforced, safeguarded within green corridors and extended where there is scope to create linkages; and 4. Any removal of trees or hedgerows to accommodate development is justified, and lost assets are replaced within the development site with appropriate planting of suitable species of equivalent scale and character and providing equivalent canopy cover and habitat connectivity. <p>Developers will be expected to include new planting in developments. Proposals will be permitted where:</p> <ol style="list-style-type: none"> 5. New developments are designed to include significant tree features as part of residential areas, commercial and employment sites, streets and car parks; 6. The layout of developments (including residential areas, roads, parking areas, and open spaces) is designed to provide sufficient space to enable these trees to thrive, including adequate root protection areas and canopy clearance zones; 7. Landscaping schemes will take account of local landscape character and should consider climate change, ease of maintenance and ecological enhancement. They should include the use of non-native species where appropriate. Care must be taken to avoid the introduction of invasive species into planting schemes;

Document	Policy reference	Purpose
		<p>8. New tree planting is designed within a green corridor of appropriate scale, as part of the site's public realm, transport network and green infrastructure, to improve ecological connectivity, enhance local character and create a sense of place, and mitigate and adapt to climate change; and</p> <p>9. Any development that forms a rural edge will include an effective landscape edge consisting of native tree and hedgerow planting consistent with the local landscape character.</p>
<p>Bedford Borough Council Local Plan 2030: Planning for the future [REF 5-11]</p>	<p>Policy 35S: Green Infrastructure</p>	<p>The existing green infrastructure in the borough shall be protected, enhanced and managed for the future benefit of the environment, people and the economy.</p> <p>Development shall provide a net gain in green infrastructure, while seeking to provide a high quality multi-functional green infrastructure network in accordance with the Bedford Green Infrastructure Plan.</p> <p>The Council will work with developers and other partners to deliver the three strategic green infrastructure projects: the Forest of Marston Vale, the Bedford River Valley Park and the Bedford to Milton Keynes Waterway Park.</p>
	<p>Policy 39 – Retention of trees</p>	<p>In considering proposals for development all of the following criteria will apply:</p> <p>i. Applicants shall consider opportunities to retain trees of high amenity and environmental value taking into consideration both their individual merit and their contribution as part of a group or broader landscape feature. Existing trees on and immediately adjacent the development site shall be recorded following guidance in the relevant British Standard.</p> <p>ii. Development applications shall provide details as to how the retained trees, hedges and hedge banks will be protected prior to, during and after construction.</p> <p>iii. No building, hard surfacing drainage or underground works will be permitted that does not accord with the principles of the relevant British Standard unless, exceptionally, the Council is satisfied that such works can be accommodated without harm to the trees concerned or there are overriding reasons for development to proceed.</p> <p>iv. Planning permission will be refused for development resulting in the loss or deterioration of ancient woodland and the loss of aged or veteran trees found outside ancient woodland (including from indirect impacts such as increased visitor pressure), unless the need for, and benefits of, the development in that location clearly outweigh the loss.</p> <p>v. The Council will protect existing trees through the making of Tree Preservation Orders where appropriate.</p>
	<p>Policy 40 - Hedgerows</p>	<p>Any hedgerows should be retained on development sites, unless there are overriding benefits that justify their removal. Where removal is deemed necessary, details addressing the criteria under the Hedgerow Regulations 1997 (as amended) shall be submitted to demonstrate the validity for removal and details of the replacement hedgerows. Replacement hedgerows shall be of an equal scale, native and species- rich and should be provided where possible, elsewhere on the development site.</p> <p>Where there are gaps in the existing hedgerows on the site, the development should provide for additional hedgerow planting.</p>
	<p>Policy 43 – Enhancing biodiversity</p>	<p>Development proposals should provide a net increase in biodiversity through the following:</p> <p>i. Enhancement of the existing features on the site; or</p> <p>ii. The creation of additional habitats on the site; or</p>

Document	Policy reference	Purpose
		iii. The linking of existing habitats to create links between ecological networks and where possible, with adjoining features.
	Policy 44 – River Great Ouse	<p>Development proposals along and adjoining the River Great Ouse will be required to:</p> <ul style="list-style-type: none"> i. Improve access to the River Great Ouse including canoe portage areas and related facilities will be supported as outlined in the 2011 Bedford Waterspace Study (or as amended) where it can be demonstrated that there will be no harmful impact on the character or environment, and ii. Deliver improvements as relevant to the site and area of the river which have regard to the 2011 Bedford Waterspace Study, and iii. Ensure that new river moorings have pedestrian access and vehicle access to an adopted road, unless it can be demonstrated that there is an alternative means of access, and iv. Ensure that new marinas have access to an adopted road and car parking is provided in accordance with the Parking Standards for Sustainable Communities: Design and Good Practice supplementary planning document to accommodate visitors' and residents' vehicles, and v. Ensure that any new development or activities do not lead to adverse impacts on Natura 2000 sites downstream of Bedford i.e. Portholme (SAC) and The Ouse Washes (SAC/SPA/Ramsar) including as a result of increased flooding or because of pollution.
	Policy 46S – Use of previously developed and use of undeveloped land	<p>The Council will seek to maximise the delivery of development through the reuse of suitably located previously developed land provided that it is not of high environmental or biodiversity value.</p> <p>Where significant development is demonstrated to be necessary on agricultural land, poorer quality land should be used in preference to the best and most versatile agricultural land (grades 1-3a). Where the site is located on agricultural land outside of existing settlements, applicants will be required to provide evidence of the grade of agricultural land and, where that land is likely to be grade 3 or higher, undertake a detailed survey of land quality.</p>
South Cambridgeshire District Council South Cambridgeshire Local Plan [REF 5-12]	Policy NH/3: Protecting Agricultural Land	<p>[Parts 1 & 2 of this policy concern matters unrelated to biodiversity net gain]</p> <p>3. When considering proposals for the change of use or diversification of farmland, particular consideration shall be given to the potential for impact upon Priority Species and Habitats (as identified within the Natural Environment and Rural Communities Act, 2006, Section 41).</p>
	Policy NH/4: Biodiversity	<ul style="list-style-type: none"> 1. Development proposals where the primary objective is to conserve or enhance biodiversity will be permitted. 2. New development must aim to maintain, enhance, restore or add to biodiversity. Opportunities should be taken to achieve positive gain through the form and design of development. Measures may include creating, enhancing and managing wildlife habitats and networks. 3. If significant harm to the population or conservation status of a Protected Species, Priority Species or Priority Habitat resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission will be refused. 4. Where there are grounds to believe that a proposal may affect a Protected Species, Priority Species or Priority Habitat, applicants will be expected to provide an adequate level of survey information and site assessment to establish the extent of a potential impact. 5. The reuse of brownfield sites must be undertaken carefully with regard to existing features of biodiversity interest.

Document	Policy reference	Purpose
		6. Planning permission will be refused for development resulting in the loss, deterioration or fragmentation of irreplaceable habitats, such as ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss.
	Policy NH/6: Green Infrastructure	<p>1. The Council will aim to conserve and enhance green infrastructure within the district. Proposals that cause loss or harm to this network will not be permitted unless the need for and benefits of the development demonstrably and substantially outweigh any adverse impacts on the district's green infrastructure network.</p> <p>2. The Council will encourage proposals which:</p> <ol style="list-style-type: none"> Reinforce, link, buffer and create new green infrastructure; and Promote, manage and interpret green infrastructure and enhance public enjoyment of it. <p>3. The Council will support proposals which deliver the strategic green infrastructure network and priorities set out in the Cambridgeshire Green Infrastructure Strategy, and which deliver local green infrastructure.</p> <p>4. All new developments will be required to contribute towards the enhancement of the green infrastructure network within the district. These contributions will include the establishment, enhancement and the on-going management costs</p>
	Policy NH/7: Ancient Woodlands and Veteran Trees	<p>1. Planning permission will be refused for development resulting in the loss or deterioration of ancient woodland or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss.</p> <p>2. Development proposals affecting ancient woodland or veteran trees will be expected to mitigate any adverse impacts, and to contribute to the woodland's or veteran tree's management and further enhancement via planning conditions or planning obligations.</p>
Huntingdonshire District Council Huntingdonshire's Local Plan to 2036 [REF 5-13]	Policy LP30: Biodiversity and Geodiversity	<p>Biodiversity and Geodiversity</p> <p>A proposal will be required to demonstrate that all potential adverse impacts on biodiversity and geodiversity have been investigated.</p> <p>A proposal that is likely to have an impact, either direct or indirect, on biodiversity or geodiversity will need to be accompanied by an appropriate appraisal, such as a Preliminary Ecological Appraisal, identifying all individual and cumulative potential impacts on biodiversity and geodiversity. Any further research that is identified as necessary by this appraisal will need to have been carried out and submitted with the proposal. Where a proposal has potential to affect an internationally important site an 'appropriate assessment' in accordance with the Habitats Directive will be required and sufficient information to enable such an assessment to be completed must be submitted with the proposal.</p> <p>All possible efforts must be taken to avoid adverse impacts. If it is demonstrated that adverse impacts are unavoidable they must be minimised as far as possible and then mitigated. Only where this process of avoidance, minimisation and then mitigation is insufficient to fully address adverse impacts will consideration be given to compensation measures. Following this process a proposal will only be supported subject to a hierarchy where:</p> <ol style="list-style-type: none"> a site of international importance, being a Special Area of Conservation (SAC), Special Protection Area (SPA) or Ramsar site would be affected there has to be exceptional overriding reasons of human health, public safety or environmental benefit;

Document	Policy reference	Purpose
		<p>b. a site of national importance, such as a Site of Special Scientific Interest (SSSI) or National Nature Reserve (NNR) would be affected there has to be exceptional circumstances where the need for, and the benefits of, the proposal significantly outweigh both the potential impacts on the features of the site that make it of national importance and any broader impacts on the national network of such sites;</p> <p>c. a protected species, a priority habitat or species, a site of local or regional importance, the achievement of water body good ecological potential, or the biodiversity value of the proposed development site as part of the wider network would be affected, the need for and the benefits of the proposal must clearly outweigh the assessed impacts.</p> <p>A proposal will not be supported if potential impacts would lead to the deterioration of water body ecological status/ potential.</p> <p>A proposal will ensure no net loss in biodiversity and provide a net gain where possible, through the planned retention, enhancement and creation of habitats and wildlife features, appropriate to the scale, type and location of development. Large scale development proposals should provide an audit of losses and gains in biodiversity produced according to a recognised methodology. In seeking to provide net gains for biodiversity reference should be had to the Natural Cambridgeshire publication 'Developing with Nature Toolkit' and the proposal should prioritise measures that:</p> <p>d. complement or enhance existing features of biodiversity value within the design and layout of development;</p> <p>e. provide new biodiversity features within the development;</p> <p>f. help reverse the decline of species; 28 Natura 2000 sites: Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites;</p> <p>g. assist in achieving local targets for priority habitats and species including those set out in Habitat Action Plans;</p> <p>h. improve public access to nature;</p> <p>i. ensure the effective management of biodiversity or geological features;</p> <p>j. contribute to the provision of multi-functional green infrastructure to enhance ecological networks and the Green Infrastructure Priority Areas;</p> <p>k. contribute towards the achievement of good ecological status in water bodies (or not compromise achievement of good ecological potential) in accordance with the Anglian River Basin Management Plan (RBMP) and accompanying catchment action plans; or</p> <p>l. will help species adapt to climate change.</p>
	<p>Policy LP31: Trees, Woodland, Hedges and Hedgerows</p>	<p>Trees, Woodland Hedges and Hedgerows</p> <p>A proposal will be required to demonstrate that the potential for adverse impacts on trees, woodland, hedges and hedgerows has been investigated. Where investigations show that such adverse impacts are possible a statement will be required that:</p> <p>a. assesses all trees, woodland, hedges and hedgerows that would be affected by the proposal, describing and assessing their value;</p> <p>b. sets out how the details of the proposal have been decided upon in terms of their impact on the value of trees, woodland, hedges and hedgerows and how adverse impacts will be avoided as far as possible, or if unavoidable how they will be minimised as far as possible.</p> <p>A proposal will only be supported where it seeks to conserve and enhance any existing tree, woodland, hedge or hedgerow of value that would be affected by the proposed development. In such cases the proposal will be expected to</p>

Document	Policy reference	Purpose
		<p>make reference to and follow the guidance contained in the Council's A Tree Strategy for Huntingdonshire (2015) or successor documents.</p> <p>Loss, threat or damage to any tree, woodland, hedge or hedgerow of visual, heritage or nature conservation value will only be acceptable where:</p> <ul style="list-style-type: none"> c. it is addressed firstly by seeking to avoid the impact, then to minimise the impact and finally where appropriate to include mitigation measures; or d. there are sound arboricultural reasons to support the proposal. <p>Where impacts remain the need for, and benefits of, the development in that location must clearly outweigh the loss, threat or damage.</p> <p>Where loss, threat or damage cannot be fully addressed through minimisation and/ or mitigation measures the proposal may be supported if alternative measures such as reinstatement of features, additional landscaping, habitat creation or tree planting will compensate for the harm and can be implemented and established before development starts.</p> <p>A proposal for major scale development will be required to include additional new trees to form part of landscaping for the proposal, the form of which will be determined by negotiation.</p>
	Policy LP38: Water Related Development	<p>Water Related Development</p> <p>A proposal for water related development will be supported where it can be demonstrated that:</p> <ul style="list-style-type: none"> a. it will not overload the environmental, navigational or flood conveyance capacity of the watercourse or water body; b. adequate servicing is provided, including water supply, electricity, and disposal facilities for sewage and waste; c. it will not impede the use of leisure moorings or berths or navigation or lead to hazardous boat movements; d. the use of any publicly accessible paths or other forms of access to the water body will not be compromised or impeded; e. measures will be incorporated to maintain or enhance water quality and quantity and river morphology, with reference to the Environment Agency's Anglian river basin district River Basin Management Plan and the Water Framework Directive; f. biodiversity of the water, its margins and nearby nature conservation sites will be maintained or enhanced; g. it will not lead to any adverse impact on flood risk or flood defences or displacement of flood risk; h. it will contribute to the re-naturalisation of the water body; and i. there is adequate demand to justify the creation of new berths or moorings where they are proposed. <p>Residential Moorings</p> <p>In addition to applicable criteria above a proposal for a berth or mooring for permanent sole or main residential use will be supported where:</p> <ul style="list-style-type: none"> j. the boat will be moored to the bank of a watercourse or water body where that bank is within the built-up area of any settlement; or k. the proposal is for a berth in a marina, where the marina is within or immediately adjacent to the built-up area of any settlement and the use would not lead to a change in the character of the marina away from a tourist/ leisure facility.

Document	Policy reference	Purpose
Bedfordshire Biodiversity Action Plan [REF 5-14]	N/A	<p>Relevant Habitat Action Plans within this document are:</p> <ul style="list-style-type: none"> a. Arable field margins b. Floodplain grazing marsh c. Hedgerows d. Lowland dry acid grassland e. Lowland calcareous grassland f. Lowland heathland g. Lowland meadows h. Ponds i. Reedbed j. Traditional orchards k. Wet woodland l. Wood-pasture and parkland m. Woodland
Cambridgeshire Biodiversity Action Plan [REF 5-15]	N/A	<p>Relevant Priority Habitats within this document are:</p> <ul style="list-style-type: none"> a. Rivers b. Ponds c. Eutrophic standing waters d. Arable field margins e. Hedgerows f. Traditional orchards g. Wood-pasture and parkland h. Wet woodland i. Lowland mixed deciduous woodland j. Lowland dry acid grassland k. Lowland calcareous grassland l. Lowland meadows m. Coastal and floodplain grazing marsh n. Lowland fens o. Reedbeds p. Open mosaic habitats on previously developed land

Appendix D: Condition assessment rationale

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Woodland and forest - Lowland mixed deciduous woodland	<p>This habitat type typically comprises of an ash, sycamore or pedunculate oak canopy, with a shrub layer largely consisting of hawthorn, elder, field maple, wild cherry, and elm. The understorey typically supports bramble, common nettle and broadleaved dock, lacking a diverse understorey.</p> <p>The route has several small areas of broadleaved woodland, which are largely connected to the wider landscape by hedgerows between arable fields.</p> <p>The woodlands fail on 3 of the 12 technical supplement criteria.</p> <p>The woodlands show signs of enrichment, no age range or structure of woodland, and no standing fallen deadwood present, furthermore there is no protection from adjacent agricultural operations.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Woodland habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Moderate
Woodland and forest - Other woodland; broadleaved	<p>This habitat type typically contains a pedunculate oak or ash canopy, with an understorey of hazel, goat willow, field maple, and wild cherry. The understorey is dominated by broadleaved dock, garlic mustard and bramble.</p> <p>The woodland meets 10 of the 12 criteria provided in the technical supplement criteria.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Woodland habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Woodland and forest - Other woodland; broadleaved	<p>There are blocks of mixed plantation woodland in the Order Limits located between arable fields.</p> <p>Broadleaved species such as ash, pedunculate oak, field maple and some fruit tree species have been planted.</p> <p>The broad-leaved plantations show a consistent planting pattern across the Order Limits, with original planting lines seen, with no age structure or variation present.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Woodland habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Poor
Woodland and forest - Other coniferous woodland	<p>These habitats consisted of conifer plantations containing Scots pine, Corsican pine and Sitka spruce.</p> <p>The coniferous plantations show a consistent planting pattern across the Order Limits, with original planting lines seen, with no age structure or variation present.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Woodland habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Poor
Woodland and forest - Other woodland; mixed	<p>These habitats consisted of blocks of mixed plantation woodland are located between arable fields.</p> <p>The mixed plantation contains, ash, pedunculate oak, and douglas fir canopy, with an understorey of hawthorn, blackthorn, and wild cherry. Understorey species include common nettle, cow parsley and garlic mustard.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Woodland habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
	The woodland meets 10 of the 12 criteria provided in the technical supplement criteria.				
Heathland and shrub - Mixed scrub	<p>Localised areas of dense and scattered bramble scrub can be found within the study area.</p> <p>These areas are mainly concentrated around field margins and road verges.</p> <p>The single woody species cover is greater than 75%.</p> <p>This scrub type was in poor condition. This is a single-age scrub, with a number of undesirable species present.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Scrub habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Poor
Woodland and forest - Wood-pasture and parkland	<p>The majority of this habitat exists mainly at Croxton Park where the grass is grazed by cattle and veteran tree species are scattered throughout.</p> <p>Some deadwood can be found although this is mainly as cut tree stumps strewn around existing trees.</p> <p>Wood pasture and parkland on the Order Limits is derived from wooded commons, parks and pastures with trees</p> <p>This habitat meets at least 10 of the 12 of the criteria with only minor variation and is therefore in Good condition.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Woodland habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Good

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Grassland - Other neutral grassland	<p>This habitat type consisted of recently sown wildflower meadow/pollinator grassland on recently disturbed ground (formerly arable) with abundant common bent and red fescue, and frequent broad-leaved flowering species common knapweed. common bird's-foot trefoil, oxeye daisy and lady's bedstraw</p> <p>This is a species-rich grassland, with wildflower and sedges above 30%.</p> <p>This meets the condition criteria with only minor variation, with none of the indicators of poor condition present.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Grassland habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Good
Grassland - Modified grassland	<p>These are grasslands dominated by an abundance of perennial rye grass, white clover and where localised enrichment occurred, dominance of broadleaved dock and creeping thistle.</p> <p>These are agricultural grasslands characterised by vegetation dominated by a few fast-growing grasses on fertile soils.</p> <p>It was frequently characterised by an abundance of ryegrass <i>Lolium</i> spp. (above 25% cover) and white clover <i>Trifolium repens</i>.</p> <p>These grasslands were found to be atypically either managed as pasture and included amenity and road verge grasslands with similar species to description for agriculture grasslands.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Grassland habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Poor

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Grassland - Modified grassland	<p>These grasslands are dominated by grasses including false oat grass, Yorkshire fog, cocks' foot, and encroaching species such as creeping thistle.</p> <p>This poor semi-improved grassland occurs on a wide range of soils and may be derived from higher quality Priority Habitat grassland habitats in poor condition.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Grassland habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Moderate
Sparsely vegetated land - Ruderal/Ephemeral	<p>These are areas of disturbed ground which have regenerated with species such as common ragwort, thistles rosebay willowherb, common teasel, common nettle and broadleaved dock across the Order Limits.</p> <p>This was ruderal habitat with low biodiversity value.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Sparsely vegetated land habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Poor
Lakes - Ponds (Non-Priority Habitat)	<p>Few of the indicators of poor condition are present. Overall ponds are of good water quality, with clear water, and no obvious sign of pollution in the water body.</p> <p>Meets the majority of the criteria with only minor variation, therefore is of Good Condition.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Pond habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Good
Cropland - Cereal crops	No assessment required; condition is pre-set within the metric.	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	No assessment required; condition is pre-set within the metric.	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	N/A - Agricultural
Cropland - Arable field margins tussocky	No assessment required; condition is pre-set within the metric.	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	No assessment required; condition is pre-set within the metric.	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	N/A - Agricultural

Habitat type	Habitat condition assessment	Survey data reference	Habitat condition sheet	Assessment	Assigned condition
Urban - Amenity grassland	<p>This habitat is present, and includes public use fields, and associated gardens.</p> <p>Typical species include annual meadow grass, perennial rye grass, common daisy and doves foot cranesbill.</p>	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Grassland habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Poor
Urban - Developed land; sealed surface	No assessment required; condition is pre-set within the metric.	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	No assessment required; condition is pre-set within the metric.	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	N/A - Other
Urban - Vacant/derelict land/ bare ground	Assumed to be of poor condition based on it being a lower distinctiveness habitat.	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Urban habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Poor
Ditch	The ditch is dry.	Survey data from 2016 and subsequent surveys in 2018, 2019 and 2020.	Ditch habitat type	Biodiversity Metric 2.0 condition assessment criteria and professional judgement	Poor

Appendix E: Habitat classification conversion tables

Phase 1 habitat classification	UK Habitat Classification
A1.1.1 - Broadleaved woodland - semi-natural	Woodland and forest - Lowland mixed deciduous woodland
A1.1.2 - Broadleaved woodland - plantation	Woodland and forest - Other woodland; broadleaved
A1.2.2 - Coniferous woodland - plantation	Woodland and forest - Other coniferous woodland
A1.3.2 - Mixed woodland - plantation	Woodland and forest - Other woodland; mixed
A2.1 - Scrub - dense/continuous	Heathland and shrub - Mixed scrub
A2.2 - Scrub - scattered	Heathland and shrub - Mixed scrub
A3.1 - Broadleaved parkland/scattered trees (area)	Woodland and forest - Wood-pasture and parkland
A3.3 - Mixed parkland/scattered trees (area)	Woodland and forest - Wood-pasture and parkland
B2.1 - Neutral grassland - unimproved	Grassland - Lowland meadows
B2.2 - Neutral grassland - semi-improved	Grassland - Other neutral grassland
B4 - Improved grassland	Grassland - Modified grassland
B6 - Poor semi-improved grassland	Grassland - Modified grassland
C3.1 - Other tall herb and fern - ruderal	Sparsely vegetated land - Ruderal/Ephemeral
F1 - Swamp	Wetland - Reedbeds
G1 - Standing water	Lakes - Ponds (Non- Priority Habitat)
G2 - Running water	Lakes - Ditches
J1.1 - Cultivated/disturbed land - arable	Cropland - Cereal crops
J1.1 - Cultivated/disturbed land - arable margin	Cropland - Arable field margins tussocky
J1.2 - Cultivated/disturbed land - amenity grassland	Urban - Amenity grassland
J1.3 - Cultivated/disturbed land - ephemeral/short perennial	Sparsely vegetated land - Ruderal/Ephemeral
J2.6 - Dry ditch	Lakes - Ditches

Phase 1 habitat classification	UK Habitat Classification
J3.6 - Buildings	Urban - Developed land; sealed surface
J3.6 - Hard surface	Urban - Developed land; sealed surface
J4 - Bare ground	Urban - Vacant/derelict land/ bareground
A3.1 - Broadleaved parkland/scattered trees (line of trees)	Line of Trees
J2.1.1 - Intact hedge - native species-rich	Native Species Rich Hedgerow
J2.1.2 - Intact hedge - species-poor	Native Hedgerow
J2.2.1 - Defunct hedge - native species-rich	Native Species Rich Hedgerow
J2.2.2 - Defunct hedge - species-poor	Native Hedgerow
J2.3.1 - Hedge with trees - native species-rich	Native Species Rich Hedgerow with trees
J2.3.2 - Hedge with trees - species-poor	Native Hedgerow with trees
A3.1 - Broadleaved parkland/scattered trees (individual trees)	Urban - street tree
G2 - Running water	Rivers and Streams - other

Appendix F: Habitat management required to achieve target condition

Habitat type	Target condition	Time to Target condition	Target condition and condition criteria	Associated habitat management requirements
Grassland – Other Neutral Grassland	Moderate	10	<p>The condition criteria for grassland are as follows:</p> <ul style="list-style-type: none"> - Area should be easily recognisable as a good example of this type of habitat. - Wildflowers, sedges, and indicator species for the specific Priority grassland habitat very clearly and easily visible throughout the sward and occur at high densities in high frequency. - Undesirable species and physical damage is below 5% cover. - Cover of bare ground <10%, bracken <20% and scrub/bramble <5%. <p>Some factors cannot be fully controlled and may affect the establishment of the grassland habitat – for example animal grazing and nutrients levels.</p>	<p>Use the seed mix specified</p> <p>Carry out sowing according to the supplier instructions</p> <p>Implement due diligence and do not introduce pernicious or invasive species</p> <p>Monitor the sown grassland to ensure correct establishment, and take remedial action if growth fails</p>
Woodland and forest - Other woodland; broadleaved	Moderate	30	<p>The condition criteria for woodland are as follows:</p> <ul style="list-style-type: none"> - Trees should be free from damage from livestock and wild animals and agricultural activities by maintaining a buffer and protected by fencing and rabbit guards until established. - Invasive non-native species should be kept below 5% through annual removal of undesirable non-native species. 	<p>Plant native species so that they are dominant</p> <p>Protect trees from damage</p> <p>Control non-native invasive species to below 5%</p>
Woodland and forest - Other woodland; mixed	Moderate	25	<p>The condition criteria for woodland are as follows:</p> <ul style="list-style-type: none"> - Trees should be free from damage from livestock and wild animals and agricultural activities by maintaining a buffer and protected by fencing and rabbit guards until established. - Invasive non-native species should be kept below 5% through annual removal of undesirable non-native species. 	<p>Plant native species so that they are dominant</p> <p>Protect trees from damage</p> <p>Control non-native invasive species to below 5%</p>
Heathland and shrub - Mixed scrub	Moderate	3	<p>The condition criteria for wetland are as follows:</p> <ul style="list-style-type: none"> - At least 3 woody species present. - There is a good age range of scrub species present. - Pernicious weeds and invasive species make up less than 5% of the ground cover. 	<p>Plant at least three woody scrub species and allow a good age range to be present</p> <p>Control non-native invasive species to below 5%</p>
Wetland - Reedbeds	Moderate	10	<p>The condition criteria for wetland are as follows:</p> <ul style="list-style-type: none"> - where non-native species comprise more than 10% of the vegetation 	<p>Reedbed should be at least 60% coverage</p>

Habitat type	Target condition	Time to Target condition	Target condition and condition criteria	Associated habitat management requirements
			<ul style="list-style-type: none"> - too dry during parts of the year, some minor hydrology impacts - moderate water quality enriching the site. 	Control non-native species
Lakes - Ponds (Non- Priority Habitat)	Moderate	3	<p>The condition criteria for pond are as follows:</p> <ul style="list-style-type: none"> - The water body should have semi natural riparian land for at least 10 m from the pond edge. - Ponds should not be artificially connected to other water bodies, e.g. ditches. - Pond water levels should be able to fluctuate naturally throughout the year - Non-native species should be absent. - Less than 10% of the pond should be covered with duckweed or filamentous algae 	<p>Excavate pond and plant up the riparian zone.</p> <p>Control invasive non-native species</p> <p>Do not artificially connect pond to other water bodies</p> <p>Allow water levels to fluctuate throughout the year</p>
Urban - Amenity grassland	Poor	1	This will require the area to be seeded with an amenity grassland seed mix following ground preparation and regularly cut for amenity purposes.	Continue with current management of amenity grassland that takes place
Woodland and forest - Lowland mixed deciduous woodland	Moderate	32+	<p>The condition criteria for woodland are as follows:</p> <ul style="list-style-type: none"> - Trees should be free from damage from livestock and wild animals and agricultural activities by maintaining a buffer and protected by fencing and rabbit guards until established. - Invasive non-native species should be kept below 5% through annual removal of undesirable non-native species. 	<p>Plant native species so that they are dominant</p> <p>Protect trees from damage</p> <p>Control non-native invasive species to below 5%</p>
Woodland and forest - Other woodland; broadleaved	Good	32+	<p>The condition criteria for woodland are as follows:</p> <ul style="list-style-type: none"> - Trees should be free from damage from livestock and wild animals and agricultural activities by maintaining a buffer and protected by fencing and rabbit guards until established. - Invasive non-native species should be kept below 5% through annual removal of undesirable non-native species. - Deadwood should be present. 	<p>Plant native species so that they are dominant</p> <p>Protect trees from damage</p> <p>Control non-native invasive species to below 5%</p> <p>Create deadwood</p>
Woodland and forest - Other woodland; mixed	Good	32+	<p>The condition criteria for woodland are as follows:</p> <ul style="list-style-type: none"> - Trees should be free from damage from livestock and wild animals and agricultural activities by maintaining a buffer and protected by fencing and rabbit guards until established. 	<p>Plant native species so that they are dominant</p> <p>Protect trees from damage</p> <p>Control non-native invasive species to below 5%</p>

Habitat type	Target condition	Time to Target condition	Target condition and condition criteria	Associated habitat management requirements
			<ul style="list-style-type: none"> - Invasive non-native species should be kept below 5% through annual removal of undesirable non-native species. - Deadwood should be present. 	Create deadwood
Woodland and forest - Wood-pasture and parkland	Good	32+	<p>The condition criteria for woodland are as follows:</p> <ul style="list-style-type: none"> - Trees should be free from damage from livestock and wild animals and agricultural activities by maintaining a buffer and protected by fencing and rabbit guards until established. - Invasive non-native species should be kept below 5% through annual removal of undesirable non-native species. - Deadwood should be present. 	<p>Plant native species so that they are dominant</p> <p>Protect trees from damage</p> <p>Control non-native invasive species to below 5%</p> <p>Create deadwood</p>
Grassland - Other neutral grassland	Good	15	<p>The condition criteria for grassland are as follows:</p> <ul style="list-style-type: none"> - Area should be easily recognisable as a good example of this type of habitat. - Wildflowers, sedges, and indicator species for the specific Priority grassland habitat very clearly and easily visible throughout the sward and occur at high densities in high frequency. - Undesirable species and physical damage is below 5% cover. - Cover of bare ground <10%, bracken <20% and scrub/bramble <5%. Some factors cannot be fully controlled and may affect the establishment of the grassland habitat– for example animal grazing and nutrients levels. 	<p>Use the seed mix specified</p> <p>Carry out sowing according to the supplier instructions</p> <p>Implement due diligence and do not introduce pernicious or invasive species</p> <p>Monitor the sown grassland to ensure correct establishment, and take remedial action if growth fails</p>
Lakes - Ponds (Non- Priority Habitat)	Good	5	<p>The condition criteria for pond are as follows:</p> <ul style="list-style-type: none"> - The water body should have semi natural riparian land for at least 10 m from the pond edge. - Ponds should not be artificially connected to other water bodies, e.g. ditches. - Pond water levels should be able to fluctuate naturally throughout the year - Non-native species should be absent. - Less than 10% of the pond should be covered with duckweed or filamentous algae 	<p>Excavate pond and plant up the riparian zone.</p> <p>Control invasive non-native species</p> <p>Do not artificially connect pond to other water bodies</p> <p>Allow water levels to fluctuate throughout the year</p>

Appendix G: Natural England's Biodiversity Metric 2.0 Calculation

This appendix comprises a Microsoft Excel file containing all calculations undertaken within the Natural England Biodiversity Metric 2.0 calculation tool.

Ref: "Appendix G – Biodiversity Metric 2.0 Calculation Tool Beta Test.xlsm"