ECOLOGICAL EXPERTISE, EVOLVED

Loddon Garden Village, Shinfield

Technical Appendix 11.19: Biodiversity Net Gain

Prepared on behalf of

University of Reading

Final Report

10 September 2025

2342-23C

Loddon Garden Village, Shinfield

Technical Appendix 11.19: Biodiversity Net Gain

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Loddon Garden Village, Shinfield

Technical Appendix 11.19: Biodiversity Net Gain

Contents

MAPS

ANNEXES

Loddon Garden Village, Shinfield

Technical Appendix 11.19: Biodiversity Net Gain

BIODIVERSITY GAIN VALIDATION STATEMENT

This Statement provides the Biodiversity Net Gain (BNG) information required for Wokingham Borough Council to validate the planning application for the Proposals, as set out in Article 7 of the Town and Country Planning (Development Management Procedure) (England) Order 2015 (as amended by The Biodiversity Gain (Town and Country Planning) (Modifications and Amendments) (England) Regulations 2024).

EPR hereby confirms that the Applicant believes that planning permission, if granted, would be subject to the biodiversity gain condition.

The on-site pre-development biodiversity value is taken to be the date that the Application is submitted. No activities resulting in a loss of on-site biodiversity value (degradation) have taken place between 30 January 2020 and this date.

A completed Statutory Biodiversity Metric Calculation Tool (published on 3 July 2025) has been submitted with the Application as part of the Information for Biodiversity Net Gain Pack. This shows the calculations of the pre-development biodiversity value of the onsite habitat on the date of application. The baseline on-site biodiversity value is calculated as follows:

- 2027.64 Area Habitat units
- 282.94 Hedgerow units
- 125.18 Watercourse units

Plans, drawn to an identified scale and showing the direction of North, are included within this document **(Maps 11.19.3a to 3i)** showing the on-site habitat existing on the date of application.

The following irreplaceable habitats are present on-site and are shown on **Map 11.19.5**:

- Ancient Woodland; and
- Veteran Trees.

Loddon Garden Village, Shinfield

Technical Appendix 11.19: Biodiversity Net Gain

1. INTRODUCTION

Scope

1.1 This Technical Appendix sets out the details of the Biodiversity Net Gain calculations completed for the Proposed Development, including:

- Assessment Methodology;
- Summary of evidence underpinning Metric decisions;
- Assumptions and Limitations;
- Headline Results;
- Summary of proposed significant on-site habitat enhancements;
- Details of bespoke compensation proposed for loss of very high distinctiveness habitats and irreplaceable habitat; and
- Overview of proposed arrangements for BNG delivery and monitoring.

1.2 It is equivalent to the 'BNG Design Stage Report' recommended by the Chartered Institute of Ecology and Environmental Management (CIEEM) in their Biodiversity Net Gain Report & Audit Templates guidance document (CIEEM, 2021a).

Site and Development Description

1.3 The Site is a large area of land west of Wokingham, between the villages of Shinfield, Arborfield and Sindlesham. It is located outside of the Green Belt and includes the University of Reading's Thames Valley Science Park (TVSP). It is largely made up of agricultural land and grasslands, with pockets of woodland and the River Loddon running through the centre of the Site.

1.4 The description of development for the application is as follows:

"Application for the phased development of a new community at Loddon Garden Village, comprising, in outline:

- *up to 2,800 residential units to include up to 100 custom and self-build plots;*
- *2 primary schools (up to 3 forms of entry) to include early years provision and 1 secondary school (up to 12 forms of entry);*
- *one District Centre, to incorporate up to 11,000m2 of Class E (Commercial, business and Service, to include a food store of around 2,500m2), and Class F (Local Community and Learning);*
- *one Local Centre; to incorporate up to 2,400m2 of Class E;*
- *a Sports Hub to include sports pitches and pavilion space;*

- *up to 4,250m2 of further Class E, Class F, and sui generis development to include commercial, health care and public house;*
- *comprehensive green infrastructure including a Country Park, landscaping and public open space, and ecological enhancement measures;*
- *20 gypsy and traveller pitches;*
- *comprehensive drainage and flood alleviation measures to include Sustainable Urban Drainage Systems (SUDS) and engineering measures within Loddon Valley for the River Loddon;*
- *internal road network including spine road with pedestrian and cycle connections and associated supporting infrastructure;*
- *new and modified public rights of way;*
- *associated utilities, infrastructure, and engineering works, including the undergrounding of overhead lines;*
- *Ground reprofiling to accommodate infrastructure, flood alleviation and development parcels;*
- *Up to 0.5ha of land adjoining St Bartholomew's church for use as cemetery;*
- *Electricity substation (up to 1.5ha).*

All matters reserved other than access, incorporating:

- *a new pedestrian, cycle and vehicular access to Lower Earley Way via a new 4th arm to the Meldreth Way roundabout;*
- *a new pedestrian, cycle and vehicular bridge over the M4;*
- *a new pedestrian, cycle and vehicular bridge over the River Loddon;*
- *a new vehicular access to the A327 Reading Road, via a new arm to the Observer Way roundabout;*
- *a new pedestrian, cycle and vehicular access to Thames Valley Science Park;*
- *an initial phase of internal roads with associated drainage, landscape and engineering works and ground reprofiling, between the A327 and the south eastern boundary of the site.*

Application includes full permission for the change of use of 40.4 hectares of agricultural land to Suitable Alternative Natural Greenspace (SANG), 18.35 hectares of SANG link, and provision of Biodiversity Net Gain measures, the demolition and clearance of 20,809 m2 of buildings and structures at the Centre for Dairy Research (CEDAR) and at Hall Farm, the demolition of 3 existing dwellings on Carter's Hill Lane, and the retention of specified buildings at Hall Farm."

Legislation and Policy Context

1.5 A minimum 10% net gain in biodiversity, as measured by the Statutory Biodiversity Metric (DEFRA, 2025a) is now a condition of most types of planning permission in England under the Environment Act 2021 and associated secondary legislation.

1.6 Guidance has clarified that where present on-site, the 10% gain requirement applies individually to three categories of habitat: 'Area Habitats', 'Hedgerows', and 'Watercourses'. This is measured in 'units' which can be delivered on-site, off-site, or a combination of both, and must be secured for a minimum of 30 years.

1.7 The National Planning Policy Framework (NPPF) (DLUHC, 2024) requires local plans to "identify and pursue opportunities for securing measurable net gains in biodiversity" and enhance the natural and local environment by "minimising impacts on and providing net gains for biodiversity".

1.8 Draft Policy SS13 Loddon Valley Garden Village of the Wokingham Borough Local Plan Update 2023-2040 Proposed Submission Plan (WBC, 2025) requires a measurable biodiversity net gain of **at least 20%** as calculated using the latest statutory metric.

Guidance

1.9 The following guidance documents have informed the BNG assessment and overall approach:

- Defra's Biodiversity Gain Guidance, available at: https://www.gov.uk/government/collections/biodiversity-net-gain;
- The Statutory Biodiversity Metric User Guide (DEFRA, 2025b);
- The UK Habitat Classification Version 2.0 (UKHab Ltd, 2023);
- Biodiversity Net Gain. Good Practice Principles for Development – A Practical Guide (Baker et al., 2019);
- Biodiversity Net Gain Report and Audit Templates (CIEEM, 2021a);
- Good Practice Requirements for Delivering Biodiversity Net Gain (On- and Off-Site) (CIEEM, 2021b); and
- BS8683:2021 Process for designing and implementing Biodiversity Net Gain – Specification (BSI, 2021).

Consultation

1.10 Jodie Southgate and Katie Cammack of EPR met with Duncan Fisher, WBC Ecology Officer and Andy Glencross, WBC Head of Environmental Services on 09/05/2025 for a site visit walkover to discuss matters relating to BNG. EPR provided a briefing note dated 17/04/25 prior to the meeting, and a follow-up email to Duncan Fisher on 27/05/25. No direct response was received to the follow-up email, but WBC issued a separate "Ecology Feedback" note by email on 29/05/25. A copy of this feedback is provided at **Annex 2**.

2. ASSESSMENT METHODOLOGY

Metric Version and Assessors

2.1 The Statutory Biodiversity Metric Calculation Tool (version 1.04, published July 2025) and Technical Annex 1: Condition Assessments Sheets and Methodology (version 1.02, published July 2025) were used for this BNG assessment.

2.2 This report, the Calculation Tool and Target Condition Assessments for Area Habitats and Hedgerows were completed by Jodie Southgate BA (Hons) MSc MCIEEM, Specialist Principal Consultant and reviewed by Alison Hogan BSc (Hons) MSc MCIEEM, Managing Director.

2.3 **Annex 1**, the Calculation Tool and Target Condition Assessments for Watercourses were completed by Katie Cammack BSc (Hons) MSc MCIEEM, Principal Ecological Consultant and reviewed by Alison Hogan.

2.4 Jodie has worked in ecological consultancy since 2013 and specialises in habitat and vegetation survey and assessment, including BNG. She has completed metrics for a range of sites on a regular basis since DEFRA's Metric 2.0 was released in 2019 and has attended several webinars and training courses on BNG, including a series of CIEEM webinars on the Statutory Metric in January/February 2024, the CIEEM 2022 conference on BNG and a two-day online course "Using UKHab for BNG" run by UKHab Ltd in 2022. Jodie also leads EPR's internal training on BNG and has provided Continuing Professional Development (CPD) sessions to external companies on BNG and the use of metrics.

2.5 Katie has worked in ecological consultancy since 2015 and is an accredited River Condition Assessment (RCA) surveyor. She regularly produces documents in support of planning applications including Ecological Impact Assessments, Information for Habitats Regulations Assessments, Protected Species and Mitigation Reports as well as Biodiversity Net Gain reports and metrics.

2.6 Alison has over twenty years' experience in ecological survey and project management and has been responsible for managing and undertaking a variety of ecological assessments for development proposals at all scales including major road schemes and housing developments. For over ten years of this period, she has had responsibility for final review of documentation prior to issue. This has included the review of completed metrics for a range of sites since the release of the DEFRA metric as well as the initial completion of metrics. Alison is an accredited RCA surveyor, has completed EPR's internal training and has provided CPD to external companies on the use of the BNG metric.

Baseline Surveys

2.7 All parcels, linear features and individual trees within the Site have been subject to at least one walkover visit by an EPR ecologist between 2022 and 2025 in order to map and categorise the habitats present using the UK Habitat Classification system v2.0 (UKHab) (2023) and convert these to BNG habitat types. Condition Assessment sheets were also completed for all applicable habitat types.

2.8 Following the surveys, each area or length of habitat and individual tree was assigned an individual 'Habitat ID' **(Maps 11.19.2a to 11.19.2i)**, and mapped in ESRI ArcGIS software (**Maps 11.19.3a to 11.19.3i).**

2.9 Survey dates and personnel for each of the parcels and features are provided in the associated Condition Assessment sheets.

2.10 Detailed habitat descriptions, including species lists where appropriate, are set out in the separate **Technical Appendices 11.3 Habitats and Landscape** and **11.5 Flora and Vegetation.**

2.11 The River Condition Assessment was carried out by Katrina Diedericks BSc (Hons) and Katie Cammack BSc (Hons) MSc MCIEEM, accredited RCA surveyors, between May 2023 and June 2025 using the Modular River Physical Survey (MoRPh) methodology (Gurnell et al., 2021). Full details of the RCA methodology and results are set out in **Annex 1**.

2.12 No significant limitations were encountered in respect of the baseline habitat mapping or condition assessments.

Metric Inputs

2.13 As set out in the Statutory Metric User Guide (DEFRA, 2025b), two of the key principles of the Biodiversity Metric are that "this biodiversity metric is not a complex or comprehensive ecological model and is not a substitute for expert ecological advice" (Principle 4) and "This biodiversity metric is designed to inform decisions in conjunction with locally relevant evidence, expert input, or guidance" (Principle 6).

2.14 When completing a Metric, the assessor must therefore make a number of decisions based on available evidence (such as ecological survey data), professional judgement, and ecological expertise. The User Guide also states that "Evidence for metric decisions should be provided and signposted within the 'User Comments' column of the biodiversity metric tool".

2.15 To ensure that the Metric Calculation Tool itself remains as user-friendly as possible, the following sub-headings expand upon the User Comments to provide more detail on the decisions behind the data entered into the Metric.

Strategic Significance

2.16 The Berkshire Local Nature Recovery Strategy (LNRS) remains in Draft form and has not yet been published at the time of preparing this report and assessment. The Statutory Metric User Guide (DEFRA, 2025b) states that "where a relevant planning authority has not specified alternative documents for assigning strategic significance before a LNRS is published, the strategic significance should not be marked as high at baseline or post intervention."

2.17 To EPR's knowledge, WBC has not specified alternative documents for assessing strategic significance (resources checked: the Local Validation list and the council's online planning guidance on biodiversity net gain). As such, no habitats have been marked as "high" strategic significance either at the baseline or post-development.

2.18 "Location ecologically desirable but not in local strategy" (Medium strategic significance) has been used for all habitats of Medium, High or Very High distinctiveness – including areas of FWM/CFGM that have been entered as their component habitats (see below).

2.19 Habitats of Low or Very Low distinctiveness have been assigned the lowest strategic significance – "Area/compensation not in local strategy/no local strategy".

Data Cleaning

2.20 The exported baseline GIS data for the Site included 439 individual Area Habitat polygons. As the Metric only supports a maximum of 248 rows, polygons under the minimum mapping unit of 25m^2 (28 polygons) were removed, the majority of which were "slithers" of neighbouring land captured where the Site boundary had not been snapped to the OS MasterMap Topography layer used for habitat mapping.

2.21 The removal of slithers, plus rounding to four decimal places, has resulted in a very small discrepancy between the total site area shown in the Metric (396.96 ha) compared to that reported in other documents submitted with the application.

2.22 The remaining 411 rows of data were grouped as follows for entry into the Metric:

- All 'developed land, sealed surface' polygons – with separate totals for those associated with roads/tracks and buildings;
- Al polygons categorised as 'vegetated garden';
- All 'bramble scrub' polygons;
- All 'watercourse footprint' polygons – with separate totals for those associated with the River Loddon, Barkham Brook, Lourde's Meadow Stream, Oldhouse Stream, and ditches;
- All 'lowland meadow' and 'artificial unvegetated, unsealed surface' polygons associated with the committed future baseline (see below);
- All 'other neutral grassland' polygons with the same condition associated with the committed future baseline (see below),
- Any polygons with the same habitat type/condition that represent a single parcel on the ground but were associated with more than one OS Mastermap polygon (e.g. fields split by overhead power lines);
- Arable fields; and
- Temporary grass and clover leys.

2.23 This reduced the total number of baseline metric rows to 233 for Area Habitats, excluding trees (see below).

Baseline Habitat Type and Condition

2.24 Detailed descriptions of the habitats present at the Site are provided in **Technical Appendix 11.3 Habitats and Landscape**. Associated species lists are provided in **Technical Appendix**

11.5 Flora and Vegetation. In most cases the conversion to BNG habitat types was straightforward, however some required professional judgement, as explained below.

Committed Future Baseline Habitats

2.25 Certain areas within the Site boundary are already committed to habitat creation/enhancement measures secured under existing planning consents. These are:

- St John's Copse IV18 and New Covert IV25: 10-year woodland management plan secured under the British Museum ARC consent 182059;
- Grassland BM_01: proposed Other Neutral Grassland in 'Good' condition, also secured under the British Museum ARC consent 182059; and
- Parcels SS01-SS09, SS_A, SS_B and SS_C: mixture of proposed Lowland Meadow, Other Neutral Grassland, Modified Grassland, Mixed Scrub, Artificial Unvegetated/Unsealed Surface and retained Lowland Fen, secured under the Conservation Management Plan detailed in the S106 agreement associated with various Shinfield Studios planning applications (210387, 212936 and 211841).

2.26 While these measures have not been implemented on the ground yet, the baseline habitat types and conditions for these parcels are entered as the committed 'future baseline' as set out in the above plans and associated metric calculation tools. All are entered as 'retained' in the Metric.

Floodplain Wetland Mosaic and Coastal and Floodplain Grazing Marsh

2.27 The Statutory Biodiversity Metric User Guide (DEFRA, 2025b) states that "areas should be recorded and assessed as Floodplain Wetland Mosaic (FWM) if they are: cited within habitat inventories/not currently cited but identified through professional survey." Note, the Metric uses the term "Floodplain Wetland Mosaic and Coastal and Floodplain Grazing Marsh (FWM/CFGM)" whereas these are separate secondary codes with different definitions under UKHab.

2.28 The relevant habitat inventory in this case is Natural England's Priority Habitat Inventory, an open-source data layer which is freely available to download from www.gov.uk and to view on the MAGIC website (https://magic.defra.gov.uk). This inventory covers the whole of England, including private land, and in many cases has not been ground-truthed in fine detail.

2.29 EPR's field survey work and desktop research (notably with reference to British Geological Survey maps, LiDAR imagery and Google Earth aerial images taken during periods of high flooding) has identified some habitat parcels which, in our view, do not meet the criteria for categorisation as FWM/CFGM according to either of the UKHab definitions or the original UKBAP Priority Habitat Description (available at www.jncc.gov.uk).

2.30 EPR has discussed this discrepancy with Duncan Fisher, WBC Ecology Officer, who has advised (see **Annex 2** for full text) that the method set out in the BNG User Guide does not give scope for the LPA to recognise these field parcels as not being in the CFGM inventory, and that EPR should request a formal change to the inventory via SM-NE-Habitat Inventories (NE) habitatInventories@naturalengland.org.uk.

2.31 EPR therefore intends to submit this request with a comprehensive evidence package**.** For now, we have entered the affected habitat parcels into the Metric as FWM/CFGM as per the PHI, with some exceptions for enhanced habitats, explained further below.

Enhancement of FWM/CFGM

2.32 The Biodiversity Metric User Guide (DEFRA 2025b) explains that areas of FWM/CFGM can be entered into the baseline as their component habitat type if the following criteria are met:

- The component habitat is being enhanced; and
- There is no loss of FWM or FWM function.

2.33 EPR has taken this approach for the FWM/CFGM parcels within the Site where grassland diversification and management are proposed (such as in the southern part of EcoValley), as the benefits of these measures are better reflected in the condition assessment criteria for Grasslands than for Wetlands. These parcels are shown on **Map 11.19.4**.

2.34 EPR's analysis has found that this largely applies to parcels where the water table is not near the surface throughout the year, as evidenced through flood modelling and the vegetation present on the ground. A high water table (along with all ditches being in Good condition, which in itself also requires high water levels) is a prerequisite for achieving Good condition in parcels mapped as FWM/CFGM, meaning that this is an unachievable target, and the diversification of species-poor grasslands – while clearly a tangible biodiversity benefit – would not change the target condition score. The Proposed Development is not proposing any changes in water levels as this could have unintended consequences downstream.

2.35 Where the proposed enhancements target the diversification of wetland habitats which do pass the water table criterion, the baseline habitats are recorded as FWM/CFGM as these enhancements are reflected in – and rewarded by – the Wetlands condition assessment criteria.

2.36 Where small amounts of CFGM are being lost to the proposed new spine road (e.g. within polygons HF45/6, EV23), these parcels are recorded in the baseline as FWM/CFGM as per the User Guide.

2.37 WBC (see **Annex 2**) accept that this approach is allowed for in the BNG User Guide, but proposes that the on-site baseline assessment should recognise the habitat type present as FWM/CFGM, and record the enhancement to component habitats within the off-site tabs.

2.38 EPR has considered this and decided against taking this approach, as this would result in a larger overall site area due to the duplication of these parcels in both the on-site and off-site tabs, therefore the BNG unit results would be inaccurate. Recording them as off-site when they are in fact on-site could also create confusion. Instead, the User Comments in the Metric clearly highlight the parcels which have been entered as component habitats, and these are also shown on **Map 11.19.4**. This is compliant with the User Guide.

2.39 It is also important to note that **Technical Appendix 11.3 Habitats and Landscape** maps and assesses the full area of FWM/CFGM as mapped on the PHI, for Ecological Impact Assessment purposes.

2.40 EPR has also considered whether any of the component habitats mapped as FWM/CFGM are Very High Distinctiveness or Irreplaceable, in particular Fens (Upland/Lowland). This is discussed below.

Conversion of UKHab "Other Wetlands" to BNG Habitat Types

2.41 A limitation of the Statutory Biodiversity Metric is that it offers limited options for common and widespread wetland habitat types, particularly those recorded under UKHab as f2f Other Wetlands. This habitat type does not exist in the Metric.

2.42 The "Habitat Definitions" tab within the Condition Assessments spreadsheet (DEFRA, 2025c) suggests that 'Other Wetlands' should be captured within the Fens (Upland/Lowland) BNG habitat type. Lowland Fen, however, is listed as an Irreplaceable Habitat under the Biodiversity Gain (Irreplaceable Habitat) Regulations 2024.

2.43 The "Other Wetland" habitats present within the Site are as follows (species lists are provided in **Technical Appendix 11.5 Flora and Vegetation**):

- Swamps – uniform stands of vegetation dominated by a single species – in most cases this is either Greater Pond Sedge *Carex riparia*, Lesser Pond Sedge *Carex acutiformis*, Reed Sweet Grass *Glyceria maxima* or Reed Canary Grass *Phalaris arundinacea* (e.g. EV40, EV44, HF45); and
- Areas dominated by tall wetland forbs such as Greater Willowherb *Epilobium hirsutum*, Meadowsweet *Filipendula ulmaria*, Hemlock Water-dropwort *Oenanthe crocata*, Fleabane *Pulicaria dysenterica*, rushes *Juncus* spp., Clustered Dock *Juncus conglomeratus*, Common Comfrey *Symphytum officinale* and Stinging Nettle *Urtica dioica*, often in riparian areas with scattered Willow *Salix* scrub (e.g. EV19) or on the edge of damp grassland (e.g. HF48).

2.44 These wetland habitats are common and widespread components of lowland floodplains and make an important contribution to the overall diversity of habitats within the floodplain wetland mosaic, but in EPR's view are not irreplaceable.

2.45 Fens are broadly split into more acidic "poor fens" and base-rich "rich fens", and are often peat forming and mineral-rich. Neither type is present within the Site, which lies over neutral London Clay soils. Soil testing carried out in May 2025 by Reading Agricultural Consultants, which focused on the areas of "Other wetland" mapped within the Site, did not find any evidence of peat.

2.46 Both types are characterised by a range of indicator species of which only the more common ones (such as Greater Pond Sedge *Carex riparia*, Meadowsweet *Filipendula ulmaria*, Greater Bird's-foot Trefoil *Lotus pedunculatus*, Water Mint *Mentha aquatica*) are present at the Site. Indicators of higher quality fen habitat such as smaller sedges, orchids, *Sphagnum* mosses (poor fen), 'brown' mosses (rich fen), Meadow Thistle *Cirsium dissectum*, Blunt-flowered Rush *Juncus subnodulosus*, Marsh Valerian *Valeriana dioica* and so on are not present.

2.47 EPR has consulted with Duncan Fisher, WBC Ecology Officer on this matter and visited some examples of the "Other wetlands" described above during the site visit on 09/05/25. In their response (**Annex 2**), WBC have advised that:

"We have previously sought clarification from Defra as to what the definition is for lowland fen irreplaceable habitat*. The feedback is that this follows the priority habitat (habitat of principal importance) definition and not* <u>*the UK Hab definition*</u>*. (…)*

*The 'Irreplaceable Habitat' column (G) should be used to differentiate between non/**qualifying** irreplaceable habitat – much like 'Lowland mixed deciduous woodland' could be recognised as also being ancient and therefore irreplaceable, or not. (…)*

*The polygons queried (EV16, EV19, EV22, EV22a, EV31a, EV40, EV44, HF45, HF48, and HF61) **should** be recorded as the very high distinctiveness habitat 'Fens (upland and lowland)' in the baseline assessment but the evidence presented so far indicates that they do not meet the irreplaceable habitat definition."*

2.48 EPR has therefore taken this approach and has recorded all areas of "Other wetland" in the Metric as "Fens (Upland and Lowland)", but has selected "No" in the corresponding "Irreplaceable Habitat" column. Our view is that this is a fair representation of the value and distinctiveness of these habitats.

Ditches

2.49 As explained in **Technical Appendix 11.3 Habitats and Landscape**, ditches within the Site have been classified under UKHab as either r1g Other Standing Water, secondary code 50 (Ditches), or as r2b Other Rivers and Streams, secondary codes 48 (Freshwater – heavily modified) and 50.

2.50 The latter represents historic small watercourses issuing from off-site springs whose natural route across the floodplain can be traced on historic maps, but which have since been heavily modified such that large sections of them now resemble and function as ditches on the ground. They are narrow, often dry, in some cases straightened, and lack the geomorphological features associated with natural rivers and streams. We have called these historic watercourses "Lourde's Meadow Stream" and "Oldhouse Stream" for ease of reference. Both are shown on **Map 11.19.3i.**

2.51 Following discussions with the project hydrologists, EPR has completed River Condition Assessments for the following watercourses which are likely to be wet year-round, as detailed in **Annex 1**:

- River Loddon;
- Barkham Brook, labelled as D65 on **Map 11.19.2i**;
- "Long Ten" – this is the name used by the project hydrologists for the northern-most part of Oldhouse Stream, labelled as D52 on **Map 11.19.2i**; and
- The majority of "Arborfield Stream" – this is the name used by the project hydrologists for Lourde's Meadow Stream – labelled as D01, D05, D08 and D20 on **Map 11.19.2i.**

2.52 This leaves the remaining sections of Lourde's Meadow and Oldhouse Streams, shown on **Map 11.19.2i** as D03, D04, D20a, D42, D44, D45 and D57. EPR has assessed these sections using the Ditch condition assessment form. Our view is that the ditch assessment criteria provide

more a representative and useful measure of their present day condition than a full RCA, which a assesses wide range of physical and hydrological features associated with the banks, channel bed and water flow which are absent (such as bank face reinforcements, physical infrastructure such as pipes, jetties and weirs, mid-channel islands, benches and berms, pools, riffles, boulders and so on). Photographs of these ditches are provided in **Annex 3**.

2.53 Similarly, whilst designated as a main river, watercourse D70 (see **Map 11.19.2i**) has also been assessed as a ditch based on field conditions. The channel is dry for much of the year and appears to provide seasonal drainage for the surrounding arable fields. The ditch is not shown on historic maps dating from 1873 indicating that it is a more recent addition into the local landscape. It is therefore considered to meet the criteria to be classified as a ditch as an 'artificially created linear water-conveyancing feature' of less than 5m in width. Photographs are included in **Annex 3**.

2.54 The most recent update to the User Guide (DEFRA, 2025c) includes "management practice (including agriculture)" as an example of riparian zone encroachment that reduces the quantity quality or function of the riparian habitat." No further guidance is provided on the extent and severity of agricultural management required to qualify as riparian encroachment. Therefore, for the purposes of this assessment, where adjacent land is comprised of herb-poor permanent pasture (Modified grassland) is it recorded as 'minor' encroachment to reflect that the extent and quality of the ecological function has been reduced but is not completely lost. Intensively managed cereal crops and ley grasslands are recorded as either minor, moderate or major encroachment in line with Table 13 of the User Guide.

2.55 In their written advice dated 09/05/25 (**Annex 2**), WBC requested a survey of the shape and slope of all ditches, and consideration towards re-shaping ditches with gentler, wider banks. This has not been completed for the Outline planning application owing to time constraints, however some ditch enhancements are nevertheless proposed (see **Section 3**) and this aspect will be explored further as part of the detailed work at Reserved Matters. We agree that reshaping the banks of any steep-side ditches would be beneficial.

2.56 WBC also requested that EPR's data was double-checked for missing ditches, due to some discrepancies between the draft maps provided by EPR during the pre-application consultation, and WBC's GIS software. We have completed these checks, and:

- In general, EPR has only mapped ditches where they are shown as polygons on the OS Mastermap Topography layer (OSMM) unless they are obvious on the ground and not associated with a hedgerow/line of trees;
- The ditch running south-east from New Covert is mapped and assessed as part of the associated Line of Trees. It is not mapped on the OSMM;
- The ditch on the north-east side of Rushy Mead is mapped on the OSMM but has widened out into an area of swamp and is mapped and assessed as such;
- The ditch on the northern edge of Rushy Mead does not exist on the ground, and it is not shown on the OSMM; and
- We have extended the watercourse running down from St John's Copse (D43) to match WBC's mapping and have updated the condition assessment for this watercourse on 06/06/25.

Individual Trees

2.57 As per the User Guide (DEFRA 2025b), the following individual trees were included in the Metric:

- All veteran trees (see **Technical Appendix 11.6**);
- Standalone trees (e.g. field trees, or those separated from others within lines of trees by over 20m);
- Trees within private gardens of Medium size or above; and
- Any trees of Medium size above within hedgerows or lines of trees to be removed.

2.58 Trees within woodlands or scrub were not recorded individually, unless they were both veteran and proposed for removal.

2.59 Trees with similar characteristics were put into one of twelve groups for condition assessment purposes. These groups are:

- Group 1 - Retained Native Veteran trees oversailing vegetation
- Group 2 - Lost Native Veteran trees oversailing vegetation;
- Group 3 - Retained Native trees oversailing vegetation;
- Group 4 - Lost Native trees oversailing vegetation;
- Group 5 - Retained Native trees oversailing hardstanding;
- Group 6 - Lost Native trees oversailing hardstanding;
- Group 7 - Retained Non-Native Veteran trees oversailing vegetation;
- Group 8 - Lost Non-Native Veteran trees oversailing vegetation;
- Group 9 - Retained Non-Native trees oversailing vegetation;
- Group 10 - Lost Non-Native trees oversailing vegetation;
- Group 11 - Retained Non-Native trees oversailing hardstanding; and
- Group 12 - Lost Non-Native trees oversailing hardstanding.

2.60 Trees were recorded as “lost” where they are specifically listed as “Removed” in the Outline Planning Submission (Arboriculture) report (FLAC, 2025). As per FLAC’s report, Category U trees are assumed to be retained at the Outline stage with the exception of trees 2094, 3061, 3070, 3106, 5020, 6013, 6026, 6033 and 9012.

2.61 The size class of each tree was calculated using FLAC’s data. The total number of trees in each size class and condition group was then calculated, and entered into the Metric’s Tree Helper to calculate the baseline tree areas. The results of this exercise are set out in **Table 2.1** below.

Table 2.1: Individual Tree data

Group	Condition	Size Class	No. Trees	Area Baseline	No. Trees retained	Area Retained
1 and 2 - native veteran trees	Good	Small	14	0.0570	14	0.0570
		Medium	32	0.5212	30	0.4886
		Large	50	1.8322	48	1.7589
		V.Large	85	6.4986	85	6.4986
Total			**181**	**8.9090**	**177**	**8.8031**
3, 4, 5 and 6 - native trees	Good	Small	6	0.0244	0	0
		Medium	24	0.3909	1	0.0163
		Large	23	0.8428	12	0.4397
		V.Large	19	1.4526	17	1.2997
Total			**72**	**2.7107**	**30**	**1.7557**
7 and 8 - non-native veteran trees	Moderate	Large	3	0.1099	3	0.1099
		V.Large	4	0.3058	4	0.3058
Total			**7**	**0.4157**	**7**	**0.4157**
9, 10, 11 and 12 - non-native trees	Moderate	Small	6	0.0244	0	0
		Medium	7	0.114	2	0.0326
		Large	4	0.1466	0	0
		V.Large	3	0.2294	1	0.0765
Total			**20**	**0.5144**	**3**	**0.1091**

Post-Development Plans

2.62 The following plans produced by other technical consultants and submitted for approval with the Application, were used as the basis for the post-development calculations. These plans were imported into ArcGIS software and each line or polygon was assigned a BNG habitat type and target condition **(Maps 11.19.6a to 11.19.6f)**:

- Illustrative Masterplan Rev C, dated 02/07/25;
- Parameter Plans (Land Use) Rev F, dated 23/06/25;
- Parameter Plans (Landscape) Rev B, dated 27/06/25;
- LA138 Illustrative Open Space Strategy Rev D, dated 27/06/25;
- LA141 Illustrative Landscape Masterplan Rev -, dated 25/06/25;
- LA300 Lourdes Meadow SANG Planting Plans Sheets 1-5 Rev A, dated 28/05/25;
- LA305 SANG Link Planting Plan Rev -, dated 28/05/25;
- LA306 Northern SANG Planting Plans Sheets 1-4 Rev -, dated 28/05/25;
- LA310 Spine Road Planting Plans Sheets 1-4 Rev A, dated 08/06/25;
- LA314 M4 Link Road Planting Plan Sheets 1-2 Rev A, dated 09/06/25;
- LA316 Attenuation Basin Planting Plans Sheets 1-4 Rev -, dated 18/06/25; and
- Outline Planning Submission (Arboriculture) dated June 2025 (includes proposed tree retention and removals).

Target Conditions

2.63 Target habitat conditions have been predicted with reference to the relevant Condition Assessment sheet (DEFRA, 2025c), with full details and justifications set out in the separate Target Statutory Condition Assessments spreadsheet submitted with the Application.

2.64 The Target Conditions are considered to be realistic and achievable within the timeframes set by the Statutory Metric, and will be delivered and maintained through the implementation of the Habitat Management and Monitoring Plan (HMMP) to be submitted alongside the Biodiversity Gain Plan to discharge the general biodiversity gain planning condition, should consent be granted.

Assumptions

2.65 Some assumptions have been made in respect of the post-development habitat types and target conditions for newly created habitats, due to the Outline nature of the application. These are described below.

Built Development

2.66 The total area figure for parcels proposed for residential and self-build development has been split into 70% 'Developed land, sealed surface' and 30% 'Vegetated gardens', as per the User Guide. Other areas of development, including Mixed Use, Outdoor Sports, Civic Space and Education, have been entered as 100% 'Developed land, sealed surface' on a precautionary basis.

Travellers Site

2.67 The total area figure for parcels proposed for the Travellers Site has been split into 70% 'Developed land, sealed surface' and 30% 'Modified grassland' in poor condition.

Green Infrastructure

2.68 Areas labelled as "Natural Greenspace", "Parks and Gardens" and "Amenity Greenspace" on the landscape and open space plans have been translated into the following BNG habitat types and conditions (see the separate Target Condition Assessments spreadsheet for justification against each relevant criterion):

- Any existing woodland, scrub or tracks within each of these parcels has been entered as retained or enhanced, plus any existing grassland within the "Natural Greenspace" areas only;
- The remaining "Natural Greenspace" areas have been entered as a mixture of 90% 'Other neutral grassland' in good condition and 10% 'Modified grassland' in poor condition – the latter to account for trampling around footpaths and access points;
- The remaining "Amenity Greenspace" areas have been entered as a mixture of 90% 'Modified grassland' in moderate condition and 10% 'Modified grassland' in poor condition – the latter to account for high traffic areas as above; and
- The remaining "Parks and Gardens" areas have been entered as 90% 'Other neutral grassland' in fairly good condition and 10% 'Modified grassland' in poor condition.

"Fairly good" has been selected here as these grasslands are likely to be mown more regularly than those within the "Natural Greenspace" areas, which will have a biodiversity-led management regime. Although "Good" condition is still technically possible for mown grasslands if all other criteria are passed, EPR has opted for a more precautionary approach.

2.69 Areas specifically labelled as "Mown Paths" on the landscaping plans have been entered as 'Modified grassland' in poor condition.

2.70 Proposed scrapes within the EcoValley area have not been mapped separately, but accounted for within the Target Condition Assessments for the associated FWM/CFGM polygons.

2.71 The central and peripheral areas of Sustainable Drainage Systems (SUDs) basins have been mapped separately, with the central areas entered as 'Sustainable drainage system' in moderate condition, and the margins entered as 'Other neutral grassland' in good condition.

2.72 Any existing woodland or scrub within areas of proposed scrub and screening planting shown on the Planting Plans have been entered as retained.

Trees and Hedgerows

2.73 In order to achieve 20% gain, the Metric includes an allowance for (and commitment to) at least 3.5km of newly-planted hedgerows within the detailed landscaping scheme to follow at Reserved Matters (or an equivalent amount of units to be generated through a combination of new planting plus enhancements to hedgerows recorded as retained at the Outline stage, such as those in the area of 'retained agricultural land' in the north-east of the Site). No allowance has been made for ornamental planting at this stage.

2.74 The total number of individual trees is difficult to estimate at the Outline stage, but has been entered into the Metric as follows:

- 121 native "Small" trees within the SANG and SANG Link, calculated from the total number of trees shown on the Planting Plans – targeted to reach moderate condition;
- An allowance for at least 500 "Small" trees (likely a mixture of native species and cultivars) to be planted along the spine road and in formal landscaped areas such as the Parks and Gardens, not including those already counted within new scrub planting or lines of trees, estimated by the landscape consultants. Targeted to reach poor condition; and
- An allowance for at least 667 "Small" street trees (likely a mixture of native species and cultivars) to be planted along secondary and tertiary roads and in public spaces within the development area, targeted to reach poor condition. This is a conservative estimate at around ten trees per hectare.

3. SUMMARY OF RESULTS

Introduction

3.1 The following should be read with reference to **Maps 11.19.3a to 11.19.3i** and the completed Statutory Metric Calculation Tool (particularly the User Comments column) and Baseline/Target Condition Assessment spreadsheets submitted separately with the Application.

3.2 Detailed River Condition Assessment results are set out in **Annex 1**.

Description of Baseline

3.3 The total number of on-site baseline units is calculated as follows:

- Area Habitats: 2027.64 units
- Hedgerows: 282.94 units
- Watercourses: 125.18 units

3.4 The area habitats which contribute the highest number of units towards the baseline are FWM/CFGM (ca. 583 units), woodlands (ca. 395 units), modified grassland (ca. 288 units), cereal crops and temporary leys (ca. 210 units), the committed future lowland meadow (ca. 144 units) and other neutral grassland (ca. 140 units).

3.5 Baseline habitats are described in detail in **Technical Appendix 11.3 Habitats and Landscape**.

The BNG Hierarchy

3.6 The Proposed Development has been designed with ecological input from a very early stage and due consideration has been given to the BNG Hierarchy throughout the masterplanning process.

3.7 The BNG Hierarchy, as set out in Article 37A of the Town and Country Planning (Development Management Procedure) (England) Order 2015 (as amended) requires developers to take the following steps in relation to BNG:

- Avoidance of adverse effects to on-site habitats of 'Medium' distinctiveness and above;
- Insofar as they cannot be avoided, mitigating those effects;
- Insofar as they cannot be mitigated; compensating for those effects by prioritising in order, where possible:
    1) Enhancement of existing on-site habitats;
    2) Creation of new on-site habitats;
    3) Allocation of registered off-site gains; and finally
    4) Purchase of national off-site biodiversity credits.

3.8 **Table 3.1** sets out a summary of how the BNG Hierarchy has been applied.

Table 3.1: Application of the BNG Hierarchy

Action	Evidence of application
Impact Avoidance:	Development is focused on the lower-value agricultural habitats to the east of the Loddon. Of the baseline habitats lost, 90% are of Low or Very Low Distinctiveness (see Detailed Results tab of the Metric).
Mitigation:	Earlier iterations of the scheme resulted in a higher number of veteran trees being lost or impacted due to incursion into their buffer zones. Iterative design has reduced this down to 3 of the 188 veteran trees within the Site.
Compensation:	
Habitat enhancements (on-site)	Over 1,200 units are to be delivered through enhancements to retained FWM/CFGM, woodland, grassland and fen habitats.
Habitat creation (on-site)	Over 480 units are to be delivered through habitat creation, including newly planted trees and scrub, species-rich grassland and SUDs features.
Off-site gains allocated to Application	Not required – all units delivered on site.

Headline Results

3.9 As set out in the Metric Calculation Tool submitted with the Application, the Proposed Development is predicted to deliver the following net gains, with all Trading Rules met:

- 2,542.62 area habitat units, or 25.40%
- 339.94 hedgerow units, or 20.15%
- 150.95 watercourse units, or 20.59%

3.10 All of the gains are predicted to be delivered on-site, such that the purchase or delivery of off-site units or credits is not required.

Additionality

3.11 The government's Biodiversity Gain Guidance ('What you can count towards a development's biodiversity net gain') explains that at least 10% of the total BNG for a scheme must be derived from "additional" measures which are not already required as mitigation or compensation actions, for example for impacts to protected species.

3.12 The baseline units calculated for the Proposed Development are:

- 2,027.64 area habitat units
- 282.94 hedgerow units
- 125.18 watercourse units.

3.13 Therefore, at least 202.76 post-development area habitat units, 28.29 hedgerow units and 12.52 watercourse units must come from "additional" measures.

3.13.1. All Hedgerow and Watercourse gains are additional, but some of the Area Habitat gains are required as mitigation/compensation for impacts to protected species and/or sites. These are set out in **Table 3.2** below.

Table 3.2: Non-additional BNG units: Area Habitats

Habitat created/enhanced	Units	Reason for Non-Additionality
All retained habitats	773.44	Retained habitats are not additional.
Creation of new species-rich grassland within the SANG, from arable baseline*	89.31	Required to make the SANG attractive for recreation. Note – enhancements to existing grassland are considered to be additional measures as they are not required to make the SANG policy compliant.
Creation of dog-splash pond within the SANG	0.49	Required to make the SANG attractive for target group of dog walkers
Creation of mixed scrub within the SANG	16.79	Required to create a diverse range of habitats within the SANG
Creation of wet scrub within the SANG	19.27	Required to screen sensitive parts of the Loddon from SANG users
New tree planting within the SANG	3.01	Required to create a diverse range of habitats within the SANG
Roughly 0.85 ha of FWM/CFGM creation/enhancement to offset loss of habitat for wintering birds	14.48	A separate metric was used to calculate the units generated by enhancing 0.85 ha of FWM/CFGM from Moderate condition to Good
Roughly 0.35 ha of FWM/CFGM creation/enhancement to offset loss of habitat for invertebrates	5.96	A separate metric was used to calculate the units generated by enhancing 0.35 ha of FWM/CFGM from Moderate condition to Good
Roughly 0.35 ha of woodland creation/enhancement to offset loss of habitat for invertebrates	4.99	A separate metric was used to calculate the units generated by enhancing 0.35 ha of Lowland Mixed Deciduous Woodland from Moderate condition to Good
0.23 ha of woodland creation/enhancements to offset loss of small area of Rushy Mead	0.32	A separate metric was used to calculate the units generated by creating 0.23 ha of Lowland Mixed Deciduous Woodland in Moderate condition
Planting 26 new rural trees to offset potential loss of suitable trees for roosting bats	0.36	A separate metric and the Tree Helper were used to calculate the units generated by planting 26 Small trees in Moderate condition
Planting 4 new rural trees to partly compensate for the loss of three veteran trees	0.07	A separate metric and the Tree Helper were used to calculate the units generated by planting 4 Small trees in Good condition
Implementing a green buffer to Barrett's Lane to safeguard a key foraging/commuting route for bats Calculated as 2.1 ha (700m x 30m)	19.41	A separate metric was used to calculate the units generated by creating 2.1ha of Other Neutral Grassland in Good condition (in line with other areas of 'natural greenspace' to be created)
Total Non-Additional Units (A)	947.90	
Total Post-Development Units (B)	2542.62	
Total Additional post-Development Units	**1594.72**	**B minus A**

*note that although the habitat is currently arable, the area in question is mapped as FWM/CFGM on the Priority Habitat Inventory. The grassland creation is therefore represented in the metric as an enhancement to the FWM/CFGM.

3.14 The total number of post-development Area Habitat units created/enhanced is 2,542.62. Of these 1,594.72 are considered to be additional, comfortably above the 10% requirement, as demonstrated in **Table 3.2**.

3.15 The Additionality rules have therefore been met.

Irreplaceable Habitats

3.16 The following irreplaceable habitats are present within the Site and shown on **Map 11.19.5**:

- Ancient Woodland (7.21 hectares); and
- Veteran trees (188 trees, equivalent to 9.42 hectares as calculated by the Tree Helper).

3.17 As discussed in **Section 2**, the areas of Lowland Fen within the site are not considered to be the irreplaceable S41 Priority habitat type.

3.18 The areas of Ancient Woodland are:

- HF18 Brick Kiln Coppice;
- HF41 The Gorse/Newbury's Copse;
- HF59/HF59a Loader's Copse; and
- IV18 St John's Copse.

3.19 All of these woodlands are proposed to be retained with a minimum 15m buffer. Enhancements are also proposed to The Gorse/Newbury's Copse and Loader's Copse to bring them into Good condition. The condition score for Brick Kiln Coppice cannot be realistically brought up from the lower end of Moderate to Good condition within the timescales set by the Metric, but positive management will nevertheless be implemented. St John's Copse already has a committed management regime in place (see **Section 2**), therefore the 'future baseline' has been entered as Good and further enhancements are not possible.

3.20 One hundred and eighty-eight veteran trees are considered to be present within the Site boundary according to the definition in the Biodiversity Gain (Irreplaceable Habitat) Regulations 2024, as detailed in **Technical Appendix 11.6 Veteran Trees**. This includes individual trees, plus veteran trees within woodlands, hedgerows and lines of trees.

3.21 All but four of these veteran trees are proposed to be retained. Many are within areas of retained/enhanced green space, and those within the built development areas are protected with a suitable buffer, shown on the Tree Survey/Removals Plan (FLAC, 2025).

3.22 Four veteran trees are being unavoidably lost, as shown on **Map 11.19.7**. These are:

- Tree 2047 (Ash): A derelict Ash coppice stool within woodland HF53 of which one of the main stems has collapsed and is decaying;

- Tree 2093 (Alder): an Alder coppice stool on the edge of the River Loddon, of which three stems have cavities near the base including one dead stem; and
- Tree 3044 (Ash): A derelict Ash coppice stool on the end of a hedgerow with trees, with one fractured stem and significant decay to the remaining stem.
- Tree 6033 (Common Lime): A single-stemmed arable field tree that is almost dead, in very close proximity to neighbouring healthy tree. Significant decay to trunk and limbs, dead limbs, multiple bracket fungi and crown senescence.

3.23 The value of these trees lies in their decay features, which provide habitat for invertebrates, fungi and potentially small mammals, plus the species which feed on them. Bespoke compensation therefore aims to preserve this resource, and the following measures are proposed, for agreement with WBC:

- Firstly, the lost trees will be replaced with standard trees of a suitable species (ideally like-for-like where feasible), in a suitable location within the EcoValley area, or suitable semi-natural habitats around the Proposed Development;
- The stems and large branches (including those that are dead/decaying) will be relocated to suitable habitats in the largest sections possible. Suitable locations may be within the EcoValley area or within semi-natural habitats around the Proposed Development. The deadwood will be utilised in a variety of ways to maximize ecological value. This will include the vertical installation of logs to provide standing deadwood habitats, whilst others may be partially buried to create decaying wood which will be of benefit to species such as Stag Beetle *Lucanus cervus*; and
- Coppicing will be reintroduced to the retained areas of woodland HF53 and along the river corridor, to ensure a continued supply of veteran Ash and Alder coppice stools in the future.

Bespoke Compensation for Loss of Very High-Distinctiveness Habitats

3.24 Bespoke compensation is also required for the loss of any habitats of Very High Distinctiveness. In this case, this applies to an area of Lowland Fen (polygon HF45) of which 0.29 ha is to be lost to the spine road.

3.25 The “Lowland Fen” in this case is an area of backwater swamp, mapped as “Other Wetlands” under the UK Habitat Classification, dominated by Greater Pond Sedge and Reed Sweet-grass. As with other areas of swamp at the Site, this is not considered to be an ‘irreplaceable’ form of Lowland Fen habitat (see **Section 2**).

3.26 The swamp is in poor condition as it is ungrazed and unmanaged. It is species-poor and a dense thatch has developed. EPR therefore proposes that suitable compensation could include the introduction of grazing and/or rotational mechanical cutting of retained swamp vegetation (both in parcel HF45 and other areas within the Site) to reduce the thatch, followed by plug-planting of robust wetland forbs such as *Purple Loosestrife*, Angelica *Angelica sylvestris* and Meadowsweet *Filipendula ulmaria* to diversify the habitat. It is also likely that new areas of similar swamp vegetation will develop within the EcoValley area where the ground is to be reprofiled to create scrapes and islands (parcels EV23, EV23a, EV24a, EV25, EV52, EV52a).

3.27 All Trading Rules are met in respect of Lowland Fen habitat.

4. STRATEGY TO DELIVER NET GAIN

Delivery

4.1 A Habitat Management and Monitoring Plan (HMMP), to be conditioned should the Outline Application be consented, will set out the details of how the target habitat types and conditions required to achieve the BNG results reported in **Section 3** will be achieved. This will be through a combination of habitat retention, creation and enhancement measures, followed by ongoing management and monitoring for a minimum period of 30 years. For areas within the Suitable Alternative Natural Greenspace (SANG), this information will also be provided in a SANG Creation and Management Plan, to be secured by planning condition (see **Technical Appendix 11.18 SANG Delivery Plan**).

4.2 An overview of the "significant on-site enhancements" proposed to meet the BNG target is set out below (see also **Technical Appendix 11.16 Ecoligical Mitigation and Enhancement Strategy**), with specific commentary for individual parcels provided in the Target Statutory Condition Assessment Sheets submitted with the application.

Habitat Creation

4.3 The arable fields EV12, part of IV13, and IV27 will be converted to species-rich grassland, in line with the habitat creation that was undertaken on former arable fields at nearby Langley Mead, then managed as traditional hay meadows. Scattered trees will be included across parcel EV12 with the aim of creating a wood pasture-like habitat.

4.4 Grassland creation methods will be informed by soil surveys, but will involve preparing the seedbed and spreading either a suitable native grass/wildflower seed mix and/or green hay, followed by regular mowing in the first year to encourage the establishment of a closed sward. Once established, conservation grazing will be implemented whereby fields are typically grazed in spring (most likely by cattle), 'shut for hay' in summer, then aftermath grazed in late summer. An adaptive management regime will be implemented to allow management techniques to respond to conditions year on year, as informed by monitoring surveys (see below).

4.5 The areas of "Natural Greenspace", "Parks and Gardens", "Amenity Grassland" and the margins of SUDs basins will include areas of species-rich grassland to be created in a similar way to those described above. Ongoing management in these areas will take the form of rotational mowing, rather than grazing, with arisings removed to reduce nutrient levels. In high-traffic areas which will need to be mown more regularly, a seed mix such as "Emorsgate EL1 Flowering Lawn Mixture" will be used to maximise diversity.

4.6 Native trees, hedgerows and scrub mixes are to be planted around the SANG/SANG Link and within the green infrastructure around the Site. The species mix will be chosen to suit the ground conditions, as indicated on the Planting Plans, and will be protected by deer-proof fencing. All planting will include aftercare including watering and weed removal to promote successful establishment. Once established, hedgerows and scrub will be trimmed back on rotation to encourage a bushy form and mast/fruit development, and the scrub will be managed to include scalloped edges and small glades and rides to maximise edge habitat.

Habitat Enhancements

4.7 The majority of the habitat enhancements are proposed within the EcoValley area to the west of the Loddon, and focus on the diversification of the herb-poor permanent pastures on the floodplain. The aim will be to restore these pastures to the diverse floodplain meadows that they would have been in the past, as indicated by old field names such as “Lourde’s Meadow”, “Duck Mead” and “Ham Mead”.

4.8 The precise methods will be informed by further soil testing, but broadly, these grasslands will be prepared and over-sown with green hay and/or a suitable native wildflower seed mix, plus potentially some plug planting of typical floodplain species such as Ragged Robin *Lychnis flos-cuculi*, Great Burnet *Sanguisorba officinalis*, and Pepper Saxifrage *Silaum silaus*. A hay meadow grazing and management regime will then be implemented. As with the newly created grasslands, management will be adaptive and different methods will be trialled, such as mob grazing, fenceless grazing and supplementary cut-and-collect.

4.9 A series of pools, scrapes and islands are proposed in the northern part of the EcoValley area, after the grassland diversification work has taken place. The pools and scrapes will be graded and sculpted to form gently sloping, irregularly contoured sides and a series of marginal shelves, and maintained as such. Ideally they will be seasonally grazed to encourage structural and species diversity.

4.10 Rotational management to the areas of swamp and reedbed is proposed to remove the thatch that has built up, exposing areas of open water and mud that robust wetland forbs such as Purple Loosestrife and Meadowsweet can be planted into to increase diversity. This can be achieved through either cattle grazing, mechanical clearance or a combination of both.

4.11 The overshaded area of swamps and historic ditches in the centre of the EcoValley area will be restored through gradual removal of the Crack Willow *Salix x fragilis* that has invaded these abandoned pastures, and the re-introduction of conservation grazing.

4.12 Woodlands around the Site, including Loader’s Copse (HF59), Hall Farm Woodland Triangle (EV10/11) and Rushy Mead (EV54/56/57) are to be enhanced through the reinstatement of management techniques such as rotational thinning and/or coppicing. Where possible, grazing will also be reintroduced. Invasive non-native species such as Cherry Laurel *Prunus laurocerasus* and Himalayan Balsam *Impatiens glandulifera* will be removed along with Pheasant-rearing equipment, and standing/fallen deadwood will be allowed to accumulate. The woodlands will also benefit from the reduction in agricultural runoff from the change in land use.

4.13 Some of the on-site hedgerows are to be enhanced through rotational management and/or laying to encourage the development of a bushy structure and productive fruiting/masting. Some will require native infill planting to reduce horizontal gaps, and others will naturally benefit from the cessation of agricultural operations in close proximity (such as spray drift and soil compaction)

4.14 The potential for hydrological/geophysical enhancements to ditches and modified watercourses such as Lourde’s Meadow Stream will be fully explored at the Reserved Matters stage for the relevant areas, subject to technical advice. However, some straightforward measures are proposed such as reducing the overshading and agricultural runoff that is negatively affecting the condition of many watercourses, removing non-native invasive species, and some targeted

plug planting of native aquatic/marginal species. Leaky dams are also proposed for some ditches as a means of gently increasing water levels, and therefore colonisation by aquatic and marginal plants.

4.15 Enhancements are also proposed to the River Loddon, these are discussed in **Annex 1**.

Monitoring

4.16 The successful establishment of newly created habitats, and progress of all habitats towards their post-development Target Conditions, will need to be regularly monitored to ensure that the predicted BNG will be realised on the ground. The HMMP will set out details of the proposed monitoring actions and frequency, but as a guide these are likely to include annual surveys of habitat type and condition for the first five years, reducing to five-yearly intervals thereafter.

Phasing

4.17 Should planning consent be granted, an Overall Biodiversity Gain Plan and site-wide HMMP will be submitted to discharge the general biodiversity gain planning condition, followed by a Phase Biodiversity Gain Plan and Detailed HMMP for each phase of development, submitted with the corresponding Reserved Matters applications.

4.18 As noted in the Planning Practice Guidance for Biodiversity Net Gain (DLUHC 2025), *"the biodiversity gain objective of at least 10% net gain* [20% for local planning policy] *applies to the overall development (not each phase). The contribution of each phase to achieving net gain may vary, providing a net gain of at least 10%* [20%] *is achieved for the overall development at the time of its completion."*

4.19 This is expected to be the case for the Proposed Development. For example, phases that are mostly residential in nature may generate a net loss when calculated individually, whereas those including SANG, EcoValley or extensive green infrastructure are likely to generate gains in excess of 20%.

4.20 The Overall Biodiversity Gain Plan will explain how the 20% BNG will be achieved over the course of the Proposed Development. This is likely to take the form of a "banking" or accounting system whereby a commitment is made to delivering sufficient habitat creation/enhancement measures in the early stages to offset future 'negative' phases, thereby ensuring that the BNG unit balance does not fall below zero at any point.

Delivery Mechanism

4.21 The mechanism for securing the delivery of significant on-site enhancements is to be agreed with WBC, but could take the form of a planning condition, planning obligation or conservation covenant.

Conclusion

4.22 This Technical Appendix has set out the methodology and results of the Statutory Biodiversity Metric calculations completed for the Proposed Development, which predict a net gain in 514.98 habitat units (25.40%), 57 hedgerow units (20.15%) and 25.73 watercourse units (20.55%).

4.23 Net gains will be delivered on-site through a combination of on-site habitat creation and enhancement measures. All requirements in respect of Trading Rules and Additionality are met.

4.24 Should planning consent be granted, full details of the arrangements for the delivery of minimum 20% BNG will be set out in a Biodiversity Gain Plan and HMMP and submitted to WBC for approval.

4.25 It is therefore concluded that the Proposed Development as envisaged would comply with the statutory minimum requirements for 10% biodiversity net gain as a condition of planning permission in England under the Environment Act 2021 and Town and Country Planning (Development Management Procedure) (England) Order 2015 (as amended), as well as with the 20% biodiversity net gain required by Draft Policy SS13 of the Wokingham Borough Local Plan Update 2023-2040 Proposed Submission Plan.

5. REFERENCES

The British Standards Institution (BSI) (2021). *BS 8683:2021 Process for designing and implementing Biodiversity Net Gain – Specification.* British Standards Limited, 2021.

Chartered Institute of Ecology and Environmental Management (CIEEM) (2021). *Biodiversity Net Gain Report & Audit Templates. Version 1 July 2021.* CIEEM, Winchester.

CIEEM, CIRIA and IEMA (2019). *Biodiversity net gain. Good practice principles for development.*

Department for Environment, Food and Rural Affairs (DEFRA) (2025a). *The Statutory Biodiversity Metric Calculation Tool. v1.04 July 2025.*

DEFRA (2025b). *The Statutory Biodiversity Metric User Guide. July 2025.*

DEFRA (2025c). *The Statutory Biodiversity Metric – Technical Annex 1: Condition Assessment Sheets and Methodology. v1.03 January 2025.*

Department for Levelling Up, Housing and Communities (DLUHC) (2024). *National Planning Policy Framework*.

DLUHC (2025). *Planning Practice Guidance: Biodiversity Net Gain.* Accessed on 11/07/25.

His Majesty's Stationery Office (HMSO) (2015). *The Town and Country Planning (Development Management Procedure) (England) Order 2015*. HMSO, London.

HMSO (2021). *Environment Act 2021*. HMSO, London.

HMSO (2024a). *The Biodiversity Gain (Town and Country Planning) (Modifications and Amendments) (England) Regulations 2024.* HMSO, London.

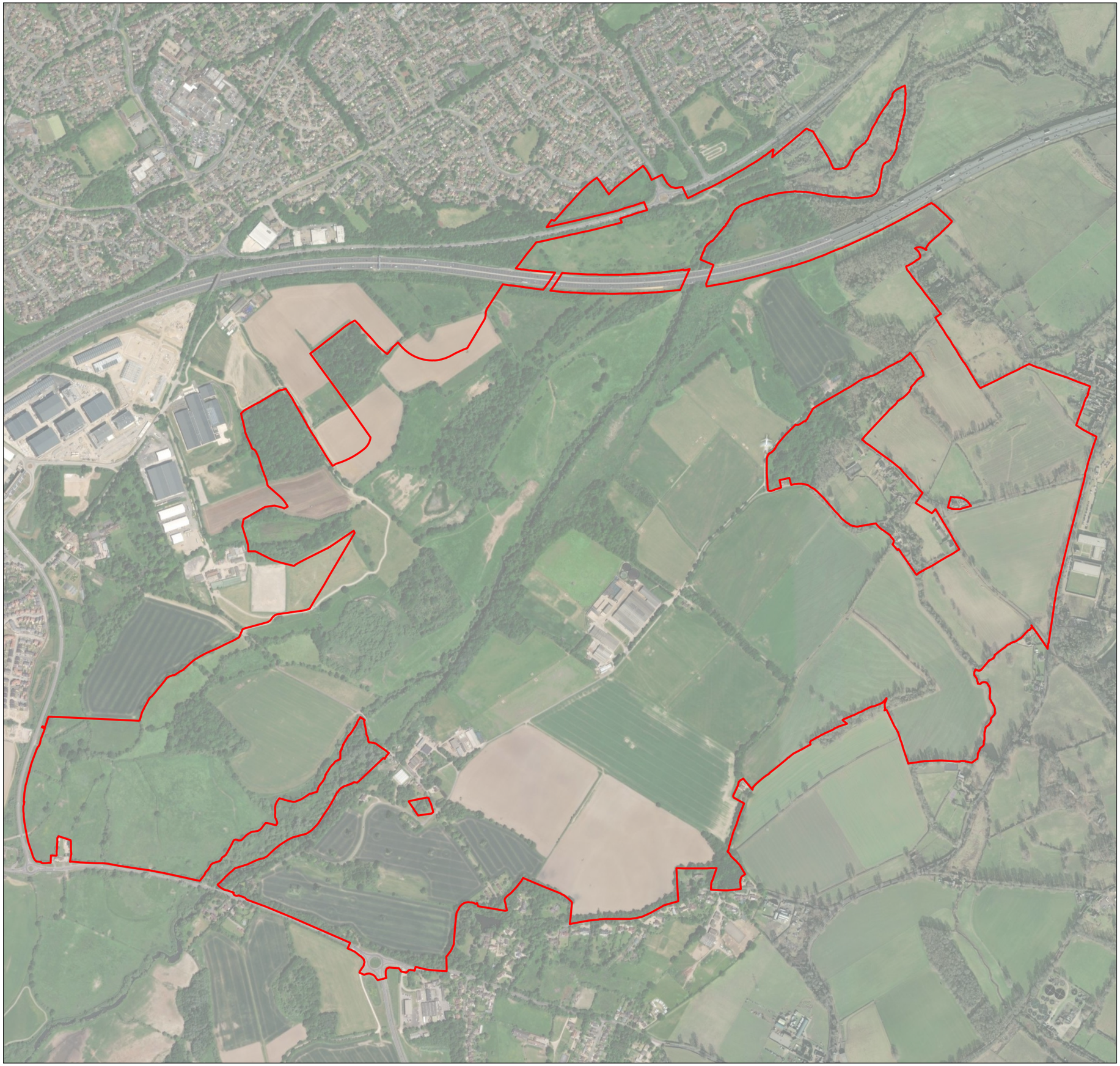
HMSO (2024b). *The Environment Act 2021 (Commencement No. 8 and Transitional Provisions) Regulations 2024.* HMSO, London.

HMSO (2024c). *The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024.* HMSO, London.

UKHab Ltd (2023). *UK Habitat Classification Version 2.0.* Available at http://ukhab.org

Wokingham Borough Council (2025) *The Wokingham Borough Local Plan Update 2023-2040: Proposed Submission Plan.* Submitted to the Secretary of State on 28 February 2025.

MAPS



MAP 11.19.1 Site Boundary

KEY

Site boundary

SCALE: 1:11,000 at A3

0 100 200 300 400 500 Metres

N

EPR

CLIENT: University of Reading

PROJECT: Loddon Garden Village

DATE: 31 July 2025

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P23/42

Aerial Image: Maxar, Microsoft

MAP 11.19.2a Area Habitat IDs (South-West)

KEY

Site boundary

SCALE: 1:5,500 at A3

Metres

0 100 200 300 400

N

EPR

CLIENT: University of Reading

PROJECT: Loddon Garden Village

DATE: 31 July 2025

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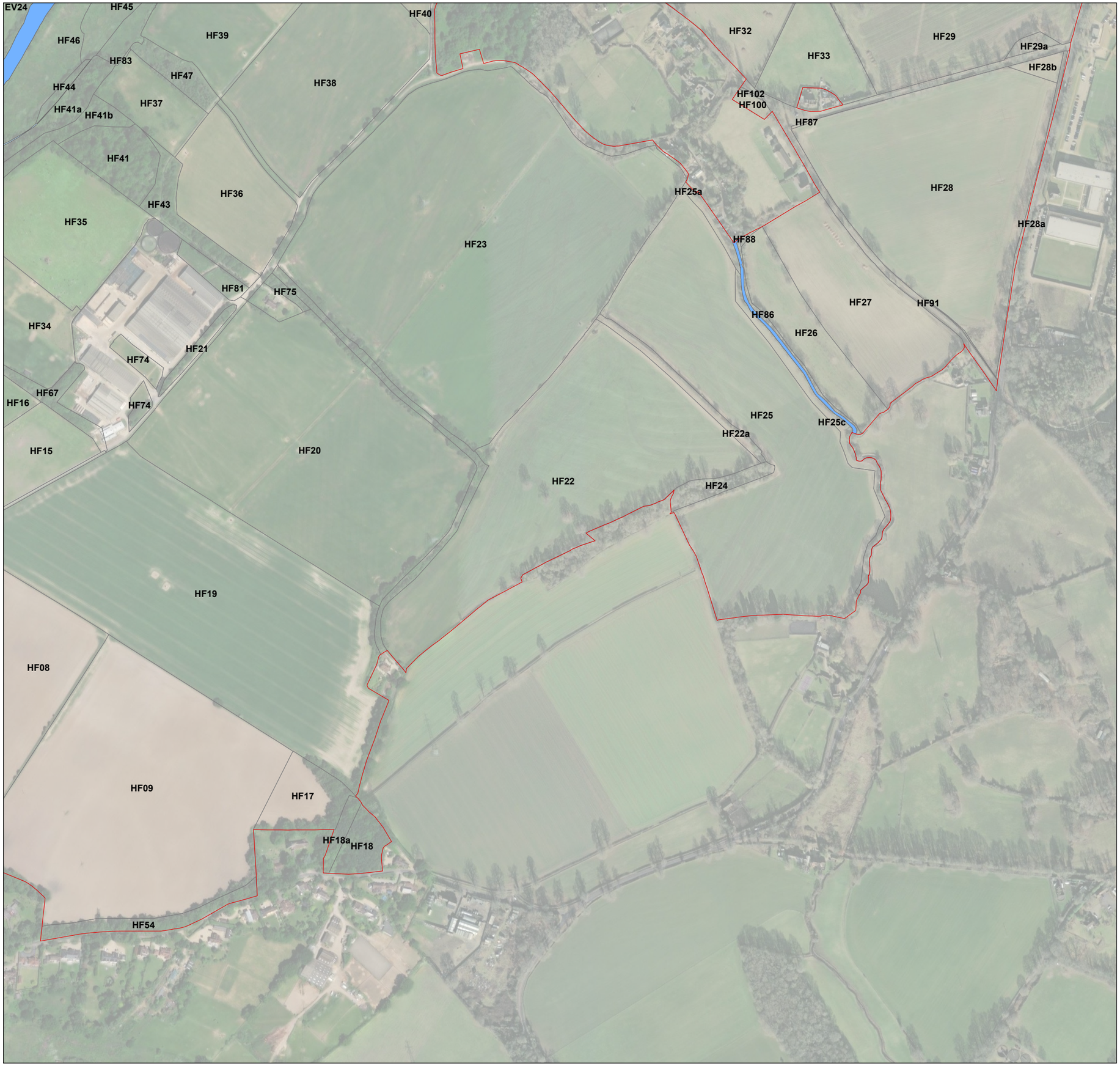
P23/42

Aerial Image Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



MAP 11.19.2b Area Habitat IDs (South-East)

KEY

Site boundary

SCALE: 1:5,500 at A3

Metres

0 100 200 300 400

N

EPR

CLIENT: University of Reading

PROJECT: Loddon Garden Village

DATE: 31 July 2025

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Aerial Image Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

MAP 11.19.2c Area Habitat IDs (North-West)

KEY

Site boundary

SCALE: 1:5,500 at A3

Metres

0 100 200 300 400

N

EPR

CLIENT: University of Reading

PROJECT: Loddon Garden Village

DATE: 31 July 2025

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Aerial Image Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community