ECOLOGICAL EXPERTISE, EVOLVED

Loddon Garden Village

Technical Appendix 11.3 – Habitats and Landscape

Prepared on behalf of

University of Reading

Final Report

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Loddon Garden Village

Technical Appendix 11.3 – Habitats and Landscape

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1. INTRODUCTION

Scope

1.1 This Technical Appendix supports **Chapter 11 (Biodiversity)** of the Environmental Statement (ES). It sets out the detailed methodologies and results of the survey work undertaken to inform:

- The baseline evaluation of the habitats and landscapes supported by the Zone of Influence of the Proposed Development;
- The assessment of likely impacts on the habitats and landscapes;
- The design of impact avoidance and mitigation measures; and
- The design of biodiversity enhancements for habitats and landscapes.

1.2 It provides the foundation for, and should be read in conjunction with, Technical Appendix 11.5 Flora and Vegetation and the separate Biodiversity Net Gain (BNG) report.

Site and Development Description

1.3 The Site is a large area of land to the 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 and Innovation 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."

Policy and Legislative Context

Legislation

1.5 Full details of the legislation of relevance to ecology and nature conservation area included in **Technical Appendix 11.1**, however those of particular relevance to habitats and landscapes are summarised below.

The Conservation of Habitats and Species Regulations 2017 (as amended)

1.6 The Conservation of Habitats and Species Regulations 2017 (as amended) requires an appropriate authority (in England this is Natural England) to monitor the conservation status of "natural habitat types of national interest", as listed on Annex I of the 1992 EU Habitats Directive. The main objective of the Regulations in respect of these nationally important habitats is to maintain or restore them to a favourable conservation status in their natural range.

1.7 A total of 77 Annex I habitats occur in the UK; these are mostly protected within designated Special Areas of Conservation (SACs) but may occasionally occur outside of these sites.

Natural Environment and Rural Communities (NERC) Act 2006 (as amended)

1.8 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 (as amended) places a 'Biodiversity Duty' on all public bodies to have regard to the conservation of biodiversity when carrying out their normal functions. This includes giving consideration for the restoration and enhancement of species and habitats.

1.9 Section 41 (S41) of the Act required the Secretary of State to publish a list of habitats which are of Principal Importance for the conservation of biodiversity in England – commonly referred to as "priority habitats". Public authorities have a responsibility to give specific consideration to the "S41 list" when exercising their normal functions. In total, 56 habitat types are included within the S41 list.

Planning Policies and Biodiversity Strategies

1.10 Full details of the planning policy of relevance to ecology and nature conservation are included in **Technical Appendix 11.1,** however those of particular relevance to habitats and landscapes are summarised below.

National Planning Policy Framework

1.11 The National Planning Policy Framework (NPPF) (2024) sets out the Government's planning policies for England and how they should be applied. With regard to protecting the natural environment, Section 15 of the NPPF requires that planning decisions should enhance the natural environment and provide net gains for biodiversity.

1.12 The NPPF states that "development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensatory strategy exists" (para 186c).

1.13 Ancient woodland is defined in the NPPF as "an area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites".

Local Planning Policy

1.14 The Wokingham Borough Council Adopted Core Strategy: Development Plan Document (January 2010) sets out the framework for the development of the borough, through a series of policies and strategies. Of particular relevance to habitats is Policy CP7 – Biodiversity, which states:

"… Development:

A) Which may harm county designated sites (Local Wildlife Sites), whether directly or indirectly, or

*B) Which may harm **habitats** or species **of principal importance** in England for nature conservation, veteran trees **or features of the landscape that are of major importance for wild flora and fauna (including wildlife and river corridors)**, whether directly or indirectly, or*

C) That compromises the implementation of the national, regional, country and local biodiversity action plans

will be only permitted if it has been clearly demonstrated that the need for the proposal outweighs the need to safeguard the nature conservation importance, that no alternative site that would result in less or no harm is available which will meet the need, and;

i) Mitigation measures can be put in place to prevent damaging impacts; or

ii) Appropriate compensation measures to offset the scale and kind of losses are provided." [our emphasis]

1.15 The Wokingham Borough Local Plan Update 2023-2040 was submitted to the Secretary of State for examination by an independent Planning Inspector in February 2025. Whilst not currently enforced, consideration has been given to these emerging policies during the course of the impact assessment, and design of mitigation, compensation and enhancement strategies.

Berkshire Local Nature Recovery Strategy

1.16 The draft Berkshire Local Nature Recovery Strategy was published in February 2025, with finalisation of the strategy anticipated in the summer of 2025. Formed as a requirement of The Environment Act 2021, Local Nature Recovery Strategies aim to identify priority actions for local biodiversity, including habitat and species, to create a collaborative landscape level approach to nature restoration.

Biodiversity Opportunity Areas

1.17 The majority of the Site west of the Loddon and north of the M4, along with a small area to the east, is within the Loddon Valley South Biodiversity Opportunity Area (BLNP, 2024). This BOA is a focal point for the restoration, re-creation and management of lowland meadow, wet woodland and parkland habitats, and is shown on **Map 11.3.3**.

2. SURVEY AND ASSESSMENT METHODOLOGY

2.1 The approach to ecological impact assessment taken in this report is in line with guidance from the Chartered Institute of Ecology and Environmental Management Guidelines for Ecological Impact Assessment (CIEEM, 2018), as set out in **Technical Appendix 11.2**.

Defining the Zone of Influence

2.2 The area over which the activities associated with the Proposed Development are considered to potentially affect habitats and landscape, the Zone of Influence (ZoI), has been predicted by considering the activities and resultant biophysical changes arising during the construction and operational phases, as summarised below.

Likely Biophysical Changes

2.3 The predicted biophysical changes of relevance to habitats are as follows:

Activities and Resultant Biophysical Changes During the Construction Phase

- Permanent and/or temporary loss of habitats due to the erection then removal of temporary fencing, site compounds etc.;
- Permanent and/or temporary damage to habitats through increased levels of human and vehicular activity (e.g. trampling, soil compaction);
- Permanent and/or temporary damage to habitats due to pollution from dust, chemicals, contaminated water, hydrological changes and/or airborne traffic pollution; and
- Permanent loss of habitats due to planned vegetation clearance to facilitate the Proposed Development.

Activities and Resultant Biophysical Changes During the Operational Phase

- Permanent and/or temporary damage to habitats from increased levels of human activity and vehicle movements (e.g. trampling, soil compaction, fire, litter, vandalism, spillages, dog fouling);
- Permanent and/or temporary damage to habitats due to hydrological changes; and
- Implementation of habitat creation and enhancement measures and long-term management plans.

2.4 Some of the changes that could potentially affect habitats, such as dust generation, have effects beyond the construction footprint, whilst others are likely to result in more localised changes. With this in mind, the potential ZoI that has been considered within this Appendix includes the Site and the immediately adjacent land.

Desktop Study Methodology

2.5 The desktop study in relation to habitats involved a review of published information and internet resources, including data held on priority habitats, ancient woodland, geology, topography and landscape history for the survey area. Sources consulted included:

- The Multi-Agency Geographic Information for the Countryside (MAGIC);

- The British Geological Survey;
- The Soil Survey of England and Wales;
- The Environment Agency;
- Open-source LiDAR imagery published by DEFRA;
- Ordnance Survey Drawing 126, dated 1806;
- OS 1 inch to the mile OS map, Sheets 7 and 12, published 1817;
- The 6" and 25" to the Mile Ordnance Survey Maps (c. 1880-1930s); and
- Aerial imagery from the 1940s onwards.

2.6 A combination of the OS MasterMap survey area layer and open-source aerial imagery (ESRI, Google Earth) was used to divide the survey area into parcels and create a draft habitat map in ArcGIS software, which was then ground-truthed and updated during the field surveys.

2.7 Each habitat parcel and linear feature (hedgerows, tree lines and ditches) has been assigned a unique ID code. These are referred to throughout this Appendix, and shown on **Maps 11.3.2a to 11.3.2i**.

Field Survey Methodology

Field Survey Dates and Personnel

2.8 All parcels and linear features within the Site have been subject to at least one walkover visit by an EPR botanist between 2022 and 2025 in order to map and categorise the habitats present using the UK Habitat Classification system v2.0 (UKHab) (2023).

2.9 Surveys were primarily carried out by Jodie Southgate BA (Hons) MSc MCIEEM, Specialist Principal Ecologist at EPR. Jodie is an experienced habitat and botanical surveyor who is capable of mapping to the highest level of UKHab, as well as NVC (National Vegetation Classification). She holds a BSBI Field Identification Skills Certificate (FISC) Level 4.

2.10 **Annex 1** details the survey dates and personnel for each of the parcels and features shown on **Maps 11.3.2a to 11.3.2i.**

Survey Methodology

2.11 Each of the parcels and linear features within the Site were subject to a slow walkover in order to record the habitat types present and make notes on the associated vegetation, species, condition and management. Each parcel/feature was then characterised and mapped to the most detailed level possible under UKHab, including all applicable essential secondary codes. A Minimum Mapping Unit (MMU) of 25m^2 was used.

2.12 A list of the vascular plant species present was recorded from each parcel/feature, along with an estimation of relative frequency using the 'DAFOR' scale, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare. The prefix 'L' was used to denote 'Locally'. Any readily identifiable bryophytes and lichens were also recorded where present.

2.13 A mixture of 1x1m and 2x2m quadrats were recorded in the grassland parcels, to aid the categorisation of habitat types (as well as the identification of vegetation communities and/or to collect data for the BNG condition assessment, reported separately). The “Domin scale” was used for the 2x2m quadrats in accordance with the National Vegetation Classification (NVC) methodology (Rodwell, 2006). NVC Community Descriptions (Rodwell, 1991-2000) were referred to in some cases to aid the classification of habitat types.

Survey Limitations and Constraints

2.14 The survey area was fully accessible and surveyed at an optimal time of year for each habitat type on at least one of the survey visits, with no significant constraints encountered.

Evaluation Methodology

2.15 The evaluation of habitats and landscapes has been undertaken in accordance with the Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Marine (CIEEM, 2018).

2.16 As per the Guidelines the first stage of an Ecological Impact Assessment (EcIA) is to identify “important ecological features” within the ZoI of a proposed scheme and evaluate the relative importance of these on a geographic scale (International, National, Regional, County, Local or Within the ZoI). Typically, only those features of “Local” importance or above are taken forward for full impact assessment.

2.17 The UK Habitat Classification, however, is a descriptive tool, and labelling a parcel or feature as a particular habitat type does not in itself convey an intrinsic level of ‘importance’ in ecological terms. With some exceptions (see below), the evaluation of “habitats” for EcIA purposes is therefore contained within the evaluation of their component flora and vegetation, as set out in the separate Flora and Vegetation report. The value of different habitats for protected and notable faunal species is also discussed in the relevant reports for those species.

2.18 Some habitat parcels and features, however, qualify as “important ecological features” in their own right, i.e. for reasons unrelated to their component flora/vegetation or geographic level of importance. This includes habitats afforded additional weight in planning policy, such as those associated with areas of Provisional Ancient Woodland, Annex 1 and S41 ‘Priority’ habitats, and habitats which are of intrinsic importance as wildlife corridors and/or historic features of long ecological continuity. Such habitats are subject to a full impact assessment in Chapter 11: Biodiversity and are highlighted throughout **Section 3** and in the Evaluation in **Section 4**.

3. ECOLOGICAL BASELINE

Desktop Study

Physical Context

3.1 The Site straddles a section of the Loddon valley and its floodplain, which runs diagonally across the Site from south-west to north-east. The majority of the lower-lying floodplain areas are to the west of the river, with the land gently rising towards the north-western boundaries of the Site. The eastern bank of the river is notably steeper, with the majority of the eastern half of the Site sitting on a low plateau above the floodplain **(Figure 3.1)**.

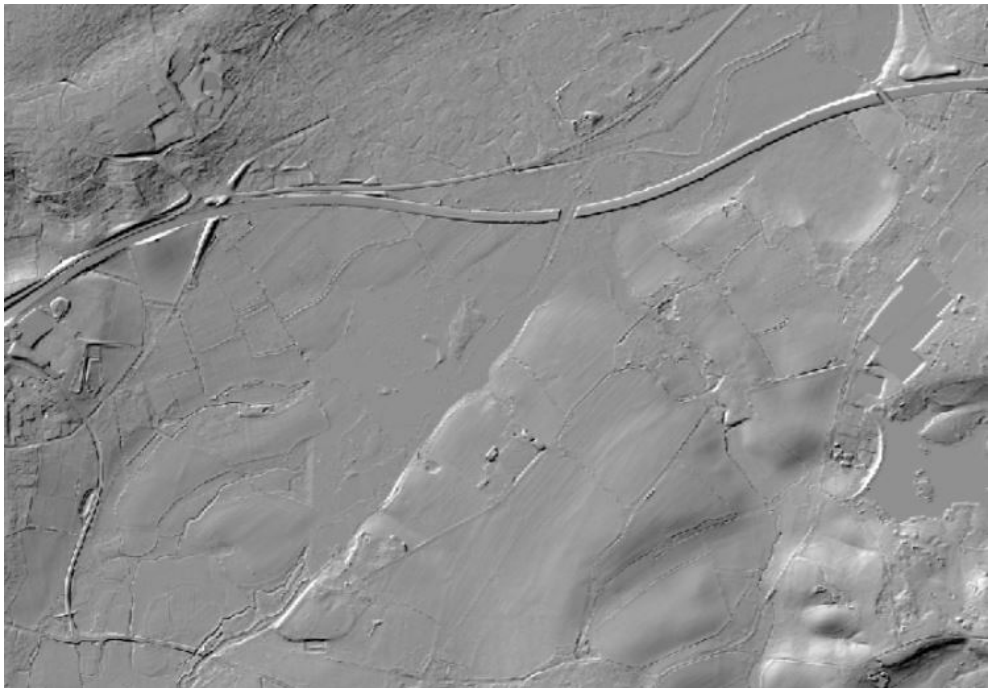

Figure 3.1: Extract from LiDAR DTM 2020 Hillshade for the Site and surrounds

3.2 The bedrock geology is London Clay, with superficial alluvial deposits (clay, silt sand and gravel) on the floodplain, and a mixture of more freely-draining 'brickearth' (clay, silt and sand) and 'river terrace' (sand and gravel) on higher ground to the east and north-west. Localised areas of brickearth and river terrace deposits are also present on the floodplain itself, providing 'islands' of drier ground **(Figure 3.2)**. Soils are generally neutral to weakly acidic.

Figure 3.2: Superficial deposits. Green = alluvium, peach = river terrace, orange = brickearth

3.3 **Figure 3.3** shows the Loddon floodplain as represented by the Environmental Agency's Flood Zones 2 (light blue) and 3 (dark blue). The tributary to the south-east is Barkham Brook, which arises from around 5km off-site around Arborfield Green.

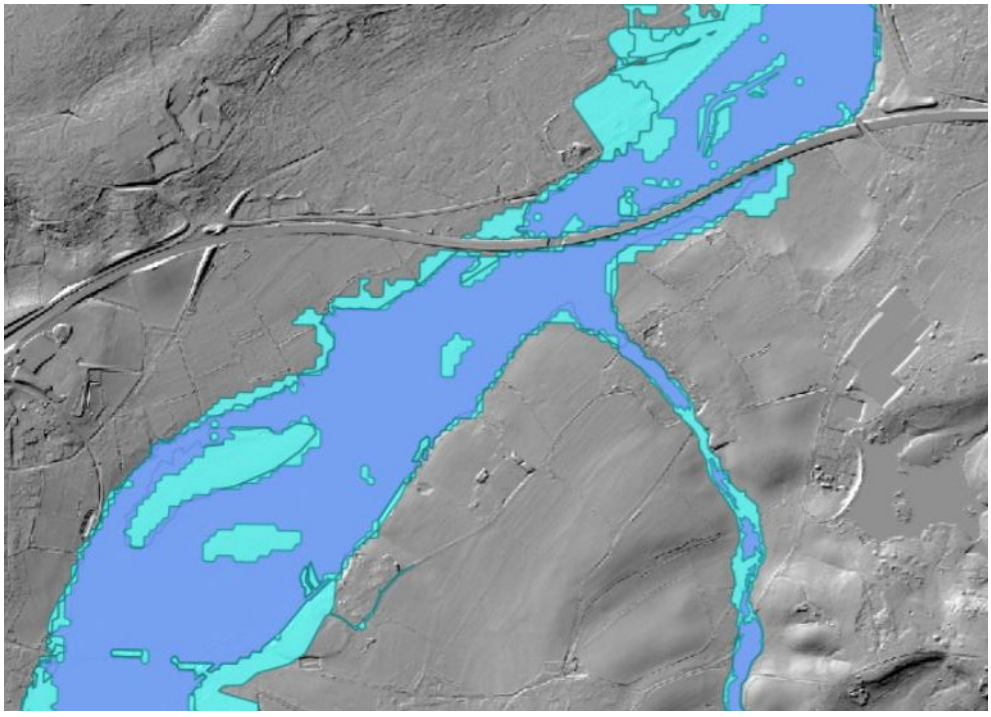

Figure 3.3: Hydrology. Light blue = Flood Zone 2, dark blue = Flood Zone 3.

3.4 Several smaller watercourses are present within the Loddon floodplain area. Their courses are influenced heavily by the topography and geological deposits shown in **Figures 3.1 and 3.2**. This is discussed further below under Rivers and Lakes and represented on **Map 11.3.6**.

Landscape/Ecological History

3.5 The Site lies within several historic parishes, including Arborfield, Shinfield, Sonning and Hurst. Historic land use was influenced by the physical landscape described above, and can be roughly divided into the three broad areas below.

Floodplain

3.6 Historic maps and records from the mid-1700s to late 1800s indicate that the floodplain habitats to the west of the Loddon were generally a network of irregularly-shaped meadows, permanent pastures and small areas of rough marshland or scrub, bordered by a series of ditches, hedgerows and occasional green lanes. Many of these ditches and boundaries are still present today. Very little woodland was present in this landscape.

North-western slope

3.7 The north-western slope above the floodplain was historically a series of enclosed recti-linear fields, likely used for arable or grazing associated with Upperwood Farm and Marsh Farm (the latter no longer present). Several of these have since lost their internal boundaries and been combined into one single field (e.g. IV02, IV27) and some have been bisected by the modern M4 motorway corridor (e.g. IV31). One woodland, St John's Copse (IV18) is present on the historic maps.

3.8 An area of historic landfill is mapped at parcel NM03a, north of the M4. This is likely to be associated with the construction of the M4 motorway in the 1960s.

Eastern plateau

3.9 The plateau east of the Loddon can be divided into three main historic land uses:

- The south-western portion of this area, between the Arborfield Road and modern-day Hall Farm complex, was parkland and scattered trees associated with the former Arborfield Hall. The Arborfield Hall complex included wide tree-lined driveways, a farm, water mill, woodland (a remnant of which is still present at HF10) and a rectory.
- The central portion now occupied by CEDAR and surrounding fields comprised enclosed recti-linear fields (e.g. HF23), likely used for growing arable crops, and old lanes or droveways. Some woodland plantations were present alongside the river, including Loader's Copse (HF59).
- The north-eastern portion was originally part of the historic Sindlesham Common, connected to the wider landscape by wide droveways which are still present today as modern lanes. This would have typically been rough grazing land prior to enclosure in the mid-1800s, after which it is likely to have been used for arable or pasture.

3.10 The results of the desktop study in respect of landscape history and physical context were used to aid the classification of habitats and vegetation communities (the latter described in the separate Flora and Vegetation report), and are discussed in more detail in the relevant sections below.

Provisional Ancient Woodland

3.11 Although the NPPF defines ancient woodland as having been continuously wooded since 1600 AD, very few maps or records from this period exist. It is therefore very difficult to prove definitively whether an area of woodland is 'ancient' or not, and for this reason, EPR refers to areas mapped on Natural England's Ancient Woodland Inventory as "provisional" ancient woodland.

3.12 Eight areas of Provisional Ancient Woodland are present within or adjacent to the Site. These are listed in **Table 3.1** below and shown on **Map 11.3.3**.

Table 3.1: Areas of Provisional Ancient Woodland within or adjacent to the Site

Woodland Name	Location	ID	Comments
On-Site			
St John's Copse	West of the Loddon	IV18	Present on maps from the mid-1700s.
Loaders Copse	On-site, east of the Loddon	HF59, HF59a	Present on maps from the early 1800s.
The Gorse/ Newbury's Copse	On-site, east of the Loddon	HF41	Labelled as 'gorse' or 'brushwood' on maps from late 1800s, unlikely to have been wooded in AD 1600
Brick Kiln Coppice	On-site, east of the Loddon	HF18	Mixed plantation, present on maps from the early 1800s.
Off-Site			
Gravelpit Wood	Adjacent to the Site boundary (east of Loddon)	n/a	Small parcel within historic Sindlesham Common, now part of a larger woodland.
Furzen/Parsons Coppice	Adjacent to the Site boundary (east of the Loddon)	HF10	Small strip of woodland on southern boundary, remnant of a once larger woodland Parsons Coppice, present on maps from the early 1800s
Dog Kennel Copse	Adjacent to the Site boundary (east of Loddon)	G06a	Small strip of woodland associated with old lane, present on maps from the mid-1800s.
Unnamed	Off-site but partly within the wider LGV allocation	HTF19	Small woodland adjacent to the Loddon, north-east of Mill Lane.

Priority Habitats

3.13 Several habitats mapped on Natural England's Priority Habitat Inventory (PHI) are present within the Site, mainly to the west of the Loddon and north of the M4. These include areas of Lowland Mixed Deciduous Woodland, Coastal and Floodplain Grazing Marsh, "Good Quality Semi-Improved Grassland", a small area of Traditional Orchard within the Hall Farm complex, and an area of Lowland Fen located outside of the Site boundary, between the western and eastern halves of the Site.

3.14 The PHI is a useful reference and survey-planning tool but is largely based on aerial imagery and topographical/hydrology maps rather than up-to-date ground truthing. EPR's field observations are therefore considered to take precedence over the PHI, where results differ. For example, the small area of Traditional Orchard mentioned above is now a lawn with no trees

present. EPR will submit evidence to Natural England's Priority Habitat Inventory team in 2025 to request that the inventory is updated.

Field Survey Results

Introduction

3.15 An overview of the main UKHab types present, and their distribution across the Site, is provided below. Where present, habitat types listed under Annex 1 of the Habitats Directive or Section 41 of the NERC Act 2006 (as amended) are highlighted.

3.16 A full table detailing the habitats present within each of the identified parcels and linear features within the Site is set out in **Annex 1** for reference, including their area/length, UKHab type, and a brief description. Habitats are mapped on **Maps 11.3.4a to 11.3.4d** (area habitats), **11.3.4e to 11.3.4h** (hedgerows and tree lines) and **Map 11.3.6** (watercourses).

3.17 To ensure that the maps are clear and readable, Essential Secondary codes are not shown on the Area Habitat **Maps 11.3.4a to 11.3.4d**, but are listed against their respective parcels in the detailed habitat table in **Annex 1**.

3.18 **Table 3.2** below provides a summary of the relative coverage of the different habitat types found across the Site.

Table 3.2: Coverage of different habitat types across the Site

Habitat Type	Approximate coverage – whole Site	Approximate coverage – east of Loddon (proposed development area)
Cropland (cereal, grassland leys)	31%	43%
Ditches	9km	2km
Floodplain wetland mosaic (overlaps with other habitat types)	18%	4%
Hedgerows	16km	8km
Lines of trees	4km	2km
Modified grassland	37%	37%
Other neutral grassland (including committed Lowland Meadow)	12%	6%
Rivers and Streams (excl. Loddon)	6km	1km
Standing water (floodplain ditches, ponds)	<1%	-
Scrub (mixed, Blackthorn, Bramble, Willow)	2%	1%
Wetland (rush pasture, reedbeds/swamps, other)	2%	2%
Woodland (including wet woodland)	10%	7%
Urban	4%	3%

Cropland

c1c Cereal Crops and c1b Temporary Grass/Clover Leys

3.19 Around half of the proposed development area east of the Loddon, and a handful of fields to the west, comprise agricultural fields used for growing cereal crops or silage. Some of the fields are

periodically sown with a temporary grass/clover ley as part of routine agricultural rotation. These habitats cover approximately 31% of the total Site area, and 43% of the proposed development area east of the Loddon.

3.20 Cereal crops and leys are generally intensively managed and of relatively limited value to wildlife, but can provide habitat for certain species such as farmland birds, and may support arable plants of conservation interest.

Grassland

g3a Lowland Meadow

3.21 The areas mapped as 'Lowland Meadow' on **Maps 11.3.4a to 11.3.4d** are not yet present on the ground, but represent a committed 'future baseline' that are to be delivered as part of legally secured BNG measures for consented planning applications in the local area.

g3c Other Neutral Grassland

3.22 Several areas of Other Neutral Grassland are scattered around the Site. These include the sub-types g3c5 *Arrhenatherum* Neutral Grassland, g3c7 *Deschampsia* Neutral Grassland and g3c8 Holcus-Juncus Neutral Grassland, described under the subheadings below.

3.23 The main areas of g3c Other Neutral Grassland are located west of the Loddon. The majority are mostly located on localised gravel terrace deposits south of the M4 (such as parcel EV24) and form a mosaic with the more extensive areas of Modified Grassland on the floodplain, described below. These grasslands have developed more diversity than their floodplain counterparts, likely due to being better-drained and therefore less nutrient-rich.

3.24 Neutral grasslands are also present to the north of the M4 (NM01, NM03, NM03a). These grasslands are listed as Coastal and Floodplain Grazing Marsh on the PHI, but on the ground proved to be well-drained with no evidence of wetland species. NM03a also corresponds with an area of historic landfill.

3.25 These grasslands are horse-grazed and relatively species-rich, with typical species including Common Bent *Agrostis capillaris*, Perennial Rye-grass *Lolium perenne*, Yorkshire Fog *Holcus lanatus*, Crested Dog's-tail *Cynosurus cristatus*, Bird's-Foot Trefoil *Lotus corniculatus*, Lesser Hawkbit *Leontodon saxatilis*, Cat's-ear *Hypochaeris radicata*, Ribwort Plantain *Plantago lanceolata*, Common Ragwort *Jacobaea vulgaris*, Ox-eye Daisy *Leucanthemum vulgare*, Meadow Buttercup *Ranunculus acris*, and White Clover *Trifolium repens*.

3.26 The grasslands north of the M4 lack the requisite diversity and indicator species to be classified as the S41 Priority Habitat g3a Lowland Meadows under UKHab, and have not been managed historically as traditional hay meadows. However, they do represent good examples of semi-improved g3c Other Neutral Grassland on well-drained soils that have developed into a stable community following historic disturbance.

3.27 Some of the Other Neutral Grasslands with the suffix SS_ on **Maps 11.3.2a to 11.3.2d** fall within an area that has been legally secured for BNG measures associated with nearby consented planning applications. In these cases, Other Neutral Grassland is mapped as the committed 'future baseline'.

3.28 Neutral grasslands (including the sub-types described below) may support vegetation communities and/or plant species of conservation importance, as well as provide habitat for protected and notable fauna such as [redacted] birds, invertebrates and reptiles.

g3c5 Arrhenatherum Neutral Grassland

3.29 Scattered areas of *Arrhenatherum* Neutral Grassland can be found around the Site. These are associated with abandoned arable fields/corners which are now unmanaged and have been colonised by tall ruderal species such as False Oat Grass *Arrhenatherum elatius*, Yorkshire Fog, Creeping Bent *Agrostis stolonifera*, Creeping Thistle *Cirsium arvense*, Spear Thistle *Cirsium vulgare*, Common Ragwort, Burdock *Arctium spp.,* Fleabane *Conyza spp.*, Mugwort *Artemisia vulgaris* and Broadleaved Dock *Rumex obtusifolius*. This is a common and widespread habitat type in the lowlands.

g3c7 Deschampsia Neutral Grassland

3.30 A few areas of tussocky grassland dominated by Tufted Hair Grass *Deschampsia cespitosa* are present on both sides of the Loddon floodplain. The majority of these grasslands are ungrazed and rank, with robust species persisting among the *Deschampsia* such as Yorkshire Fog, Meadow Foxtail *Alopecurus pratensis*, Hairy Sedge *Carex hirta*, Water Mint *Mentha aquatica*, Comfrey *Symphytum officinalis* and Clustered Dock *Rumex conglomeratus*. This is a common and widespread component habitat type of floodplain mosaics.

g3c8 Holcus-Juncus Neutral Grassland

3.31 As with the *Deschampsia* grassland, a few areas of *Holcus-Juncus* Neutral Grassland are present within the overall Floodplain Wetland Mosaic on both sides of the Loddon. These grasslands are characterized by abundant Yorkshire Fog, Creeping Bent and Soft Rush *Juncus effusus,* often with frequent Hard Rush *Juncus inflexus* and Creeping Buttercup *Ranunculus repens*. This is also a common and widespread component habitat type of floodplain mosaics.

g4 Modified Grassland

3.32 Approximately 32% of the Site comprises Modified Grassland. This is divided broadly into two categories:

- High-input permanent pastures east of the Loddon, dominated by Rye-grass *Lolium* species; and
- Low-input permanent pastures west of the Loddon, rarely dominated by a single grass species, but herb-poor.

3.33 The high-input pastures are managed for maximum productivity and are regularly sprayed off and re-sown. It is also likely that they are treated with fertiliser and/or herbicide.

3.34 The low-input pastures are grazed at a lower intensity and are not artificially fertilised, but their uniformity and lack of forbs indicate that they have been sown and treated with a broad-leaved herbicide in the past. They are typically dominated by one or more of Meadow Foxtail, Yorkshire Fog and Creeping Bent, with occasional Perennial Rye-grass, Timothy *Phleum pratense*, Common Couch *Elymus repens* and Rough-stalked Meadow Grass *Poa trivialis*. Forbs are generally limited to Creeping Thistle, Creeping Buttercup and Greater Plantain *Plantago major*.

3.35 Many of these grasslands are on the floodplain of the River Loddon. They do not meet the criteria for the definition of g3c Other Neutral Grassland under UKHab.

3.36 Modified grasslands are less likely than Neutral grasslands to support vegetation communities or plant species of conservation importance, but may provide habitat for protected and notable faunal species such as [redacted] and breeding/wintering birds. They are unlikely to be of significant value to invertebrates, however, due to their lack of species diversity.

Tall Forbs (Secondary Code 16)

3.37 Secondary code 16 is used with grassland habitats that have become dominated by rank competitive species such as Stinging Nettle *Urtica dioica*, Cleavers *Galium aparine*, Hedge Bindweed *Calystegia sepium*, Meadowsweet *Filipendula ulmaria*, Hemlock Water-dropwort *Oenanthe crocata* and Himalayan Balsam *Impatiens glandulifera*. Examples of this can be seen at EV17, NM06 and NM07c.

Ruderal/Ephemeral (Secondary Code 81)

3.38 Secondary code 81 is used with sparsely vegetated grassland habitats that have colonised bare ground within seasonally inundated hollows, such as NM07b and EV52a. These areas are typically dominated by a mixture of Creeping Bent, Marsh Foxtail *Alopecurus geniculatus*, Trifid Bur-marigold *Bidens tripartita*, Water-pepper *Persicaria hydropiper* and Marsh Cudweed *Gnaphalium uliginosum*.

Heathland and Shrub (including Hedgerows)

h2a5 Species-rich native hedgerows and h2a Native hedgerows (S41 Priority Habitat)

3.39 Over 90 hedgerows covering approximately 17km have been mapped within the Site, shown on **Maps 11.3.4e to 11.3.4h**. These range from species-poor roadside hedgerows (typically Hawthorn *Crataegus monogyna*) to species-rich native hedgerows with trees, sometimes associated with banks or ditches.

3.40 The majority of the hedgerows mark field boundaries and lanes, many of which are present on historic maps from the late 1800s. Their current condition varies and some have become sparse and gappy due to lack of management, but several include mature and/or veteran trees (see the separate Veteran Trees note). Others, notably east of the Loddon, are more modern straight-line hedgerows that are regularly flailed.

3.41 The most commonly recorded species within the hedgerows was Blackthorn *Prunus spinosa*, closely followed by Pedunculate Oak *Quercus robur*, Hawthorn and Ash *Fraxinus excelsior*. Willow *Salix spp*., Elm *Ulmus spp*, Rose *Rosa spp*. and Field Maple *Acer campestre* are also common.

3.42 Hedgerows labelled as SS_D on **Maps 11.3.2e to 11.3.2i** do not exist on the ground yet, but are to be planted in the future as part of the secured BNG measures for other consented developments in the area.

3.43 Hedgerows are a **Section 41 Priority habitat**. They provide habitat for a wide range of species of ecological importance and play a key role as ecological corridors, connecting different habitats and facilitating dispersal and movement between them.

3.44 Although their current condition varies, the networks of historic hedgerows are also an Important Ecological Feature in their own right due to their long continuity. Those considered 'historic' for are shown on **Map 11.3.5**, and often coincide with the location of veteran trees. These

hedgerows were identified with reference to historic maps, particularly the first edition 6 inch and 25 inch OS maps from the 1870/80s, and the Veteran Tree survey report.

h2b Non-native and ornamental hedgerows

3.45 One non-native hedgerow has been mapped within the Site and comprises young ornamental Cherry *Prunus* species. This hedgerow is of limited value to wildlife.

h3d Bramble Scrub

3.46 Small strips and patches of Bramble *Rubus fruticosus* scrub are scattered around the Site. This is a common and widespread habitat in the lowlands, which provides habitat and food for a range of species of ecological importance such as birds and small mammals.

h3h Mixed Scrub

3.47 Small patches of Mixed Scrub are scattered around the Site, often associated with outgrown hedgerows and unmanaged grasslands. Typical species include Hawthorn, Blackthorn, Elder *Sambucus nigra*, Dogwood *Cornus sanguinea* and Willow. As with Bramble, this is a common and widespread habitat in the lowlands, which provides habitat and food for a range of species of ecological importance.

h3j Willow Scrub

3.48 The wet woodland, ditch and swamp complex west of the Loddon includes some areas of Willow scrub fringing the ditches. These form part of the floodplain wetland mosaic (see 'Wetlands' below) which supports a range of species of ecological importance.

Rivers and Lakes

3.49 The Site is centred on the River Loddon, and the watercourses on its floodplain (mostly to the west) now consist of a complex network of spring-fed streams following natural shallow valleys between the 'islands' of brickearth and river terrace deposits (see **Figure 3.2**) which have been straightened and/or diverted; and man-made floodplain ditches, often historic, which would have been created in order to control water levels. The different types of watercourses and ditches are shown on **Map 11.3.6** and described below.

r1g Other Standing Water

3.50 Areas of open standing water within the Site are mapped under UKHab as Other Standing Water. The vast majority of these are ditches or ponds, described below under their associated Secondary Codes.

Ponds (Secondary Code 41)

3.51 Ponds are mapped under UKHab as r1g Other Standing Water, with the secondary code 40 for Section 41 Priority ponds or 41 for Non-Priority ponds.

3.52 Seven discrete waterbodies are present within the Site. These are mapped as Non-Priority Ponds, as they do not meet the criteria for a Priority Pond as defined by UKHab. Three are located in woodlands (P03, P08 and P12), are heavily shaded, and were almost dry when surveyed in spring. Two (both labelled P11) represent seasonal pools within wet woodland on the east bank. P07 is a seasonal pool within the floodplain grassland EV26, and P04 is a seasonal pool within the riparian willow scrub parcel EV18.

Ditches (Secondary Code 50)

3.53 Three main categories of "ditch" are present within the Site:

a) Ditches associated with hedgerows and/or lines of trees, typically created when the hedgerow/treeline was planted. As per the UKHab definition, such ditches are considered to form part of that feature and are not mapped separately. These ditches are generally shallow and remain dry for much of the year;

b) Natural watercourses issuing from springs or flushes that have been straightened and/or diverted to function as ditches. These features are mapped as r2b Other Rivers and Streams (see below) due to their natural origins; and

c) Man-made floodplain ditches designed to carry water off the floodplain – mostly associated with the woodland complex west of the Loddon (e.g. around EV40 and EV43). These are mapped on **Map 11.3.6** as r1g with the Secondary Code 50 – Ditches.

3.54 Many of the latter floodplain ditches are shown on historic maps from the mid-1800s and are Important Ecological Features in their own right due to their long history and associated ecological continuity, though many are now unmanaged and either heavily shaded or choked with aquatic vegetation such as Reed Sweet Grass *Glyceria maxima* and Greater Pond Sedge *Carex riparia*. They are also a cultural feature, as they represent an old, long-abandoned pattern of land-use and management from times when the floodplain would have been managed as a productive resource (most likely as hay meadows).

r2a Rivers (S41 Priority Habitat)

3.55 The River Loddon bisects the Site and is mapped as a **S41 Priority habitat** as it supports the EU Habitat Directive Annex II and/or S41 species such as Otter *Lutra lutra*, European Eel *Anguilla anguilla*, Bullhead *Cottus globio* and Brown Trout *Salmo trutta*. It has been modified and straightened in the past, particularly where it passes under the M4 motorway, and in the area around the Sindlesham Mill north of the M4.

3.56 The Loddon provides habitat for a range of species of ecological importance. It also acts as a wildlife corridor, connecting the Site to the wider landscape. Further information on the River Loddon is provided in **Technical Appendix 11.4 River Corridor Survey**, and to avoid duplication the River Loddon itself is not considered further here.

r2b Other Rivers and Streams

3.57 Four other watercourses are present within the Site, described below.

Barkham Brook

3.58 Barkham Brook (D65) is a tributary of the River Loddon which originates off-site to the south-east, flows through the proposed development area and connects to the Loddon north of the M4. This watercourse has also been modified and straightened in the past, but is still recognisable as a flowing stream. Historically it joined the Loddon close to where the M4 is today, but has since been diverted northwards to pass under the motorway and connect to the river further to the north (D62).

3.59 Barkham Brook does not meet the criteria for a Priority River and is therefore mapped as Other Rivers and Streams. As with the River Loddon, it provides habitat for a range of wildlife and acts

as a wildlife corridor of long ecological continuity, and is an Important Ecological Feature in its own right for this reason.

"Oldhouse Stream"

3.60 This un-named watercourse (from west to east D57, D42, D44, D45, D52), coined "Oldhouse Stream" for the purposes of this report, is likely to be a modified stream that rises from a spring off-site to the west at Shinfield Grange before passing to the north of Oldhouse Farm and working its way north-east across the floodplain towards the western edge of Rushey Mead (EV54), eventually joining the Loddon to the north of the M4.

3.61 The course of this stream is shaped by the interface between the underlying alluvial and river terrace geological deposits, as shown on **Figure 3.2 and Map 11.3.6**. It has been straightened and modified over time, such that its component parts now resemble a series of ditches rather than a coherent flowing watercourse. It has also been altered by the construction of modern infrastructure such as the M4 motorway, the Shinfield Eastern Relief Road and development around Shinfield and the south of Reading.

3.62 Oldhouse Stream does not meet the criteria for a Priority River and is therefore mapped as Other Rivers and Streams. It plays a role in connecting the different floodplain habitats and provides ecological continuity, and as such is an Important Ecological Feature.

"Lourde's Meadow Stream"

3.63 This un-named watercourse (from west to east D01, D03, D04, D05, D08, D20), coined "Lourde's Meadow Stream" for the purposes of this report, is likely to be a modified stream that rises from a spring(s) off-site to the south before passing to the west of the historic Lourde's Meadow (EV01, EV02) and modern Hall Farm Woodland Triangle (EV10, EV11) before feeding into the wet woodland, ditch and swamp complex to the west of the Loddon (EV40, EV43). Historically it then fed into the area that is now swamp at EV31a and crossed the narrow end of field EV26 to enter the Loddon, but the latter connection has since been filled in.

3.64 As with Oldhouse Farm stream, this watercourse takes the path of least resistance through the floodplain alluvium between localised shallow mounds of river terrace and brickearth deposits. It has also been straightened and modified over time, and now resembles a series of ditches – some of which are very wide with no perceptible flow (e.g. D08).

3.65 Lourde's Meadow Stream does not meet the criteria for a Priority River and is therefore mapped as Other Rivers and Streams. It forms part of the complex and historic mosaic of habitats across the floodplain, and is therefore considered to be an Important Ecological feature together with Oldhouse Stream and the historic floodplain ditch network.

"Sindlesham Stream"

3.66 This unnamed watercourse (D61, D61b), coined the "Sindlesham Stream" for the purposes of this report, is present within the wider LGV allocation to the north of the M4, on the edge of the UoR land.

3.67 This stream has also been modified and straightened in the past. Historically, D61 and D61b were separate watercourses, but they have since been connected by a modern ditch (D61a).

3.68 D61 appears to be the remnant of a once much wider side channel of the Loddon, while D61b issues from a spring line along junction of the river terrace and alluvial deposits. This section

still follows its natural meandering path before passing under Mill Road and joining the Loddon, but water levels will have been affected by its artificial connection to D61 (and other modern ditches beyond) by ditch D61a. The original sections, however, are considered to be an Important Ecological feature together with Oldhouse Stream, Lourde's Meadow Stream and the historic floodplain ditch network.

Urban

u1 Built-up Areas and Gardens

3.69 Around 4% of the total Site area comprises urban habitat types, including u1b Developed Land, Sealed Surface (roads, lanes and buildings), u1c Artificial Unvegetated, Unsealed Surface (informal tracks), u1d Suburban Mosaic of Developed and Natural Features (houses, gardens and farmyards) and u1f Sparsely Vegetated Urban Land (yards with some ruderal vegetation).

3.70 Urban habitats can be of value for species of ecological importance, such as nesting birds, roosting bats and invertebrates.

Wetland

f2b Purple Moor-grass and Rush Pastures (S41 Priority Habitat)

3.71 Two areas of the **S41 Priority habitat** Purple Moor-grass and Rush Pasture are present within the Site:

- A small area (EV04b) that has developed over poorly-drained, recently disturbed ground west of the Loddon close to the Relief Road; and
- A more extensive area on the floodplain east of the Loddon, between Loader's Copse and the M4 motorway (HF57).

3.72 Both are relatively poor examples of this habitat type, lacking many of the typical indicator species (discussed further in the Flora and Vegetation note (**Technical Appendix 11.5**)). However, they are differentiated from the g3c8 *Holcus-Juncus* Rush Pasture (see above) by the frequency of Jointed Rush *Juncus articulatus* and overall higher species diversity. These rush pastures also have a more varied sward structure than the g3c8 grasslands, and as such are of value to a range of species of ecological importance including birds, invertebrates, amphibians and reptiles. HF57 in particular was noted to support large numbers of solitary bee species in summer 2022.

f2e Reedbeds (S41 Priority Habitat)

3.73 Two small parcels of reedbed dominated by Common Reed *Phragmites australis* are present within the floodplain areas of the Site. One (EV42) forms part of the wet woodland/swamp/ditch complex to the west of the Loddon, and the other (HF44) comprises two separate small stands of Common Reed that have colonised an old ditch to the east of the river.

3.74 Reedbeds are a **S41 Priority habitat**. The examples at the Site are small, which limits their ability to support specialist reedbed species, but they form part of the diversity of habitats on the floodplain.

f2f Other Wetlands

3.75 Some of the wetland habitat parcels at the Site fall under the UKHab category Other Wetlands. These can be broadly divided into two categories:

- Swamps – uniform stands of vegetation dominated by a single species – in most cases this is either Greater Pond Sedge, Lesser Pond Sedge *Carex acutiformis*, Reed Sweet Grass or Reed Canary Grass *Phalaris arundinacea* (e.g. EV40, EV44 and HF45);
- Areas dominated by tall wetland forbs (secondary code 16) such as Greater Willowherb *Epilobium hirsutum*, Meadowsweet, Hemlock Water-dropwort, Fleabane *Pulicaria dysenterica*, rushes *Juncus* spp., Clustered Dock, Common Comfrey and Stinging Nettle, often in riparian areas with scattered Willow scrub (e.g. EV19, HF61) or on the edge of damp grassland (e.g. HF48).

3.76 These wetland habitats are common and widespread components of lowland floodplains, but make an important contribution to the overall diversity of habitats within the floodplain wetland mosaic (see below), and are likely to support a range of species of ecological importance, including birds, invertebrates, amphibians and reptiles.

Coastal and Floodplain Grazing Marsh (Secondary Code 19, Section 41 Priority Habitat) and Floodplain Wetland Mosaic (Secondary Code 55)

3.77 A large proportion of the Site (mostly to the west of the Loddon, but also some to the east) has been mapped as its primary habitat type with the secondary codes 19 (Coastal and Floodplain Grazing Marsh (CFGM)) and 55 (Floodplain Wetland Mosaic (FWM)).

3.78 The CFGM secondary code has been applied to parcels and features where either:

- They are mapped as CFGM on the Priority Habitat Inventory and confirmed through ground-truthing by EPR (see paragraph 3.14); or
- They are not mapped as CFGM on the PHI, but EPR's field survey work has found that they meet the UKHab definition for secondary code 19.

3.79 The CFGM areas of the Site cover the majority of the habitats within the Loddon floodplain, and comprise a mixture of Modified Grassland, various types of Other Neutral Grassland, Other Standing Water (i.e. ditches and ponds), Other Wetland (swamps and tall wetland forbs), and Purple Moor-grass and Rush Pasture.

3.80 CFGM is a **Section 41 Priority habitat** and is defined by UKHab as "periodically inundated pasture, or meadow with ditches which maintain the water levels" which "may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities." The Loddon floodplain within the Site is a good example of CFGM in this structural sense, although it does not support other features mentioned in the original S41 description, such as breeding wading birds, ditches that are rich in plant and invertebrate species, or extensive areas of semi-natural grassland with a high diversity of native plant species.

3.81 FWM is not in itself a Priority habitat, but it overlaps to a large extent with CFGM. It does, however, have a broader definition in UKHab which also includes wet woodland, reedbeds and wet heathland (the latter is not present at the Site). FWM is defined by UKHab as including both naturally functioning and modified floodplains, in terms of their hydrology.

3.82 The Loddon floodplain within the Site is a good example of FWM in the sense that it contains a diverse mixture of habitats and near-natural hydrological function (the ditches present are not maintained and there are no other artificial structures controlling water levels or movement).

However, a large proportion of its component habitat comprises herb-poor permanent pasture (mapped as Modified Grassland), limiting its ability to support species of ecological importance.

Woodland and Forest

w1d Wet Woodland (S41 Priority Habitat)

3.83 Several strips and fragments of wet woodland are present on the Loddon floodplain, dominated by a combination of Alder *Alnus glutinosa*, Crack Willow *Salix x fragilis* and Goat Willow *Salix caprea*. All are **S41 Priority Habitat** of varying age and quality. The wet woodlands have either developed naturally over abandoned floodplain meadows (e.g. EV11, EV43, NM05), or have spread out from lines of riparian trees and scrub (e.g. HF41a).

3.84 The S41 definition encompasses a range of wet woodland types, from relatively uncommon and species-rich stands (in terms of their ground flora) with a diverse range of forbs, sedges, and/or bryophytes, to species-poor stands with a ground layer dominated by nutrient-loving species such as Stinging Nettle, Cleavers and Rough Meadow-grass. The wet woodlands at the Site fall into the latter category.

3.85 Although species-poor, these woodlands contribute to the diversity of the landscape and provide habitat for other important ecological features, such as amphibians, birds and invertebrates.

w1f7 Other Lowland Mixed Deciduous Woodland (S41 Priority Habitat)

3.86 Lowland Mixed Deciduous Woodland (LMDW) is a **S41 Priority Habitat** covering a range of woodland types, from species-rich ancient semi-natural woodlands with a varied structure, to more recent secondary woodlands that have developed as a result of natural succession on abandoned grasslands or arable land. Historically, woodlands were an important resource and many would have been actively worked through traditional techniques such as coppicing, but have now become unmanaged and/or are used for rearing game birds.

3.87 The areas of LMDW at the Site are typically dominated either Oak or Ash in the canopy over an understorey of Hawthorn, Blackthorn, Field Maple, Elm and/or Hazel *Corylus avellana*. Some are listed on the Provisional Ancient Woodland Inventory (see **Section 3**) and have a species-rich ground flora including Bluebell *Hyacinthoides non-scripta*, Wood Anemone *Anemone nemorosa*, Pignut *Conopodium majus* and Moschatel *Adoxa moschatellina*, while others are dominated by species such as Dog's Mercury *Mercurialis perennis*, Ground Ivy *Glechoma hederacea*, Hedge Garlic *Alliaria petiolata*, Rough Meadow-grass, nettles and brambles. The larger areas of woodland are described below:

West of the Loddon

- St John's Copse (IV18): An area of PAW on brickearth (clay, silt and sand) deposits above the floodplain with a canopy dominated by Oak, Alder and Poplar *Populus cultivars* plus occasional Douglas Fir *Pseudotsuga menziesii* and Norway Spruce *Picea abies*. Past evidence of coppicing and Pheasant rearing. Several ancient woodland indicator species present (see Flora and Vegetation note);
- Rushey Mead (EV54): Secondary Oak/Ash woodland on a localised area of gravel deposits on the floodplain; developed over long-abandoned arable land. The majority of this woodland is present on historic maps from the late 1800s; and

- "Watercut" (EV31): Secondary Oak/Ash woodland on a localised area of gravel deposits on the floodplain; developed over long-abandoned arable land. Younger than Rushey Mead – appears as scrub on historic maps from the late 1800s.

East of the Loddon

- The Gorse/Newbury's Copse (HF41): small area of PAW near CEDAR. Appears as "brushwood" and "gorse" on maps from the late 1800s. Likely to be secondary woodland, dominated by Oak, Ash and Hazel;
- Brick Kiln Copse (HF18): small area of PAW on the southern boundary between Church Lane and Cartersmill Lane. Wooded on historic maps but likely to have been replanted. Predominantly Ash, Oak, Wild Cherry *Prunus avium* and Aspen *Populus tremula* over Yew *Taxus baccata*, Hazel, Holly *Ilex aquifolium* and the non-native Cherry Laurel; and
- Loader's Copse (HF59): PAW on the edge of the floodplain close to the M4 motorway. Derelict Ash/Maple/Hazel coppice with several ancient woodland indicators in the ground flora, but dense Bracken *Pteridium aquilinum* and nettles have invaded the south-eastern edge. A flush in the centre is dominated by Greater Pond Sedge; and
- "Loader's Piddle" (HF53): a late Victorian plantation on ex arable/pastureland near to Loader's Copse. Shown as mixed plantation on maps from the late 1800s but no conifers are present today, and the woodland has not been harvested in some time. The south-western boundary is marked by a large bank with veteran trees. Mainly derelict Ash and Hazel coppice stools with Elm over Hawthorn, bramble, nettles, Dog's Mercury and Bluebells.

3.88 These woodlands provide habitat for a wide range of species including birds, bats, [redacted] and invertebrates, and some support important vegetation and flora. The older woodlands provide ecological continuity in the landscape.

w1g Other Broadleaved Woodland

3.89 Several small areas of woodland around the Site are plantations, mostly of post-war origin. Those which are primarily broadleaved species are mapped as Other Broadleaved Woodland, while those with a larger proportion of conifers are mapped as Other Mixed Woodland (below).

3.90 The main areas of Other Broadleaved Woodland are:

West of the Loddon

- New Covert (IV25): plantation dating from around the 1920s on former arable, close to St John's Copse. Primarily Oak and Ash with occasional conifers over dense leaf litter, nettles and brambles; and
- Hall Farm Woodland Triangle (part) (EV10): the largest block within the Hall Farm Woodland Triangle complex. This parcel is a post-war plantation on ex-arable, mostly Ash with some conifers over Hazel, Hawthorn and Holly.

East of the Loddon

- HF01a: crowded, leggy tree belt on the southern boundary providing screening to the Arborfield road.

3.91 Areas of more recent woodland planting, such as the shelterbelt along the M4 corridor, are also mapped as Other Broadleaved Woodland.

w1h Other Mixed Woodland

3.92 Planted woodlands with a higher proportion of conifer species (at least 20%) are mapped as Other Mixed Woodland. At the Site, these are limited to several small parcels associated with the historic Arborfield Hall complex to the east of the Loddon (HF14).

Lines of Trees (Secondary Codes 33 and 34)

3.93 Lines of trees are defined in UKHab as being at least 20m long and at less than 5m wide at the base, with a canopy base over 2m in height and open habitat on each side. If a shrub layer is present underneath the trees, this should be less than 20m long (otherwise the feature is classified under secondary code 11, Hedgerow with Trees).

3.94 Lines of trees are mapped under UKHab as woodland, with the secondary code 33 or 34 (the latter for 'Ecologically Valuable' lines of trees, which include at least one mature, veteran or ancient tree per 30m length). In total, 18 Lines of Trees and 15 Ecologically Valuable Lines of Trees have been mapped across the Site, as shown on **Maps 11.3.4e to 11.3.4h**.

3.95 The tree lines around the Site range from planted rows of ornamental trees (such as Horse Chestnut *Aesculus hippocastanum* and Lombardy Poplar *Populus nigra var. Italica*) along the former Arborfield Hall lanes east of the Loddon, to rows of mature Ash pollards on the floodplain and Oaks on higher ground to the west, often associated with old field boundaries and/or green lanes in which the shrub layer has not been maintained and has disintegrated over time to leave a row of individual trees.

3.96 Several of the tree lines include veteran trees, particularly those west of the Loddon. They represent historic field patterns and have considerable ecological continuity, making them of value as landscape features and habitat for species of ecological importance such as birds, bats and invertebrates. Together with the historic hedgerows, these tree lines are an Important Ecological Feature due to their long continuity. Those considered 'historic' for the purposes of a future Ecological Impact Assessment are shown on **Map 11.3.5**, and often coincide with the location of veteran trees.

4. EVALUATION

Important Ecological Features

4.1 The habitats identified as "important ecological features" in **Section 3** are subject to Ecological Impact Assessment in Chapter 11: Biodiversity. They are shown collectively on **Map 11.3.7** and their relative geographic importance is assessed below where appropriate (as discussed in **Section 2**, the evaluation of most habitats for the purposes of the EcIA is determined by their component flora and vegetation).

Provisional Ancient Woodland

4.2 The ecological importance of the PAWIs at the Site varies according to the flora and vegetation they support, and is discussed in Technical Appendix 11.5 Flora and Vegetation.

4.3 All PAWIs, regardless of their geographic level of importance, are afforded considerable weight under both the NPPF and local planning policy.

Section 41 Habitats

Coastal and Floodplain Grazing Marsh

4.4 Reference is made to the Local Wildlife Sites Selection Criteria for Berkshire (TVERC/BMERC, 2024) for the evaluation of this habitat type, which the Criteria describe as "not a specific habitat but is a landscape type which supports a variety of habitats; the defining features being hydrological and topographical rather than botanical."

4.5 The areas of FWM/CFGM at the Site would be eligible for consideration as a Berkshire Local Wildlife Site (LWS) on account of their S41 Priority Habitat status (criterion 2), collective size (criterion 3) and function as a wildlife corridor (criterion 5). They are therefore considered to be of **County** level importance.

Hedgerows

4.6 The LWS Selection Criteria (TVERC/BMERC, 2024) note that hedgerows generally do not qualify in their own right as Local Wildlife Sites. Usually, therefore they would not in themselves be a habitat type that is of any more than Local-level importance.

4.7 However, in this case the historic networks of hedgerows and lines of trees at the Site are considered to be of **County** level importance. This is due to the fact that their layout remains largely unchanged since at least the late 1800s, and they therefore represent considerable ecological continuity, as well as being relicts of an historic pattern of land use that has been lost from much of the lowlands due to urban sprawl and agricultural intensification.

Other Section 41 Habitats

4.8 The relative ecological importance of the other S41 habitats identified in this Appendix (Lowland Mixed Deciduous Woodland, Wet Woodland, Purple Moor-grass and Rush Pastures and Reedbeds) is determined by their component vegetation and flora, discussed in Technical Appendix 11.5 Flora and Vegetation.

4.9 All S41 habitats, regardless of their geographic level of importance, are afforded weight under local planning policy.

Historic Floodplain Ditches and Modified Watercourses

4.10 Similar to the historic hedgerows and tree-lines, the network of old floodplain ditches and modified watercourses at the Site (mostly west of the Loddon, but also including the Barkham Brook) are considered to be of **County** level importance, due to their considerable ecological continuity and their value as a cultural/landscape feature.

Table 4.2. Evaluation Summary: Important Ecological Features (Habitats)

Habitat/Feature	Name/Location	Geographic Importance	Reason
Provisional Ancient Woodland	Scattered around/adjacent to the Site	Mixture of Local and County – see Technical Appendix 11.5 Flora & Vegetation	
Section 41 Habitats: CFGM	Throughout the Site	County	Meets the criteria for LWS selection
Section 41 Habitats: Hedgerows and tree lines (historic)	Throughout the Site	County	Ecological continuity, connectivity, wildlife resource.
Section 41 Habitats: Hedgerows (non-historic)	Throughout the Site	Local	Do not meet the criteria for LWS selection, but are an important resource for wildlife
Section 41 Habitats: Rivers	River Loddon	See Technical Appendix 11.4 River Corridor Survey	
Section 41 Habitats: Lowland Mixed Deciduous Woodland Purple Moor Grass and Rush Pastures Reedbeds Wet Woodland	Throughout the Site	Mixture of Local and County – see Technical Appendix 11.5 Flora & Vegetation	
Historic floodplain ditches and modified watercourses, including the Barkham Brook	West of the Loddon	County	Ecological continuity, landscape/cultural interest

Other Features

4.11 **Table 4.3** sets out a summary evaluation of the remaining habitats discussed in **Section 3**.

Table 4.2. Evaluation Summary: Other Features (Habitats)

Habitat/Feature	Name/Location	Geographic Importance	Reason
c1 Croplands	Mostly east of the Loddon	Within the Zone of Influence	Of limited value to wildlife
g3 Neutral grasslands g4 Modified grasslands 16 Tall forbs 81 Ruderal/ephemeral	Throughout the Site	Mixture of within the Zone of Influence and Local – see Technical Appendix 11.5 Flora and Vegetation	

h2b Non-native and ornamental hedgerows	One ornamental cherry hedgerow east of the Loddon	Within the Zone of Influence	Of limited value to wildlife
h3 Scrub	Throughout the Site	Within the Zone of Influence – see Technical Appendix 11.5 Flora and Vegetation	
r1g~41 Non-Priority Ponds	Mostly within woodlands and scrub on the floodplain	Within the Zone of Influence	Of limited value to wildlife/captured within evaluation of surrounding habitat
u1 Urban	Mainly around Hall Farm and CEDAR	Within the Zone of Influence	Of limited value to wildlife
f2f Other wetlands	Swamps and tall forbs throughout the floodplain	Mixture of Within the Zone of Influence and Local – see Technical Appendix 11.5 Flora and Vegetation	
w1g Other broadleaved woodland w1f Other mixed woodland	Small parcels of plantation woodland and tree belts scattered around the Site	Within the Zone of Influence – see Technical Appendix 11.5 Flora and Vegetation	

5. REFERENCES

British Geological Survey (accessed 2024). *BGS Geology Viewer*. Available at: https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/

Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3*. Chartered Institute of Ecology and Environmental Management, Ampfield.

Cranfield Soil and Agrifood Institute (accessed 2024). *Soilscapes Map.* Available at: http://www.landis.org.uk/soilscapes/

Department for Environment, Food and Rural Affairs (DEFRA) (no date). *Multi-Agency Geographic Information for the Countryside (MAGIC*). Available at: https://magic.defra.gov.uk/magicmap.aspx

Her Majesty's Stationery Office (HMSO) (1981). *Wildlife and Countryside Act.* HMSO, London

HMSO (2006). *Natural Environment and Rural Communities Act. HMSO*, London.

HMSO (2017). *The Conservation of Habitats and Species Regulations*. HMSO, London

JNCC (2008). *UK Biodiversity Action Plan Priority Habitat Descriptions. Updated Dec 2011*. Available at: https://jncc.gov.uk/our-work/uk-bap-priority-habitats/

Ministry of Housing, Communities and Local Government (2024). *National Planning Policy Framework.*

National Library of Scotland Ordnance Survey Maps (no date). *Six-inch England and Wales, 1842- 1952.* Available at: https://maps.nls.uk/os/6inch-england-and-wales/

National Library of Scotland Ordnance Survey Maps (no date). *25-inch England and Wales, 1841- 1952.* Available at: https://maps.nls.uk/os/25inch-england-and-wales/

Rodwell, J.S. (ed.) (1991-2000). *British Plant Communities Volumes 1-5.* Cambridge: Cambridge University Press.

Rodwell, J.S. (2006). *National Vegetation Classification: Users' Handbook*. JNCC, Peterborough.

UK Hab Ltd (2023). *The UK Habitat Classification Version 2.0.* Available at: https://www.ukhab.org

Wokingham Borough Council (2010). *Wokingham Borough Local Development Framework, Adopted Core Strategy Development Plan Document, January 2010*. Available at: https://www.wokingham.gov.uk/planning-policy/planning-policy-information/local-plan-and-planning-policies.

MAPS

MAP 11.3.1 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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Aerial Image: Maxar, Microsoft

MAP 11.3.2a 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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Aerial Image Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

MAP 11.3.2b 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 11.3.2c 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