WEST LONDON COMPOSTING FACILITY, UXBRIDGE

ECOLOGICAL MANAGEMENT PLAN

BMD.21.0069.RPE.MP.807.A.EMP
DATE: JANUARY 2025

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DOCUMENT HISTORY

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Declaration of compliance with professional code of ethics or conduct
The information which we have prepared and provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bonafide opinions.

Every reasonable attempt has been made to comply with the relevant best practice guidelines and BS42020:2013 (Biodiversity: Code of practice for planning and development).

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EXECUTIVE SUMMARY

Client	West London Composting Ltd.
Consultant	Bradley Murphy Design Ltd.

SITE

Location	West London Composting, New Years Green Lane, Harefield
National Grid Reference	Approx. centre TQ 06995 88414
Over-view	The Site is dominated by worked ground with patches of semi-natural habitat comprising ruderal, scrub and poor semi-improved grassland. In the north of the Site, HS2 is currently active and some areas of the Site were restricted and worked ground. There is also an area of hardstanding and limited habitat areas within a composting site under active management associated with a previously submitted ecological assessment (BMD.21.0069.RPE/P1.801.-.Ecology).
Landscape context	The Site is to the north of New Years Green Lane, situated to the west of the town of Ruislip, in a rural location. The Site is surrounded by horse paddocks and arable fields. Habitat within the wider environs comprise villages, arable fields, hedgerows, ponds, and pockets of woodland. To the north of the Site is an area of ongoing construction works associated with HS2.

DEVELOPMENT & PLANNING BACKGROUND

Proposed works	Full planning application has been granted on the 21st June 2024 for regularisation of the existing green waste composting operations and proposed extension to the green waste open windrow compost maturation yard, construction of a storage container, site offices, welfare building, weighbridge/weighbridge offices, 2 no. leachate holding tanks, 2 no. 180kW generator sets, landscaping and areas of ecological enhancement, including a change of use of the land from pasture to a waste management use.
Planning stage	Discharge of conditions

ECOLOGICAL BACKGROUND

General	A Preliminary Ecological Appraisal (PEA) was carried out in 2023 by BMD for the Site. (Ref: BMD.21.0069.RPE/P1.802.-.Ecology).
Most recent baseline	BMD undertook a verification assessment in November 2024 to inform verification report and discharge conditions including a review of the habitat types and conditions as well as protected species matters.

HABITAT MANAGEMENT PLAN

Objectives

1. To summarise the ecological baseline of the zone of influence associated with the construction works.
2. To provide an overview as well as detailed prescriptions on how proposed habitats and wildlife installations will be created and managed following the development.
3. To provide an annual works schedule alongside future monitoring plans over a 30-year time frame.
4. To meet the requirements of Condition 19 (ref: 39755/APP/2023/652).

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1. INTRODUCTION

1.1 Background Information

1.1.1 This document has been prepared to discharge Condition 19.

1.1.2 "*Prior to the first use of the extended site area approved by this permission, an Ecological Enhancement and Management Plan to support long-term maintenance and habitat creation shall be submitted to and approved in writing by the Local Planning Authority. This plan shall also include timelines for its implementation. The development shall be carried out in accordance with the approved plan.*

1.1.3 *REASON: To avoid damaging the site's nature conservation value, in compliance with Policy EM7 of the adopted Hillingdon Local Plan: Part 1 (2012), policy DMEI 7 of the Hillingdon Local Plan: Part 2 (2020), and London Plan Policy G6 (2021).*

1.2 Proposed Development

1.2.1 Full planning permission has been granted on the 21st June 2024 for regularisation of the existing green waste composting operations and proposed extension to the green waste open windrow compost maturation yard, construction of a storage container, site offices, welfare building, weighbridge/weighbridge offices, 2 no. leachate holding tanks, 2 no. 180kW generator sets, landscaping and areas of ecological enhancement, including a change of use of the land from pasture to a waste management use.

1.3 Site Context

Historic Context

1.3.1 A review of readily available historical maps and aerial imagery indicated that the Site composed part of an arable field complex associated with St Leonard's Farm and Elm Tree Farm which connected to the still present Newyears Green Lane within the late 18th century. The Site remained in this state until the mid-19th century where it became part of an industrialised composting development, this subsequently led to the majority of the Site being transformed to hardstanding, where it has remined in this state until present day.

1.3.2 The local area and greater landscape within the vicinity of the Site has undergone very little landscape change throughout time according to readily available historical maps and aerial imagery. Exceptions to this include: the erection of multiple developments within the 19th century along Harvil Road, Newyears Green Lane and Breakspear Road which transformed some of the arable landscape to hardstanding developments; slight urban expansion along the outskirts of Ruislip situated approximately 560 m east from the Site and the urban expansion of the perimeters of the town of Ickenham situated approximately 1.8 km southeast from the Site. The Chiltern Main Line railway line that runs west-east into Ruislip lies approximately 690 m south of the Site and has been present within the landscape since at least the late 18th century, alongside a block of ancient woodland associated with Ruislip Woods located approximately 160 m north of the Site which has remained untouched since at least the late 18th century also.

Present Context

1.3.3 The Site is an area of semi-natural habitat comprising ruderal, scrub and poor semi-improved grassland. In the north of the Site, HS2 is currently active within the Site and some areas of the Site were restricted and worked ground. There is also an area of hardstanding and limited habitat areas within a composting site under active management associated with a previously submitted ecological assessment (BMD.21.0069.RPE/P1.801.-.Ecology).

1.3.4 The Site is approximately a 7 ha parcel of presently developed/disturbed land associated with an active Composting Facility. Situated in a semi-rural context within the London Green Belt northwest of the London Borough of Hillingdon, the Site lies approximately 2.3 kilometres southeast of the village of Harefield, 1 kilometre north of the locality of Ickenham and 500 m west of Ruislip. The Site comprises of an existing maturation area of bare ground with limited ephemeral and colonising vegetation with peripheral areas of mixed planting. There is then further areas of grassland, ruderal and scrub around the peripheries of the Site. The existing compost maturation area is located on Pylon Farm. Ongoing HS2 works are present within and adjacent to the Site.

1.3.5 The majority of the Site is bounded by open arable land to the north, northeast and northwest, with four residential units situated to the southwest along Newyears Green Lane and St Leonard's Farm to the east of the Site. Ongoing construction works are present to the north of the Site associated with the major infrastructure project HS2.

1.3.6 Open-source mapping indicate no known waterbodies located within 500 m of the Site.

1.3.7 Within the wider context, the landscape surrounding the Site consists of primarily arable landscape and hedgerows, with some patches of developed land situated along roadways such as a composting facility that lies approximately 320 m southeast from the Site along Breakspear Road and a recycling site that lies along Newyears Green Lane approximately 550 m southwest of the Site. Furthermore, a large block of ancient woodland (Bayhurst Woods) associated with Ruislip Woods is located adjacent to the north of the Site, and the Chiltern Main Line railway that runs west-east into Ruislip is located approximately 1 km south of the Site. Denham Country Park lies approximately 2 km southwest of the Site and contains multiple man-made lakes, the Grand Union Canal, the River Misbourne and the River Colne which flows 2.5 kilometres west of the Site in a north-south course. The Grand Union Canal also follows the same course as the River Colne through the Country Park.

1.4 Ecological Context

1.4.1 A previous Ecological Assessment was undertaken by BMD in February 2023 (ref: BMD.21.0069.RPE/P1.802.-.Ecology). This section considers and summarises the key points made during previous ecological assessments of the Site.

- No further surveys are considered necessary in order for the LPA to validate this activity.
- No statutory Nature Conservation Sites will be negatively impacted by the proposed works.
- The Site lies within the Impact Risk Zone (IRZ) of two statutory designated sites of nature conservation importance: Ruislip Woods SSSI, NNR & LNR and the Mid Colne Valley SSSI.

The proposed application is included on the list of developments that are considered likely to cause a risk to the corresponding SSSI's, therefore, Natural England should be consulted during the application.

- No Non-statutory Nature Conservation Sites will be negatively impacted by the proposed works.
- No S41/Priority Habitats will be negatively impacted by the proposed works.
- No protected or notable species will be negatively impacted if appropriate mitigation and precautions are followed, as set out in this report.
- With the implementation of the proposed biodiversity measures set out above, the proposal will be compliant with the NPPF and Policy G6 (D) of the London Plan and biodiversity net gain will be achieved.

1.4.2 An ecological verification assessment for the Site was conducted in November 2024 by BMD to reassess the baseline ecological conditions following previous evaluations in 2022. The primary purpose of this assessment was to identify any ecological changes since the last survey in November 2022 and to determine whether any additional ecological surveys or mitigation measures were required. Key findings from the November 2024 assessment are summarised within BMD.21.0069.RPE-TN.806.Verification Assessment.

1.4.3 Additionally, a Biodiversity Net Gain assessment for the Site was undertaken by BMD in February 2023 (Ref: BMD.21.0069.RPE-IA.803.Biodiversity Net Gain Plan).

1.4.4 A re-evaluation of the Biodiversity Net Gain assessment for the Site was undertaken by BMD in January 2025, following suggested changes to the post-development layout to allow for easier habitat management and maintenance. These updates include spatial changes only, swapping areas of scrub and wildflower grassland habitat to allow for higher chances of establishment due to environmental conditions of the locations. As such, these changes have also resulted in the provision of increased access for future monitoring and management.

1.4.5 Whilst these updates have occurred post planning approval, it should be noted that the Biodiversity Net Gain score for the new post-development plans has remained the same as that calculated within the previous Biodiversity Net Gain Assessment undertaken in February 2023 (Ref: BMD.21.0069.RPE-IA.803.Biodiversity Net Gain Plan). This is because the area of each post-development habitat has not changed, only the positioning of planting within the Site. The updated post-development plan is provided within the Appendix.

1.4.6 Table 1.1 provides a summary of previous ecological assessments since 2022. This is correct as of the previous surveys taken place at the Site.

Table 1.1 Summary of previous ecological assessments since 2022 for the Site

Assessment	2022	2023	2024	2025
Desk study	✓		✓	
Habitats (Phase 1 Habitat Survey)	✓		✓	
Verification walkover – habitats			✓	
Biodiversity Net Gain Plan		✓	✓	✓

1.5 Compliance with Guidance, Policy, and Legislation

1.5.1 An overview of national planning policy and wildlife legislation relating to the ecological features relevant to the scheme is provided in Appendix A.

1.5.2 The protocols, evaluations and recommendations contained within this report were made in accordance with these policies and legislation and with reference to BS42020:2013: Biodiversity – Code of Practice for Planning and Development.

2. ECOLOGICAL BASELINE

2.1 Summary of Most Recent Baseline

2.1.1 Table 2.1 provides a summary of conclusions drawn from the most recent ecological surveys.

Table 2.1 Conclusions of most recent ecological assessments: 2024 Preliminary Ecological Appraisal and verification walkover surveys.

Ecological Feature	Conclusions of relevance to the Site
Badgers	No evidence of any badger setts was found on the Site during surveys. Suitable habitat remains around the peripheries of the Site, particularly within the hedgerow and scrub features. These areas could be used for foraging or commuting by badgers, although no active setts are present. Since the previous assessments, large areas of suitable foraging habitat have been cleared.
Bats – Activity	Peripheral vegetation, including hedgerows and trees, may be of importance to foraging and commuting bats. The Site is generally considered to be of low local importance for bats. The data search returned records of brown long eared bat, soprano pipistrelle, common pipistrelle, leisler's bat and daubenton's bat.
Bats – Roosts	The habitats occurring on site have limited potential to support roosts of these species. The semi-mature trees lacked significant features that could be utilised by bats for summer roosting. Bats in the area may utilise the site for foraging in close association with other habitat areas such as the plantation woodlands around the peripheries of the Site. There are no buildings with bat suitability on Site. An off-site mature oak tree along the eastern boundary of the northern aspect of the Site have some features which may provide features for summer roosting bats. Consequently, this tree is categorised as low suitability for roosting bats. The proposals will not impact the integrity of this feature.
Birds	The Site supports a breeding bird population of Site value only. Habitats on-site, including, hedgerows, and scrub, provide nesting opportunities for common bird species. No notable bird species were recorded during the 2024 survey, and the habitats remain consistent with those observed in previous assessments.
Great Crested Newts (GCN)	Overall there are no aquatic waterbodies within and adjacent to the Site. Furthermore, dispersal capacity of newts is expected to be much reduced within the land parcels, owing to the absence of ponds and sub optimal habitat. Overall, the Site is considered to be negligible for great crested newt. The Site lacks suitable habitat to support significant populations of amphibians. Ultimately it is considered that the Site is unlikely to support great crested newt or large populations of amphibians, yet may provide some limited habitat for small populations of common amphibians.
Habitats (Phase 1 Habitat Survey)	Habitats present within the Site: Hardstanding, Hedgerows with trees, Ruderal vegetation, Scrub, and bare ground. Areas of vegetation have been cleared for HS2, therefore much of the area is bare ground. This assessment aligns with prior surveys, showing no notable changes in habitat value. **A previous Phase 1 map is provided within BMD (2023) PEA for the Site.**
Invertebrates	The habitats on-site, including scrub, and hedgerows, are likely to support a range of common invertebrate species. However, the low plant diversity, limits the potential for a diverse invertebrate assemblage. No rare or notable invertebrate species are expected to be present. The habitat remains unsuitable for species requiring a more diverse floral environment, and there has been no change in this conclusion since previous surveys.
Reptiles	The areas of bare ground, as well as some edge habitats provide some limited shelter, basking and foraging habitat for common reptile species such

Ecological Feature	Conclusions of relevance to the Site
	as grass snake and common lizard. Furthermore, on the northern edge of the Site there is an area of is earth bank which provides a suitable habitat feature for reptiles. In the locality of the Site there were brash/log piles which provided refugia for reptiles. Overall, there is some opportunity for reptiles to be present, however the Site is considered to provide opportunity for only a small number of individuals owing to the active nature and inherent disturbance associated with the Site and the more suitable habitat present in the wider landscape. Displacement is considered appropriate in this context based on guidelines from Herpetofauna Group of Britain and Ireland , which suggests that displacement is an effective mitigation measure for sites where only a small number of reptiles are likely to be present. Furthermore, Natural England's Standing Advice for Reptiles supports displacement as an acceptable method where the likelihood of reptile presence is low and the impact on individuals or populations can be minimized through careful habitat clearance and management. In conclusion, the use of displacement as the primary mitigation strategy is proportionate to the low ecological value of the Site for reptiles and the limited potential for significant populations to be present. The habitats on site are mainly bare ground due to the ongoing HS2 works.
Statutory and Non-statutory Nature Conservation Sites	There are no statutory designated sites of nature conservation importance located within the Site itself. The Site lies within 2 km of five statutory designated site, Ruislip Woods SSSI and LNR. Frays Valley LNR, Denham Quarry Park LNR, Denham Country Park LNR and Fray's Farm Meadows SSSI. The Site also lies within the Impact Risk Zone (IRZ) of Ruislip Woods SSSI & LNR and the Mid Colne Valley SSSI. Additionally, the Site is a number of non-statutory designated sites of nature conservation importance. According to HS2 London-West Midlands Environmental Statement, these non-statutory sites were identified during a data search conducted on 17/11/2022, and no changes to these designations have been recorded since.
Other Species	The Site contains habitat suitable for other species, such as deer and rabbits utilising the agricultural landscape., which may utilise the hedgerows and scrub for foraging. The Site's habitats, including scrub and hedgerows, continue to offer potential shelter and foraging opportunities for these species. However, no significant populations of these species have been recorded. The potential presence of these species remains consistent with previous assessments.
Data Validity (Surveys)	Survey data collected, including species assessments, remain valid for 24 months, based on best practice guidelines from CIEEM (2019). This validity period is accepted because populations of species such as GCN, bats, and flora typically remain stable over short time frames. Unless there are significant habitat changes, previous findings remain relevant. Local records and species data from 2022 remain accurate until 2024, as outlined by CIEEM (2019) guidelines for ecological report writing.

2.2 Further Surveys

2.2.1 No further surveys are considered necessary to inform the Ecological Management Plan. This conclusion is based on the findings from the series of ecological surveys, including the most recent verification assessment conducted in November 2024. The surveys have consistently demonstrated that the Site does not support significant populations of protected species, and the habitats present are of low ecological value. Specifically:

2.2.2 Bats: all of the trees on-site have been assessed as having negligible potential to support roosting bats. As bat activity is primarily concentrated along hedgerows and tree lines, the central areas of the Site remain of low value for foraging or commuting bats. The conclusion that no further bat surveys are needed is supported by previous and current ecological assessments;

- Flora and Habitats: The Site is characterised by bare ground, ruderal vegetation, and scrub, all of which are common and of low botanical interest. Despite the 2024 survey being conducted outside the optimal season for flora surveys, the majority of the Site had been cleared, with a lack of habitat remaining. The lack of notable species or diverse flora further justifies that no additional botanical surveys are necessary.
- Reptiles and Invertebrates: The Site's habitats, though capable of supporting some individual reptiles or common invertebrates, is not of sufficient quality or size to support large or diverse populations. The conclusions of previous surveys remain valid, with no evidence of significant reptile or invertebrate activity that would necessitate further investigation.
- Other Species: The Site provides some suitable habitat for common species such as deer and hedgehog. However, the presence of these species is not considered significant enough to require additional surveys, as the Site is of low ecological value overall. The habitats on-site, including scrub and hedgerows, provide limited but sufficient resources for these species, and pre-works checks will address any potential impacts on these animals.

2.2.3 Pre-works Checks Justification:

2.2.4 While no further surveys are required, pre-works checks are necessary to ensure compliance with wildlife legislation and to avoid impacts on any protected species that may move into the area between now and the start of construction. These checks will involve:

- Walkover surveys to confirm the absence of nesting birds during the breeding season.
- Checks for reptiles in areas where the habitat may support individual reptiles, particularly along the site peripheries.
- Hedgehog and other species checks to ensure no individuals are present in the scrub or grassland areas.

2.2.5 These checks will help ensure that the development proceeds in accordance with the EMP and in compliance with the relevant wildlife protection laws. The absence of significant ecological constraints on the Site, combined with the pre-works checks, ensures that no additional surveys are required at this stage.

2.2.6 This approach aligns with the guidance from CIEEM (2019) and best ecological practices, ensuring that the Site's ecological conditions are fully understood and that the necessary precautions are in place prior to development.

2.2.7 No further surveys are considered necessary in order to inform the Ecological Management Plan.

3. AIMS AND OBJECTIVES

3.1.1 The aim of this Ecological Management Plan (EMP) is to provide an overview of how habitats will be created and managed following the completion of the Proposed Development. It also sets out the installation of ecological features, implementation of landscape features, and monitoring proposals for habitats and certain species present on Site.

3.1.2 The Site affords significant opportunities for habitat creation and enhancement, with areas of managed grassland of low ecological value amenable to treatments such as the creation of a wildflower meadow, native hedgerows, shrub/thicket and mixed scrub. The landscape proposals have been informed using biodiversity metrics such that changes made to habitats at the Site result in a measurable 'biodiversity net gain'.

3.1.3 The proposals for landscape creation have also been informed by a range of baseline ecology studies, as summarised in Section 2. Informed by the ecological baseline, a range of wildlife installations, including bird boxes, bat boxes, hibernacula for herptiles and features for invertebrates are included within the scheme design, to ensure the favourable conservation status of Biodiversity Action Plan (BAP) and Local Biodiversity Action Plan (LBAP) species are maintained on the Site, post development.

4. LANDSCAPE AND ECOLOGY FEATURES OVERVIEW

4.1 Landscape Features

4.1.1 Throughout the master planning process, biodiversity has been a significant driver with regards to retention of key areas and species safeguarding to ensure that biodiversity net gain and the protection of key protected species (for example, nesting birds) is achieved.

4.1.2 The Proposed Development aims to regularise the buildings/infrastructure on the existing green waste composting site and extend the maturation yard to the north and east including landscaping and BNG area. As well as, landscaping, including hedgerows, grassland, mixed scrub and thicket, woodland and wildflower meadows.

4.1.3 The total size of the Site is 7ha, and of this, approximately 3 ha will comprise of soft landscaping once operational. Soft landscaping will include:

- Creation of habitats of elevated ecological value including woodland (which will continue to be enhanced bespoke and sensitive management prescriptions)
- Areas of habitat that are created on existing low ecological value habitats (such as the conversion of improved grassland to meadow grassland, mixed scrub and thicket); and
- Habitat that will be created following completion of the construction phase.

4.1.4 Section 7 details the habitat creation and management prescriptions for each habitat type that will be implemented at the Site, as per the landscape design detailed in the relevant plans:

- BMD.21.0069.DRE.905 Post-development Habitat Plan

4.1.5 The following key habitat features will be created/enhanced and subject to ongoing management methods:

- Thicket;
- Mixed scrub;
- Woodland;
- Hedgerows;
- Wildflower meadows;

5. Wildlife Installations

5.1 Introduction

5.1.1 Several ecological enhancement features such as bat and bird boxes, and wildlife installations specifically designed for species recorded on Site, have been integrated into the design of the Proposed Development.

5.1.2 The specification detail of these features along with proposed monitoring and maintenance procedures are detailed below. Final locations are to be agreed with the Project Ecologist.

5.1.3 In summary, the following ecological enhancement features will be installed on Site:

- A variety of bird boxes;
- Bat boxes (tree mounted);
- Habitat/log piles; and
- Invertebrate features;

5.2 Bird Boxes

Benefits of Bird Boxes

5.2.1 Bird boxes (nesting boxes) play a crucial role in avian conservation, particularly in habitats fragmented by urbanisation and intensive agriculture. These artificial nesting sites provide essential shelter and breeding spaces for various bird species that may struggle to find suitable natural cavities. Enhancing local biodiversity, bird boxes support species such as the Blue Tit (*Cyanistes caeruleus*), Great Tit (*Parus major*), House Sparrow (*Passer domesticus*), and Starling (*Sturnus vulgaris*). Moreover, birds contribute to pest control by feeding on insects, thereby reducing the reliance on chemical pesticides and promoting a healthier ecosystem.

Implementation of Bird Boxes

5.2.2 Selection of Bird Boxes

5.2.3 Selecting the appropriate bird box design is critical to meet the specific requirements of target bird species. The following bird boxes have been selected for the scheme:

- Schwegler 1B Nest Box (26 mm or 32 mm)
- Wildlife World Robin Nest Box

5.2.4 Material selection should prioritise untreated wood or wood-concrete mixtures to ensure durability and avoid exposure to harmful chemicals.

Installation Guidelines

5.2.5 Install bird boxes at an appropriate height and location to maximise their effectiveness:

- **Height**: Generally, place boxes 2 to 4 meters above the ground. Robins and Wrens can be accommodated at lower heights (1 to 2 meters).

- **Location**: Choose sturdy trees that offer natural cover, providing shelter from predators and harsh weather conditions.

Orientation and Monitoring Practices

5.2.6 The following should be applied for installation:

- **Orientation**: Correct orientation is essential to protect birds from harsh environmental conditions:
- **Direction**: Face bird boxes east to southeast to avoid prevailing winds from the west and intense sunlight from the south. This orientation helps regulate the microclimate within the box, maintaining an optimal temperature and humidity level for nesting birds.
- **Shelter**: Place boxes in shaded areas to minimise direct sunlight exposure and prevent overheating.

Monitoring and Maintenance

5.2.7 Regular monitoring and maintenance are critical to ensure the longevity and usability of bird boxes:

- **Inspection**: Conduct routine inspections for structural integrity and signs of damage. Repair or replace boxes as needed.
- **Cleaning**: Clean out old nests and debris in autumn after the breeding season to prevent parasite infestations and disease.
- **Security**: Ensure boxes are securely attached to trees to withstand strong winds and prevent dislodgment.

5.3 Bat Boxes

Benefits of Bat Boxes

5.3.1 Bat boxes serve as critical conservation tools, providing artificial roosting sites for bats in areas where natural habitats have been diminished by urbanisation and deforestation. These structures support various bat species, such as the Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), and Brown Long-eared Bat (*Plecotus auritus*), which play essential roles in ecosystems as nocturnal pollinators and insectivores. By consuming large quantities of insects, bats help control pest populations, reducing the need for chemical pesticides and promoting ecological balance.

Implementation of Bat Boxes

5.3.2 Choosing the appropriate bat box design is crucial for attracting and supporting different bat species. The following bat box have been selected for the scheme

- Schwegler 2F Bat Box

5.3.3 The Schwegler 2F Bat Box is an excellent choice for attracting and supporting common bat species such as the Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), and Brown Long-eared Bat (*Plecotus auritus*).

5.3.4 Material selection should focus on untreated wood or wood-concrete mixtures to ensure durability and avoid exposure to harmful chemicals.

Installation Guidelines

5.3.5 Proper installation height and location are critical to maximizing the effectiveness of bat boxes:

- **Height**: Install bat boxes at a height of 4 to 6 meters above the ground to protect them from predators and disturbances, while allowing enough clearance for bats to take off and land easily.
- **Orientation**: According to guidance from the Bat Conservation Trust (Collins, 2023), bat boxes should ideally be installed facing east, southeast, or south. These orientations allow the boxes to receive morning sunlight, which helps maintain a warm roosting environment. However, in hotter climates or locations with intense afternoon sun, east or southeast-facing boxes are preferred to avoid overheating. Avoid north-facing orientations, as they receive less sunlight and can remain too cold for bat activity.
- **Location**: Ensure there are no obstructions below the box to allow for unobstructed flight paths. The box should be placed in areas with nearby linear features such as hedgerows, woodland edges, or water bodies, which provide flight corridors and access to foraging areas.

Orientation and Monitoring Practices

5.3.6 Correct orientation of bat boxes is essential for providing a suitable microclimate for roosting bats:

- **Direction**: Face bat boxes south to southeast to maximise sun exposure, ensuring the boxes remain warm and dry. This orientation is crucial for creating a thermally stable environment, which is important for bat roosting.
- **Shelter**: Position boxes in areas sheltered from strong winds and rain, ideally on sturdy trees or buildings that receive direct sunlight for several hours each day.

Monitoring and Maintenance

5.3.7 Regular monitoring and maintenance are essential to ensure the long-term success of bat boxes:

- **Inspection**: Conduct routine inspections to check for structural integrity and any signs of damage or wear. Repair or replace boxes as necessary.
- **Cleaning**: While bat boxes typically require less cleaning than bird boxes, inspect for wasp nests or other obstructions annually, ideally during winter when bats are less likely to be present.
- **Security**: Ensure bat boxes are securely attached to trees or buildings to withstand strong winds and prevent dislodgment.
- **Licenses and Timing**: Monitoring and maintenance activities should be conducted at specific times of the year to minimise disturbance to the bats. In the UK, bats are a protected species, and handling or disturbing them often requires a license. Therefore, inspections and any necessary maintenance should be coordinated with licensed bat workers.

5.4 Habitat and Log Piles

Benefits of Log Piles/Habitat Piles

5.4.1 Log piles, also known as habitat piles, offer significant ecological benefits by providing essential habitats for a wide variety of wildlife. They serve as shelter and breeding grounds for numerous species, including amphibians like frogs and newts, reptiles such as slow worms and grass snakes, invertebrates like beetles and woodlice, and even small mammals and birds. By decomposing over time, log piles contribute to soil health and nutrient cycling, supporting the broader ecosystem. Additionally, they enhance biodiversity by creating microhabitats that support a range of species, from decomposers to predators.

Implementation of Log Piles/Habitat Piles

5.4.2 Choosing the right materials is crucial for constructing effective log piles:

- **Types of Wood**: Use a mix of hardwoods (e.g., oak, beech) and softwoods (e.g., pine, spruce). Hardwoods decompose more slowly, providing long-term habitat, while softwoods break down quicker, offering immediate benefits. These can be used from removed trees on site.
- **Size of Logs**: Incorporate a variety of log sizes, from large branches to small twigs, to create diverse habitats for different species.
- **Condition**: Use untreated, unprocessed wood to avoid chemicals that could harm wildlife.

Construction Guidelines

5.4.3 Proper construction techniques maximise the ecological value of log piles:

- **Location**: Choose a partially shaded, quiet area to mimic natural forest conditions. Ensure the site has some protection from extreme weather but still receives some sunlight.
- **Base Layer**: Start with a base layer of larger logs to provide stability and create spaces for larger animals to shelter.
- **Layering**: Add layers of progressively smaller branches and twigs, creating a dense, complex structure. Include leaf litter, bark, and other natural materials to enhance habitat diversity.
- **Height and Width**: Aim for a pile that is at least 1 meter high and wide, but larger piles will support more species and decompose more slowly.

Orientation and Monitoring Practices

Orientation

5.4.4 Effective orientation ensures log piles provide optimal conditions for wildlife:

- **Sunlight Exposure**: Place the pile where it will receive dappled sunlight. Too much sun can dry out the logs, while too little can slow decomposition.
- **Moisture**: Position the pile in an area that retains some moisture but is not prone to waterlogging. Moist conditions help support decomposers and amphibians.

- **Wind Protection**: Ensure the pile is sheltered from strong winds to maintain humidity and prevent drying out.

Monitoring and Maintenance

5.4.5 Regular monitoring and maintenance help sustain the ecological value of log piles:

- **Inspection**: Periodically inspect the pile for structural stability and any signs of disturbance. Ensure the pile remains intact and add new material as it decomposes.
- **Enhancement**: Occasionally add fresh logs and branches to maintain habitat quality and provide continuous resources for wildlife.
- **Timing**: Conduct maintenance activities during late autumn or winter when many species are less active. Avoid disturbing the pile during the breeding season (spring and summer).

5.5 Invertebrate features

Benefits of Invertebrate Features

5.5.1 Invertebrate features, such as bug hotels, bee houses, and leaf litter piles, play a crucial role in supporting diverse invertebrate populations. These structures provide essential habitats for insects and other invertebrates, which are key components of the ecosystem. Invertebrates, including pollinators like bees and butterflies, decomposers like beetles and worms, and predators like ladybirds and spiders, contribute to plant pollination, nutrient cycling, and pest control. Enhancing habitats for invertebrates helps maintain ecological balance and supports the overall health of the environment.

Implementation of Invertebrate Features

5.5.2 Choosing the right materials is essential for creating effective invertebrate habitats:

- **Natural Materials**: Use untreated wood, bamboo, straw, pine cones, leaf litter, and bark. These materials provide the necessary microhabitats for different invertebrates.
- **Variety**: Incorporate a range of materials to cater to various species' needs. For example, drilled logs for solitary bees, straw and hay for beetles, and leaf litter for decomposers.

5.5.3 **Construction Guidelines**

5.5.4 Proper construction techniques maximise the ecological value of invertebrate features:

- Bug Hotels:
  - Structure: Create a framework using untreated wood pallets or wooden crates. Fill the sections with various materials such as bamboo canes, bricks with holes, rolled-up corrugated cardboard, and pine cones.
  - Size: Aim for a structure at least 50 cm high and wide, but larger structures will support more species.
- Leaf Litter Piles:
  - Location: Create piles in shady, undisturbed areas. Leaf litter provides habitat and food for many decomposers and shelter for ground-dwelling invertebrates.

- Maintenance: Replenish leaf litter annually to maintain habitat quality.

Orientation and Monitoring Practices

5.5.5 Effective orientation ensures invertebrate features provide optimal conditions:

- **Sunlight Exposure**: Place features like bee houses in sunny locations, facing south or southeast to maximise warmth. Bug hotels can be in partially shaded areas to cater to a variety of species.
- **Moisture**: Ensure leaf litter piles and parts of bug hotels are in areas that retain some moisture without becoming waterlogged, supporting decomposers and moisture-loving invertebrates.
- **Wind Protection**: Position invertebrate features in sheltered spots to protect them from strong winds and maintain humidity levels.

Monitoring and Maintenance

5.5.6 Regular monitoring and maintenance are essential to sustain the ecological value of invertebrate features:

- **Inspection**: Periodically inspect structures for stability and signs of use by invertebrates. Check for any damage or weathering and repair as needed.
- **Cleaning and Replacement**: For bee houses, clean out used or damaged materials annually during winter when bees are not active. Replace worn-out materials in bug hotels to maintain habitat quality.
- **Enhancement**: Add new materials periodically to refresh habitats and provide continuous resources for invertebrates.

5.6 Monitoring and Maintenance

5.6.1 Table 5.1 details the monitoring and maintenance required for each wildlife installation.

Table 5.1 Monitoring and Maintenance for Wildlife Installation

Feature	Task	Frequency	Timing	Notes
Bird Boxes	Inspection	Twice a year	Spring, Autumn	Check for damage. Avoid disturbing during nesting season (Mar-Aug).
	Cleaning	Annually	Autumn	Remove old nests after breeding season to prevent parasites.
	Maintenance	As needed	Throughout year	Repair immediately to ensure usability. Avoid during nesting season.
	Monitoring	Regularly	Throughout year	Observe usage without disturbance, especially during breeding (Mar-Aug).
Bat Boxes	Inspection	Twice a year	Spring, Autumn	Check for damage. Avoid inspections during roosting (May-Sep) and maternity season.
	Cleaning	Annually	Winter	Minimal cleaning; remove obstructions. Conduct when bats are less likely present.
	Maintenance	As needed	Throughout year	Repair as needed. Avoid disturbing roosting bats. Licenses required for handling bats.
	Monitoring	Annually	Winter	Coordinate with licensed bat workers; avoid disturbance. Licenses required.
Log Piles	Inspection	Twice a year	Spring, Autumn	Ensure stability; add new materials if decomposed significantly.
	Maintenance	Annually	Autumn	Add new logs and branches as needed.
	Monitoring	Regularly	Throughout year	Observe usage and ensure structure remains intact.
Invertebrate Features	Inspection	Twice a year	Spring, Autumn	Check stability and signs of use in bug hotels.
	Maintenance	Annually	Winter	Replace worn materials in bug hotels; clean bee houses.
	Monitoring	Regularly	Throughout year	Observe invertebrate activity and usage.

6. GENERAL MEASURES AND ESTABLISHMENT PRINCIPLES

6.1 General Measures

6.1.1 Annual checks of the planted areas should be carried out to monitor their overall condition. Checks should be carried out by a suitably qualified individual and should occur between May and August when plants are easiest to identify. The vegetation's current condition will be checked against landscape plans and associated species lists to monitor any failed planting areas. These will be replaced by equivalent species and in consultation with landscape specialists. Sizes of replacement planting stock will match planting sizes of Year 1. Annual checks should also include the monitoring of wetland features to monitor their condition, including vegetation abundance and presence of invasive species.

6.1.2 If species composition of planted areas throughout the Site become dominated by one or very few species, consultation with landscape specialists will be sought to provide appropriate advice on re-planting to increase species diversity.

6.1.3 General checks will also occur for non-native, invasive flora, particularly species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), that may naturally establish within the Site. If invasive species are present, they will be removed in line with good practice and through a qualified contractor. Schedule 9 species have a legal requirement to be adequately controlled and removed.

6.2 General Establishment Principles

6.2.1 The following establishing maintenance principles apply to all planted areas:

- Generally planting should be carried out in accordance with the following British Standards:
  - BS 4043:1989 'Recommendation for Transplanting Root Balled Trees'
  - BS 4428:1989 'Code of Practice for General Landscape Operations'
  - BS 8545:2014 'Trees from nursery to independence in the landscape. Recommendations'
- Times of Year for Planting:
  - Seeding: mid March to the end of April or late August to mid October.
  - Root balled/Bare root deciduous trees and Shrubs: late November to late March.
  - Root balled conifers and evergreens: September - November or March - May.
  - Turf, container grown shrubs and trees (including spring ringed): At any time if ground and weather conditions are favourable. Ensure that adequate watering, drainage and weed control is provided. Do not plant into frozen ground.
  - Waterlogging shall be avoided through proper ground preparation and tree pit excavation.
  - Do not use peat or products containing peat.
- Watering: subject to legislation, all plants will be watered adequately to maintain healthy growth.

- Firming-up: any plants which become loosened, lifted, or out of the ground are to be set upright and re-firmed by treading.
- Pest and Disease Control: plants will be kept free of pests and disease through necessary control measures. These include rabbit and rodent control as required, as well as the reinstatement of any damage. Gassing of rabbits is not permitted due to the potential impact on reptiles.
- Plant Supports and Protection: canes, tree, shrub guards, tree ties, and rabbit fencing shall be checked, and when necessary, adjusted, replaced, or removed. After removal, the ground holes shall be filled with topsoil and reinstated. It is generally expected that most of the plant supports and protection will be removed during the Year 3 to 5 period, post-establishment.
- General Pruning: straggling stems, overgrown shoots, dead, misshapen or broken branches shall be removed from trees and shrubs by pruning back with a clean smooth cut to the main stem, or a sound and living outward growing lateral. Specific plant species shall be pruned, in accordance with good horticultural practice.
- Fertiliser: in any areas where establishment growth is poor, trees and shrubs established for less than three years will be treated annually in February with slow releaser fertiliser (e.g. Enmag). This will be evenly incorporated into the soil surface, over the rooting of each plant, in accordance with the manufacturer's instructions. In other planted areas, fertiliser application may only be required to prevent/rectify nutrient deficiencies if they arise and will be minimised.
- Removal of Litter: all litter will be removed from planted, grassed and hard surface areas of the Site on a regular basis.
- Leaf Fall: leaves and other plant debris shall be regularly cleared off adjacent areas of hard surface, paths and grass.
- Fencing: all is to be regularly checked and maintained in good condition, carrying out repairs when necessary.

7. MANAGEMENT PRESCRIPTIONS

7.1 Habitat Creation and Management

7.1.1 To ensure that the habitats enhanced, created, and retained reach their target distinctiveness and condition for the biodiversity metric, bespoke management prescriptions have been proposed for each habitat type. The habitat types and their objective condition within the Site are summarised as:

- Thicket/Mixed scrub:
  - To create a dense vegetation belt along the Site boundaries and a larger mixed scrub area adjacent to existing and planted woodland areas providing ecological corridors and buffers.
  - To enhance species and structural diversity of planting on Site, along with enhancing foraging opportunities for wildlife.
  - To extend a buffer areas of high value, existing woodland.
  - To filter views of the lower extent of the development and buffer existing woodland areas from development areas.
- Woodland Planting:
  - To establish diverse native woodlands that increase habitat complexity and support a wide range of wildlife species.
  - To enhance carbon sequestration and contribute to local climate resilience through strategic planting of trees.
  - To create a natural buffer that improves air quality and reduces noise pollution, enhancing the overall environmental quality of the area.
  - To establish and maintain woodland rides to allow for appropriate management and maintenance.
- Wildflower meadows:
  - To create and maintain a species-rich wildflower grassland that provides resources for a range of fauna, including herptiles and invertebrates.
  - To provide nectar and pollen for wildlife.
  - To create a graded eco-tone edge to the structural landscaping.

7.1.2 Table 7.1 below summarises habitat creation and management prescriptions by habitat type, along with creation methods (where applicable) and management methods.

7.1.3 The overarching aim of this EMP is to provide a framework that will ensure the continuing successful management of the Site through which landscape and ecological elements can be maintained and developed to contribute to the quality of the area, and to ensure that the original concept and design intent is realised. Once implemented, this plan will help to maximise the overall quality and appearance of the development, its amenity and ecological value.

Table 7.1 Habitat creation and management prescriptions for each habitat type

Habitat Type	Proposed Plans	Creation Methods (where applicable)	Management Methods
Thicket Mixed Scrub Area	Additional native thicket and mixed scrub is proposed along the Site boundaries to widen the existing hedgerows and form a dense vegetation belt around the development. A large area of denser, mixed scrub to be established in the north-west of the Site to provide a range of scrub/grassland mosaic areas and buffer/extension to existing high value woodland area.	• Planting should occur from November to March. • It must include a range of native and locally sourced species, such as blackthorn and hawthorn. • Planting should be conducted into well-prepared ground and protected using spiral rabbit guards or shrub shelters. • Failed planting must be replaced.	• Tree/shrub shelters should be inspected monthly to ensure they are secure and are re-firmed/replaced as necessary. • Prune and re-shape transplants at the appropriate time according to individual requirements (i.e. early spring or late winter) to promote good form and encourage healthy growth. • Transplants should be re-firmed into the ground after adverse weather conditions such as strong winds and frost heave. • Plants are to be annually inspected for pests and diseases. • Allow leaf litter and brash to remain on the ground to improve soil and provide refuge. • New planting should be monitored to ensure successful establishment. The base area should be kept free from weed growth by hand clearance. • New thicket planting areas will be assessed in years 5 and 10 and thinned by up to 30% to remove poor quality specimens and allow development of healthy shrubs. • Areas of grassland within the northwest grassland/scrub mosaic to be maintained, particularly peripheral areas to allow access for management of scrub, woodland and hedgerows. Scrub encroachment within these areas should be removed as required.
Woodland	New native woodland areas are proposed to enhance biodiversity and provide additional habitat connectivity.	• Planting should occur from November to March, using a mix of native tree species adapted to the local climate and soil conditions. • Trees should be planted into well-prepared ground, spaced to allow mature growth, and protected with appropriate guards against wildlife. • Trees should be appropriately spaced to create approximately 2 m woodland rides, allowing for future access for management. • Failed plantings should be replaced within one planting season to ensure establishment.	• Regular inspection and maintenance of tree guards and shelters. • Prune and thin the woodland as necessary to promote healthy growth and form, following best forestry practices. • Monitor for pests and diseases and apply management practices to mitigate impact. • Manage understory vegetation to prevent overgrowth, support a diverse ecological environment and to maintain woodland ride features. • Inspection Schedule: Inspect tree shelters and guards bi-annually, in early spring and late autumn, to ensure they are intact and effectively protecting young trees. Adjust or replace as necessary to prevent damage to growing trees. • Pruning and Thinning: Begin thinning operations after years 5-10 to reduce competition and promote healthy canopy development. Pruning should be

Habitat Type	Proposed Plans	Creation Methods (where applicable)	Management Methods
			done in late winter when trees are dormant, to shape the trees and remove any diseased or damaged limbs. • Understory Management: Manage understory vegetation annually in late winter or early spring to maintain open ground. This includes removing invasive species and promoting native understory plants that support wildlife. • Inspection to be carried out by a suitable, qualified Arboriculturist registered with the Arboricultural Association at year 1 and 5. For mature trees within higher risk areas, such as footpaths or roads, this inspection is required every 2 years. Any tree works noted by the arboriculturist should be undertaken as soon as possible, such as the removal of dangerous trees
Hedgerows (Retained)	**Retained hedgerows** The Site boundaries are formed by outgrown hedgerows, around 3-4 m in height. These are proposed to be retained, except for a section to be removed to allow vehicular access.	**Retained hedgerows** N/A	**Retained hedgerows** • Existing hedgerows will be monitored for any sign of defects or poor health, annually or after severe weather. Any signs of ill health or damage will be noted, with remedial action when required. • Hedgerows will be managed by a cut every three years within January to February. • Dead wood should be kept on site, when possible, to form log piles within thicket areas, to create habitat for saprophytic organisms and hibernating fauna.
Hedgerows (Proposed)	**Proposed hedgerows** Native hedgerow planting is proposed to replace the section of removed hedgerow. Additional hedgerow planting is also proposed in other areas of the development.	**Proposed hedgerows** • New planting to be conducted into well-prepared ground and protected by rabbit guards. • Initial care of shrub plants is the same as that outlined within the proposed tree creation methods above.	**Proposed hedgerows** • Weed control to continue during establishment of new hedgerows. • Pruning, clipping, and training of native hedges should be carried out in September annually, to avoid disturbance to birds during nesting season. • Management should aim to produce a species-rich, dense hedge, of which is semi-natural and provides suitable habitat for breeding birds, bat and herptiles. • Leading stems and other top growth is to be allowed to grow for 3-4 years, and laterals should be trimmed back annually to an A-shaped structure to encourage, dense bushy growth. • All arisings from hedge cutting should be composted or used to create brash piles for reptiles and other fauna. • Hedgerows should be managed as part of adjacent thicket/woodland areas i.e. they should form one singular field boundary and maintaining them separately is avoided. • Unmown Buffer Strip: A buffer strip of 1-2 meters will be left unmown around the base of hedgerows to promote biodiversity by providing habitat for

Habitat Type	Proposed Plans	Creation Methods (where applicable)	Management Methods
			wildflowers, invertebrates, and other wildlife. Unmown areas support beneficial insects, pollinators, and small mammals, and help to protect the root zone of the hedgerow from disturbance. Research indicates that buffer strips can increase species richness and ecosystem services around field boundaries (Natural England, 2012). • Occasional Mowing for Management: Occasional mowing may be carried out, but only as necessary to prevent scrub encroachment and the establishment of undesirable species. To manage this balance: • Selective cutting rather than frequent mowing should be applied to control any regrowth or scrub development. The goal is to maintain the buffer strip as a grassland habitat, which can tolerate light management but should not be over-mown. Studies show that over-mowing can reduce biodiversity, while periodic cutting promotes greater species diversity (Defra, 2019). • For dealing with regeneration or sucker growth (such as bramble or scrub), the use of brush cutters or hand tools is more appropriate than a traditional mower. Mowers may struggle with tougher vegetation, while brush cutters can effectively manage woody growth. This method is supported by conservation guidelines, which advocate the use of hand tools for managing areas near sensitive habitats (RSPB, 2015). • Management Strategy: Instead of regular mowing, a site-specific management plan should be in place. The plan would involve periodic checks, and only targeted interventions should be carried out where scrub growth is problematic. Light cutting or strimming once or twice a year—particularly after flowering to support pollinators—can maintain the grassland nature of the buffer without harming biodiversity.
Wildflower meadows	Areas of wildflowers are proposed alongside the retained and proposed hedgerow features in the north-west of the Site, bordering the new grassland/scrub mosaic area.	• Initial sowing of seeds should take place from mid-March to late-April or late-August to mid-October. • Seeding of specified mixes are to be undertaken onto pre-pared seed beds in accordance with the planting specification. • Extra care should be taken to ensure seed beds are free of weeds through continued cultivation, with the aim of creating a ‘stale seed’ bed prior to seeding.	• No nutrient improvement to the existing soil should be undertaken prior to sowing or during management where feasible. The topsoil and subsoil should be mixed through deep ploughing to reduce fertility. This method is recommended to enhance wildflower diversity, as nutrient-poor soils allow slower-growing, native species to compete with more aggressive species (Plantlife, 2021). • Year 1 – After establishment, once the sward has reached 100 mm, it should be maintained at this height between April and October through regular cuts at least monthly for the first growing season. This helps to control weed growth and allows slower-growing perennial wildflowers to establish without being outcompeted by aggressive annuals (Natural England, 2018).

Habitat Type	Proposed Plans	Creation Methods (where applicable)	Management Methods
			• Year 2 – Regular cutting to maintain grass height of approximately 100 mm from April to May. Beyond May, the sward should be left to grow taller to encourage wildflower growth, with two further cuts in late July and September, both down to 100 mm. This staggered approach allows wildflowers to bloom and seed before being cut, which is essential for their long-term establishment (Plantlife, 2021). • Year 3 onwards – A standard hay meadow cutting regime will be implemented, with grassland cut no lower than 200 mm in July and September. This regime mimics traditional hay meadow management, which supports greater biodiversity and provides sufficient time for wildflowers to set seed (Plantlife, 2021; Wildlife Trusts, 2020). • All arisings from grassland cutting can be left within the area as habitat piles. Arisings, when left in designated piles, provide shelter for invertebrates and small mammals, enhancing biodiversity (RSPB, 2016). • The wildflower areas should be hand-weeded for any perennial weeds such as docks, nettles, ragwort, and non-native species like yellow archangel. Hand weeding is preferred over chemical treatments to protect the sensitive wildflower species and reduce the risk of damaging non-target plants (Buglife, 2021).

8. LONG TERM MAINTENANCE AND MONITORING

8.1 Maintenance and Monitoring

8.1.1 Following the completion of the Proposed Development, a programme of monitoring will be undertaken.

8.1.2 Habitat creation, habitat enhancement and wildlife feature installation will be undertaken in the first appropriate season following the receipt of planning permission. This will be no later than within 6 months of the development commencing. Habitat creation in areas cleared during the construction phase will be completed within 6 months of completion of development activities.

8.1.3 Management will continue for 30 years.

8.1.4 Monitoring and reporting will be completed on year 1, 2, 5, 10, 20 and 30 to assess the success of habitat creation/management meeting the set objectives. This will also include biodiversity reconciliation calculations at each stage (where required) to ensure the development achieves biodiversity net gain and delivers appropriate long-term habitat management on Site.

8.1.5 An annual programme outlining the key monitoring measures is detailed within Table 8.1 below. This should be referred to alongside additional general management measures outlined in Table 7.1. The monitoring will aim to assess progress to the required habitat type and condition set out in the Biodiversity Net Gain Plan (ref BMD.21.0069.RPE.IA.803.-.Biodiversity Net Gain Plan 2023)

8.1.6 The EMP will be subject to periodic review (every 5 years) over the 30-year period to ensure it remains fit for purpose. Where necessary, the EMP will be altered to ensure objectives for each habitat are met.

Landscape Monitoring

8.1.7 Annual checks of the planted areas should occur to confirm overall condition of the planted habitats. The check should be made between May and August as identification of many plants is easier at this time and should be completed by an individual able to identify plant species. Checks will be assessing condition of soft landscape areas against their target objectives which is set out in Section 7.

8.1.8 The annual check should also include an inspection of waterbodies to confirm their condition, including criteria detailed in Table 7.1, which include vegetation coverage and presence of invasive species.

8.1.9 Where appropriate maintenance will be adjusted to ensure habitat types and wildlife installations reach target objectives and condition.

Species Monitoring

8.1.10 Monitoring for species features will be included in the above habitat reporting schedules and will include:

- Bird boxes will be monitored (from ground level) for usage by the target, or other species during the peak breeding season (April – May). If no uptake is recorded after three years,

new boxes and locations shall be considered. The advice of a suitably qualified ecologist will be sought for this.

- Bat boxes will be monitored on at least one occasion in the first five years post-completion, and an inspection of the bat boxes will be undertaken by a Natural England (NE) licensed ecologist to record evidence of use by bats and advise on any necessary repairs to be carried out. The inspection will occur between September and October as to avoid the hibernation and maternity seasons. If a box has not been used for several years in succession, the installation of new alternative boxes (non-integral) shall be considered following the advice of a suitably qualified ecologist.
- Habitat/brash piles and invertebrate features will be monitored on a 5-year interval and replenished with materials/arisings from wider estate management works as required. Brash piles and grass heaps may be replenished every 1-2 months during the active season.

8.1.11 Inspections should also incorporate a general condition check and ensure repairs are administered where applicable.

8.1.12 The habitats on-site will be regularly assessed through walkover surveys according to the monitoring frequencies listed in Table 8.1. While the condition criteria are summarized below, detailed specifications can be found in the Statutory Biodiversity Metric condition assessments.

8.1.13 The habitats and their conditions, as outlined in the Biodiversity Net Gain Plan (ref BMD.21.0069.RPE.IA.803.-.Biodiversity Net Gain Plan 2023), will be monitored until they reach their target condition, as stated in Table 8.1. During initial years, habitats may not meet condition criteria due to establishment needs; however, inspections will identify necessary adjustments. Once target condition is achieved, monitoring will continue to ensure maintenance, with remedial works undertaken as needed by a qualified ecologist.

Table 8.1 Habitat Creation and Condition Monitoring for Each Habitat Type

Habitat Type	Time to Target Condition	Condition Criteria	Monitoring Frequency
Woodland	5-30 years	- Three age-classes of trees present - No significant browsing damage - No invasive species - Five or more native tree/shrub species - >80% canopy and understory native - 10-20% temporary open space - All three regeneration classes present - Tree mortality ≤10%, no pests/diseases - Recognisable NVC plant community - Three or more stories across survey plots - 50% of plots have deadwood<- No nutrient enrichment or damaged ground evident - Maintained grassland rides throughout woodland, approximately 2 m wide.	Year 5 after establishment, Year 10, Year 20 and Year 30.
Hedgerow	2-20 years	- >5 woody species per segment - <6m gaps - Includes trees per 50m (where relevant for hedgerow with trees)	Year 5 year after establishment, Year 10, Year 20 and Year 30.

Habitat Type	Time to Target Condition	Condition Criteria	Monitoring Frequency
		- Gap between ground and canopy base <0.5m for >90% of length - Gaps <10% of length, no gaps >5m - >1m width of undisturbed ground with perennial vegetation for >90% of length - <20% of ground area dominated by nutrient enrichment plants - >90% free of invasive non-native species - >90% free of damage from human activities	
Scrub	3-15 years	- The parcel represents a good example of its habitat type, with the appearance and composition of the vegetation closely matching its UKHab description (where in its natural range) - At least 80% of scrub is native - There are at least three native woody species - No single species comprises more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* (only in its restricted native range), or box *Buxus sempervirens*, which can be up to 100% cover) - Seedlings, saplings, young shrubs, and mature (or ancient or veteran) shrubs are all present - There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA) and species indicative of suboptimal condition make up less than 5% of ground cover - The scrub has a well-developed edge with scattered scrub and tall grassland and/or forbs present between the scrub and adjacent habitat. - There are clearings, glades, or rides present within the scrub, providing sheltered edges	Year 3 after establishment then Year 5, Year 10, Year 20 and Year 30.
Other Neutral Grassland	3-20 years	- There are 6-8 vascular plant species per m² present, including at least 2 forbs - Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed - Any scrub present accounts for less than 20% of the total grassland area - Physical damage is evident in less than 5% of the total grassland area - Cover of bare ground is between 1% and 10% - Cover of bracken *Pteridium aquilinum* is less than 20% - There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA)	Year 3 after establishment then Year 5, Year 10, Year 20 and Year 30

8.2 Responsible Organisations

8.2.1 West London Composting Ltd. shall be responsible for managing the landscape and ecology matters around the Site and their land. This shall be carried out under the expert guidance of BMD Ecology.

8.2.2 Funding for the upkeep and implementation of the EMP will be provided by West London Composting Ltd. as part of its grounds maintenance programme.

8.3 Remedial measures

8.3.1 The monitoring programme may identify issues which require remedial measures and alterations to the management prescriptions detailed in this document.

8.3.2 Remedial measures will be subject to a review by an appropriately qualified individual to confirm management prescriptions remain appropriate.

9. GLOSSARY

9.1 Scientific Terms and Acronyms

BAP Biodiversity Action Plan. Applicable across the UK.

CIEEM Chartered Institute of Ecology and Environmental Management, the professional organisation and provider of professional codes of conduct for ecological consultancy.

LBAP Local Biodiversity Action Plan.

Level of protection – "EU" Protected under the Conservation of Habitats and Species Regulations (2017). **"UK"**: Protected under the Wildlife and Countryside Act 1981 (as amended) or other domestic legalisation, e.g. Badgers Act 1992.

LNR Local Nature Reserve

LWS Local Wildlife Site. Non-statutory designation.

Non-native invasive species For the purposes of this report: species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Widely naturalised species, such as grey squirrel, are excluded.

Notable species A species which is listed as a UK Priority Species, carries an unfavourable conservation status (e.g. scarce, rare, threatened, Red-listed), is invasive or is otherwise worthy of note from an ecological perspective.

Protected species A species which is protected under specific UK or European legislation, including Habitats Directive, Wildlife and Countryside Act.

S41 Habitat / Species See UK Priority Habitat / species.

SSSI Site of Special Scientific Interest. Statutory designation of biological or geological importance.

UK Priority Habitat / species A habitat or species identified as a priority for conservation in accordance with Section 41 of the Natural Environment and Rural Communities Act (2006). Section 40 of the Act places a duty on public authorities to have regard for the conservation objectives of these habitats / species

9.2 Scientific Names

9.2.1 Table 9.1 lists the species mentioned in this report.

Table 9.1 Scientific names of species mentioned within this report

English name	Scientific name
Amphibians	
Great crested newt	*Triturus cristatus*
Bats	
Common Pipistrelle	*Pipistrellus pipistrellus*
Daubentons Bat	*Myotis daubentonii*
Leislers	*Nyctalus leisleri*
Soprano Pipistrelle	*Pipistrellus pygmaeus*
Brown Long-eared Bat	*Plecotus auritus*
Birds	
Blue Tit	*Cyanistes caeruleus*
Great Tit	*Parus major*
House Sparrow	*Passer domesticus*
Starling	*Sturnus vulgaris*
Mammals (excl. bats)	
Badger	*Meles meles*
Hedgehog	*Erinaceus europaeus*
Deer	*Cervidae*
Rabbit	*Oryctolagus cuniculus*
Plants	
Blackthorn	*Prunus spinosa*
Box	*Buxus sempervirens*
Bracken	*Pteridium aquilinum*
Dock sp.	*Rumex sp.*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellana*
Nettle	*Urtica sp.*
Ragwort	*Senecio jacobaea*
Yellow archangel	*Lamium galeobdolon subsp. argentatum*

10. REFERENCES & BIBLIOGRAPHY

BMD (2022). Preliminary Ecological Appraisal: Harefield Composting Facility, Uxbridge. Bradley Murphy Design: BMD.21.0069.RPE/P1.801.-.Ecology.

BMD (2022a). Ecological Headlines: Harefield Composting Facility, Uxbridge: Additional Desk Study Information. Bradley Murphy Design: BMD.21.0069.RPE-TN.801.EcoHeadlines

BMD (2023a). Preliminary Ecological Appraisal: Harefield Composting Facility, Uxbridge. Bradley Murphy Design: BMD.21.0069.RPE/P1.802.-.Ecology.

BMD (2023b). Biodiversity Net Gain Assessment: Harefield Composting Facility, Uxbridge. Bradley Murphy Design: BMD.21.0069.RPE/IA.803.-.Biodiversity Net Gain Plan

BMD (2024). Harefield Composting Facility, Uxbridge: Ecological Verification Technical Note 2024. Bradley Murphy Design: BMD.21.0069.RPE.TN.806-.Ecology.

British Standards Institute (BSI) (2013). BS42020 - Biodiversity Code of Practice for Planning and Development. BSI, London.

CIEEM (2017). Guidelines on Ecological Report Writing (2nd edn). Winchester: CIEEM.

Collins, J. (ed) (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. (4th ed) Bat Conservation Trust. London

Defra. (2019). Agri-environment Schemes in England: Wildlife and Landscape Benefits.

Department for Environment, Food and Rural Affairs. (2024a). The Statutory Biodiversity Metric User Guide. July 2024.

Department for Environment, Food and Rural Affairs. (2024b). The Statutory biodiversity metric condition assessments. July 2024.

Environment Agency (2012). Working at Construction and Demolition Sites: PPG6 Pollution Prevention Guidelines (2nd edn). Bristol: Environment Agency.

European Union (2014). Prevention and management of the introduction and spread of invasive alien species (1143/2014).

Harris S, Cresswell P and Jefferies D (1989). Surveying Badgers. Mammal Society.

HM Government (1981). Wildlife and Countryside Act 1981 (as amended).

HM Government (1990). Environmental Protection Act, 1990.

HM Government (1992). Protection of Badgers Act, 1992.

HM Government (1996). Wild Mammals (Protection) Act, 1996.

HM Government (2000). Countryside and Rights of Way Act, 2000.

HM Government (2005). ODPM Circular 06/05 Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.

HM Government (2006). Natural Environment and Rural Communities Act, 2006.

HM Government (2017). Conservation of Habitats and Species Regulations, 2017, as amended.

HM Government (2021). The Environment Act 2021.

HM Government (2024). National Planning Policy Framework. Department for Communities and Local Government.

Maddock, A (ed.) (2008). UK Biodiversity Action Plan; Priority Habitat Descriptions (Updated Dec 2011).

Mitchell-Jones, A.J. & McLeish (2004). *Bat Workers' Manual*, 3rd edition, JNCC, Devon.

Natural England. (2012). The Importance of Hedgerows for Biodiversity.

The Bat Conservation Trust (2014). *The State of the UK's Bats 2014*.

RSPB. (2015). Hedgerow Management for Wildlife.

Scottish Natural Heritage (2003). Best Practice Guidance – Badger Surveys. Inverness Badger Survey 2003. Commissioned Report No. 096

APPENDICES

BMD.21.0069.DRE.905 Post-development Habitat Plan

Proposed extension boundary (72,011.4m²)

Post - Development Habitat Description

- Retained vegetation (1,730.2m²)
- Woodland creation (1,259.2m²)
- Newly created scrub (22,064.8m²)
- Landscape planting (1,711.0m²)
- Wildflower grassland (3,105.9m²)
- Building (884.8m²
- Hardstanding (41,255.5m²
- Hedgerow - retained (243.7m)
- Hedgerow - newly created (101.9m)

Rev	Description	
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Drawing Title
POST - DEVELOPMENT HABITAT PLAN : HAREFIELD EXTENSION

Drawn	Checked	Approved	Date
MP	LT	JW	06/01/25
Job No.	**Scale**	**Sheet Size**	**Revision**
21.0069	1:1,750	A3	-

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A. RELEVANT WILDLIFE POLICY AND LEGISLATION

A.1.1 Table A.1 provides a summary of wildlife legislation and policy of relevance to the development at the Site. Detailed descriptions of the legislation and national policy of relevance to ecology during the planning process are provided in a separate document produced by BMD which is available on request.

Table A.1 Overview of species/groups relevant to the current proposals and associated legislation/policy

Species / group	European	UK[1]	Priority Species / habitat2
Amphibians	Species-dependent	Species-dependent	Incl. common toad
Badger		✓	
Bats (all species)	✓	Full	Species dependent
Birds		Full	Species dependent, incl. red kite
Invasive species	✓	✓	Various
Invertebrates	Species-dependent	Species-dependent	Various
Mammals (general)		Species-dependent	Incl. hedgehog & brown hare
Plants	Species-dependent	Species-dependent	Various

Notes
[1] Principally the Wildlife and Countryside Act (Full = full protection; partial = partially protected). ✓= covered by other specific legislation.
[2] Includes over 900 species listed in accordance with Section 41 of the NERC Act (2006). Species known or most likely to utilise the Site are listed here.

A.1.2 Key planning policies/documents are:

- The Environment act (2021);
- Schedule 7a of the Town and Country Planning Act (1990);
- The National Planning Policy Framework (2024); and
- The Natural Environment and Rural Communities (NERC) Act (2006).

A.1.3 Table A.2 lists the specific legislation of relevance to species that may be impacted by the current works. The Countryside and Rights of Way Act 2000 strengthened the Wildlife and Countryside Act so has not been listed separately where a species is covered by the latter.

Table A.2 Relevant species legislation for the current works

Species / group	Legislation see notes													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Amphibians									✓	✓				
Badger	✓						✓							✓
Bats (all species)					✓		✓		✓	✓				✓
Birds (nesting)		✓	✓							✓				
Invasive species								✓			✓	✓	✓	
Hedgehog							✓			✓				✓
Plants										✓				
Reptiles						✓				✓				
Mammals - general														✓

Notes

1. Protection of Badgers Act 1992
2. Wildlife and Countryside Act, 1981 (as amended) – Part 1
3. Wildlife and Countryside Act, 1981 (as amended) – Schedule 1 (some species, none recorded within the Site)
4. Wildlife and Countryside Act, 1981 (as amended) – Schedule 5, Section 9
5. Wildlife and Countryside Act, 1981 (as amended) – Schedule 5, Section 9(4b, 4c) and (5)
6. Wildlife and Countryside Act, 1981 (as amended) – Schedule 5, Section 9(1, in respect of killing and injuring) and (5)
7. Wildlife and Countryside Act, 1981 (as amended) – Schedule 6, Section 11
8. Wildlife and Countryside Act, 1981 (as amended) – Schedule 9, Section 14
9. Conservation of Habitats and Species Regulations 2017 (as amended) – Schedule 2 (European protected species)
10. Natural England and Rural Communities Act (2006) – Section 40, various species listed in accordance with Section 41
11. Invasive Species regulations: EU Regulation (1143/2014) on invasive alien (non-native) species
12. Anti-social Behaviour, Crime and Policing Act 2014
13. Environmental Protection Act 1990
14. Wild Mammals (Protection) Act 1996

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