The Bungalow, New Years Green Lane, Harefield, South Buckinghamshire, UB9 6LX

Report for London Borough of Hillingdon

Landscape and Ecology Management Plan

14/08/2024

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1.0 Introduction

1.1 Background

1.1.1 Plowman Craven was instructed by London Borough of Hillingdon to undertake a Landscape and Ecology Management Plan (LEMP) for the proposed development at The Bungalow, New Years Green Lane, Harefield, South Buckinghamshire, UB9 6LX (the 'site').

1.1.2 The Site has been subject to the following ecological assessments of relevance to this report:

- A Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) (Plowman Craven 2023).
- Bat Emergence Surveys (Plowman Craven 2024).
- Reptile Presence/ Likely-Absence Surveys (Plowman Craven 2024).
- A Biodiversity Net Gain (BNG) Assessment (Plowman Craven 2024).

1.2 Development Proposal

1.2.1 The planning application pertaining to the site (Hillingdon Borough Council Reference: 29665/APP/2022/253) describes the development to comprise: *Demolition of existing bungalow, all stable structures and outbuildings. Erection of staff facilities, recycling stalls and recladding of the existing barn. Widening of the vehicular access, formation of link access to Civic Amenity site, installation of new boundary fence, gates and associated external works* (the 'proposed development). The Proposed Landscape Plan, which shows the proposed development, is provided in **Appendix 1**.

1.3 Site Context

1.3.1 The site is located at National Grid Reference TQ 06228 88175 and has an area of approximately 0.601ha. The site comprises an area of derelict land which includes disused buildings, hedgerows, lines of trees, other neutral grassland, dense scrub, and hardstanding colonised with ephemeral/ tall ruderal vegetation. The site is located on a semi-rural position north of Uxbridge and is enclosed by New Years Green Lane to the south, and open, unmanaged grassland fields on all other aspects. A site location plan is provided in **Appendix 2**.

1.4 Scope of this Report

1.4.1 Following the submission of planning application 29665/APP/2022/253, proposals were conditionally approved. Of relevance to this report, planning condition 5 sates:

"No development (including demolition and site clearance) shall take place until the following details have been submitted to and approved by the Local Planning Authority:

a. A Dusk Emergence & Dawn Re-entry Bat Survey including details of any ecological mitigation and habitat enhancements and a site plan showing their location;

b. In the event that the Dusk Emergence & Dawn Re-entry Bat Survey discovers any bat roosts, a copy of a European Protected Species Mitigation Licence (EPSML) (under the 2010 Regulations) issued by Natural England pursuant to Regulation 53 of The Conservation of Habitats and Species Regulations 2017 (as amended) with full details of mitigation requirements.

c. A Construction Ecological Management Plan (CEMP); and

d. A Landscape and Ecology Management Plan (LEMP).

Thereafter, the development shall be implemented only in accordance with the recommendations detailed in the approved Preliminary Ecological Appraisal and Preliminary Roost Assessment, v1.0, Plowman Craven, dated October 2023, and the approved details."

1.4.2 The aims this LEMP are to provide the definitive ecological mitigation and enhancement prescriptions to ensure ecological receptors identified during previous ecological assessment are suitably protected in accordance with the development and opportunities remain at the site for protected species during the operational phase. Furthermore, the LEMP provides a habitat creation and management plan to ensure the objectives of the associated BNG are secured. This LEMP therefore aims to provide detail in support of points C and D of planning condition 5.

2.0 Ecological Baseline Conditions Relevant to this Report

The baseline ecological conditions of relevance to this report were determined as a result of the previous ecological assessments undertaken at the site, which are detailed within the PEA/ PRA, Bat Emergence Survey Report, Reptile Survey Report, and BNG Assessment.

2.1 Habitats Recorded on Site and Identified Ecological Receptors

2.1.1 The site comprises an area of derelict land which includes disused buildings, hedgerows, lines of trees, other neutral grassland, dense scrub, and hardstanding colonised with ephemeral/ tall ruderal vegetation. Given the type and extent of habitats recorded and the assessed connectivity between the site and the wider landscape, the site was assessed to provide opportunities for the following protected and/ or notable species:

- Amphibians
- Badgers.
- Bats.
- Barn Owls.
- Common species of nesting Birds.
- Hedgehogs.
- Reptiles.

2.1.2 The site is not considered suitable to support any other protected and/ notable species. For a detailed site appraisal, please refer to the PEA/ PRA, Bat Emergence Survey Report, and Reptile Survey Report. Results of previous ecological assessments are outlined and considered where necessary.

BNG and Proposed Habitat Creation

2.1.3 Habitat coverage anticipated post-development is anticipated to comprise the below. The post-development habitat plan is provided in **Appendix 3**.

- **On-site - Urban:** Development land; sealed surface – 0.209ha created - Target condition n/a.

- **On-site - Urban:** Artificial unvegetated, unsealed surface – 0.091ha created - Target condition n/a.
- **On-site - Grassland:** Other Neutral grassland – 0.036ha created - Good condition.
- **On-site - Grassland:** Other Neutral grassland – 0.147ha enhanced - Good condition.
- **On-site – Hedgerow:** Species-rich native hedgerow – 0.11km created – Good condition.
- **On-site – Hedgerow:** Species-rich native hedgerow with trees – 0.194km created – Good condition.
- **Off-site – Heathland and shrub:** Mixed scrub – 0.1ha created – Good condition.
- **Off-site - On-site - Grassland:** Other Neutral grassland – 0.359ha enhanced - Good condition.
- **Off-site - Individual trees:** Rural trees – 0.0611ha (15no. small) created - Moderate condition.

2.2 Scope for Mitigation, Enhancement, and Management

Mitigation

2.2.1 Although the site is not assessed to represent a signficant ecological resource in the context of the wider landscape and no direct impacts to identified ecological receptors are anticipated, the presence of amphibians, badgers, bats, barn owls, common species of nesting birds, hedgehogs, and reptiles for transient periods during the construction phase cannot be discounted. Furthermore, disturbance during the operational phase associated with artificial lighting could deter species from utilising on site habitats. As such, mitigation is considered necessary to prevent excessive indirect disturbance to these species groups during the construction and operational phase.

Species-Specific Enhancement

2.2.2 Habitat removal proposed to facilitate the development is anticipated to have a short-term negative impact on ecological opportunities at the site during the construction phase. However, there is good scope to compensate for the temporary reduction in ecological opportunities and further enhance the site during the operational phase through the provision of new habitats and species-specific enhancements targeting those species anticipated to

have continued connectivity to the site. Continued connectivity will be maintained post development for amphibians, badgers, bats, barn owls, common species of nesting birds, hedgehogs, and reptiles and thus species-specific enhancements targeting these species groups is considered to have viable chances of occupancy and represent viable gains to biodiversity.

Management

2.2.3 Appropriate management of the proposed species-specific enhancement prescriptions and proposed habitat creation are required to ensure the effective installation and long-term success of compensatory habitat creation and enhancement of ecological opportunities at the site. Management for species-specific provisions will be limited to prevent unnecessary disturbance and subsequent absence of occupation, whereby remediation of any issues will be the focus. Specific management prescriptions for newly created and enhanced habitats are required to cover a 30-year management term to ensure habitats achieve their target habitat classification and condition to fulfil BNG objectives.

3.0 Landscape and Ecological Management Plan

Mitigation

3.1.1 Mitigation prescriptions to reduce adverse impacts to ecological receptors identified through previous ecological assessment are detailed in **Table 1** below.

Table 1: Mitigation prescriptions

Mitigation	Specification
Persons Responsible and Lines of Communication	A Development Biodiversity Champion will be selected for the construction phase of the development. The Development Biodiversity Champion will be someone with significant influence during construction, such as the contract or project manager. The Development Biodiversity Champion is responsible for ensuring all actions outlined in this LEMP are implemented. Any queries with regards to the mitigation, enhancement, and management prescriptions should be addressed to the project ecologist and communication should be retained between the Development Biodiversity Champion and project ecologist throughout the project. It is recommended that the Development Biodiversity Champion informs the project ecologist of the commencement of enhancement installation works and provides updates where necessary. Once the ecological enhancements have been installed, a Post-Development Biodiversity Champion will be allocated who has influence on site once the development is complete, such as a long-term maintenance contractor. The Post-Development Biodiversity Champion will be responsible for ensuring all recommended management is undertaken and any associated remedial measures are completed where necessary.
Post-Development Site Visits	Three post-development site visits by a Suitably Qualified Ecologist (SQE) will be undertaken to confirm the successful installation and establishment of soft landscaping and species-specific enhancements after year 1, 2, and 5 following development occupation. A report will be produced by the SQE detailing the results of each site visit including photographs and any remediation requirements. Where remediation is necessary, additional evidence may need to be provided to ensure remediation is applied effectively. Once the SQE confirms that the biodiversity enhancements have been installed correctly following the year 5 inspection, no further site visits by an SQE will be necessary. The Post-Development Biodiversity Champion will then be responsible for correctly managing ecological features at the site in accordance with this LEMP alongside identifying and implementing remediation measures as part of the ongoing management of the site.
Legal Responsibility	It is expected that compliance with this LEMP will be legally secured through a Section (S) 106 agreement. As part of this legal agreement, habitat creation and management detailed within this LEMP will need to be retained and appropriately managed for the entire 30-year term to meet legislative objectives outlined in the Environment Act (2021). Should any future development at the site be proposed that will impact habitat management subject to the S106 agreement, this will need to be considered and suitably compensated for in accordance with future proposals.
Protection of Retained Hedgerows and Trees	All retained hedgerows and trees will be protected in accordance with BS 5837:2012 - "Trees in relation to design, demolition and construction – Recommendations". An Arboricultural Impacts Assessment (AIA) has been completed for the site (Trevor Heaps Arboricultural Consultancy Ltd 2023), which details the definitive mitigation that will be applied to protect retained hedgerows and trees in accordance with the proposed development. The AIA has been completed in compliance with BS 5837:2012 and thus will be effective from an ecological perspective. This LEMP presumes full compliance with the AIA.
Precautionary methods of working – Amphibians and reptiles (herptiles)	***Overview*** A likely absence of reptiles was concluded as a result of the reptile presence/ likely absence survey. However, there remains a low risk that reptiles may colonise the site during the time elapsed between the reptile survey effort and development activity. Furthermore, ponds are located within the wider landscape

with connectivity to the site and there is an associated low risk of impacts to amphibians including great crested newts (GCN) during their terrestrial phase.

Whilst the site is not assessed to provide signficant opportunities for herptiles in the context of the wider landscape, the site contains habitats that provide optimal terrestrial opportunities that will be subject to direct impacts as a result of the development including areas of other neutral grassland, tall ruderal vegetation, and bramble scrub. Without mitigation, there is potential for herptiles to be injured or killed during site clearance works.

Ecological Clerk of Works

An SQE who holds a Natural England GCN Licence (CL08 or CL09 licence type) or who is appropriately accredited will be present to act as an ecological clerk of works (ECoW) during the clearance of all habitats of potential value to herptiles. The ECoW will be present to supervise site clearance works until the ECoW is satisfied that the pre-requisite mitigation prescriptions detailed below have been completed effectively and the risk to herptiles has been reduced to an acceptable level.

Timing of Works

Site preparation and clearance works must commence outside of the hibernation period for herptiles, which is typically between November and February inclusive. Herptiles are mostly torpid during this timeframe and are thus most vulnerable to injury or death. Undertaking site clearance works during their active period between March and September will allow individuals to disperse unperturbed to adjacent retained habitats if disturbed. Clearance works must not be undertaken during temperatures below 8ºC when herptiles may be torpid or above 18ºC when herptiles may enter aestivation.

Toolbox Talk

The ECoW will provide a toolbox talk to contractors immediately prior to site preparation and clearance works to highlight the potential presence of herptiles, outline indicators of their presence, and to inform of protocol if an herptile is found.

Destructive Searches of Refugia

Features that provide refuge value to herptiles such as log and brash piles and alternative features associated with the derelict nature of the site such as rubble piles, dislodged paving slabs, plant pots, compost heaps, and timber decking will be subject to sensitive removal. The ECoW will survey the development area to be impacted for any features suitable for refuge prior to any site preparation and clearance works, whereby any suitable features will be carefully dismantled by hand by the ECoW. Excess materials can be used to create new hibernacula, the specification of which is detailed below in **Table 2**.

Pre-Development Vegetation Clearance

Following the removal of refugia by the ECoW, sensitive vegetation clearance can then be applied where required. Sensitive vegetation removal will comprise a phased cutting method in addition to cutting in systematic patterns. The phased cutting method will be undertaken in two stages; the first cut will remove all vegetation to approximately 200-300mm from ground level and the second cut will be to ground level/ bare ground. Herptiles are most likely to be present at or just below ground level; the phased technique allows any individuals present at this vegetation level to disperse. The systematic vegetation cutting must be applied to both cutting phases and comprises cutting systematically towards areas of retained habitat to encourage any individuals to retreat to retained habitat unharmed. This method also prevents the creation of habitat islands during the second cutting phase which has potential to trap individuals in isolated pockets of habitat and thus increase the potential for injury or death during works. A suitable systematic cutting technique is exemplified below on **Figure 1.**

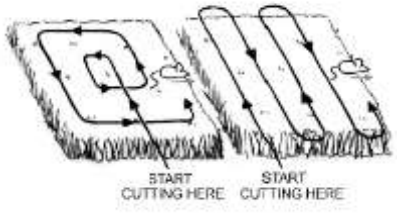


Figure 1: A schematic representation of vegetation cutting patterns as best to eliminate terrestrial opportunities for herptiles.

	Once the vegetation has been removed to ground level, trees and large shrubs can then be sensitively removed. The trees and large shrubs will retain subterranean root networks that provide refuge opportunities for herptiles. In order to sensitively remove the trees and shrubs, each plant will be cut leaving a short stump (c. 300mm) in preparation for root ball removal. The root balls will then be removed in a phased approach, whereby hand tools (where possible) or small plant machinery will be used to pull the root ball approximately 30cm out of the ground during each pulling phase followed by a break for the ECoW to check for the presence of amphibians and reptiles. This procedure will continue until the roots have been removed. Holes created will then be infilled and subject to trampling/ light rolling to prevent recolonisation. Once the sensitive vegetation and tree/ shrub clearance has been completed, the development area will be managed as bare ground or very short vegetation (<50mm) which is unsuitable to support herptiles for prolonged periods and is likely prevent individuals from colonising the development area during construction works. All vegetation arisings/ logs created from the cutting will be removed from the area; excess materials can be used to create new hibernacula, the specification of which is detailed below in **Table 2**. ***Displacement of Herptiles*** In the unlikely event that a GCN is found on site during site clearance works, all works must stop immediately, and the ecologist must advise on how best to lawfully progress the development. Should any common amphibians (such as common frog/ common toad) or reptiles be found during the works, these individuals will be carefully removed from the development area by the ECoW or Development Biodiversity Campion and placed within a section of retained hedgerow located away from the most impactful development activity. ***Removal of Debris and Storage of Building Materials*** Once the above mitigation prescriptions have been completed and the site have been suitably prepared for development, ground works and construction activity can commence in the absence of an ECoW. However, in order to prevent the creation of large debris piles resulting from development works that could in turn become suitable refuge hibernacula for herptiles, all debris will be stored over hardstanding or within a skip. Furthermore, the storage of building materials will also be located over hardstanding or stored on pallets to prevent providing temporary refuge value to herptiles within the development area. ***Prevent Trapping Herptiles During Works*** Deep excavations will be required during construction activity. Deep excavations could trap herptiles and cause injury or death. All excavations will therefore either be suitably sealed overnight, or a ramp will be installed to enable any trapped herptiles to escape such as a piece of rough timber that is long enough to reach the base of the excavation from ground level. Should any trapped herptiles be found, the Development Biodiversity Champion will contact the project ecologist for advice on how to proceed.
Precautionary methods of working – Birds	***Overview*** Most features of elevated value to breeding birds will be retained in accordance with the proposed development, predominantly comprising boundary hedgerows and associated trees. However, habitats of value to nesting birds will be removed to facilitate the development including bramble scrub, tall ruderal vegetation and buildings. Notably, barn owl pellets were recorded within B2 during the PEA site visit. Without mitigation, the removal of habitats of value to nesting birds has potential to destroy active bird nests and the demolition of building B2 could directly impacts a barn owl perching site. ***Barn Owl Inspection*** A pre-commencement inspection of building B2 will be undertaken no more than one month prior to re-cladding works to check on the current use of the building by barn owls. Whilst no nesting behaviour has been identified within this building to date, whereby behaviour is anticipated to represent perching only, the future presence of an active nest cannot be discounted. Should an active nest be recorded, the ecologist should advise on how to lawfully progress works to B2. Should no evidence of nesting be recorded, the nesting bird check detailed below will be considered suitable mitigation to protect barn owls during demolition. ***Nesting bird check*** The demolition of buildings and removal of bramble scrub and tall ruderal vegetation will be undertaken outside the core breeding bird season, which is typically between March and September inclusive. Where this timeframe cannot be avoided, buildings will be subject to a nesting bird check by an SQE no more

	than 24 hours prior to demolition/ clearance activity. Any active bird nests, their supporting vegetation/ structure, and an appropriate buffer (c. 5m) will need to be retained until the young have fledged and the nest can be considered inactive.
Precautionary Methods of Working – Terrestrial mammals	***Overview*** Evidence indicating use of the site by foraging and commuting badgers was recorded during the PEA site visit in the form of worn mammal pathways and a latrine. However, no badger setts were recorded on or within 30m of the site. Although no evidence indicating the presence of hedgehogs was recorded during the site survey, the site provides optimal refuge, foraging and commuting opportunities for hedgehogs and has good connectivity to the wider landscape for this species. As a result, the future presence of badgers and hedgehogs cannot be discounted. Mitigation will therefore be required to ensure no harm to these species occur during construction activity. ***Mitigation*** The following precautionary method will be adhered to during development activity: • A pre-commencement badger survey will be undertaken no more than one month prior to site preparation and clearance works to ensure no badger setts have been constructed during the time elapsed between the initial site survey and development works commencing. Should a badger sett be recorded the project ecologist will need to advise on how to lawfully progress the development. • Site clearance works will commence outside of the hibernation period for hedgehogs, which is typically between November and February inclusive. Where this timeframe cannot be achieved, all habitats that provide refuge value to hedgehogs will be subject to a pre-commencement inspection by an SQE to check for the presence of hedgehogs prior to removal. Any hibernating hedgehogs found will be carefully displaced by the SQE to an alternative suitable refuge site within retained hedgerows enclosing the wider site. • Deep excavations will be required during construction activity. Deep excavations could trap terrestrial mammals and cause injury or death. It is therefore recommended that all excavations will either be covered overnight, or a ramp will be installed to enable any trapped animals to escape such as a piece of rough timber. Should any trapped terrestrial mammals be found the project ecologist should be contacted for further advice. • Excessive artificial light spill will be avoided. Th wildlife sensitive lighting strategy detailed below is considered suitable to reduce adverse impacts to terrestrial mammals as a result of increased lighting. • Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations to prevent ingestion by species potentially present during development works.
Wildlife sensitive lighting strategy	**Overview** Evidence indicating use of the site by badgers and foraging and commuting bats was recorded during previous site surveys and the presence of hedgehogs cannot be discounted. These species are light sensitive and could be deterred from the site as a result of the development should they be subject to excessive artificial light disturbance. Mitigation is therefore required to minimise impacts of artificial light disturbance resulting from the proposed development. ***External Lighting During the Construction Phase*** Works will be completed during daylight hours only between May and September (inclusive). This will prevent indirect impacts occurring to nocturnal species on and adjacent to the site as a result of artificial lighting. Whilst it is acknowledged that some works may take place during periods of darkness between October and April (inclusive), this will be for very short periods shortly prior to dawn and after dusk when nocturnal species are entering hibernation/ periods of inactivity. As such, no signficant impacts associated with artificial lighting are anticipated at this time of year. ***External Lighting During the Operational Phase*** All external lighting will be installed in accordance with current guidance issued by the Bat Conservation Trust and Institute of Lighting Professionals: *Guidance Note 08/23: Bats and Artificial lighting at Night* (BCT & ILP 2023). External lighting will be installed in a way as to limit artificial light spill over habitats of value to protected and/ or notable species potentially using the site. Specifically, artificial lighting should be installed to illuminate car parking and pedestrian access areas only, whereby light installation is avoided

	within large areas of natural and semi-natural habitats. External lighting will be installed as to avoid excessive light spill over: • Retained boundary hedgerows and associated trees. • Newly landscaped areas within the north and south of the site that will be of particular value to protected and notable species during the operational phase. • The newly installed species-specific habitat prescriptions detailed in **Table 2.** The following lighting design prescriptions are considered suitable for the type and scale of the proposed development to minimise the impacts of artificial lighting on site on bats and other protected/ notable species. External lighting will be installed in accordance with the below design prescriptions: • **Reducing the operating time of lighting and levels of illuminance provided via:** Preventing the use of motion sensors where possible to allow lights to be turned off permanently whilst not in use. Where the use of motion sensors is desirable, light sensors should be set to over-run times no longer that 1 minute to prevent unnecessary light spill. • **Avoiding light spill via**: The use of directional lighting by using luminaires with rear shields and an upwards lighting ratio of zero. Use of waymarking inground lighting in favour of column street lights. • **Light type:** Use of warm white LED lamps only, whereby the Corrected Colour Temperature does not exceed 2700 Kelvin and a brightness of 500 lumens or less. Light sources should feature peak wavelengths higher than 550nm to avoid component light most disturbing to bats.

Enhancement

3.1.2 Species-specific enhancements targeting species with ongoing connectivity to the site as identified through previous ecological assessment are included in **Table 2** below and illustrated on the plan in **Appendix 4**.

Table 2: Enhancement.

Enhancement	Specification
Provision of Bat Boxes	Four surface mounted bat boxes will be installed onto the new buildings on site. The proposed locations are shown on the plan in **Appendix 4.** Details of the bat boxes proposed for the site are as follows: • The proposed bat boxes will be constructed of woodcrete/ woodstone. Boxes of this construction are known to require minimal maintenance and have a lifespan of 25 years plus. • 4No. Vivara Pro Low Profile Woodstone Bat Boxes will be installed (or similar), as shown in **Figure 2**. This bat box type is suitable to support a range of species including noctules *Nyctalus noctula* and soprano pipistrelles *Pipistrellus pygmaeus.* These species have been recorded using the site and represent Species of Principal Importance as listed on Schedule 41 of the NERC Act (see **Appendix 5**). • The bat boxes will be positioned 3-5m above ground level facing a south/ southwest elevation with a clear flight path to and from the entrance facing vegetated habitats. • The proposed bat boxes are designed to require no management or maintenance. Furthermore, preventing physical disturbance of bat boxes will increase the chances of occupation by roosting bats. However, it is recommended that the bat boxes are inspected annually by the Post-Development Biodiversity Champion for the first five years outside of the typical active season for bats (May to September inclusive) following installation. Bat boxes must be replaced if they are damaged, removed, or have fallen from their recommended location.

Figure 2: Vivara Pro Low Profile Woodstone Bat Box (image credit: https://www.nhbs.com/equipment?qtview=194583)

Provision of Bird Boxes

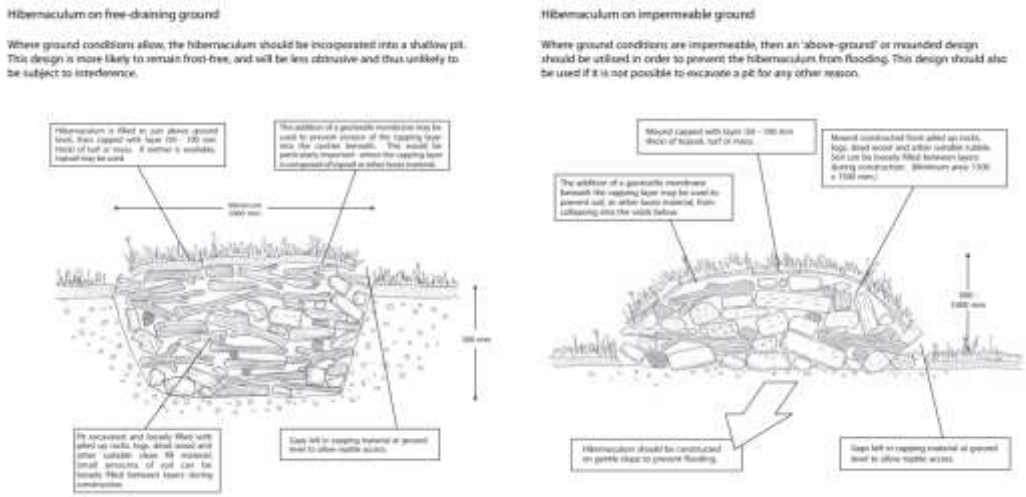
General

Four bird boxes will be installed onto the buildings on site; the bird boxes can be integrated into fabric of the building or surface mounted. The proposed locations are shown on the plan in **Appendix 4.** Details of the bird boxes proposed for the site are as follows:

- The recommended bird boxes will be constructed of woodcrete/ woodstone. Boxes of this construction are known to have minimal maintenance and have a lifespan of 25 years plus.
- 4No. Vivara Pro WoodStone House Sparrow Nest Boxes will be installed (or similar), as shown in **Figure 3.** The bird box type is designed to provide enhanced nesting opportunities for house sparrow *Passer domesticus.* House sparrows are tolerant of urban conditions and represent Species of Principal Importance as listed on Schedule 41 of the NERC Act (see **Appendix 5**).
- The bird boxes will be positioned at least 3m above ground level facing a north elevation where they will be sheltered from prevailing wind, rain and strong sunlight.

Figure 3: Vivara Pro WoodStone House Sparrow Nest Box Nest Box (image credit arkwildlife.co.uk)

	Barn owls Two barn owl boxes will be installed onto retained mature trees within the hedgerow enclosing the east boundary of the site, the approximate location of which are shown on the plan in **Appendix 4**. The definitive location will be selected by an SQE on site on the day of installation. Details of the proposed barn own box to be installed is as follows: • 2no. NHBS Barn Owl Nest Box (or similar alternative) will be installed, as shown in **Figure 4.** This box type has been designed to provide optimal nesting opportunities for barn owls. • The barn owl boxes will be positioned 3-5m above ground level facing a northern aspect where they will be sheltered from prevailing wind, rain and strong sunlight.  **Figure 4**: NHBS Barn Owl Nest Box. (Photo credit: https://www.nhbs.com/barn-owl-nest-box). ***Management***: The proposed bird/ barn owl boxes are designed to require no management or maintenance. Furthermore, preventing physical disturbance of bird boxes will increase the chances of occupation by nesting birds. However, it is recommended that the bird boxes are inspected annually for the first five years outside of the typical nesting bird season (March to September inclusive) following installation. Bird boxes must be replaced if they are damaged, removed, or have fallen from their recommended location.
Hedgehogs	***Provision of hedgehog houses*** Four NHBS hedgehog houses will be installed within grassland across the site, the locations of which are shown on the plan in **Appendix 4**. A hedgehog house suitable for the site is shown in **Figure 5**. The proposed hedgehog house is designed to require no management or maintenance. Furthermore, preventing physical disturbance of the hedgehog house will increase the chances of occupation by hedgehogs. However, it is recommended that the hedgehogs houses are inspected annually for a 30-year management term by the Post-Development Biodiversity Champion outside of the typical active season for bats (May to September inclusive). Should the hedgehog houses be significantly damaged, they must be replaced.  **Figure 5**: The NHBS Hedgehog House (image credit https://www.nhbs.com/hedgehog-house).

	Retention of connectivity To ensure effective connectivity for hedgehogs between the site and habitats adjacent to the west, north, and east, any new boundary fencing will be fitted with hedgehog connectivity holes measuring a minimum of 13cm x 13cm at a minimum density of every 10m to ensure hedgehogs can travel freely between the site and wider landscape. Guidance on the construction of suitable hedgehog holes in fencing can be found here: https://www.wildlifetrusts.org/actions/how-create-hedgehog-hole.
Herptiles	***Provision of hibernacula*** Four hibernacula will be created above ground using natural materials such as logs collected from the site, stone, vegetation arisings, and earth to provide additional refugia opportunities for amphibians and reptiles post-development, the locations of which are shown on the plan in **Appendix 4.** A specification for the construction of the hibernacula is provided on **Figure 6** below. The hibernacula locations have been chosen to ensure they are south facing to maximise thermal uptake from the sun.  **Figure 6:** A schematic representation of a man-made hibernaculum.

Habitat Creation and Management

3.1.3 Best practice habitat creation and management over a 30-year term to ensure a BNG consistent with that reported within the BNG Assessment is provided in **Table 3** below.

Table 3: Habitat Creation and Management Prescriptions.

Habitat	Installation and Management
Urban Habitats	It is noted that developed land; sealed surface, artificial unvegetated, unsealed surface, and hardstanding are of negligible unit value and thus do not require specific installation and management prescriptions.
Hedgerows	***Overview*** It is proposed to retain 0.138km of species-rich native hedgerows in good condition and create 0.11km and 0.194km of species-rich native hedgerows and species-rich native hedgerows with trees respectively, also in good condition ***Objectives*** • To maintain the exisitng good condition of retained hedgerows in accordance with the Hedgerows Habitat Type Condition Sheet and BNG Assessment.

- To achieve a good condition for newly planted species-rich native hedgerows by passing condition criteria A1, A2, B1, B2, C1, C2 & D1 (as a minimum) in accordance with the Hedgerows Habitat Type Condition Sheet and BNG Assessment.
- To achieve a good condition for newly planted species-rich native hedgerows with trees by passing condition criteria A1, A2, B1, B2, C1, C2, D1, D2 & E2 (as a minimum) in accordance with the Hedgerows Habitat Type Condition Sheet and BNG Assessment.
- To create hedgerows that will provide pollinating, foraging, commuting, and refuge opportunities for protected and/ or notable species groups including badgers, hedgehogs, herptiles, invertebrates, bats, and birds.
- To undertake landscaping works in compliance with BS 4428:1989 – The Code of Practice for General Landscape Operation.

Creation Method:

- **Ground preparation**
  Prepare the ground by digging over a strip approximately 60-90cm (2-3ft) wide and one spit (or spade blade) deep. Soils that become waterlogged in winter may require a permanent drainage system. Alternatively, form the soil into a ridge about 15-20cm (6-8in) high and 50-70cm (20-28in) across to plant into.
- **Planting**
  Plants should be positioned set back from hardscaped boundaries to allow space for the hedgerow to develop and mature prior to requiring any significant management/ cutting back. Plant density should focus on achieving a hedgerow width >1m; as such, plants should be planted in a staggered double row approximately 45-60cm apart, where individual plants are planted 90cm apart within each row.
- **Timing**

  It is best to prepare the land during the summer ready for planting between November and March. Planting before the new year helps ensure better rooting and subsequent establishment including faster growth.

Management prescriptions covering a 30-year term:

Table 3.1: *Retained and newly created Hedgerow management prescriptions.*

Management	When	Rationale	BNG condition criteria compliance
At the end of each growing season all plant failures are to be 100% replaced	When required; checked annually in Autumn.	To maintain amenity and wildlife value.	B1, B2, E1
If required, provision of stakes and guards. Guards to be left on for a minimum of 5 years	N/A	Protect from damage	A1, A2, E1
Stakes should be checked and any broken or damaged stakes during this time would be removed (as above) and replaced with ties re-fixed	When required; checked annually in Autumn.	Maintain protection	D2, E1
Remove weeds	When required; checked twice annually in early spring and in Autumn.	Reduce competition for resources nutrients etc.by weeds	D1, E1
Application of bark mulch at a depth of 50 mm	Immediately after planting and then when required; checked annually in Autumn.	Reduce competition for resources nutrients etc.by weeds	D1
Do not apply chemical fertilisers	At all times.	The use of chemical fertilisers will encourage vigorous grasses and weeds to grow	C2
Apply a light dressing of well-	Annually in the winter	Note the overuse of	A1 & A2

	rotted manure		manure fertilisers will encourage vigorous grasses and weeds to grow.	
	Watering should be undertaken before and after planting out and as necessary for the continued thriving of all planting.	When required; provide more water during periods of draught and less water during times of prolonged rain.	Ensures plants do not dry out and subsequently fail.	A1, A2, B1, & B2
	Check and replace any plant failures once a year	For the first 5 years	To ensure no gaps form.	A1, A2, B1, & B2
	Once the hedgerow reaches an average height of 1.5m or above along the hedgerow length, this height or above must be retained.	To be checked annually once hedgerow reaches 1.5m in height.	To ensure the hedgerow is not maintained at a low level of worse value to biodiversity.	A1
	Once the hedgerow reaches an average width of 1.5m or above along the hedgerow length, this width or above must be retained.	To be checked annually once hedgerow reaches 1.5m in width.	To ensure the hedgerow is not maintained at a thin density of worse value to biodiversity.	A2
	A minimum 1m strip of natural vegetation will be maintained on either side of the hedgerow base.	At all times.	To maintain a valuable ground flora.	C1

Oher Neutral Grassland

Overview:

It is proposed to enhance 0.147ha of on-site and 0.359ha of off-site exisitng other neutral grassland from moderate to good condition and to create 0.036ha of other neutral grassland of good condition.

Objectives:

- To achieve a good condition for enhanced and newly created other neutral grassland by passing all condition criteria A, B, C, D, E, & F in accordance with the Grassland – Medium, High, and Very High distinctiveness Habitat Type Condition Sheet and BNG Assessment.
- To create grassland that will provide pollination, foraging, and commuting opportunities for protected and/ or notable species groups including badgers, herptiles, hedgehogs, invertebrates, bats, and birds.
- To undertake landscaping works in compliance with BS 4428:1989 – The Code of Practice for General Landscape Operation.

Creation Method:

- **Ground preparation**
  Existing grassland will be cut to a short sward no longer than 50mm in preparation for seeding. Areas for newly created grassland will be reduced to bare ground ready for seeding. Any resulting vegetation arisings will be removed from the sward and the creation of germination gaps will be undertaken, which will create an open substrate for seeding. Frequent openings within he sward exposing an area of approximately 10cm diameter every 0.5m^2 are recommended, and are best created through power-harrow or light disking.
- **Seeding**
  Seeding is best undertaken in Spring during April/ May. Oversewing will be utilised to diversify the existing sward. Seed rates of 5-10kg/ha are recommended. Seeds can be spread more evenly in combination with an inert, bulking material such as sawdust or silver sand. Light trampling by foot within each germination opening should be completed to help bed-in the seeds.
- **Recommended seed mix:**

  It is recommended that the Emorsgate EM10F 'Tussock Wildflower Mix' (or similar specification) is utilised. This seed mix includes 21no. wildflower species suitable for neutral soil conditions. Notably, the species mix includes yellow rattle which is known to suppress dominant grass species which will allow existing grasses and herbs within the seed bank to colonise whilst preventing dominance and thus increase species and structural diversity.

Management prescriptions covering a 30-year term:

Table 3.2: Other neutral grassland management prescriptions.

	Management	**When**	**Rationale**	**BNG condition criteria compliance**
	Cut grassland twice annually	Late March / early April and– late August/ early Sept	This ensures the meadow does not grow excessively long and become rank but allows wildflowers to set seed and invertebrates to breed. This will also allow a diverse sward of varying lengths to naturally occur in accordance with growth characteristics of each species. Cutting twice annually will also prevent encroachment of scrub and bracken.	A, B, C, D, E, F
	Cut grass as to provide a heterogeneous habitat structure aiming to maintain at least 20% of grass <7cm and 20% >7cm. As such, each cutting phase must cut 20% of the area to ground level, 60% of the area to 15cm, and the remainder to 30cm. These areas must be rotated each year to maintain a diverse sward.	Late March / early April and– late August/ early Sept	To retain a diverse sward whilst limiting impacts to protected species potentially present at ground level and ensuring the natural germination of seeds.	A, B
	Turn and dry the cut grass over 3-5 days before removing arisings off Site	Post cut	This allows the seeds to drop encouraging species diversity and invertebrates to relocate unharmed.	A, B, E, F.
	Do not apply chemical fertilisers	At all times.	The use of chemical fertilisers will encourage vigorous grasses and weeds to grow or cause large areas of bare ground due to inhospitable growing conditions,	E

Individual trees

Overview

It is proposed to create 0.0661ha (15no. small trees) in moderate condition.

Objectives

- To achieve a moderate condition for newly planted trees by passing condition criteria A, D, & F (as a minimum) in accordance with the Individual Trees Habitat Type Condition Sheet and BNG Assessment.
- To plant trees that will provide pollinating, foraging, and refuge opportunities for protected and/ or notable species groups including invertebrates, bats, and birds.
- To undertake landscaping works in compliance with BS 4428:1989 – The Code of Practice for General Landscape Operation.

Tree planting Creation Method

- **Ground preparation and planting**

  The locations for tree planting will be cleared and reduced to compacted permeable bare ground in preparation for planting. Planting substrate must comprise site won material with any deficiencies made up with imported topsoil compliant with BS 3883:2015. Each tree will be pit planted upright within the centre in accordance with BS 4428:1989, within a hole at last 500mm greater than the root system when fully spread and at a depth 250mm greater that the root system. Root balls will be soaked thoroughly in water and loosened to expose restricted roots before planting. The planted trees will then be backfilled ensuring there are no air pockets around roots or any roots protruding out of the ground.
- **Timing**

  The land will be prepared during the summer ready for planting between November and March. Planting trees before the new year helps ensure better rooting and subsequent establishment including faster growth during the first growing season.
- **Species**

All tree species will be native and sourced from a nearby supplier to ensure local provenance.

Management prescriptions covering a 30-year term:

Table 3.3: New tree planting management prescriptions.

Management	When	Rationale	BNG condition criteria compliance
Prepare panting area in summer, in preparation from autumn/ winter planting.	Year 1 – June/ July/ August	To ensure the ground is dry and workable.	n/a
Plant native trees only within prepped areas in Autumn, whereby the canopy over sails vegetation	Year 1 – September/ October/ November	To ensure trees take root and establish prior to the first growing phase the following spring.	A & F
Standard trees will be staked and tied using a 75mm diameter stake with the bark removed. The stakes will be long enough to allow for 600mm of the stake to be driven into each pit. Stakes will be fitted prior to tree planting to prevent root damage.	Year 1 – Immediately prior-to planting.	Protect roots from damage.	B & D
Ensure the steaks and ties are not restricting growth and are not damaged. Replace where necessary.	Year 2 onwards – Checked annually for the first 5 years.	Ensure growth isn't stunted.	B & D
Remove steaks and ties.	Year 5 in Spring – April/ May	Allow trees to grow unperturbed once established.	B & D
Removal of spent flowers to be removed through 'deadheading'	Years 1 – 5 - Twice annually, late spring and in the Autumn.	Allows trees to place more energy into re-growth.	B & D
At the end of each growing season all plant failures are to be 100% replaced	Year 2 onwards - Checked Annually for the 30-year term after each growing season in Autumn.	To ensure the success of planted trees.	B & D
Remove weeds	Year 2 onwards - Checked Annually for the 30-year term after each growing season in Autumn.	Reduce competition for resources nutrients etc.by weeds	B & D
Application of bark mulch at a depth of 50 mm	Year 2 onwards - Checked Annually for the 30-year term after each growing season in Autumn.	Reduce competition for resources nutrients etc.by weeds	B & D
Do not apply chemical fertilisers	At all times.	The use of chemical fertilisers will encourage vigorous grasses and weeds to grow	D
Watering should be undertaken before and after planting out and as necessary for the continued thriving of all planting.	Annually for the 30-year term when required following prolonged periods of draught.	Ensures plants do not dry out and subsequently fail.	B
Undertake any pruning requirements outside of the nesting bird season, which is	At all times.	Ensure no active bird nests are impacted by	E

between March and September inclusive. maintenance works.

Mixed scrub

Overview:

It is proposed to create 0.1ha of mixed scrub in good condition.

Objectives:

- To achieve a moderate condition for newly created mixed scrub by passing all condition criteria A, B, C, D, & E in accordance with the Scrub Habitat Type Condition Sheet and BNG Assessment.
- To plant native shrubs that will provide pollinating, foraging, and refuge opportunities for protected and/ or notable species groups including amphibians, bats, birds, hedgehogs, invertebrates, and reptiles.
- To undertake landscaping works in compliance with BS 4428:1989 – The Code of Practice for General Landscape Operation.

Creation Method

- **Ground preparation and planting**
  The locations for shrub planting will be cleared and reduced to compacted permeable bare ground in preparation for planting. Each new shrub will then be panted within a hole three times as wide as the supplied pot and of a similar depth. Root balls will be loosened to exposed restricted roots and oaked thoroughly in water before planting. The planted shrubs should then be backfilled ensuring there are no air pockets around roots or any roosts protruding out of the ground.
- **Timing**
  Planting will be undertaken between November and March. Planting shrubs before the new year helps ensure better rooting and subsequent establishment including faster growth during the first growing season the following Spring and Summer.
- **Plant Sourcing and Density**
  Plants must be sourced from a local supplier and be of local provenance. It is recommended that new shrubs are planted in dense groups of all proposed species at a density of 15 plants per 50m2.

Management prescriptions over a minimum 30-year term:

Table 3.4: *Mixed scrub management prescriptions.*

Management	When	Rationale	BNG condition criteria compliance - Scrub
Prepare panting area in summer, in preparation from autumn/ winter planting.	Year 1 – June/ July/ August	To ensure the ground is dry and workable.	A
Plant native shrubs only within prepped areas in Autumn.	Year 1 – September/ October/ November	To ensure shrubs take root and establish prior to the first growing phase the following spring.	A
Provision of rabbit spirals to be left on each shrub for a minimum of 5 years	Year 1 – September/ October/ November	Protect from damage	B & D
Rabbit spirals should be checked and any broken or damaged will be removed and replaced	When required; checked annually in Autumn.	Maintain protection	B & D
Rotational coppicing of the scrub, whereby a separate 20% section of the scrub is cut to ground level each year.	From year 5 - Annually in early Spring,	Too prevent a homogenous habitat structure and retain open glades.	B & E
At the end of each growing season all plant failures are to be 100% replaced	When required; checked annually in Autumn.	To maintain amenity and wildlife value.	A
Remove weeds	When required; checked twice annually in early spring and in Autumn.	Reduce competition for resources nutrients etc.by weeds	C

	Application of bark mulch at a depth of 50 mm	Immediately after planting and then when required; checked annually in Autumn.	Reduce competition for resources nutrients etc.by weeds	A & C
	Do not apply chemical fertilisers	At all times.	The use of chemical fertilisers will encourage vigorous grasses and weeds to grow	A
	Removal of spent flowers from perennial plants should be removed through 'deadheading'	Twice annually, late spring and in the Autumn.	Allows plants to place more energy into re-growth.	A
	Watering should be undertaken before and after planting out and as necessary for the continued thriving of all planting.	When required; provide more water during periods of draught and less water during times of prolonged rain.	Ensures plants do not dry out and subsequently fail.	A
	Check and replace any plant failures once a year	For the first 5 years	To ensure development of habitat type.	A

4.0 REFERENCES

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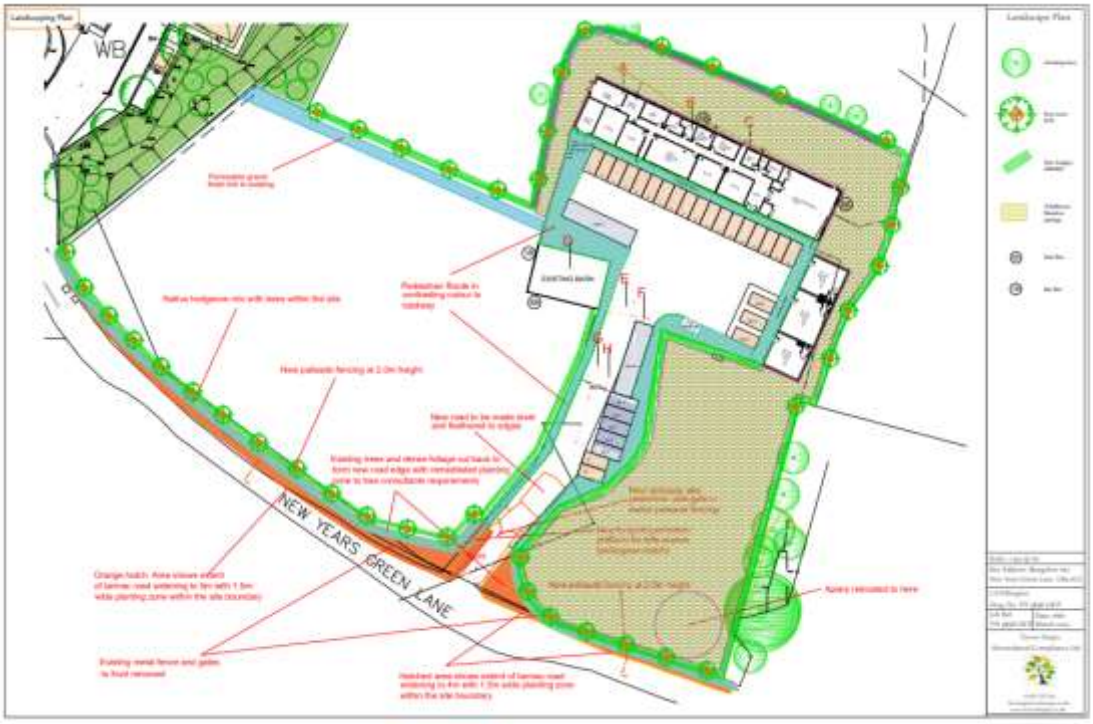
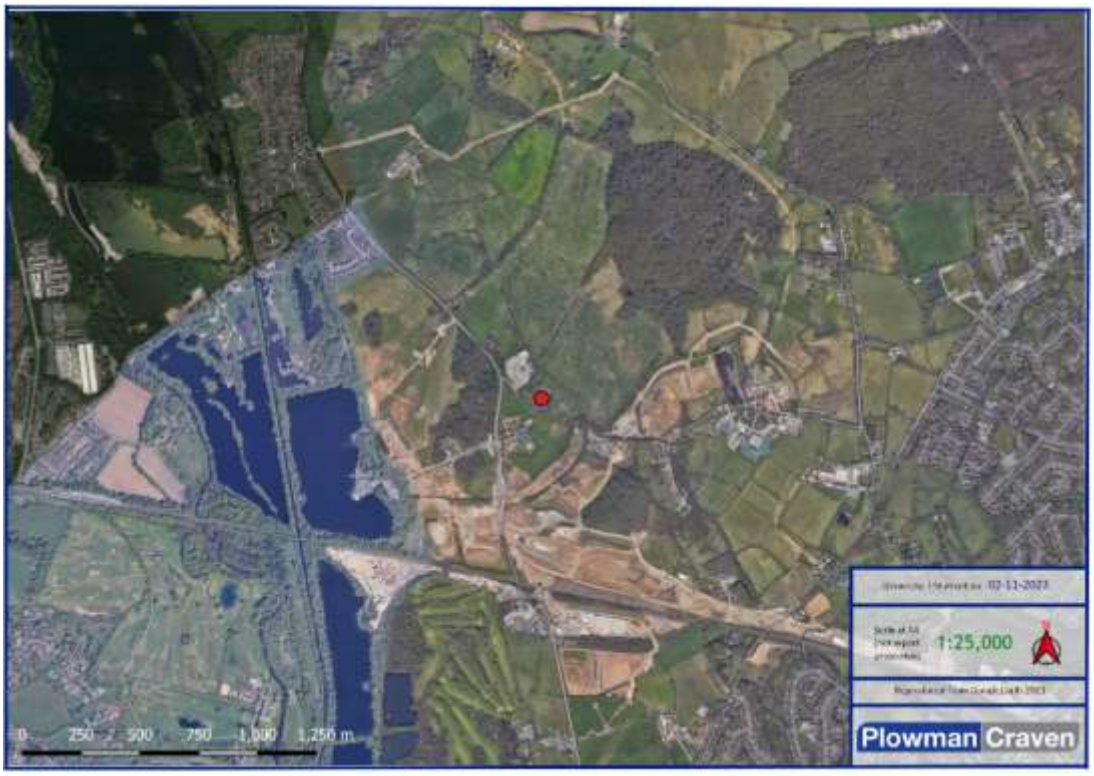
5.0 Appendices

5.1 Appendix 1 – Proposed Landscape Plan



5.2 Appendix 2 – Site Location Plan



5.3 Appendix 3 – Post Development Habitat Plan

5.4 Appendix 4 – Ecological Enhancement Plan

5.5 Appendix 5 – Legislation and Planning Policy

LEGAL PROTECTION

National and European Legislation Afforded to Habitats

International Statutory Designations

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are sites of European importance and are designated under the EC Habitats Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the Habitats Directive) and the EC Birds Directive 2009/147/EC on the conservation of wild birds respectively. Both form part of the wider Natura 2000 network across Europe.

Under the Habitats Directive the, Article 3 requires the establishment of a network of important conservation sites (SACs) across Europe in order to conserve the 189 habitats and 788 species (non- bird) identified in Annexes I and II of the Directive (as amended).

SPAs are classified under Article 2 of the EC Birds Directive both for rare bird species (as listed on Annex I) and for important migratory species.

SACs and SPAs up to 12 nautical miles (nm) from the coast are afforded protection in the UK under the Conservation of Habitats and Species Regulations 2010 which consolidate all amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994. In Scotland, the requirements of Habitats Directive are implemented through a combination of the 1994 and the 2010 (reserved matters) Regulations. The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended) provide a means for designating and protecting SACs in UK offshore waters (from 12-200 nm).

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention covers all aspects of wetland conservation and recognises the importance of wetland ecosystems in relation to global biodiversity conservation. The Convention refers to wetlands as “areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres” however they may also include riparian and coastal zones. Ramsar sites are statutorily protected under the Wildlife & Countryside Act 1981 (as amended) with further protection provided by the Countryside and Rights of Way (CRoW) Act 2000. Policy statements have been issued by the Government in England and Wales highlighting the special status of Ramsar sites. The Government in England and Wales has issued policy statements which ensure that Ramsar sites are afforded the same protection as areas designated under the EC Birds and Habitats Directives as part of the Natura 2000 network (e.g. SACs & SPAs).

National Statutory Designations

Sites of Special Scientific Interest (SSSI) are designated by nature conservation agencies in order to conserve key flora, fauna, geological or physio-geographical features within the UK. The original designations were under the National Parks and Access to the Countryside Act 1949 but SSSIs were then re-designated under the Wildlife & Countryside Act 1981 (as amended). As well as reinforcing other national designations (including National Nature Reserves), the system also provides statutory protection for terrestrial and coastal sites which are important within the European Natura 2000 network and globally. Further provisions for the protection and management of SSSIs have been introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and the Nature Conservation (Scotland) Act 2004.

Local Statutory Designations

Local authorities in consultation with the relevant nature conservation agency can declare Local Nature Reserves (LNRs) under the National Parks and Access to the Countryside Act 1949. LNRs are designated for flora, fauna or geological interest and are managed locally to retain these features and provide research, education and recreational opportunities.

Non- Statutory Designations

All non-statutorily designated sites are referred to as Local Wildlife Sites (LWS) and can be designated by the local authority for supporting local conservation interest. Combined with statutory designation, these sites are considered within Local Development Frameworks under the Town and Country Planning system and are a material consideration during the determination of planning applications. The protection afforded to these sites varies depending on the local authority involved.

Regionally Important Geological Sites (RIGs) are the most important geological and geomorphological areas outside of statutory designations. These sites are also a material consideration during the determination of planning applications.

The Hedgerow Regulations 1997

The Hedgerow Regulations 1997 are designed to protect ‘important’ countryside hedgerows. Importance is defined by whether the hedgerow (a) has existed for 30 years or more; or (b) satisfies at least one of the criteria listed in Part II of Schedule 1 of the Regulations.

Under the Regulations, it is against the law to remove or destroy hedgerows on or adjacent to common land, village greens, SSSIs (including all terrestrial SACs, NNRs and SPAs), LNRs, land used for agriculture or forestry and land used for the keeping or breeding of horses, ponies or donkeys without the permission of the local authority. Hedgerows 'within or marking the boundary of the curtilage of a dwelling-house' are excluded.

National and European Legislation Afforded to Species

The Habitats Directive

The EC Habitats Directive aims to promote the maintenance of biodiversity by requiring Member States to take measures to maintain or restore wild species listed on the Annexes to the Directive at a favourable conservation status, introducing robust protection for those species of European importance. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2010 (the Conservation Regulations) and the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended). The following notes are relevant for all species protected under the EC Habitats Directive:

In the Directive, the term 'deliberate' is interpreted as being somewhat wider than intentional and may be thought of as including an element of recklessness.

The Habitats Regulations do not define the act of 'migration' and, therefore, as a precaution, it is recommended that short distance movement of animals for e.g. foraging, breeding or dispersal purposes are also considered.

In order to obtain a European Protected Species Mitigation (EPSM) licence, the application must demonstrate that it meets all of the following three 'tests':

the action(s) are necessary for the purpose of preserving public health or safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequence of primary importance for the environment;

- There is no satisfactory alternative; and
- The action authorised will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.
-

The Wildlife and Countryside Act (WCA) 1981 (as amended)

The Wildlife and Countryside Act (WCA) 1981 (as amended) implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and implements the species protection requirements of EC Birds Directive 2009/147/EC on the conservation of wild birds in Great Britain (the birds Directive). The WCA 1981 has been subject to a number of amendments, the most important of which are through the Countryside and Rights of Way (CRoW) Act (2000) and Nature Conservation (Scotland) Act 2004.

Other legislative Acts affording protection to wildlife and their habitats include:

- Deer Act 1991
- Natural Environment & Rural Communities (NERC) Act 2006
- Protection of Badgers Act 1992
- Wild Mammals (Protection) Act 1996

Badgers

Badgers Meles meles are protected under The Protection of Badgers Act which makes it an offence to:

- Wilfully kill, injure, take, or attempt to kill, injure or take a badger
- Cruelly ill-treat a badger, including use of tongs and digging
- Possess or control a dead badger or any part thereof
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett or any part thereof
- Intentionally or recklessly disturb a badger when it is occupying a badger sett
- Intentionally or recklessly cause a dog to enter a badger sett
- Sell or offers for sale, possesses or has under his control, a live badger

Effects on development works:

A development licence will be required from the relevant countryside agency for any development works liable to affect an active badge sett, or to disturb badgers whilst they occupy a sett. Guidance has been issued by the countryside agency's to define what would constitute a licensable activity. It is no possible to obtain a licence to translocate badgers.

Birds

With certain exceptions, all birds, their nests and eggs are protected under Sections 1-8 of the WCA. Among other things, this makes it an offence to:

- Intentionally (or recklessly in Scotland) kill, injure or take any wild bird
- Intentionally (or recklessly in Scotland) take, damage or destroy (or, in Scotland, otherwise interfere with) the nest of any wild bird while it is in use or being built
- Intentionally take or destroy an egg of any wild bird
- Sell, offer or expose for sale, have in his possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.
- Intentionally or recklessly obstruct or prevent any wild bird from using its nest (Scotland only)

Certain species of bird, for example the barn owl, bittern and kingfisher receive additional protection under Schedule 1 of the WCA and Annex 1 of the European Community Directive on the Conservation of Wild Birds (2009/147/EC) and are commonly referred to as "Schedule 1" birds.

This affords them protection against:

- Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young
- Intentional or reckless disturbance of dependent young of such a bird
- In Scotland only, intentional or reckless disturbance whilst lekking
- In Scotland only, intentional or reckless harassment

Effects on development works:

Works should be planned to avoid the possibility of killing or injuring any wild bird, or damaging or destroying their nests. The most effective way to reduce the likelihood of nest destruction in particular is to undertake work outside the main bird nesting season which typically runs from March to August. Where this is not feasible, it will be necessary to have any areas of suitable habitat thoroughly checked for nests prior to vegetation clearance.

Schedule 1 birds are additionally protected against disturbance during the nesting season. Thus, it will be necessary to ensure that no potentially disturbing works are undertaken in the vicinity of the nest. The most effective way to avoid disturbance is to postpone works until the young have fledged. If this is not feasible, it may be possible to maintain an appropriate buffer zone or standoff around the nest.

Herpetofauna (Amphibians and reptiles)

The sand lizard Lacerta agilis, smooth snake Coronella austriaca, natterjack toad Epidalea calamita, pool frog Pelophylax lessonae and great crested newt Triturus cristatus receive full protection under Habitats Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
- To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
- To impair their ability to hibernate or migrate
- To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

With the exception of the pool frog, these species are also listed on Schedule 5 of the WCA and they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Other native species of herpetofauna are protected solely under Schedule 5, Section 9(1) & (5) of the WCA, i.e. the adder Vipera berus, grass snake Natrix natrix, common lizard Zootoca vivipara and slow-worm Anguis fragilis. It is prohibited to:

- Intentionally or recklessly kill or injure these species.

Effects on development works:

A European Protected Species Mitigation (EPSM) Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect the breeding sites or resting places amphibian and reptile species protected under Habitats Regulations. A licence will also be required for operations liable to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licences are to allow derogation from the relevant legislation, but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Although not licensable, appropriate mitigation measures may also be required to prevent the intentional killing or injury of adder, grass snake, common lizard and slow worm, thus avoiding contravention of the WCA.

Water voles

The water vole Arvicola terrestris is fully protected under Schedule 5 of the WCA. This makes it an offence to:

- Intentionally kill, injure or take (capture) water voles
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection
- Intentionally or recklessly disturb water voles while they are occupying a structure or place used for shelter or protection

Effects on development works:

If development works are liable to affect habitats known to support water voles, the relevant countryside agency must be consulted. It must be shown that means by which the proposal can be re-designed to avoid contravening the legislation have been fully explored e.g. the use of alternative sites, appropriate timing of works to avoid times of the year in which water voles are most vulnerable, and measures to ensure minimal habitat loss. Conservation licences for the capture and translocation of water voles may be issued by the relevant countryside agency (e.g. Natural England) for the purpose of development activities if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population. The licence will then only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of works.

Otters

Otters Lutra lutra are fully protected under the Conservation Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
- To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
- To impair their ability to hibernate or migrate
- To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Otters are also currently protected under the WCA through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

Effects on development works:

An EPSM Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect otter breeding or resting places (often referred to as holts, couches or dens) or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, and rear young). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored

Bats

All species are fully protected by Habitats Regulations 2010 as they are listed on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. All bats)
- Deliberate disturbance of bat species in such a way as:
- To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
- To impair their ability to hibernate or migrate
- To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Bats are afforded the following additional protection through the WCA as they are included on Schedule 5:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
-

Effects on development works:

Works which are liable to affect a bat roost or an operation which are likely to result in an illegal level of disturbance to the species will require an EPSM licence. The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

Dormice

Dormice Muscardinus avellanarius are fully protected under Habitats Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
- To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
- To impair their ability to hibernate or migrate
- To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Dormice are also protected under the WCA through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

Effects on development works:

Works which are liable to affect a dormice habitat or an operation which are likely to result in an illegal level of disturbance to the species will require an EPSM licence. The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

White clawed crayfish

The white clawed crayfish Austropotamobius pallipes receives partial protection under Schedule 5 of the WCA in respect of Sections 9(1) and 9(5). This makes it an offence to:

- Intentionally take (capture) white-clawed crayfish.

Effects on development works:

The relevant countryside agency will need to be consulted about development which could impact on a watercourse or wetland known to support white clawed crayfish. Conservation licences for the capture and translocation of crayfish can be issued if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population. The licence will only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of the works.

Wild Mammals (Protection Act) 1996

All wild mammals are protected against intentional acts of cruelty under the above legislation. This makes it an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

To avoid possible contravention, due care and attention should be taken when carrying out works (for example operations near burrows or nests) with the potential to affect any wild mammal in this way, regardless of whether they are legally protected through other conservation legislation or not.

Legislation afforded to Plants

With certain exceptions, all wild plants are protected under the WCA. This makes it an offence for an 'unauthorised' person to intentionally (or recklessly in Scotland) uproot wild plants. An authorised person can be the owner of the land on which the action is taken, or anybody authorised by them.

Certain rare species of plant, for example some species of orchid, are also fully protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). This prohibits any person from:

- Intentionally (or recklessly in Scotland) picking, uprooting or destruction of any wild Schedule 8 species (or seed or spore attached to any such wild plant in Scotland only)
- Selling, offering or exposing for sale, or possessing or transporting for the purpose of sale, any wild live or dead Schedule 8 plant species or part thereof
- In addition to the UK legislation outlined above, several plant species are fully protected under Schedule 5 of The Conservation of Habitats and Species Regulations 2010. These are species of European importance. Regulation 45 makes it an offence to:
- Deliberately pick, collect, cut, uproot or destroy a wild Schedule 5 species
- Be in possession of, or control, transport, sell or exchange, or offer for sale or exchange any wild live or dead Schedule 5 species or anything derived from such a plant.

Effects on development works:

An EPSM licence will be required from the relevant countryside agency for works which are liable to affect species of planted listed on Schedule 5 of the Conservation or Habitats and Species Regulations 2010. The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

Invasive Species

Part II of Schedule 9 of the WCA lists non-native invasive plant species for which it is a criminal offence in England and Wales to plant or cause to grow in the wild due to their impact on native wildlife. Species included (but not limited to):

- Japanese knotweed *Fallopia japonica*
- Giant hogweed *Heracleum mantegazzianum*
- Himalayan balsam *Impatiens glandulifera*

Effects on development works:

It is not an offence for plants listed in Part II of Schedule 9 of the WCA 1981 to be present on the development site however it is an offence to cause them to spread. Therefore, if any of the species are present on site and construction activities may result in further spread (e.g. earthworks, vehicle movements) then it will be necessary to design and implement appropriate mitigation prior to construction commencing.

Injurious weeds

Under the Weeds Act 1959 any land owner or occupier may be required prevent the spread of certain 'injurious weeds' including (but not limited to):

- Spear thistle Cirsium vulgare
- Creeping thistle Cirsium arvense
- Curled dock Rumex crispus
- Broad-leaved dock Rumex obtusifolius
- Common ragwort Senecio jacobaea

It is a criminal offence to fail to comply with a notice requiring such action to be taken. The Ragwort Control Act 2003 establishes a ragwort control code of practice as common ragwort is poisonous to horses and other livestock. This code provides best practice guidelines and is not legally binding.

NATIONAL PLANNING POLICY (ENGLAND)

National Planning Policy Framework

The National Planning Policy Framework promotes sustainable development. The Framework specifies the need for protection of designated sites and priority habitats and species. An emphasis is also made on the need for ecological infrastructure

through protection, restoration and re-creation. The protection and recovery of priority species (considered likely to be those listed as UK Biodiversity Action Plan priority species) is also listed as a requirement of planning policy.

In determining a planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from harm; there is appropriate mitigation or compensation where significant harm cannot be avoided; opportunities to incorporate biodiversity in and around developments are encouraged; and planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

The Natural Environment and Rural Communities Act 2006 and the Biodiversity Duty

Section 40 of the Natural Environment and Rural Communities (NERC) Act, 2006, requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'.

Section 41 of the Act (Section 42 in Wales) requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity.' This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

EUROPEAN PROTECTED SPECIES POLICIES

In December 2016 Natural England officially introduced the four licensing policies throughout England. The four policies seek to achieve better outcomes for European Protected Species (EPS) and reduce unnecessary costs, delays and uncertainty that can be inherent in the current standard EPS licensing system. The policies are summarised as follows:

- Policy 1; provides greater flexibility in exclusion and relocation activities, where there is investment in habitat provision;
- Policy 2; provides greater flexibility in the location of compensatory habitat;
- Policy 3; provides greater flexibility on exclusion measures where this will allow EPS to use temporary habitat; and,
- Policy 4; provides a reduced survey effort in circumstances where the impacts of development can be confidently predicted.

The four policies have been designed to have a net benefit for EPS by improving populations overall and not just protecting individuals within development sites. Most notably Natural England now recognises that the Habitats Regulations legal framework now applies to 'local populations' of EPS and not individuals/site populations.