Construction Environmental Management Plan/Habitat Management and Monitoring Plan

Site 20, Crumpsall Park Visitor Centre, Ash Tree Road

Corstorphine & Wright

Status	Issue	Name	Date
Draft	0.1	Rebecca Gane BSc, Consultant Ecologist	12/12/2025
Final	1	Rebecca Gane BSc, Consultant Ecologist	12/01/2026

Arbtech Consultant's Contact Details:

Rebecca Gane

Consultant Ecologist

https://arbtech.co.uk

Limitations and Copyright

Arbtech Consulting Limited has prepared this report for the sole use of the above-named client or their agents in accordance with our General Terms and Conditions, under which our services are performed. It is expressly stated that no other warranty, expressed or implied, is made as to the professional advice included in this report or any other services provided by us. This report may not be relied upon by any other party without the prior and express written agreement of Arbtech Consulting Limited. The assessments made assume that the sites and facilities will continue to be used for their current purpose without significant change. The conclusions and recommendations contained in this report are based upon information provided by third parties. Information obtained from third parties has not been independently verified by Arbtech Consulting Limited.

© This report is the copyright of Arbtech Consulting Limited. Any unauthorised reproduction or usage by any person other than the addressee is strictly prohibited.

Guidelines

This assessment has been designed to meet:

- British Standard 42020 (2013) 'Biodiversity – Code of Practice for Planning and Development'.

Proportionality

> The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.
>
> This approach is enshrined in Government planning guidance, for example, section 15 of the National Planning Policy Framework for England.
>
> The desk studies and field surveys undertaken to provide a preliminary ecological appraisal (PEA) might in some cases be all that is necessary.
>
> (BS 42020, 2013)

In consequence of the scale and intensity of the proposed development, this plan-led report is considered adequate and proportionate. It communicates all relevant information necessary to determine a planning application or support the recommendations for further surveys.

Contents

1.0 Introduction and Context 4
1.1 Background 4
1.2 Project Description 4
1.3 Site Context 4
1.4 Scope of This Report 4
2.0 Ecological Baseline Conditions Relevant to This Report 6
2.1 Value to Protected and/ or Notable Species and Anticipated Impacts 6
2.2 BNG and Proposed Habitat Creation 7
2.3 Scope for Mitigation and Enhancement 7
2.4 Scope for Habitat Management 7
2.5 Site Monitoring 8
4.0 Construction Environment Management Plan 11
5.0 Wildlife Enhancement Plan 19
6.0 Habitat Creation and Management 22
7.0 Timing/Monitoring 29
Appendix 1: Proposed Development Plan 32
Appendix 2: Site Location Plan 33
Appendix 3: Post Development Habitat Plan 34
Appendix 4: Enhancement Plan 35
Appendix 5: Dark corridors 36

1.0 Introduction and Context

1.1 Background

Arbtech Consulting Ltd were commissioned by Corstorphine and Wright to produce a Construction Environmental Management Plan and Habitat Management, Enhancement and Monitoring Plan (HMMP) for a proposed development at Site 20, Crumpsall Park Visitor Centre, Ash Tree Road (hereafter referred to as the site).

The site has been subject to previous ecological assessments of relevance to this report, comprising:

- A Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) (Ascerta, 2024).
- A Biodiversity Net Gain Assessment (BNG) (Ascerta, 2025).
- Bat Emergence and Re-entry Survey (Arbtech Consulting Ltd, 2025)
- Great Crested Newt eDNA Sampling (Arbtech Consulting Ltd, 2025).

1.2 Project Description

The planning application pertaining to the site (Manchester City Council reference: 142985/VO/2025) describes the development as: Erection of modular-building, including associated landscaping to provide a flexible space for youth and community activities (Class F.2) following demolition of existing building (hereafter referred to as the proposed development). A plan showing the proposed development is provided in **Appendix 1**.

1.3 Site Context

The survey site is centred on National Grid Reference SD 84578 02292 and has an area of approximately 0.15ha. The site contains a building, an area of amenity grassland with an area used as a community used as a garden, fruit trees, dense scrub and a boundary fence. The site is within Crumpsall Park and within an urban area of Crumpsall near Manchester. A site location plan is provided in **Appendix 2.**

1.4 Scope of This Report

Following the submission of planning application 2023/2860, planning permission was conditionally granted. The decision notice details pre-commencement planning conditions that relate to ecology. Specifically, Planning Conditions 7, 9, 10 and 11, and provides information to aid the creating of a lighting strategy to satisfy condition 12:

Condition 7: All tree work should be carried out by a competent contractor in accordance with British Standard BS 3998" Recommendations for Tree Work".

Condition 9: No demolition works or vegetation clearance shall take place during the optimum period for bird nesting (March - September inclusive) unless nesting birds have been shown to be absent, or a method statement for the demolition including for the protection of any nesting birds is agreed in writing by the City Council, Local Planning Authority. Any method statement shall then be implemented for the duration of the demolition works.

Condition 10: Prior to any site clearance or earthworks, a reasonable avoidance measures statement and precautionary working method statement for amphibians, hedgehog and other mammals shall be submitted to and approved in writing by the City Council as 142985/VO/2025 Page 5 of 11 local planning authority. The development shall be carried out in accordance with the agreed details.

Condition 11: Prior to first occupation of the development hereby approved and in addition to biodiversity net gain requirements, a scheme for the enhancement of the site for ecological purposes shall be submitted to and agreed in writing by the City Council as Local Planning Authority. Details should include bat and bird boxes. The agreed scheme shall be implemented in accordance with a timescale to be agreed and retained and maintained thereafter.

Condition 12: The development hereby approved shall include a scheme for the illumination of external areas during the period between dusk and dawn. Prior to the first occupation of each phase (save for the enabling works phase), full details of such a scheme for that phase shall be submitted for approval in writing by the City Council, as Local Planning Authority. The approved scheme shall be implemented in full prior to the first occupation of each phase and shall remain in operation for so long as the development is occupied.
Please note: The lighting plan and associated recommendations presented in this report have been developed solely with regard to bat ecology and conservation requirements. They do not consider, assess, or address issues relating to crime prevention, public safety, or security, and should not be relied upon for those purposes.

Condition 22: Prior to the commencement of development, a Habitat Management and Monitoring Plan for the on-site biodiversity enhancements shall be submitted to and agreed in writing by the City Council as Local Planning Authority. The development shall be implemented and maintained in accordance with the agreed details and shall be retained thereafter.

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 PEA PRA and BNG Assessment (Ascerta, 2024)

2.1 Value to Protected and/ or Notable Species and Anticipated Impacts

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:

- Foraging and commuting bats
- Common birds.
- Common reptiles.
- Common amphibians.
- Badgers
- Hedgehogs and other small mammals

The site is not considered suitable to support any other protected and/ notable species.

Bats

The habitats on site were considered to be of low suitability for commuting and foraging bats. Similarly, B1 was considered to be of low roosting suitability. No roosts were identified during the Bat Emergence and Re-entry Survey.

Birds

Suitable habitat onsite includes scattered trees, amenity grassland, building and scrub, all of which provide suitable habitat for nesting and foraging bird species.

Reptiles

Amenity grassland and scrub provide onsite foraging and commuting habitat. No hibernating opportunities were noted.

Amphibians

The small pond situated within the amenity grassland onsite provides habitat for breeding great crested newts, as well as other amphibians. Terrestrial habitat is also present in the for of scrub and grassland.

Badgers

The site is considered to have limited opportunities for badgers; however suitable habitat is present therefore risk of commuting badgers from offsite still remains.

Hedgehogs and other small mammals

Amenity grassland, scrub and scattered trees with suitable access from offsite provides suitable foraging habitat for small mammals.

2.2 BNG and Proposed Habitat Creation

The development, as currently proposed, is anticipated to result in a +10.26% net gain for area-based habitat units. The post-development habitat coverage and their target conditions in accordance with the BNG Assessment are detailed below:

- **Grassland: Modified grassland** – Condition poor – 0.119ha to be retained
- **Grassland**: **Modified grassland** - Condition poor – 0.0151ha created
- **Heathland and scrub: Mixed scrub –** Condition poor – 0.0034ha to be retained
- **Heathland and scrub: Mixed scrub –** Condition poor – 0.0086ha to be created
- **Individual tree: Urban tree –** Moderate condition – 0.163ha to be retained
- **Individual tree: Urban tree –** Good condition – 0.0366ha to be retained
- **Individual tree: Urban tree –** Moderate condition – 0.407ha to be created
- **Urban: Developed land; sealed surface** – Condition N/A – 0.0432ha to be created

2.3 Scope for Mitigation and Enhancement

Habitats on site including buildings, scrub, amenity grassland, trees and a pond are considered to provide opportunities for foraging and roosting bats, common reptiles and amphibians, badgers, nesting birds, hedgehogs and other small mammals. It is therefore assessed that mitigation and enhancement appropriate to the scale of the development targeting these species groups will prevent any significant impacts occurring during construction whilst providing viable ecological enhancement post-development.

2.4 Scope for Habitat Management

Appropriate management of the proposed habitat creation is required to ensure the effective installation and long-term success of compensatory habitat creation and enhancement of ecological opportunities at the site. Specific management prescriptions for enhanced and newly created habitats are required to cover a 30-year management term to ensure habitats achieve their target habitat classification and condition to fulfil BNG objectives.

2.5 Site Monitoring

Site monitoring detail is provided in Table 1 below.

***Table 1**: Site monitoring*

<table>
<tr><th>Mitigation</th><th>Specification</th></tr>
<tr><td>Persons Responsible and Lines of Communication</td><td>
The details of the responsible persons and organisation(s) for delivering this management plan are outlined below.
Table 1.1. Organisation responsible for providing the following plan
<table>
<tr><th colspan="5">Project Ecologist or Other Professional Responsible</th></tr>
<tr><td colspan="2">Name or Initials</td><td colspan="3">Rebecca Gane - Consultant Ecologist</td></tr>
<tr><td colspan="2">Organisation</td><td colspan="3">Arbtech Consulting Ltd</td></tr>
<tr><td>Responsibility</td><td>Start Date:</td><td>Commencement of works</td><td>End Date:</td><td>30 years following completion of the last establishment works</td></tr>
<tr><td colspan="5">Arbtech Consulting Ltd is responsible for producing this combined CEMP and HMMP and providing ecological advice for mitigation, the installation of enhancements, creation, management, and monitoring of the habitats on site, as well as other constraints to achieving the site's aims, e.g., any protected species presence. Any other competent persons required are to be appointed by the landowner. This will ensure that the plan is implemented in full and that all created habitats are in a fit state to meet objectives.</td></tr>
<tr><th colspan="5">Statement of Competency</th></tr>
<tr><td colspan="5">Arbtech Consulting has provided ecological consultancy services since 2006 and has expertise with Biodiversity Net Gain, including the statutory metric, BNG plans and management plans. The author of the plan is an ecologist of 3 years’ experience and is an Accredited Agent on Natural England Bat Licence Number: (2018-33540-CLS-CLS).</td></tr>
</table>
</td></tr>
</table>

Table 1.2. *Landowner and landowner*

Landowner or Land Manager				
Name or Initials		To be confirmed		
Organisation		To be confirmed		
Responsibility	**Start Date:**	Commencement of works	**End Date:**	30 years following completion of the last establishment works
To be confirmed.				

Table 1.3. *Organisation Responsible for Implementing the HMMP*

Organisation Responsible for Implementing the HMMP				
Name or Initials		To be confirmed		
Organisation		To be confirmed		
Responsibility	**Start Date:**	Commencement of works	**End Date:**	30 years following completion of the last establishment works
To be confirmed.				

Table 1.4. *Organisation responsible for reviewing the plan*

LPA or Responsible body Reviewing CEMP and HMMP				
Name or Initials		N/A		
Organisation		Manchester City Council		
Responsibility	**Start Date:**	Commencement of works	**End Date:**	30 years following completion of the last establishment works
To ensure that the plan and legal agreement are followed, the objectives of the CEMP/HMMP is delivered, and to take enforcement action should a breach occur.				

Post-Development Site Visits	Post-development site visits by a Suitably Qualified Ecologist (SQE) will be undertaken covering a 30-year management term to confirm the successful installation and management of landscaping and species-specific enhancements. Visits will be completed in years 1, 2, 5, 10, 15, 20, 25, and 30 following the 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. Depending on the scale of the required remediation, additional evidence may comprise an additional site visit by an SQE or photographic evidence to be provided by the Post-Development Biodiversity Champion. This requirement will be defined based on the results of each site visit. Once the SQE confirms that the biodiversity enhancements have been installed correctly, no further site visits will be necessary following the year 5 visit. The Post-Development Biodiversity Champion will then be responsible for correctly managing ecological features at the site in accordance with this HMMP alongside identifying and implementing remediation measures as part of the ongoing management of the site.

4.0 Construction Environment Management Plan

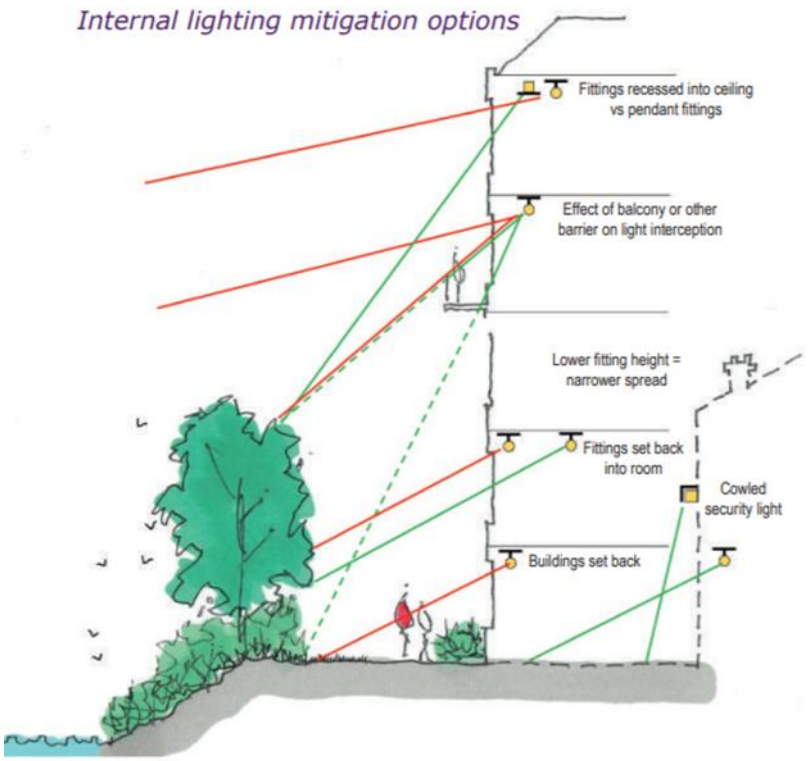
Mitigation prescriptions to reduce adverse impacts to ecological receptors identified through the previous ecological assessment are detailed in **Table 2** below.

Table 2: Mitigation

Mitigation	Specification
Persons Responsible and Lines of Communication	***Overview*** In order to ensure ecological mitigation and enhancement prescriptions are effectively applied during development works, it is required to ensure persons responsible, and lines of communication are clearly set out and maintained throughout the proposed development. ***Mitigation*** A Development Biodiversity Champion will be selected for the construction phase. The Biodiversity Champion will be someone with significant influence during construction, such as the contract or project manager. The Development Biodiversity Champion will be responsible for ensuring all actions outlined in this mitigation strategy are implemented. Any queries with regards to the mitigation and enhancement prescriptions will be addressed to the project ecologist and communication will be retained between the Development Biodiversity Champion and project ecologist throughout the construction phase to ensure the mitigation and enhancement is applied and impacts to ecological receptors are effectively minimised. The project ecologist's contact details are located on the title page of this report. It is recommended that the Biodiversity Champion informs the project ecologist of the commencement of construction 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 the site owner or 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.

Protection of Trees During Construction	The root protection areas of retained trees will be protected during construction and will be fenced accordingly in order to prevent encroachment by machinery/vehicles that could potentially damage root systems. Detailed mitigation pertaining to the protection of retained trees will likely be detailed within an Arboricultural Impact Assessment. Any mitigation measures detailed within an Arboricultural Assessment will be adhered to in full.
Wildlife Sensitive Lighting Strategy	***Lighting*** The habitats on site have low habitat value for roosting, commuting and foraging bats and other nocturnal wildlife. The Bat Emergence and Re-entry Survey revealed that the most common area of activity in the southern and eastern boundary. Additional lighting in this area could impact behaviour of wildlife and adversely affect the integrity of roosting and foraging resources. Any proposed 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 in the UK (BCT & ILP 2023). The below strategy utilises light prescriptions detailed within this guidance to limit impacts of artificial lighting on bats and other light sensitive species using retained habitats on and directly adjacent to the site including badgers and hedgehogs. In particular, the lighting strategy seeks to influence the lighting design so that impacts can be avoided to key habitats of value including: o Any scattered trees or site boundaries/tree lines/scattered trees. o The species-specific habitat enhancements detailed below, predominantly the bird and bat boxes. o Newly proposed landscaping. o Retained habitats on and directly adjacent to the site. The following lighting design prescriptions are considered suitable for the type and scale of the Development to minimise the impacts of artificial lighting on site or within the public realm on bats and other light sensitive species. Lighting design prescriptions recommended for the Site comprise:

	• All trees and surrounding offsite habitat must not be illuminated to ensure the present dark zones are retained (as seen in **Appendix 5**). • Reducing the operating time of any installed public realm lighting and levels of illuminance provided via: Part-night operation. Turning off lights between certain hours, for example between midnight and 06:00. • The use of motion sensors will be avoided to ensure no unnecessary light spill occurs during night-time hours. Where the use of motion sensors cannot be avoided, lights must be set to be turned on for no longer than 1 minute. • Wall lights and security lights will be 'dimmable' and set to the lowest light intensity settings. There are several products on the market that allow the control of the light intensity and the duration that the lights are on. • Avoiding light spill via: The use of directional lighting by using luminaires with rear shields and an upwards lighting ratio of zero; and Consideration to the height and spacing between lighting columns where practicable. Examples include stud LED or footpath lighting. There will be no bare bulbs and no light pointing upwards. The spread of light will be kept in line with or below the horizontal. Use low-level lighting in conjunction with hoods, cowls, louvers and shields. • Lights will be directional to ensure that light is directed to the intended areas only. • Light type: Use of lamps that minimise UV emissions or use UV filters to reduce the attractiveness of the lamp to invertebrates. Use high-pressure sodium or LED lamps, ideally warm white as its function as an invertebrate attractant is relatively low. • The use of landscaping as to block light spill where appropriate. • Install lighting systems that deliver no greater than a 3lux average illuminance, with a maximum horizontal illuminance of 0.6 uniformity (subject to appropriate maintenance factors). • Use narrow spectrum light sources to lower the range of species affected by lighting. • Use light sources that emit minimal ultra-violet light. • Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue shortwave length content they will be of a warm / neutral colour temperature <2,700 kelvin. • External lighting will be on PIR sensors that are sensitive to large objects only (so that they are not triggered by passing bats) and will be set to the shortest time duration to reduce the amount of time the lights are on. • All lighting on the developed site will make use of the most up to date technology available.

	Consideration will be taken regarding internal lighting as well as external light. Measures in order to reduce light spillage from internal lighting are displayed below in **Figure 1.**  **Figure 1:** Mitigation measures for internal lighting. A lighting plan should be produced for the site to include the lighting recommendations and methods outlined above.
Protection of Terrestrial Mammals (Badgers, Hedgehogs and small mammals)	***Overview*** The site provides habitat for badger within the amenity grassland, continuous scrub and scattered trees and there is access for these species to access the site from the wider landscape. As a result, mitigation will therefore be required to ensure no harm to these species occur during destructive and construction activities.

	Mitigation The following precautionary method will be adhered to during development activity: • 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. • The use of night-time lighting will be avoided, or sensitive lighting design will be implemented to avoid light spill on to retained habitats which terrestrial mammals could use. • 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. • In the event that any potential badger setts are identified within 30m of the construction works, all works within 30m will cease and advice will be sought from a suitably qualified ecologist before resuming, which in some circumstances may require a Natural England licence to be obtained.
Nesting bird check	***Overview*** The scattered trees, amenity grassland, building and scrub provide suitable habitat for nesting and foraging bird species, therefore works have the potential to destroy or harm birds and their nests. ***Mitigation*** Any works to the buildings and vegetation on site must avoid the active bird season (March – August inclusive). If this timeframe cannot be avoided, a nesting bird check within 24 hours prior to works will be required. This inspection will include a check for presence of nesting birds within 10m of the proposed vegetation or building works. All active nests will be retained until it has been confirmed by a suitably qualified ecologist that the young have fledged and no construction works will be undertaken within 5m of any active nest. Examples of appropriate installed work signs are shown in **Figure 2**. Works should not block entry or exit routes and flight paths and contractors should not enter the area of the site where barn owls are present until the end of the nesting bird season.

<table>
<tr><td></td><td>

Figure 2 - Work signage regarding nesting birds on the site. Source www.Britishsafetysigns.co.uk</td></tr>
<tr><td>Protection of Amphibians and Reptiles During Construction</td><td>Overview
The amenity grassland, scrub and pond within the amenity grassland provides habitat for reptiles and amphibians. These habitats are to be impacted during works therefore mitigation measures are considered essential to ensure reptiles and amphibians are protected as part of any vegetation removal. The proposed works are not anticipated to lead to any levels of habitat loss or fragmentation likely to affect local population status for either amphibians or reptiles, but individuals may be injured or killed during clearance and construction.

Ecological Clerk of Works
A suitably qualified ecologist will be present to act as an ecological clerk of works (ECoW). The primary responsibility of the ECoW will be to ensure the on-site development area is appropriately clear of amphibian and reptile habitat prior to allowing works to commence in the absence of ecological supervision. The ECoW will be present to supervise all vegetation cutting required to facilitate site clearance until the ECoW is satisfied that the pre-requisite mitigation prescriptions have been completed effectively and the risk to amphibians and reptiles has been reduced to an acceptable level. The ECoW will provide formal confirmation of compliance via email or the production of a File Note, confirming when works are able to proceed without supervision.</td></tr>
</table>

Timing of Works

Works must be undertaken outside of the hibernation period for amphibians and reptiles, which is typically between October and March inclusive and only if overnight temperatures have not fallen below 5°C. Amphibians and reptiles are mostly torpid during this timeframe and are thus most vulnerable to injury or death. Undertaking site clearance works during suitable weather conditions in their most active period between April and September will allow individuals to disperse unperturbed to adjacent retained habitats if disturbed.

Toolbox Talk

The ECoW will provide a toolbox talk to contractors immediately prior to vegetation cutting works to facilitate the development and habitat creation to highlight the potential presence of amphibians, outline indicators of their presence, and to inform of protocol if an amphibian/reptile is found.

Pre-Development Vegetation Clearance

This sensitive vegetation removal will be overseen by an ECoW and comprise a phased cutting method in addition to cutting in systematic patterns. Prior to any vegetation cutting, the entire area will be subject a fingertip search by an ECoW. The phased cutting method will be undertaken in two stages; the first cut will remove all vegetation to approximately 200-300mm from ground level (N.B. this step would not be necessary if scrub is already <300mm) and the second cut will be to ground level, with a fingertip search also undertaken between cuts.

Amphibians and reptiles 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 3**.

Once the sensitive vegetation clearance has been completed, this area will be managed as very short vegetation (<50mm) until the works and subsequent hedgerow planting are complete, as <50cm is unsuitable to support reptiles and amphibians for prolonged

periods and is likely prevent individuals from recolonising the development area prior to works. All vegetation arisings from the cutting will be removed from the area. Works can then proceed in the absence of an ECoW.

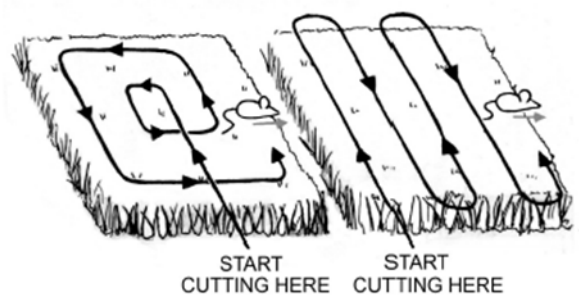


Figure 3: A schematic representation of vegetation cutting patterns as best to eliminate terrestrial opportunities for amphibians and reptiles.

Displacement of Amphibians and Reptiles

In the unlikely event that a GCN is found on site during site clearance works, all works must cease and the ecologist must advise on how best to lawfully progress the development. Should any common amphibian species or reptiles be found during the works, these individuals will be carefully removed from the development area by the ECoW and placed within retained habitat, or if necessary, in adjacent habitats that provide suitable shelter, foraging and connectivity to the wider landscape. This can include but is not limited to, scrub, native hedgerow and grassland with a suitable structure.

Prevent Trapping Amphibians and Reptiles During Works

Excavations could trap individuals and cause injury or death. All excavations will therefore be infilled to be suitably sealed overnight, or a ramp will be installed to enable any trapped animals 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 animals be found, the Development Biodiversity Champion will contact the project ecologist for advice on how to proceed.

Table 3: Species-specific enhancements

Ecological Enhancement	Specification
Provision of bat boxes	A total of **two** bat boxes will be mounted onto elevation C (Corstorphine and Wright Drawing 23519-3701 2024). Details of the bat boxes recommended for the sites are as follows: ***External bat boxes*** • The recommended external 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. • 2 No. Vivara Pro Build-in Woodstone® Bat Tube (or similar) (see **Figure 4**) will be installed elevation C. This bat box type is suitable to support a range of species including noctules *Nyctalus noctula* and soprano pipistrelles *Pipistrellus pygmaeus.* • The bat boxes will be positioned at least 3-5m above ground level facing a north-eastern elevation with a clear flight path to and from the entrance, away from artificial light and facing vegetated habitats. • The proposed location is shown on the plans provided in **Appendix 4.** The bat boxes will be positioned 3-5m above ground level facing with a clear flight path to and from the entrance, away from artificial light and facing vegetated habitats.

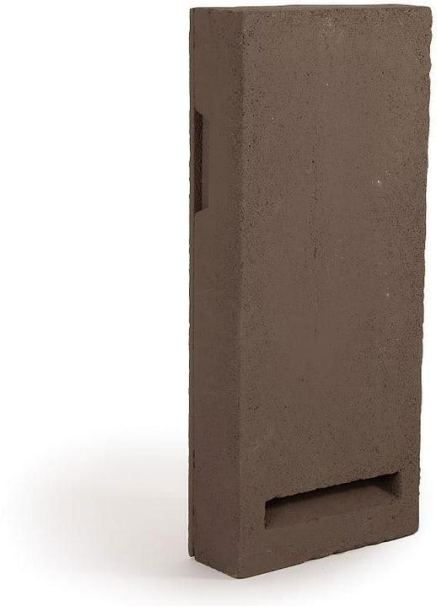


Figure 4: Vivara Pro Build-in Woodstone® Bat Tube (image credit: https://www.nhbs.com/ib-vl-05-vivara-pro-build-in-woodstone-batbox)

Recommended management:

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 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.

Provision of bird boxes	Two bird boxes are recommended to be installed upon elevation B (Corstorphine and Wright Drawing 23519-3701 2024). ***Bird box specification: External (Buildings)*** • The recommended bird boxes will be constructed of woodcrete/ woodstone. Boxes of this construction are designed to require no maintenance and a lifespan of 25 years plus.

- 2x **Mario Dual Chamber Sparrow Terrace** (Or a similar alternative brand) will be installed externally on the walls of elevation B. Example of this show in **Figure 5**.
- These must be installed a minimum of 2m in height and have clear and direct open flight paths, unobstructed by trees, vegetation or other buildings.
- The proposed location is shown on the plans provided in **Appendix 4**



Figure 5: Mario Dual Chamber Sparrow Terrace. Source: https://www.nhbs.com

Recommended Management:

The proposed bird 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. External bird boxes must be replaced if they are damaged, removed, or have fallen from their recommended location. Internal bird boxes will not be blocked or removed.

6.0 Habitat Creation and Management

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. The final BNG Habitat Plan is provided in **Appendix 3**.

Table 4: Habitat Creation and Management Prescriptions

Ecological receptor	Specification
Habitats with N/A conditions.	**Developed land; sealed surface** It is noted that developed land; sealed surface does not require any specific management to achieve their BNG objective. This is because developed land; sealed surface is of negligible biodiversity value, and as such, management prescriptions for this habitat is not included in this HMMP.
Retained Modified Grassland (Poor condition)	**Overview** The baseline condition of the scrub is poor condition. As per the condition scores provided by Ascerta (2025), the retained scrub onsite satisfies the following criteria: **A**: The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range). **C**: There is an absence of invasive non-native plant species4 (as listed on Schedule 9 of WCA) and species indicative of suboptimal condition6 make up less than 5% of ground cover. Modified grassland can be maintained in poor condition by ensuring that the habitat retains the key structural and compositional characteristics described in its UKHab definition. So long at the grassland is not altered and maintains the criteria stated above, this condition will be maintained.
Created Modified Grassland (Poor condition)	***Overview*** Areas of modified grassland will be retained as part of the proposals, as illustrated on the plan in **Appendix 3.** ***Objectives***

- To create and maintain grassland that provides habitat for birds and hedgehogs.
- Employ techniques that use organic fertilizers and minimise the use of chemicals wherever possible.

Creation Method:

- **Ground preparation**
  it is recommended that the existing turf or vegetation is removed. The exposed earth should then be harrowed or raked to provide a bare soil substrate suitable for sowing a lawn seed mix.
- **Seeding**
  To be undertaken in spring or autumn. The following seed rates are recommended: 25g/m^2 grass seed mix.
- **Bedding in of seed:**
  After sowing, seeds will be 'bedded' in by trampling or light rolling.
- **Recommended seed mix:**

It is recommended that Emorsgate's EG22 Strong Lawn Grass Mixture is used at the site (or a similar alternative). This seed mix is an all-purpose lawn mixture suited to a wide range of domestic and landscape applications. EG22 contains finer bent and fescue grasses plus some dwarf perennial ryegrass and smooth-stalked meadow-grass. This combination produces a fine turf structure and resilience to wear.

Management prescriptions covering a 30-year term:

Table 4.1: Poor Condition Modified Grassland Management Prescriptions. BNG condition criteria not applicable as poor condition is achieved

Management	When	Rationale
Prior to commencement of grass cutting, an inspection will be undertaken for litter,	Between March and October. Cutting will be required less frequently	To remove litter which could be harmful to wildlife. To remove items that could potentially damage grass cutting machinery.

	stones and other debris which will be disposed of accordingly.	during periods of drier weather.	
	Cut to a height of ~20mm as required during the growing season. Using a mower and strimmer. Grass cuttings will be mulched.	Between March and October. Cutting will be required less frequently during periods of drier weather.	Cutting every 1-2 weeks will allow a neat a tidy appearance to be maintained. Mulching will allow nutrients to be retained within the grassland to maintain a lush / improved sward.
	Any areas of bare ground will be reseeded	Between April and October, as necessary	To ensure no large areas of bare ground exist within the habitat.
	Grassland will be checked for presence of non-native invasive species which will be removed/treated as necessary	Once annually during growing season (April – October)	To ensure no non-native species exist within the habitat.
	Removal of leaves in the autumn.	Annually in November.	To maintain tidy appearance of amenity lawn.
Retained Mixed Scrub (Poor condition)	**Overview** The baseline condition of the scrub is poor condition. As per the condition scores provided by Ascerta (2025), the retained scrub onsite satisfies the following criteria: **A**: The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range). **C**: There is an absence of invasive non-native plant species4 (as listed on Schedule 9 of WCA) and species indicative of suboptimal condition6 make up less than 5% of ground cover.		

	Mixed scrub can be maintained in poor condition by ensuring that the habitat retains the key structural and compositional characteristics described in its UKHab definition. This involves allowing the scrub to persist as a recognisable example of its type comprising an appropriate mix of native woody species within its natural range. At the same time, the parcel must still meet the above criteria for habitat integrity. Invasive non-native plant species listed under Schedule 9 of the Wildlife and Countryside Act should be absent.
Created Mixed Scrub (Moderate condition)	***Overview*** Areas of mixed scrub will be created, as show in **Appendix 3**. It is anticipated that the scrub will achieve moderate condition by satisfying criteria A, B and C. **A:** The parcel is a good representation of the habitat type it has been identified as, based on its UKHab description (where in its natural range). The appearance and composition of the vegetation closely matches the characteristics of the specific scrub type. **B**: Seedlings, saplings, young shrubs and mature (or ancient or veteran) shrubs are all present. **C**: There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA) and species indicative of sub-optimal condition make up less than 5% of ground cover. ***Objectives:*** • To create mixed scrub to moderate condition in accordance with the BNG Assessment. • To provide native scrub that will provide pollinating, foraging, and refuge opportunities for protected and/ or notable species groups including amphibians, bats, birds, hedgehogs, invertebrates, and reptiles. ***Creation Method:*** • **Ground preparation and planting** Existing vegetation will be cut back through strimming/brush cutting and expose a bare substrate suitable for planting of new native scrub species. A minimum of 5 different native species will be planted within the scrub. These species should include natives such as blackthorn, hawthorn, hazel, guelder rose and wild privet. Each new scrub sapling will be planted 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 saplings 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 plants are planted in groups of three at a density of 3 plants per m^2. Where possible, a mixture of mature shrubs and younger shrubs should be planted (with appropriate spacing) to ensure a mixture of age classes.
Retained Trees (Moderate and good condition)	**Overview** The baseline condition of the individual trees and line of trees on site is moderate and good. This can be maintained by ensuring the surrounding grassland and scrub is not destroyed, no pruning regime is employed, and the trees do not become damaged.
Tree Planting (Moderate condition)	***Overview:*** 10 trees will be planted within the site. Native tree species are recommended but this is not essential to produce a net gain on site. The proposed location of these trees is shown on the plan in **Appendix 3.** It is anticipated that the scrub will achieve moderate condition by satisfying criteria A, B, D and F. **A**: The tree is a native species (or at least 70% within the block are native species). **B**: The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion) **D**: There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height. **F**: More than 20% of the tree canopy area is oversailing vegetation beneath.

Objectives:

- To create trees of moderate condition, or above, in accordance with the BNG Assessment.
- To plant trees that will provide pollinating, foraging, and refuge opportunities for protected and/ or notable species groups including amphibians, bats, birds, hedgehogs, invertebrates, and reptiles.
- Ensure that good horticultural practice is employed to encourage long-term health and vitality of all trees and scrub.
- Ensure well-balanced crowns and/ or natural shape by preventing over competition.

Creation Method:

- **Ground preparation and planting**

  Each tree should be planted within a hole three times as wide of the supplied pot and of a similar depth. Root balls should be soaked thoroughly in water before planting and root balls should be loosened to expose restricted roots before planting. The planted trees should then be backfilled ensuring there are no air pockets around roots or any roosts protruding out of the ground.
- **Timing**

  It is best to prepare the land 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.

Recommended management prescriptions over a minimum 30-year term:

Table 4.2: New tree planting management prescriptions.

Management	When	Rationale
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.
If required, provision of stakes and guards. Guards to be left on for a minimum of 5 years	During planting.	Protect from damage

	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
	Remove weeds	When required; checked twice annually in early spring and in Autumn.	Reduce competition for resources nutrients etc.by weeds
	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
	Do not apply chemical fertilisers	At all times.	The use of chemical fertilisers will encourage vigorous grasses and weeds to grow
	Apply a light dressing of well-rotted manure	Annually in the winter	Note the overuse of 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.

7.0 Timing/Monitoring

Monitoring Term

Monitoring will take place for at least 30 years post-development to ensure that the net gain is maintained for at least the minimum legal term.

Creation/enhancement period

Habitat enhancement and creation work will be scheduled to take place following the completion of major development works to ensure newly created habitats are not damaged during construction activities. On-site biodiversity gain works will be implemented within 6 months of the completion of construction, and the 30-year management period will commence from the date of completion of all biodiversity enhancement works. The proposed timeline is as follows:

1. **Pre-Development (Prior to Construction)**
    - Implement measures and avoid damage to areas designated for habitat creation to prevent soil compaction or contamination.
2. **During-Development**
    - Installation of species enhancements (e.g. bat boxes)
3. **Post-Development (After Major Construction Works)**
    - *Soil Preparation*
        - Remove any construction debris and de-compact soil as necessary.
        - Introduce appropriate soil treatments to optimize conditions for target grassland species.
    - *Seed Sowing and Planting (in autumn or spring)*
        - Sow seed mix suited to the local conditions.
        - Shrub planting will be undertaken as outlined within section 3. Scheduled planting will consider environmental conditions and avoid times of stress, such as drought or frost.
    - *Initial Establishment and Maintenance (First 1–2 Years)*
        - Implement a sensitive cutting regime as to not destroy the habitats.
        - Control competitive species such as dominant grasses or bramble to encourage plant establishment and diversity.
        - Avoid the use of herbicides and artificial fertilisers to maintain habitat integrity.
    - *Long-Term Management*

- Continue appropriate management strategies outlines in table 1.
- Adjust management practices if required having discussed this with the monitoring individual.

This phased approach ensures that the habitat establishment aligns with best practices and maximises biodiversity benefits while avoiding damage from construction activities.

8.0 Bibliography

- CIEEM. (2013). Guidelines for Preliminary Ecological Appraisal Institute of Ecology and Environmental Management http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/GPEA/GPEA_April_2013.pdf
- HMSO: Wildlife and Countryside Act 1981 (as amended) http://jncc.defra.gov.uk/page-1377
- HMSO: Countryside & Rights of Way Act (2000) http://jncc.defra.gov.uk/page-1378
- HMSO: Natural Environmental and Rural Communities Act (2006) http://www.legislation.gov.uk/ukpga/2006/16/contents
- HMSO: The Conservation of Habitats and Species Regulations (2010) http://www.legislation.gov.uk/uksi/2010/490/contents/made
- HSE. (2002). Control of Substances Hazardous to Health (COSHH) regulations. https://www.hse.gov.uk/coshh/basics/whatdo.htm
- National Planning Policy Framework. (2021). https://www.gov.uk/government/publications/national-planning-policy-framework--2
- Woodland Trust. (2022). Woodland Creation Guide. https://www.woodlandtrust.org.uk/plant-trees/woodland-creation-guide/

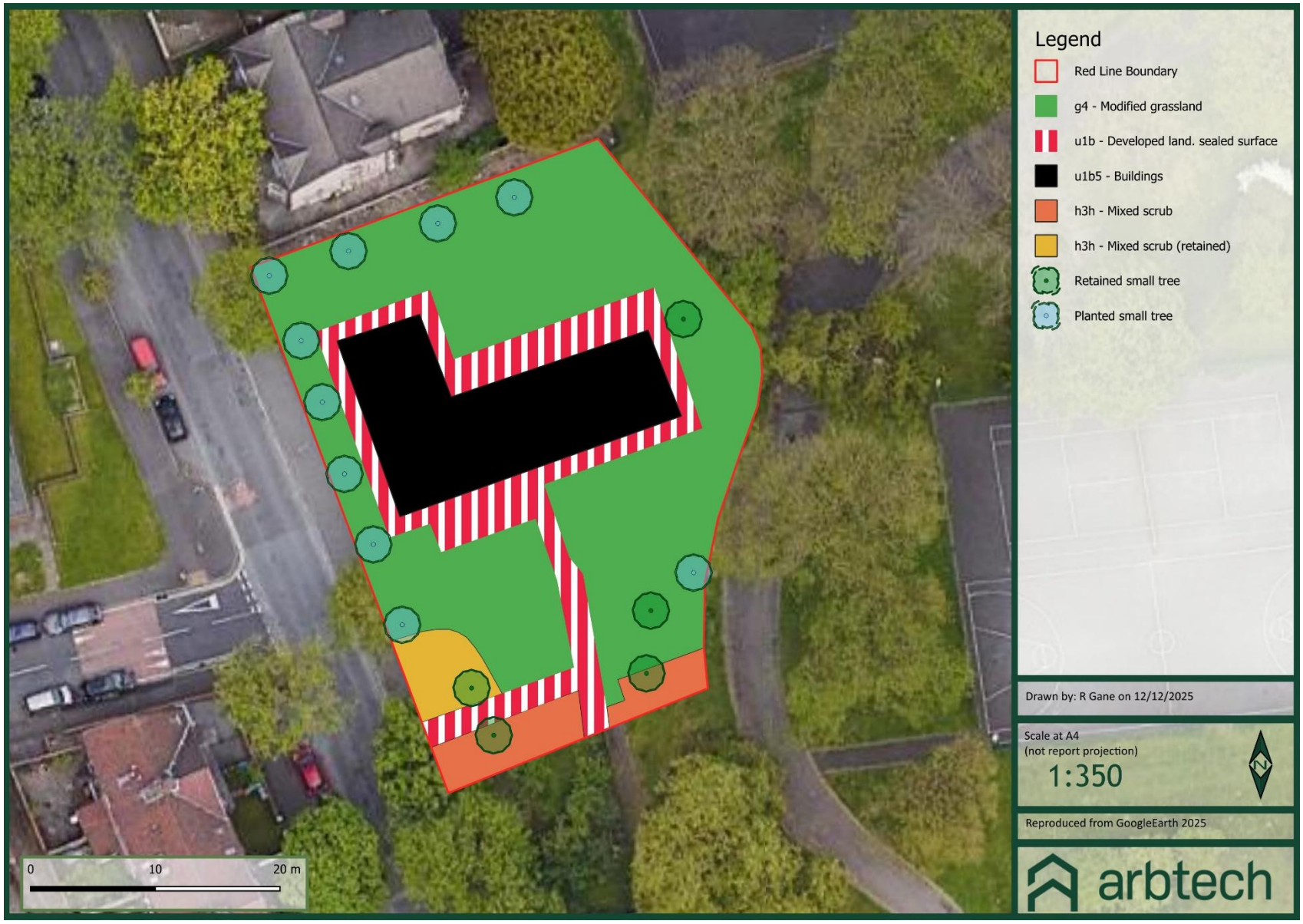
Appendix 1: Proposed Development Plan



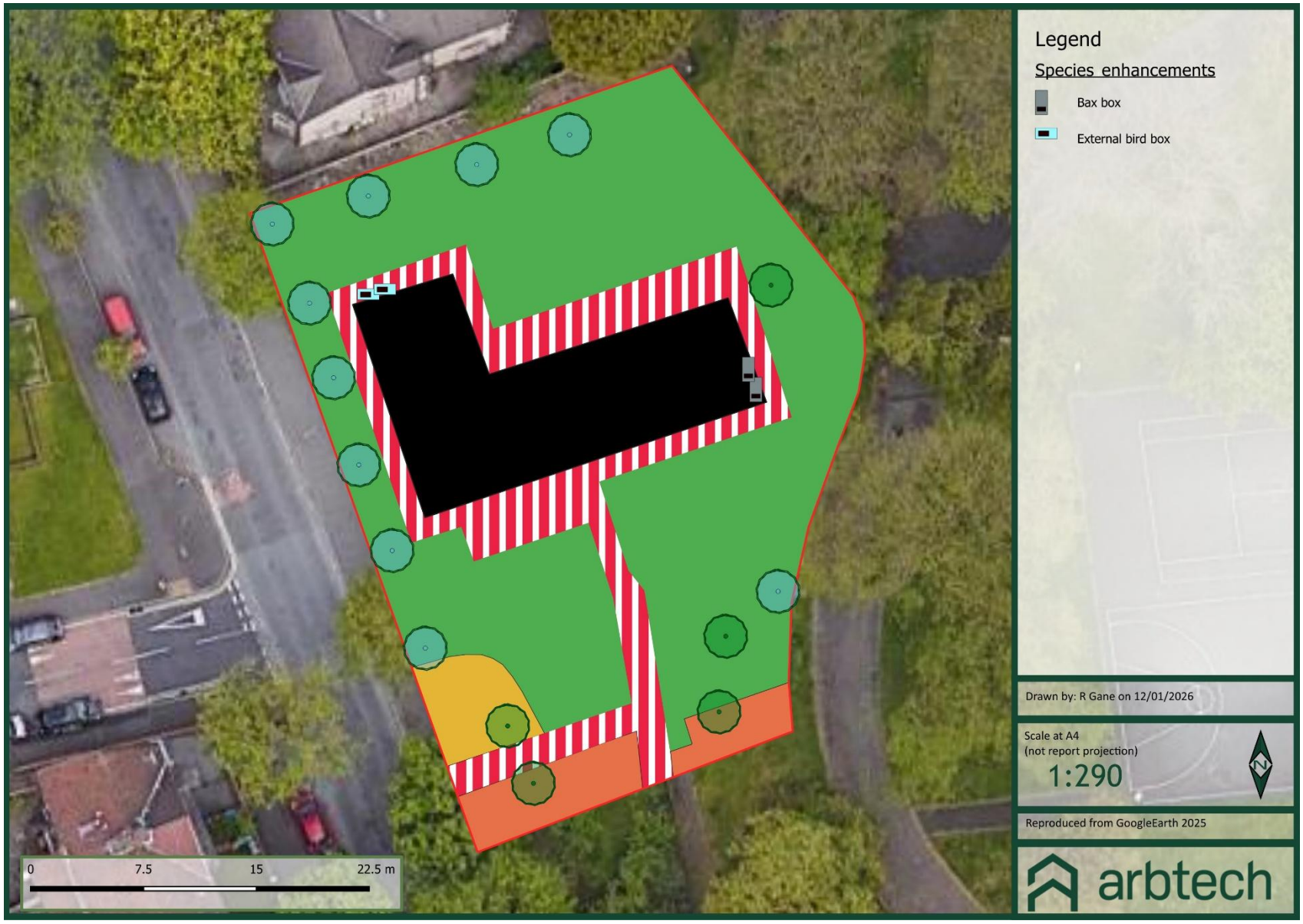
Appendix 2: Site Location Plan



Appendix 3: Post Development Habitat Plan



Appendix 4: Enhancement Plan



Appendix 5: Dark corridors

