

Ecological Mitigation, Enhancement and Management Plan

Survey site: 12 Smelt Road, Coedpoeth, Wrexham, LL11 3SH

Client: Terfynfa Kennels

Date: 22/06/2026

Project:

This report is prepared to inform a planning application with Wrexham Council. The proposal is described as: *Removal of existing kennels for proposed residential development*

Planning Application Number: P/2022/0754

Introduction

This Ecological Mitigation, Enhancement and Management Plan (EMEMP) has been prepared for the above-named client to outline measures to be implemented during construction works at the above-named site.

The purpose of this plan is to ensure the protection and mitigation of ecological receptors, adhere to best practices and industry standards, and provide adequate supervision by licensed professionals. The EMEMP also outlines the management frameworks required for the planning and implementation of construction activities that comply with legislation and the environmental commitments.

The below table provides the wider ecological context of the site and details any associated planning conditions.

Site Context and Landscape History
The site is located at National Grid Reference SJ 27924 51411 and has an area of approximately 0.2ha comprising of the existing residential dwelling, working kennels, amenity grassland and hard standing. It is surrounded by residential dwellings with associated hard standing and amenity planting. A previous report was produced by Arbtech in 2022 for the site, using the same proposals. The report identified no major constraints to development. This report and survey are for the purpose of updating this baseline survey. The site is in a semi-rural area of east Wales, close to the England/Wales border. The landscape is dominated by residential dwellings and agricultural fields, with the village of Coedpoeth extending adjacent to the east. There are small, scattered woodland area and tree lines in the local area, which could be used by wildlife for shelter, foraging and commuting. Scattered irrigation ditches around the area will provide abundant insect foraging for birds and bats.

The below table describes the ecological baseline conditions on site.

Ecological Background Information
Detailed using desk study and site survey.
The site had a PEA report completed on the 8 th of November 2024 by Arbtech Consulting LTD, with a previous ecological assessment conducted by Arbtech in 2022.

Habitats identified at the site include-

- Building
- Other developed land
- Other neutral grassland
- Modified grassland
- Non-native and ornamental hedgerow

This does not include habitats identified outside of the development boundary, in the wider site landscape.

Value for protected species on the site includes the following-

- **Birds**- No evidence of nesting birds was identified on or within B1. B1 is deemed to provide negligible habitat value
- **Bats**- All buildings on site was found to have negligible habitat value for roosting bats. Habitats recorded on site are assessed to provide foraging and commuting opportunities for bats in the form of grassland, shrubs and hedgerows.
- **Reptiles** - Habitats recorded on site are assessed to provide suitable foraging, commuting, and refuge opportunities for reptiles in the form of ornamental shrubs, rank grassland and hedgerow.
- **Amphibians** - No ponds are present on site or within 500m of the site. The site provides limited suitable terrestrial habitat for amphibians given the lack of optimal habitat (i.e. scrub, rank grassland).
- [REDACTED]
- **Riparian mammals** – The River Clywedog is present approximately 105m to the west of the site. The banks of the watercourse up to the site are extremely steep and therefore it is unlikely that water vole or otter will travel up the banks to the site.
- **Hazel dormouse** - There are no suitable habitats for dormice within the development area.
- **Other** - The ruderal herb onsite provides limited foraging and commuting opportunities for hedgehogs, with woodland habitat nearby.

The following tables detail the proposed mitigation, habitat creation and biodiversity enhancement measures for the development as well as management requirements to ensure the longevity of these measures as detailed in the PEAPRA and Reptile RAMS. These include further details of the habitats on site and the impacts of the development upon them and will be read in conjunction with this document.

Scope

This EMEMP outlines construction and ecological measures for the following works: *Removal of existing kennels for proposed residential development.*

Aims and Objectives

This report aims to identify key stakeholder requirements, ensure compliance by all stakeholders with all relevant legislation, minimise potential adverse effects on the environment and protected species during construction, and provide site specific methods to avoid, minimise and mitigate construction effects on the environment and protected species. Further will provide ecological enhancement measures for the site.

Work Schedules and Ecological Presence

Work schedules will be developed to ensure activities with specific timing requirements are conducted in a manner that minimises harm to ecological receptors. These schedules will be provided to all relevant personnel and contractors involved in the project. The following measures will be implemented:

Ecological Clerk of Works

A qualified and suitably experienced ecologist will be present on-site during critical phases of construction activities, namely vegetation removal. Their role will be to oversee and monitor compliance with the EMEMP, provide guidance, and take immediate action to prevent any harm to protected species. Should protected species be identified during tile removal, works will be halted whilst Natural Resources Wales is contacted.

Persons Responsible and Lines of Communication

A Development Biodiversity Champion is selected for the construction phase of the development. The Biodiversity Champion will be someone with significant influence during construction, such as the contract, site or project manager. They are responsible for ensuring all actions outlined in the approved EMEMP are implemented including the provision of a toolbox talk prior to works commencing. Any queries with regards to the mitigation prescriptions will be addressed to the project ecologist and communication will be retained between the Development Biodiversity Champion and project ecologist and/or a suitably qualified Ecological Clerk of Works (ECoW) throughout the construction phase of the development where necessary to ensure the mitigation is applied and impacts to adjacent 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

and designated ECoW of the commencement of construction works and provides updates where necessary. The ECoW will provide ecological expertise and guidance throughout.

Table 2- Construction and Ecological mitigation measures-

Ecological Mitigation Measures	This table includes any measure required to obtain or comply with planning permission or other consent and to comply with legislation.
Ecological Protection Areas and Buffer Zones	
Ecological protection areas and buffer zones within the project site. These areas will be demarcated using physical means of protection, such as exclusion fencing, to prevent unauthorised access and minimise disturbance to sensitive habitats.	
Tree Protection	
Tree root protection areas will be identified based on the existing tree inventory. A buffer from retained trees and woodland will be established and protected throughout the duration of construction activity. No trenches or ground works will be completed within the specified buffer of any retained trees on site. Trees will be appropriately protected in accordance with BS 5837:2012 - "Trees in relation to design, demolition and construction – Recommendations." As such, it is recommended that the trees are separated from construction works by protective fencing throughout the duration of the construction phase of the development. A fencing specification is included within Figure 1 below. Appropriate signage is to be included on the fencing in order to ensure that fences are not moved after establishing. As shown in Figure 2	

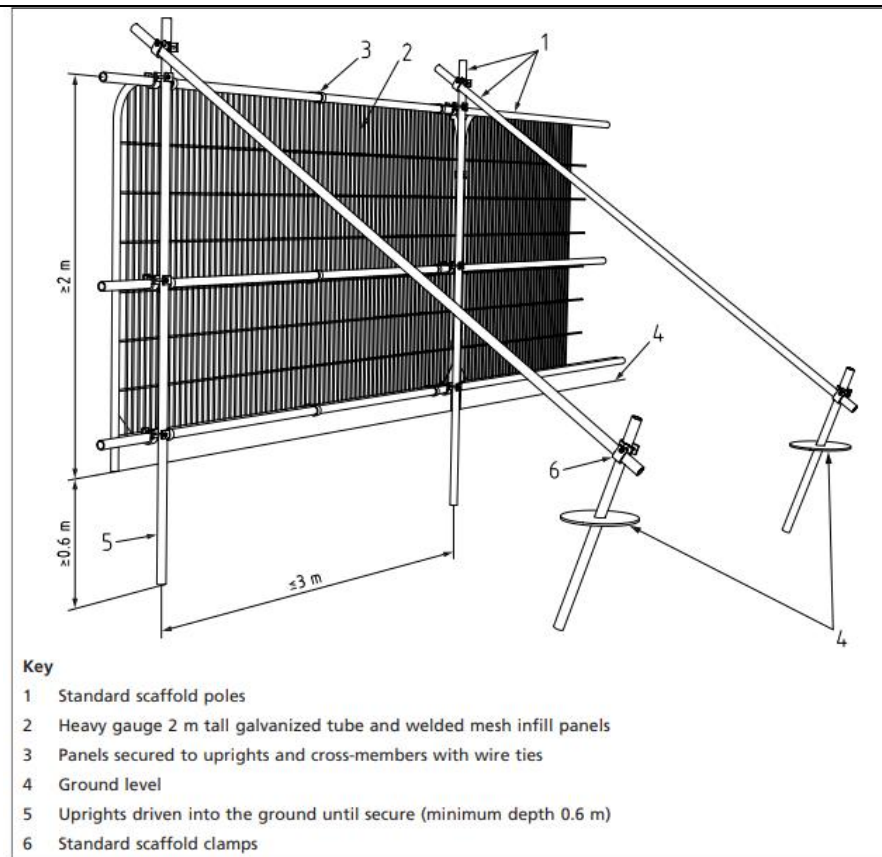


Figure 1: Default protective barrier specification (British Standards Institute 2012).



Figure 2 Appropriate signed to attached to root protection zone fencing- Source- www.Safetysignsandnotices.co.uk

Pollution Prevention

<i>Statutory Compliance</i>	To limit impacts of pollution resulting from the construction phase of the development, construction works must be completed in accordance with current statutory guidelines relating to pollution prevention (Environmental Agency 2016). Furthermore, although withdrawn in 2015, pollution prevention guidelines detailed within guidance document: <i>PPG6: Working at Construction and Demolition Sites</i> (Environment Agency 2010) remain applicable to the site. Considering both the relevant statutory requirements and best practice measures detailed within guidance document PPG6, the below mitigation prescriptions are considered suitable to mitigate impacts of pollution during the construction phase of the development. The allocated Biodiversity Champion will be responsible for ensuring the below mitigation recommendations are undertaken successfully during the works.
<i>Materials Storage and Surface Water Runoff</i>	It is recommended that the Biodiversity Champion ensures that:

	• No stockpiles are created on exposed ground areas and ensure that all materials and chemicals are stored securely and safely on site in accordance with current Control of Substances Hazardous to Health (COSHH) regulations (HSE 2002). • Contaminated materials, chemicals, and other hazardous substances must be stored on an impermeable surface, in a bunded area, within any area of the site. • All chemicals and hazardous substances are stored away from areas where there is heightened risk of damage from impact or collision such as site traffic. • All chemicals and hazardous substances are labelled; containers are sealed when not in use and inspected regularly and fit for purpose. • Any damaged or old containers are replaced in line with the duty of care requirements. Note such containers may be considered hazardous waste. • Staff are trained in use of spill kits and emergency procedures. • Ensure there is a designated 'responsible person' on site at all times. • Lock storage facilities when not in use.
<i>Site Drainage</i>	It is recommended that the Biodiversity Champion ensures that: • Pollution risks are identified pre-construction. • Pollutants are prevented from entering drains where possible. • If any pollutant enters a drain, immediately stop the pollution with a physical block, stop the activity causing the pollution, then notify the Environment Agency for surface water drains or the local sewerage provider for foul water drains. If there is a spill, accident, or emergency, try and prevent pollutants entering the drains. • Report all pollution incidents to site management and the Environment Agency. • Inspect drains and protection measures frequently and maintain them during the construction activity. Well maintained drains will also reduce risks of flooding and subsequent surface water run-off.

	As a last resort, should any pollutants be required to enter the drainage system on site, permission from Environment Agency or the local sewerage provider must be sought before discharging anything other than clean uncontaminated surface water to a drain and other surface waters or groundwater. Apply for permission early, as authorisation can take up to four months.
<i>Airborne particle suppression</i>	It is recommended that the Biodiversity Champion ensures that: - Effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. - Avoid explosive blasting, using appropriate manual or mechanical alternatives. - Bag and remove any biological debris or damp down such material before demolition. - Carry out regular site inspections to monitor compliance. - Ensure all vehicles switch off engines when stationary. - Avoid the use of petrol- or diesel-powered generators and use mains electricity or battery power where possible. - Only use cutting, grinding, or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction. - Ensure an adequate water supply on the site for effective dust/ particulate matter suppression/ mitigation, using non-potable water where possible and appropriate. - Use enclosed skips and conveyors and covered skips.
<i>Noise</i>	The Biodiversity Champion must ensure that noise levels are kept to a minimum in accordance with best practice as defined in the Control of Pollution Act 1974 to avoid unacceptable levels of noise and vibrations. Further guidance can be found in British Standard 5228-1:2009. Such measures applicable to the proposed development primarily include agreed working hours limiting night work, using the quietest equipment and plant available, shutting down equipment when not in use, and completing deliveries during working hours only. Most notably,

prescriptions as to limit noise of plant machinery as detailed within **Table B.1** within the code of practice for noise control (British Standards Institution, 2014) is likely to have the most significant impact during construction activity. Table B.1 is shown below.

Table B.1 Methods of reducing noise levels from construction plant

Plant	Noise reduction of plant			Alternative plant
	Source of noise	Possible remedies (to be discussed with machine manufacturers)	A-weighted sound reduction dB	
Hammer drive piling equipment	Pneumatic/diesel hammer or steam winch vibrator driver	Enclose hammer head and top of pile in acoustic screen	5 to 10	Bored piling Vibratory system
	Sheet pile	Acoustically dampen sheet steel piles to reduce levels of resonant vibration		Drop hammer completely enclosed in box with opening at top for crane access
	Impact on pile	Use resilient pad (dolly) between pile and hammer head. Packing needs to be kept in good condition		Steel jacket completely enclosing drop hammer with dolly and polystyrene chips fed to impact surface to dissipate energy
	Cranes cables, pile guides and attachments	Careful alignment of pile and rig		Pressed-in piling which generates its driving force from the frictional restraint of other piles
	Power units or base machine	Fix more efficient sound reduction equipment or exhaust. Acoustically dampen panels and covers. When intended by the manufacturer, engine panels need to be kept closed. Use acoustic screens when possible		
Earth-moving plant: • bulldozer • compactor • crane • dump truck • dumper • excavator • grader • loader • scraper	Engine	Fit more efficient exhaust sound reduction equipment Manufacturers' enclosure panels need to be kept closed	5 to 10	Alternative super silenced plant might be available. Consult manufacturers for details

Table B.1 Methods of reducing noise levels from construction plant (continued)

Plant	Noise reduction of plant			Alternative plant
	Source of noise	Possible remedies (to be discussed with machine manufacturers)	A-weighted sound reduction dB	
Compressors and generators	Engine	Fit more efficient sound reduction equipment	Up to 10	Super silenced plant is available. Consult manufacturers for details Electric-powered compressors are available as opposed to diesel or petrol Sound-reduced compressor or generator can be used to supply several pieces of plant. Use centralized generator system
	Compressor or generator body shell	Acoustically dampen metal casing Manufacturers' enclosure panels need to be kept closed		
	Total machine	Erect acoustic screen between compressor or generator and noise-sensitive area. When possible, line of sight between top of machine and reception point needs to be obscured	Up to 10	
Pneumatic concrete breaker, rock drills and tools		Enclose compressor or generator in ventilated acoustic enclosure	Up to 20	Hydraulic and electric tools are available For large areas of concrete, machine designed to break concrete in bending can be used Thermic lance
	Tool	Fit suitably designed muffler or sound reduction equipment to reduce noise without impairing machine efficiency Ensure all leaks in air line are sealed	Up to 15	
	Bit	Use dampened bit to eliminate ringing		
	Total machine	Erect acoustic screen between compressor or generator and noise-sensitive area. When possible, line of sight between top of machine and reception point needs to be obscured	Up to 10	
Rotary drills, diamond drilling and boring		Enclose breaker or rock drill in portable or fixed acoustic enclosure with suitable ventilation	Up to 20	Thermic lance
	Drive motor and bit	Use machine inside acoustic shed with adequate ventilation	Up to 15	

	Table B.1 Methods of reducing noise levels from construction plant <table><tr><th rowspan="2">Plant</th><th colspan="3">Noise reduction of plant</th><th rowspan="2">Alternative plant</th></tr><tr><th>Source of noise</th><th>Possible remedies (to be discussed with machine manufacturers)</th><th>A-weighted sound reduction dB</th></tr><tr><td rowspan="5">Hammer drive piling equipment</td><td>Pneumatic/diesel hammer or steam winch vibrator driver</td><td>Enclose hammer head and top of pile in acoustic screen</td><td>5 to 10</td><td rowspan="5">Bored piling Vibratory system Drop hammer completely enclosed in box with opening at top for crane access Steel jacket completely enclosing drop hammer with dolly and polystyrene chips fed to impact surface to dissipate energy Pressed-in piling which generates its driving force from the frictional restraint of other piles</td></tr><tr><td>Sheet pile</td><td>Acoustically dampen sheet steel piles to reduce levels of resonant vibration</td><td></td></tr><tr><td>Impact on pile</td><td>Use resilient pad (dolly) between pile and hammer head. Packing needs to be kept in good condition</td><td></td></tr><tr><td>Cranes cables, pile guides and attachments</td><td>Careful alignment of pile and rig</td><td></td></tr><tr><td>Power units or base machine</td><td>Fix more efficient sound reduction equipment or exhaust. Acoustically dampen panels and covers. When intended by the manufacturer, engine panels need to be kept closed. Use acoustic screens when possible</td><td></td></tr><tr><td>Earth-moving plant: • bulldozer • compactor • crane • dump truck • dumper • excavator • grader • loader • scraper </td><td>Engine</td><td>Fit more efficient exhaust sound reduction equipment Manufacturers' enclosure panels need to be kept closed</td><td>5 to 10</td><td>Alternative super silenced plant might be available. Consult manufacturers for details</td></tr></table>	Plant	Noise reduction of plant			Alternative plant	Source of noise	Possible remedies (to be discussed with machine manufacturers)	A-weighted sound reduction dB	Hammer drive piling equipment	Pneumatic/diesel hammer or steam winch vibrator driver	Enclose hammer head and top of pile in acoustic screen	5 to 10	Bored piling Vibratory system Drop hammer completely enclosed in box with opening at top for crane access Steel jacket completely enclosing drop hammer with dolly and polystyrene chips fed to impact surface to dissipate energy Pressed-in piling which generates its driving force from the frictional restraint of other piles	Sheet pile	Acoustically dampen sheet steel piles to reduce levels of resonant vibration		Impact on pile	Use resilient pad (dolly) between pile and hammer head. Packing needs to be kept in good condition		Cranes cables, pile guides and attachments	Careful alignment of pile and rig		Power units or base machine	Fix more efficient sound reduction equipment or exhaust. Acoustically dampen panels and covers. When intended by the manufacturer, engine panels need to be kept closed. Use acoustic screens when possible		Earth-moving plant: • bulldozer • compactor • crane • dump truck • dumper • excavator • grader • loader • scraper	Engine	Fit more efficient exhaust sound reduction equipment Manufacturers' enclosure panels need to be kept closed	5 to 10	Alternative super silenced plant might be available. Consult manufacturers for details
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Implementation of the Waste Hierarchy	The Biodiversity Champion must ensure that all construction activity is completed in accordance with the Waste Hierarchy (Defra 2011) in an attempt to reduce the amount of water produced during the construction phase of the development. As such, the construction phase must be completed in accordance with the below core principles: <i>In the first instance:</i> • Re-use products and materials where possible.																														

	• Recycle and compost material resources where possible. • Attempt to recover energy from waste. <i>Where none of the above options offer an appropriate solution, waste disposal is the final option:</i> • Only transfer controlled waste to an “authorised person” (Waste Collection Authority, the holder of an Environmental Permit, Registered Water Carrier or Waste Disposal Authority). • Ensure that non-hazardous waste is transferred under a Waste Transfer Note which must be retained for two years. • Hazardous waste is moved under a waste consignment note that provides a clear description of the waste material. The consignment note must be retained for three years. • The waste is the responsibility of the company until it has been fully recovered or finally disposed of.
Biosecurity and Invasive Species Management¹	
<i>Invasive/non-native Species Mgt</i>	No invasive non-native species as listed under the Wildlife and Countryside Act (1981) or known otherwise to be problematic were found to be present on site during the report. However, there is a risk that invasive and non-native species could be introduced onto the site during construction via boots, vehicle wheels and imported materials. This risk will be managed via the implementation of appropriate biosecurity measures as listed below.
<i>Biosecurity</i>	A Biosecurity Declaration Form will be distributed via email to all contractors intending to send plant machinery to the development site. This instructs that power washing of all plant prior to entry on site to remove all traces of mud debris etc. The completed form must be returned to the site Biodiversity Champion prior to deliver/access.

¹ <https://ccsbestpractice.org.uk/entries/biosecurity-preventing-the-introduction-of-invasive-species-to-site/>

[https://www.nonnativespecies.org/biosecurity/biosecurity-in-the-field/#:~:text=Basic%20biosecurity%20advice%20for%20site%20visits&text=If%20practical%20do%20not%20take,debris\)%20before%20leaving%20the%20site.](https://www.nonnativespecies.org/biosecurity/biosecurity-in-the-field/#:~:text=Basic%20biosecurity%20advice%20for%20site%20visits&text=If%20practical%20do%20not%20take,debris)%20before%20leaving%20the%20site.)

	This form and a copy of the EMEMP will be sent to all subcontractors that intend to bring machinery onto the site. Upon arrival to site the plant item is inspected at a designated quarantine area. This inspection ensures the delivered plant item has been thoroughly cleaned. Should the item of plant be deemed to be inadequately cleaned it will be refused entry. <i>Advice for Contractors on Site.</i> 1. Avoid taking any vehicles onto the parkland beyond those essential in completing works, keep to established tracks and park vehicles on established parking areas away from the pasture. 2. Arrive at the site with clean equipment, and vehicle, paying particular attention to wheels. 3. Ensure equipment and footwear is clean (visually from soil and debris) before entering the site. 4. Facilities will be provided on the site in the work zone surrounding the buildings to clean footwear/equipment. 5. Keep access to a minimum. Such robust biosecurity measures will prevent the leaving behind of a degraded environment and subsequent financial bills for the control of introduced invasive species, or any species that may alter communities within nearby designated sites.
Wildlife Protection – Precautionary Methods of Working-	
<i>Herpetofauna</i>	There are no onsite ponds or connected ponds within 500m of the site, therefore GCN is considered a low risk on site. The site is considered suitable for reptiles. The adjacent habitats further provide elevated habitat for reptiles; there is a risk that low numbers could be present adjacent to site.

The proposed works are not anticipated to lead to any significant 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.

Site Management During Construction

- During the course of construction works a check within the development area for reptiles must be carried out by contractors at the commencement of each working day, with any found relocated to safety within woodland to the west. Any materials will be stored on pallets away from tall vegetation or boundaries.
- Rubble created during the development will be safely disposed of in a skip. If no skip is available the rubble will be stored off the ground (e.g. on pallets) until it can be removed from site, to prevent common reptiles and amphibians from using the rubble piles for hibernation or refugia.
- All trenches will (where possible) be backfilled before nightfall, or a ramp will be left to allow amphibians to easily exit. Any trench that could not be closed the previous day must be checked for reptiles and amphibians at the beginning of the next working day; particularly where this is scheduled for infilling.
- Any chemicals or pollutants used or created by the development will be stored and disposed of correctly according to COSHH regulations.
- Where for any reason contractors are a non-compliant and rubble and other piled items are left on the floor overnight or for any period of time beyond that working day, they must be dismantled by hand.
- Any reptiles or common amphibians found must be encouraged to move away of their own volition, or if in immediate danger and unable to perambulate themselves, will be captured in gloved hand or by any other means avoiding injury and safely relocated to suitable cover within retained habitat. No amphibian will be handled via bare hand due to the risk they may absorb toxic compounds through their permeable skin.

	If at any point GCN or reptiles are found during development, all works must cease until further advice has been obtained from a qualified ecologist and the relevant regulators.
<i>Birds</i>	The buildings on site are considered negligible for nesting birds, however the vegetation on site provides opportunities for birds to nest. The proposed development could result in the destruction or the disturbance and subsequent abandonment of active bird nests. Demolition of buildings and other activities will be undertaken outside the core nesting period 1st March to 31st August. If this timeframe cannot be avoided, a nesting birds check of the ivy (and any remaining or regrowth vegetation from earlier cuts) will be undertaken, by the project ecologist or ECoW, within 48 hours prior to the commencement of work. All active nests will need to be retained with a species-appropriate (generally 5m) buffer until the young have fledged (species specific but typically 4-6 weeks). A watching brief will be undertaken during clearance in case any nests were not evident during the first check. The buffer will need to be increased in the event of the presence of any Schedule 1 species as reckless disturbance as well as destruction of the nests of such species is an offence. Buffer zones regarding schedule 1 species are on a case by case, species by species basis and must be reflected accordingly. If schedule 1 species are identified nesting, these areas must be retained, and suitable fencing and signage installed to prevent encroachment into these areas. It is an offence to recklessly disturbed adult and independent young in proximity to their nests as well as the nests themselves. Examples of appropriate installed worksigns are shown in Figure 3. Signs can also be installed in regard to non-schedule 1 species, installed in full view in areas where nesting birds have been identified on the pre-work checks.



Figure 3- Work signage regarding nesting birds on the site. Source- www.Britishsafety signs.co.uk

<i>Bats</i>	Bat roosts are not expected to be directly impacted by the development but may be disturbed during commuting and foraging activities. A lighting strategy is provided later within the report.
<i>Badgers and other terrestrial mammals</i>	The following recommendations are given in order to mitigate against potential harm to hedgehogs, badgers and other mammalian fauna during the development works. • The work zone will be checked for wildlife prior to works commencing, with any fauna encouraged to move away via their own volition or transported by gloved hand to the reptile receptor area if this is not possible. This will only apply to smaller mammal species. Larger mammals such as badgers and foxes will not be transported by hand. • Any inadvertently injured wildlife will be taken to an appropriate local wildlife carer or vet. • Any trenches dug will ideally be backfilled before contractors leave. If this is not possible, they will be covered at night or have a rough sawn plank placed in them to act as a ramp for any wildlife which may fall in. They must be checked for wildlife before backfilling. • Security lighting must be directed away from undergrowth and vegetated site boundaries.

	Any chemicals or pollutants used or created by the development will be stored and disposed of correctly according to COSHH regulations.
Lighting Strategy	
The habitats on site have high habitat value for roosting, commuting and foraging bats and other nocturnal wildlife within what is at present a dark area. Additional lighting 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 08/18: Bats and Artificial lighting in the UK (BCT & ILP 2018). 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: - The species-specific habitat enhancements detailed below, predominantly the bird and bat boxes. - 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: - 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 foot path 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 <4,200 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 4:**

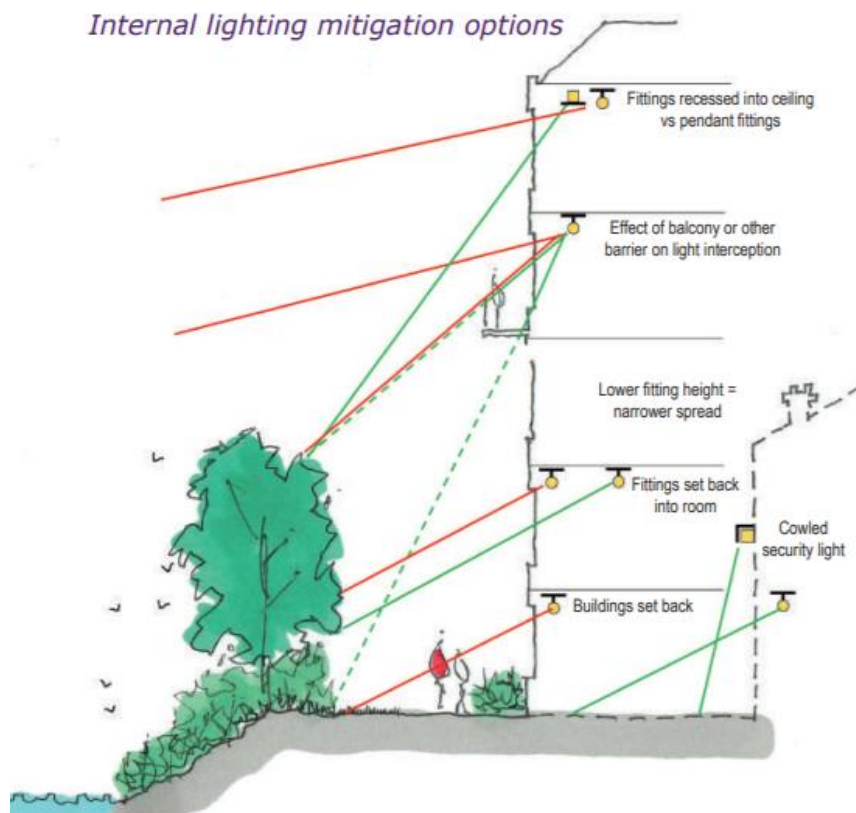


Figure 4- Mitigation measures for internal lighting.

2.0 Habitat Creation and Biodiversity Enhancement Measures

Table 3 details the habitat creation and biodiversity enhancement measures for the site. These are also illustrated in **Appendix 2** for habitat and 3 for fauna species.

Ecological/Biodiversity enhancement and management measures	This table includes any measure required to obtain or comply with planning permission, conditions, or other consent and to comply with legislation.
Works	Specification
Bat Boxes	Overview: A total of two bat boxes will be installed, comprising integrated bat boxes into the new buildings. The proposed locations are shown on the plans provided in Appendix 2. Details of the bat boxes recommended for the sites are as follows: <i>Integrated bat boxes to be integrated into the façade of new buildings</i> • The recommended integrated bat bricks 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. Integrated Eco Bat Box with Cavity (or similar) (see Figure 5) will be installed into the façade of new buildings within the new home. This bat brick type is suitable for integration into a range of building types including brick walls, timber cladding, and stone and are suitable to support a range of species including common pipistrelles <i>Pipistrellus pipistrellus</i> and soprano pipistrelles <i>Pipistrellus pygmaeus</i> which are likely to be present in the local area. • The bat boxes will be positioned 3-5m above ground level facing a southwest elevation with a clear flight path to and from the entrance, away from artificial light and facing vegetated habitats.



Figure 5: Integrated Eco Bat Box with cavity suitable for a range of crevice dwelling bat species.

(Photo credit: <https://www.wildcare.co.uk/integrated-eco-bat-box-cavity.html>)

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.

Bird Boxes

Two bird boxes are recommended to be installed on site, upon the new buildings.

Integrated bird boxes to be integrated into the façade of new buildings

- 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.
- 2No. Vivara Pro Woodstone House Sparrow Nest Boxes (or similar) (see **Figure 6**) will be installed into the façade of new buildings. This bird box type is designed to provide enhanced nesting opportunities for house sparrow *Passer domesticus*. House sparrows are priority

species listed on Section 41 of the NERC Act. However alternative species like tits will also utilise these boxes if sparrows are not present.

- The bird box will be positioned approximately 3m above ground level facing a northern elevation where they will be sheltered from prevailing wind, rain and strong sunlight.



Figure 6: Vivara Pro Woodstone House Sparrow Nest Box Nest Box (image credit arkwildlife.co.uk)

Recommended Management:

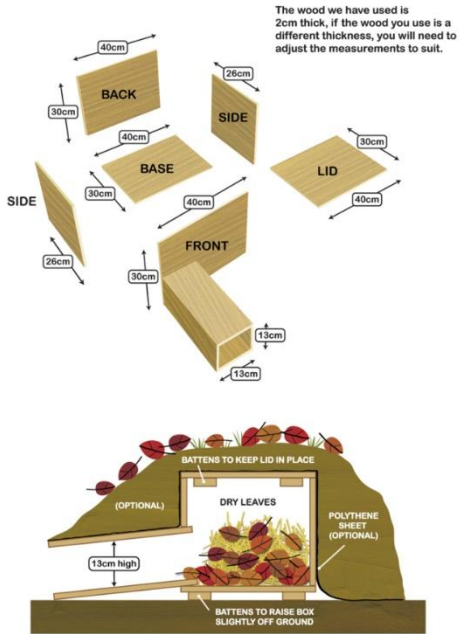
The proposed bird boxes are designed to require no management or maintenance. Furthermore, preventing physical disturbance of bird boxes will increase the chances of occupation by nesting birds. However, it is recommended that the bird boxes are inspected annually for the first five years outside of 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.

Hedgehog House

A hedgehog house will be installed adjacent to the retained tree line within the wider site ownership (**Figure 7**). A hedgehog house suitable for the site (or a similar alternative brand) can be found here: <https://www.nhbs.com/hedgehog-house> This is to be installed in a quiet area, near retained or created shrub and hedgerows. This will be an area where it will not be regularly disturbed. Hedgehog houses can also be partially buried underneath turf to hide it greater. (**Figure 8**) to create a more permanent structure.

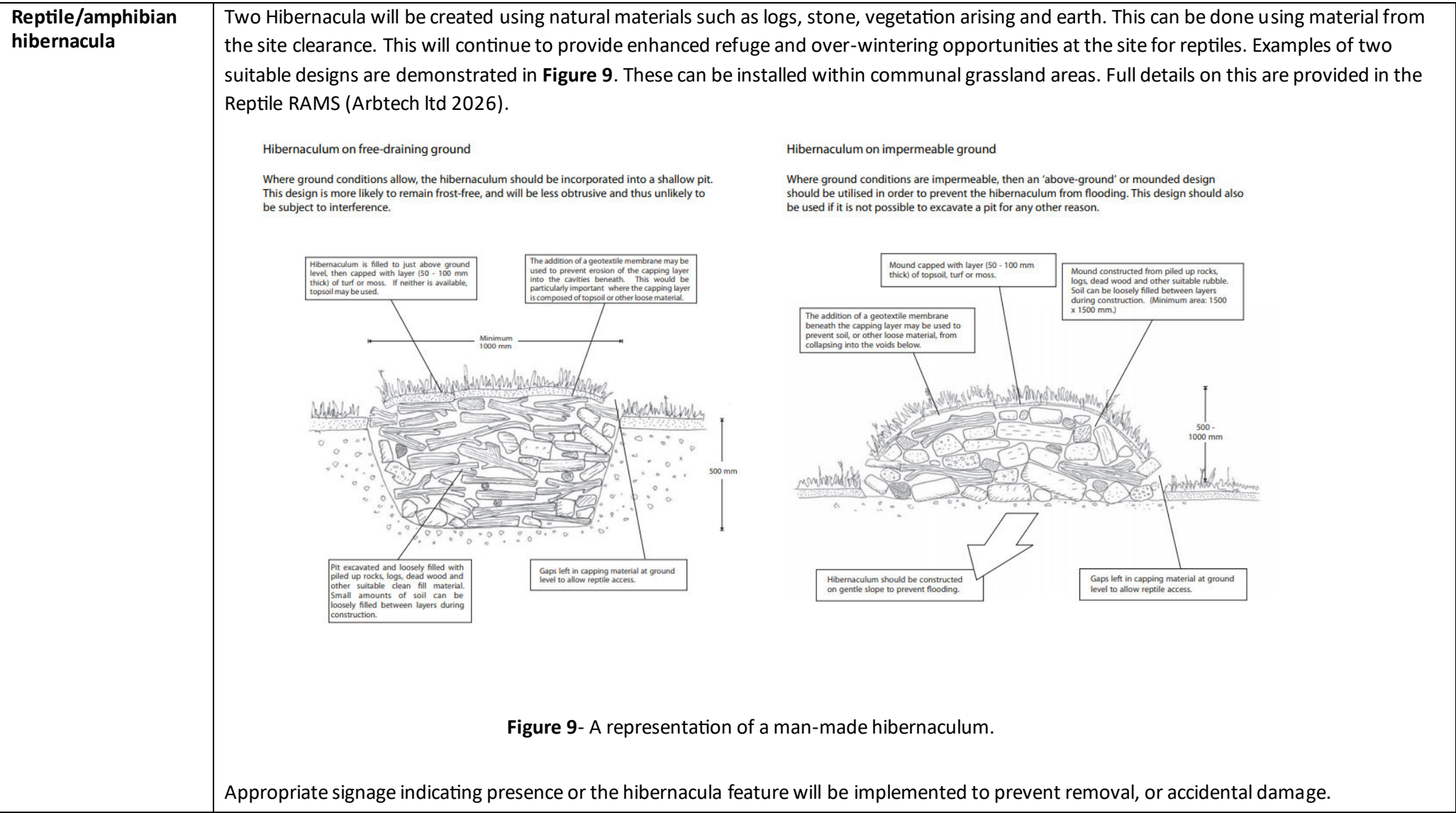


Figure 7: Hedgehog house (image credit www.nhbs.co.uk)



IMPORTANT: Do not creosote or treat wood with non-water based preservatives or paint.
(Even water based preservatives should only be used on outside of box).

Figure 8- Permanent buried hedgehog house- source www.Britishhedgehogs.org.uk

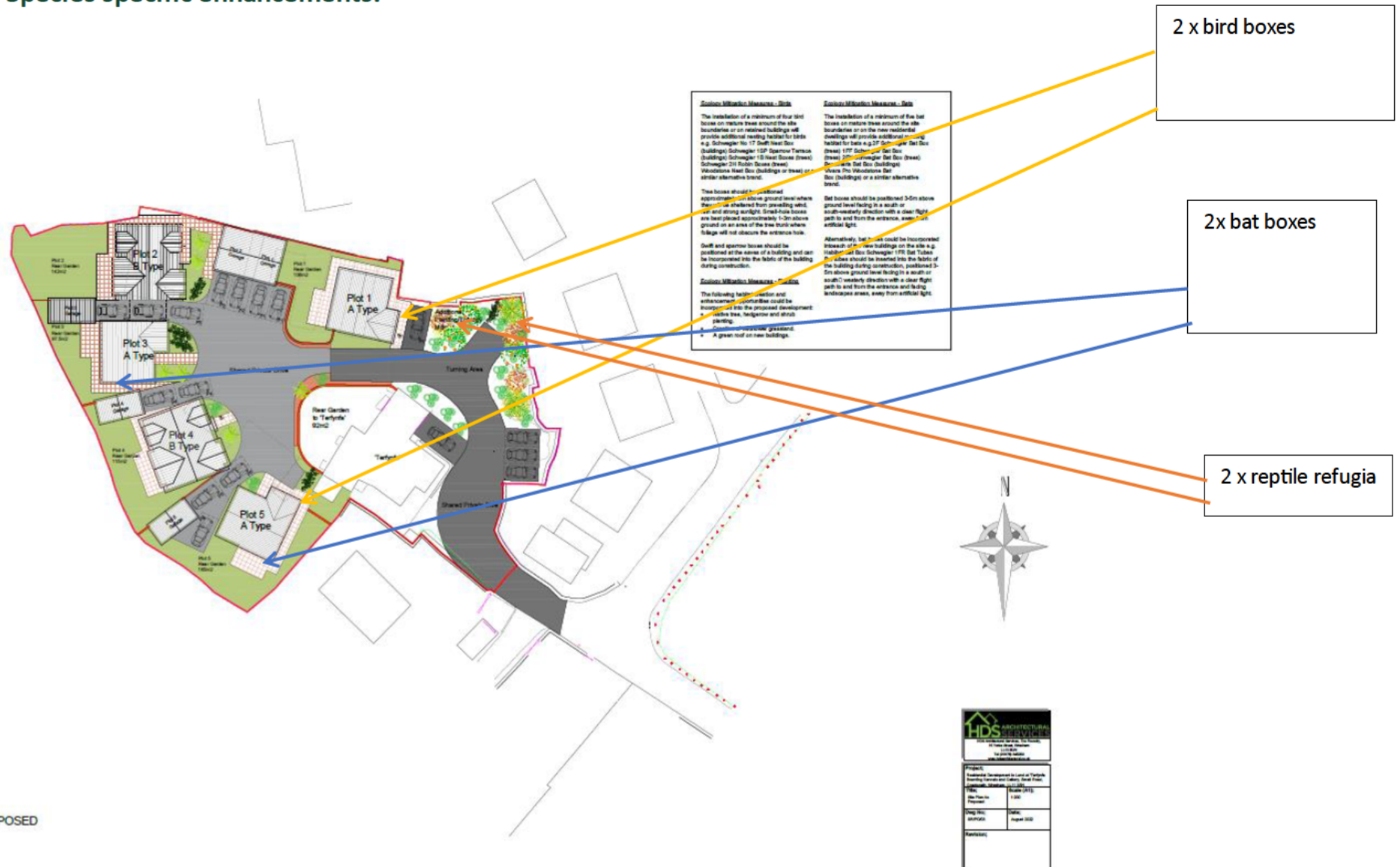


Compliance and Reporting

The EMEMP requires stakeholders to comply fully with the pre-construction and construction-related elements of any mitigation strategies agreed with the Local Planning Authority and Natural Resources Wales under any license requirements. Construction activities will therefore be conducted strictly in accordance with the approved CEMP. Regular inspections and monitoring will be undertaken to ensure compliance with the plan's requirements.

Any deviations or incidents that may affect ecological receptors will be immediately reported to the designated ecologist / Natural Resources Wales. Updates to the EMEMP will be relayed to the Local Planning Authority.

The EMEMP will be periodically reviewed and updated as necessary throughout the construction phase to address changing site conditions and evolving ecological considerations.



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