Landscape and Ecological Management Plan

Former Commercial Site, Great Bear Unit 1, off Weighbridge Rd, Deeside, Flintshire

CH5 2LL

Great Bear Distribution Ltd

Status	Issue	Name	Date
Final	1	Lizi Pimlott BSc (Hons) MSc MCIEEM MRSB	12/12/2023

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Industry Guidelines and Standards

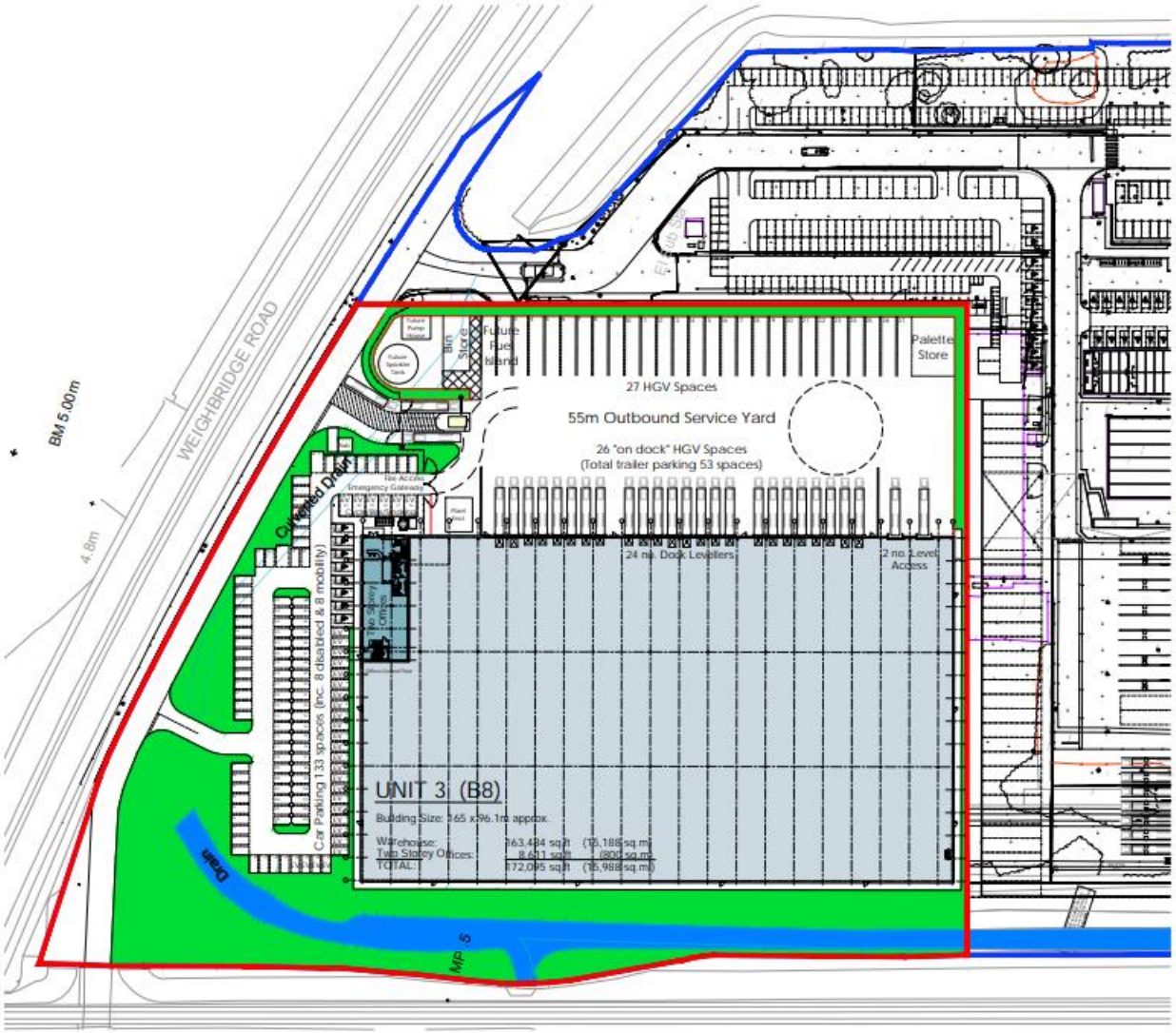
This report has been written with due consideration to:

- Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- British Standard 42020 (2013). Biodiversity – Code of Practice for Planning and Development.
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.

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.
>
> 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)

Contents



Schedule of Accommodation
All areas are approximate gross internal

Unit 3		
Warehouse:	15,188 sq.m.	163,484 sq.ft.
Two Storey Offices	800 sq.m.	8,611 sq.ft.
Total	15,988 sq.m.	172,095 sq.ft.
Car Parking	133 spaces	
inc. Disabled parking	8 spaces	
inc. Mobility parking	8 spaces	
Car Parking with EVCP	40 spaces	
Lorry Parking (Yard)	27 spaces	
Lorry Parking (On Dock)	26 spaces	
Lorry Total	53 spaces	
Plot Area (red line)	9.96 acres	4.03 ha.
Site Density	40%	

aja architects

LegatOwen

Great Bear
Link 56
Deeside

Unit 3
Site Layout Plan

7205-SK01
SKETCH PROPOSAL

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1.0 Introduction

Arbtech Consulting Limited was instructed by Great Bear Distribution Ltd to produce a Landscape and Ecological Management Plan (LEMP) for Former Commercial Site, Great Bear Unit 1, off Weighbridge Rd, Deeside, Flintshire CH5 2LL (hereafter referred to as "the site").

The LEMP was required to inform LE05 of a BREEAM New Construction V6.1 (Industrial) Shell & Core assessment for a new-build warehouse unit (Class B2/B8) up to 16,700sq.m gross, with 160 new car parking spaces, 7 motorcycle spaces, 16 bicycle spaces and 56 new HGV spaces; provision of a service yard and internal vehicular circulation; erection of covered cycle parking area; and perimeter fencing; associated drainage works, site levelling and landscaping (hereafter referred to as "the proposed development"). A plan showing the proposed development is provided in Appendix 1.

This LEMP should be read in conjunction with the following documents:

- Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) completed by Arbtech Consulting in November 2023;
- GN40 BREEAM Ecology Assessment completed by Arbtech Consulting in November 2023; and,
- Statutory Biodiversity Metric completed by Arbtech Consulting in November 2023.

2.0 Site Context and Survey Information

2.1 Site Location and Landscape Context

The site is located at National Grid Reference SJ 31224 71851 and has an area of approximately 4.5ha comprising a working yard, with hardstanding, patches of grassland and scattered trees and scrub. Pockets of woodland and drainage ditches are present to the west and north of the site. It is surrounded by working yards and roads with RSPB Reserve to the ~1,540m to the north and the river Dee ~2,100m to the southwest. The wider landscape comprises pockets of residential dwellings, scattered agricultural fields and roads. A site location plan is provided in Appendix 2.

2.2 Ecological Information

A PEA was completed at the site by The Ecology Practice in February 2022. This was followed by an assessment of the onsite ditch for water vole in August 2023. An updated PEA and PRA was then undertaken by Arbtech Consulting Ltd in November 2023. The results of the surveys are summarised below.

Designated Sites

Five designated sites were identified within 2km of the site, the closest being Dee Estuary Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and Special Area of Conservation (SAC) located 220m away. No impacts on any designated sites were anticipated as a result of the proposed development.

Habitats and Flora

The site comprises an operational work yard containing buildings, car parks and roads. Vegetated habitats include bramble scrub, mixed woodland and modified grassland. There is also a pond in the northeast corner of the site and a wet ditch along the west site boundary. The proposed development will result in the loss of the buildings, hardstanding, modified grassland, two small parcels of woodland, some bramble scrub and the pond. A larger area of woodland and the ditch will be retained. Best practice pollution prevention and tree protection measures were recommended.

Fauna

The site was assessed to have suitability for amphibians, reptiles, badgers, hedgehogs, water voles, bats and nesting birds. Further surveys of the onsite pond were recommended for great crested newts. Precautionary working methods were advised for reptiles, badgers, hedgehogs, water voles and nesting birds as well as a low impact lighting strategy for bats.

3.0 Landscape and Ecological Management Plan

The proposed development will incorporate areas of soft landscaping including the creation of areas of managed grassland, shrub screening, wildflower meadow and the enhancement of retained woodland. Table 1 outlines prescriptions for the creation and future management of the wildflower meadow and the woodland along with specifications for the installation of species-specific enhancements including bat, bird and insect boxes and hibernacula.

Table 1: Landscape and Ecological Management Plan

Works	Specification
Persons Responsible	It is recommended that a Biodiversity Champion is selected for the construction phase of the development. The Biodiversity Champion should be someone with significant influence during construction, such as the contract or project manager. The Biodiversity Champion will be responsible for the provision of the new landscaping and species-specific enhancements. The occupier of the proposed development (i.e. the landowner or managing agent) will be responsible for the management of these features post development.
Management Term	The management prescriptions outlined within this table must be implemented over a period of at least 5 years.
Site Visit and Reporting	An ecologist or another suitably qualified person will make a final site check and sign off once the landscaping and installation of species-specific enhancements are complete.
Wildflower grassland creation	***Overview:*** An area of wildflower grassland covering 0.41ha will be created along the east side of the ditch in the western part of the site, as shown in **Appendix 3**. ***Objectives:*** • To create a successful and species rich wildflower grassland that will provide habitat for pollinating invertebrate species, that will in turn, provide foraging opportunities for notable species groups including bats, birds, badgers, and hedgehogs. • Ensure a healthy species diverse sward is maintained; • Ensure that a natural appearance is retained by utilising a seed mix alongside allowing native species of local prevenance to recolonise from the seedbank; • Employ techniques that use organic fertilizers and minimise the use of chemicals wherever possible. ***Creation Method:*** • **Ground preparation** For areas of ground currently covered by vegetation, any existing weeds should be removed through repeated cultivation and the land subsequently ploughed/ turned to bury all remaining vegetation. For areas of ground currently covered by hardstanding, the hard surface will need to be broken up and removed leaving exposed bare earth suitable for seeding. Once the land has been ploughed/ turned or cleared to bare earth, the soil should be rolled or stamped to produce a firm surface ready for seeding. It is noted that the

underlying soil substrate is expected to contain a high clay content in places. Clay is generally unworkable when very wet or very dry and autumn sowings may therefore not be possible. It is often better to dig or plough the soil in the autumn, allow winter frosts to break down the clods, and prepare a seedbed in the spring.

- **Seeding**
  To be undertaken in the spring between April and May. The following seed rates are recommended:
  40 kg/ha of a wildflower and grass seed mix.
  Inclusion of yellow rattle *Rhinanthus minor* in the seed mix will help suppress vigorous grass growth that may suppress the success of wildflowers within the sward.
- **Bedding in of seed:**

  After sowing, seeds will be 'bedded' in by trampling or light rolling.
- **Seed mix:**

  A combination of two seed mixes is proposed. Specifically, a 50/50 mix of Emorsgate General Purpose Seed Mix EM2 and Emorsgate Mixture for Clay Soils EM4 are proposed to be utilised. This combination of seed mixes will help create a minimum of 9 species per m^2 of grassland and retain a species composition consistent with the UKHabs definition of other neutral grassland. The proposed seed mix combination includes numerous grassland and wildflower species suitable for neutral and clay dominated soils. Notably, the species mix includes yellow rattle which is known to suppress dominant grass species which will allow existing grasses within the seed bank to colonise whilst preventing dominance and thus increasing species diversity per m2. For exact specifications, please refer to: https://wildseed.co.uk/product/mixtures/complete-mixtures/general-purpose-meadow-mixtures/standard-general-purpose-meadow-mixture/ and https://wildseed.co.uk/product/mixtures/complete-mixtures/meadow-mixtures-for-specific-soils/meadow-mixture-for-clay-soils/

Management Prescriptions:

Table 1.1: Wildflower grassland management prescriptions

Management	When	Rationale
Cut meadow twice annually	Late March / early April and– late August/ early Sept	This ensures the meadow does not grow excessively long and become rank but allows wildflowers to set seed and invertebrates to breed. This will also allow a diverse sward of varying lengths to naturally

			occur in accordance with growth characteristics of each species. Cutting twice annually will also prevent encroachment of scrub and bracken.
	Cut grass as to provide a heterogeneous habitat structure aiming to maintain at least 20% of grass <7cm and 20% >7cm. As such, each cutting phase must cut 20% of the area to ground level, 60% of the area to 15cm, and the remainder to 30cm. These areas must be rotated each year to maintain a diverse sward.	Late March / early April and– late August/ early Sept	To retain a diverse sward whilst limiting impacts to protected species potentially present at ground level and ensuring the natural germination of seeds.
	Turn and dry the cut grass over 3-5 days before removing arisings off Site	Post cut	This allows the seeds to drop encouraging species diversity and invertebrates to relocate unharmed.
	Do not apply chemical fertilisers	At all times.	The use of chemical fertilisers will encourage vigorous grasses and weeds to grow or cause large areas of bare ground due to inhospitable growing conditions,
Woodland Enhancement	***Overview:*** The retained area of woodland along the west site boundary will be enhanced via the planting of native trees and shrubs to increase species diversity, as shown in **Appendix 3.** ***Objectives:*** • To plant native trees and shrubs 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 shrubs.
- Ensure well-balanced crowns and/ or natural shape by preventing over competition.

Creation Method:

- **Ground preparation and planting**

  Each tree and shrub 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 and shrubs 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 and shrubs before the new year helps ensure better rooting and subsequent establishment including faster growth during the first growing season.
- **Species mix:**

  A mix of tree species are recommended, such as:

Alder ***Alnus glutinosa***	Burnet rose ***Rosa pimpinelifolia***
Hazel ***Corylus avellana***	Spindle ***Euonymus europaeus***
Almond willow ***Salix triandra***	Dog rose ***Rosa canina***
Holly ***Ilex aquifolium***	Wayfare tree ***Viburnum lantana***
Amelanchier ***Amelamchier ovalis***	Field maple ***Acer campestre***
Juniper ***Juniperus communis***	Rowan ***Sorbus aucuparia***
Aspen ***Populus tremula***	Wild cherry ***Prunus avium***
Osier ***Salix viminalis***	Pear ***Pyrus sp***.
Bay willow ***Salix pentandra***	Field rose ***Rosa arvensis***
Pedunculate oak ***Quercus robur***	Wild pear ***Pyrus pyraster***
Bird cherry ***Prunus padus***	Guelder rose ***Viburnum opulus***
Silver birch ***Betula pendula***	Yew ***Taxus baccata***
Honeysuckle ***Lonicera periclymenum***	Hawthorn ***Crataegus monogyna***

Management Prescriptions:

Table 1.2: New tree and shrub 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	N/A	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.

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<tr><td>Removal of spent flowers from perennial plants should be removed through ‘deadheading’</td><td>Twice annually, late spring and in the Autumn.</td><td>Allows plants to place more energy into re-growth.</td></tr>
<tr><td>Watering should be undertaken before and after planting out and as necessary for the continued thriving of all planting.</td><td>When required; provide more water during periods of draught and less water during times of prolonged rain.</td><td>Ensures plants do not dry out and subsequently fail.</td></tr>
<tr><td>Check and replace any plant failures once a year</td><td>For the first 5 years</td><td>To ensure no gaps form.</td></tr>
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<tr><td>Hibernacula</td><td>Overview:
Two hibernacula will be installed at the site, as shown in Appendix 4.

Objectives:
• To create refugia opportunities for notable species groups including herpetofauna and invertebrates.

Hibernacula Specification:
• The hibernacula will be constructed using natural materials such as logs, stone and earth (refer to Figure 1). The hibernacula are to be installed in the wildflower grassland adjacent to the ditch.</td></tr>
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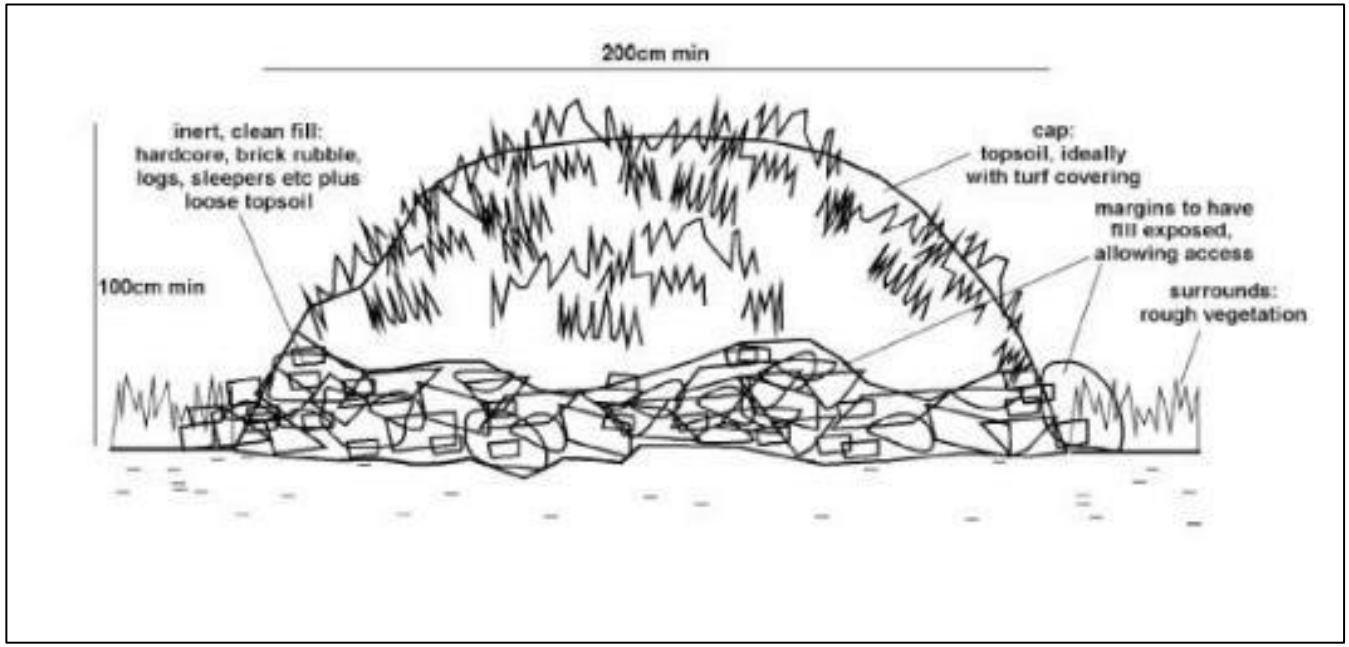


Figure 1: A schematic representation of a man-made hibernacula to provide suitable refuge.

Bat Boxes

Overview:

Two bat boxes will be installed on the new building, as shown in **Appendix 4**.

Objectives:

- To create roosting opportunities for bats.

Bat Box Specification:

- The recommended bat boxes will be constructed of woodcrete/ woodstone. Boxes of this construction are designed to require no maintenance and have a lifespan of 25 years plus.
- 2x Beaumaris Bat Boxes (or similar alternative brand) are recommended on the building, as shown in **Figure 2.**
- Bat boxes should be positioned in an undisturbed location 3-5m above ground level facing in a south, southeast, or southwest aspect with a clear flight path to and from the entrance, away from artificial light.

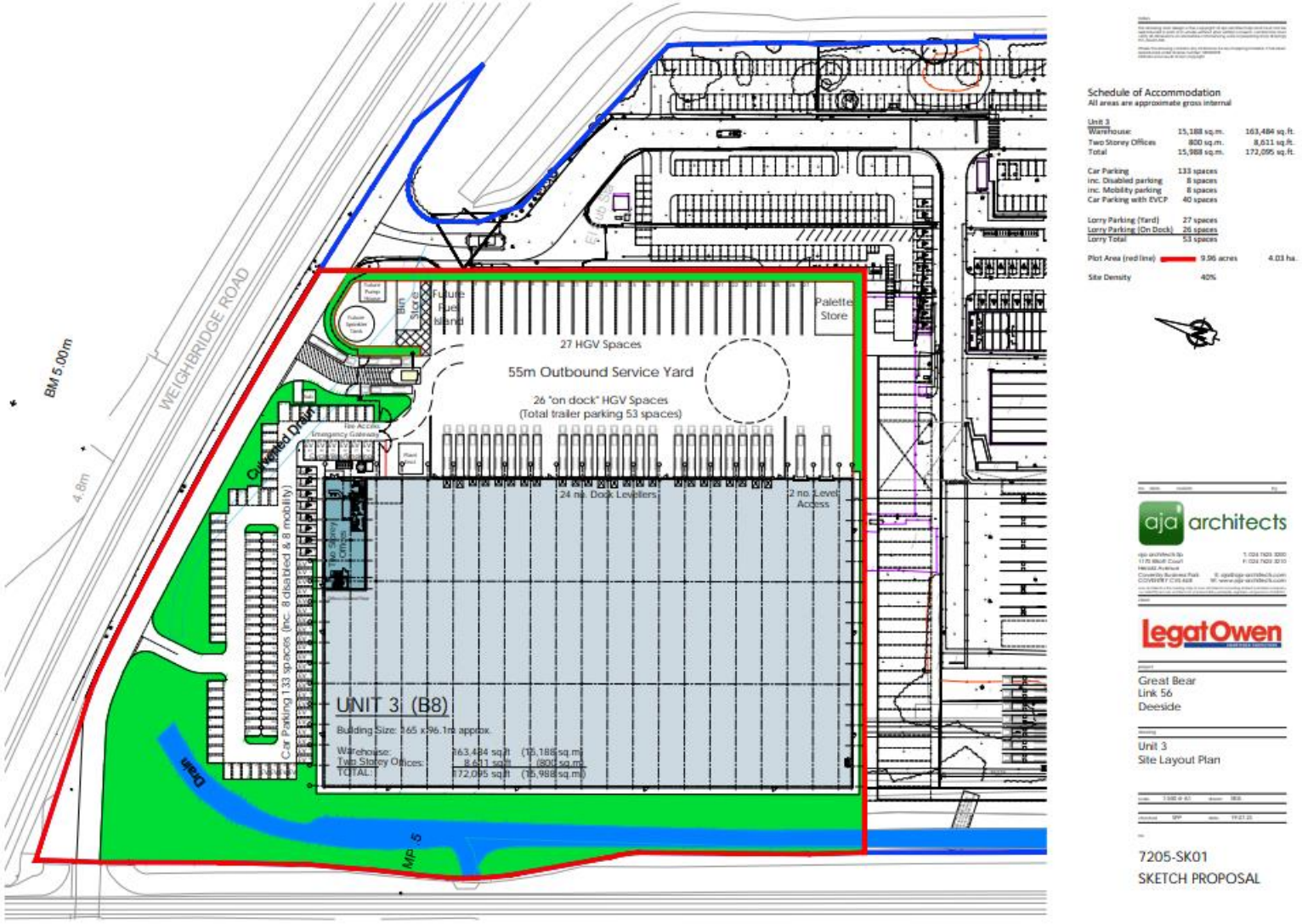
	 **Figure 2:** Beaumaris Bat Box (image credit https://www.nhbs.com/beaumaris-woodstone-bat-box) ***Recommended Management:*** The proposed bat boxes are designed to require no management or maintenance. Furthermore, preventing physical disturbance of bat boxes will increase the chances of occupation 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. Should bats be present, these may only be disturbed by a licensed bat consultant.
Bird Boxes	***Overview:*** Two bird boxes will be installed on the new building, as shown in **Appendix 4**. ***Objectives:*** • To create nesting opportunities for birds. ***Bird Box Specification:*** • 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 Woodstone Nest Boxes (or a similar alternative brand) with 28mm entrance holes are proposed on the trees, as shown in **Figure 3**. • Woodstone Nest Boxes should be positioned in an undisturbed location approximately 3m above ground level where they will be sheltered from prevailing wind, rain and strong sunlight.

	 **Figure 3**: Woodstone Nest Box (image credit arkwildlife.co.uk) ***Recommended Management:*** 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. Any old and disused nesting material or debris should be removed. Bird boxes must be replaced if they are damaged, removed, or have fallen from their recommended location. Should active nests be present, these will need to be left in situ until the chicks have fledged.
Insect Box	***Overview:*** An insect box will be installed within the wildflower grassland, as shown in **Appendix 4.** ***Objectives:*** • To create refugia opportunities for invertebrates. ***Insect Box Specification:***

	 **Figure 4**: Insect box (image credit https://www.nhbs.com/national-trust-apex-insect-house)
Hedgehog Highways	***Overview:*** Gaps will be created under boundary fencing or walls to form "hedgehog highways", as shown in **Appendix 4**. ***Objectives:*** • To allow the free movement of hedgehogs and other species through the site. ***Hedgehog Highway Specification:*** • Gaps will be 13cm by 13cm square which is sufficient for any hedgehog to pass through but will be too small for nearly all pets. • Gaps can be created by removing a brick from the bottom of the wall, cutting a hole in the fence if there are no gaps in the design or digging a channel underneath. • Signage should be installed above the hole to prevent these from being blocked up accidentally (**Figure 5**).

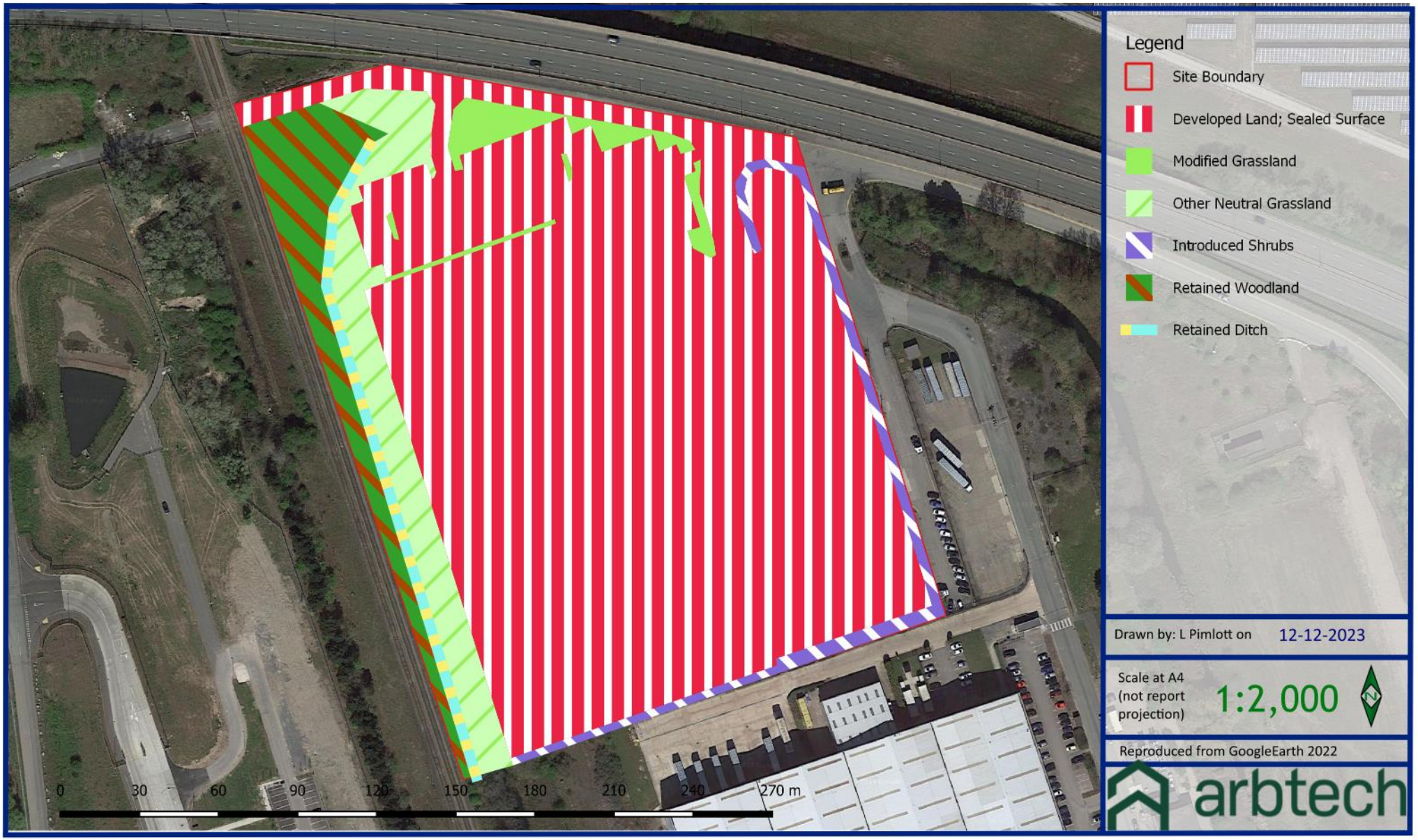
Figure 5: Hedgehog highway sign (image credit https://shop.ptes.org/product/wildlife-friendly-gardens/hedgehog-highway-signs-pack-of-two/)

Appendix 1: Proposed Development Plan



Appendix 2: Site Location Plan

Appendix 3: Habitat Creation Plan



Appendix 4: Species-Specific Enhancement Plan