

Green Infrastructure Assessment

Site Address: Bryn Yr Eos, Whitehurst, Chirk, Wrexham, LL14 5AS

Client Name: Lisa Wrigley

Reference: Green Infrastructure Assessment (GIA)

Date: 03/06/2024

Background

Arbtech Consulting Limited was instructed by Lisa Wrigley to undertake a Green Infrastructure Assessment (GIA) Assessment at Bryn Yr Eos, Whitehurst, Chirk, Wrexham, LL14 5AS (hereafter referred to as “the site”). The assessment was required to inform a planning application for the proposed conversion of commercial building to two dwellings and the construction of an onsite garage (hereafter referred to as “the proposed development”). A plan showing the proposed development is provided in Appendix 1.

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

- Preliminary Ecological and Roost Appraisal (PEAPRA) report for this site (Arbtech, 2024).

Site Location and Landscape Context

The site is located at National Grid Reference SJ 28677 40312 and has an area of approximately 0.1ha. The site consists of one commercial building and assorted temporary storage outbuildings with associated hardstanding surface and is bordered by a mature treeline to the north and west site boundary. The site is set within a low-density area with a network of treelines leading to larger pockets of woodland and hedge lined agricultural fields. The railway track runs offsite to the west of the site, and there is a small stream that runs along the northern boundary, just offsite. The site has immediate residential homes to the east of the site with associate gardens. The wider landscape consists of a mosaic of large cereal fields to the west, south and southeast with intermittent pockets of dense woodland, particularly to the east of the site boundary. The Shropshire Union Canal Llangollen Branch runs ~60m to the west of the site, and the River Dee runs ~750m to the northeast. Ty Mawr Country Park is located ~1km to the northwest of the site and Chirk Community Hospital is located ~1.3km to the southwest.

A site location plan is provided in Appendix 2.

Habitat Area/Length

The area or length of each habitat was calculated using qGIS software. In calculating the area or length of each habitat, habitats which occur as two or more isolated parcels across the site were combined, where they were deemed to be of a similar composition and condition. Distinctions were made between habitats to be retained (i.e., left as found in baseline), enhanced (i.e., improved condition) or lost (i.e., destroyed by proposed development). Prior and post development plans can be found in Appendix 3 and 4.

Green Infrastructure (on-site)

The site (~0.4ha), comprises:

- Modified grassland (g4) (UK Habitat Classification: 2.0) (**~0.023ha**),
- Artificial Unvegetated Unsealed Surface (u1c) with gravel beds (310) (UKHab: 2.0) (**~0.04ha**), with one permanent building and two temporary outbuildings (not included in measurements) (u1b5) (**~0.024ha**).
- Sparsely Vegetated Land (u1f) (UKHab: 2.0) (**~0.014ha**)

There are young self-set sycamore trees (202) located within the flower beds of the artificial unvegetated unsealed surface. There is one *eucalyptus sp.* tree with a medium sized trunk (~40cm wide) within the flower bed. There is also a non-native ornamental *Cypress Sp.* hedgerow on the western boundary, near to the south of the site.

Green Infrastructure (adjacent)

Adjacent to the site to the west is other neutral grassland with high concentration of ruderal herb (dominated by nettle and common comfrey) (UKHab: 2.0: other neutral grassland (g3)).

In the nearby vicinity of the site ~10m to the northern boundary is a small stream that runs through a culvert below the nearby railway track (r1g) (UKHab: 2.0), as well as arable land, other neutral grassland, to the north of the site (g3c) (UKHab: 2.0). To the west of the site consists of the railway line and a line of trees (33) (UKHab: 2.0), with a high abundance of common comfrey.

Green Infrastructure Assessment

Prior to the proposed development, the site has **~0.023ha** of grassland and **~0.087ha** total of urban land, with a total area of **~0.1ha** (Table 1). Post the development the site will have **~0.046ha** of modified grassland (gardens) and **~0.054ha** of developed land (with a total area **~0.1ha**). This will result in a **~100% gain** in grassland on-site and a **~38%** decrease in developed land on-site. Some scattered young and one semi-mature tree may also be lost as part of the proposed works (i.e., young self-set sycamores and *eucalyptus sp.*). In summary, under the current plans, **more on-site green infrastructure will be gained than lost.**

Table 1. Changes to habitat sizes as part of the proposed works.

Habitats on-site	Pre-works (ha)	Percentage area (%)	Post-works (ha)	Percentage area (%)	Percentage increase/decrease of habitat (%)
Modified grassland	0.023	23	0.046	46	+100
Artificial Unvegetated Unsealed Surface	0.04	40	0	0	-100
Sparsely Vegetated Land	0.014	14	0	0	-100
Buildings	0.023	23	0.026	26	+13.04
Developed Land, Sealed Surface	0	0	0.028	28	+28
Total site area	0.1	100.00	0.1	100.00	

Green Infrastructure Recommendations (Net Biodiversity Benefits)

The current habitats on site are of low ecological value, therefore, the loss of them is not considered significant. Furthermore, the development replaces these low value habitats (such as the current artificial unvegetated surface) with a gain of green infrastructure, such as vegetated gardens and therefore the increase in habitats on site to support biodiversity.

The following green infrastructure is to be incorporated in the plans for the site to further improve on-site biodiversity with higher quality habitats and to further increase site connectivity to greenspace in the wider landscape for wildlife (appendix 4&5):

- Species-rich native seed mixes that incorporate pollinator-friendly plant species to increase invertebrate populations on-site and increase foraging opportunities for bats. This is planned to be incorporated into the vegetated garden.
- Native species hedgerow is to be planted along the western boundary of the site. At least two species of hedgerow will be included with examples including hawthorn, beech, holly, dogwood or blackthorn.
- At least two native hedgerow trees are also to be incorporated into the western boundary hedgerow. Species recommended include hazel, wild cherry, elm or silver birch. This will provide further habitat to support birds and other local wildlife at the site. These trees and hedgerow will be planted in the next best planting season (recommended November – March).
- The installation of one bat box on the southern elevation of the site will be included before the residential occupation of the building. The bat box will be a brand suitable for crevice dwelling species, such as the Beaumaris Woodstone Bat Box or another alternative brand.
- Two bird boxes will also be in place on the current building and proposed garage before residential occupation. One bird box will be suitable for swifts, with suggested brands of FSC Wooden Swift Box, Vivara Pro Woodstone Swift Box or another alternative brand. The swift box should be placed on proposed garage at least 5m from the ground, as close to the eaves as possible, with no obstruction to the entrance hole. It is recommended that the box is placed in a location protected from the midday sun and heavy rain. Recommended location to be on the southeastern facing wall of the building. Another bird box to be incorporated onto the current residential building should be suitable for another bird species such as Vivara Pro Seville Nest Box, Vivara Pro Sparrow Nestbox or 1B Schwegler Nest Box or another alternative brand.

Author

Kayleigh Davies BSc (Hons) MSc
Graduate Ecologist

Reviewer

Mel Reid BSc (Hons) MRes MRSB
Senior Consultant

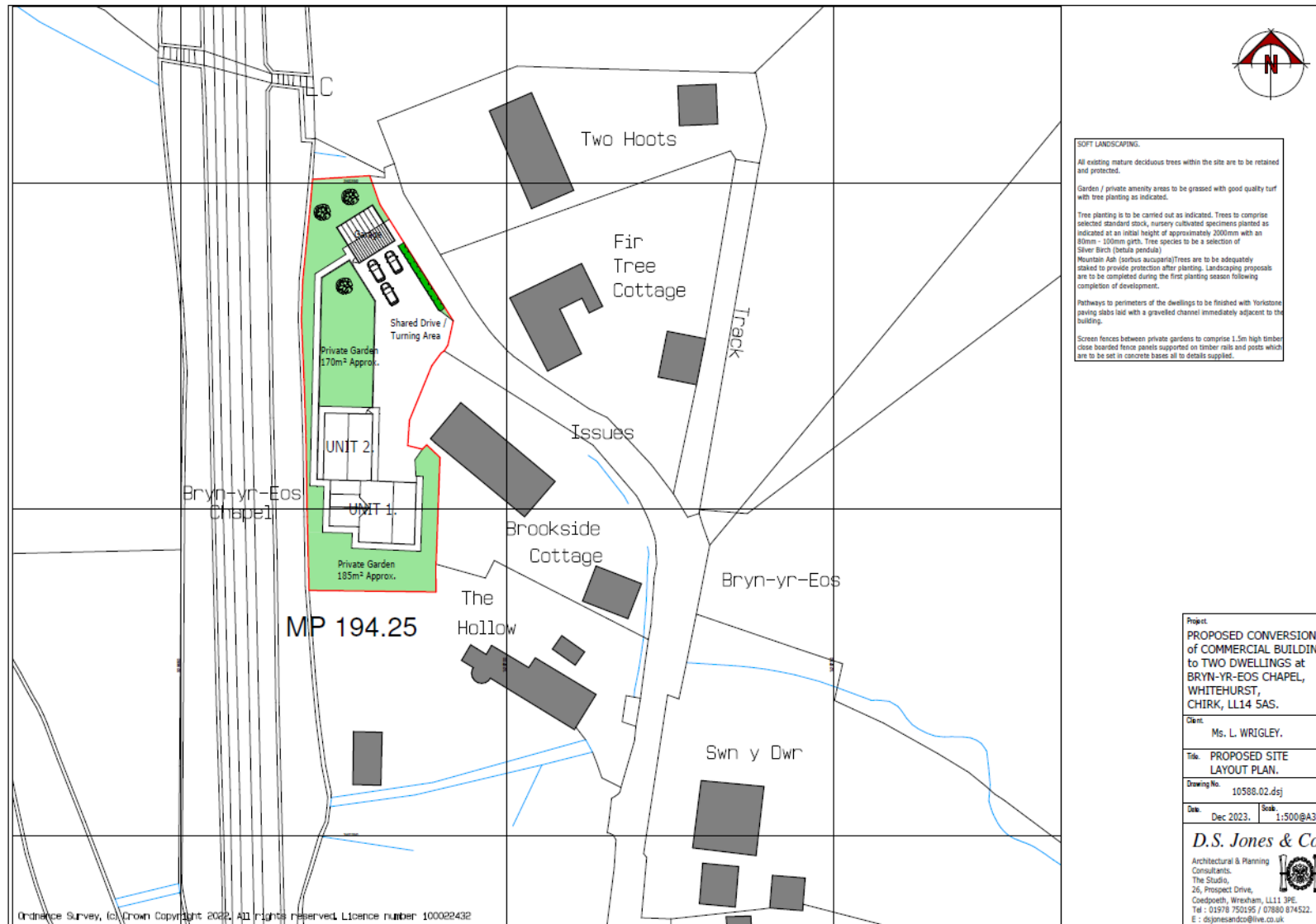
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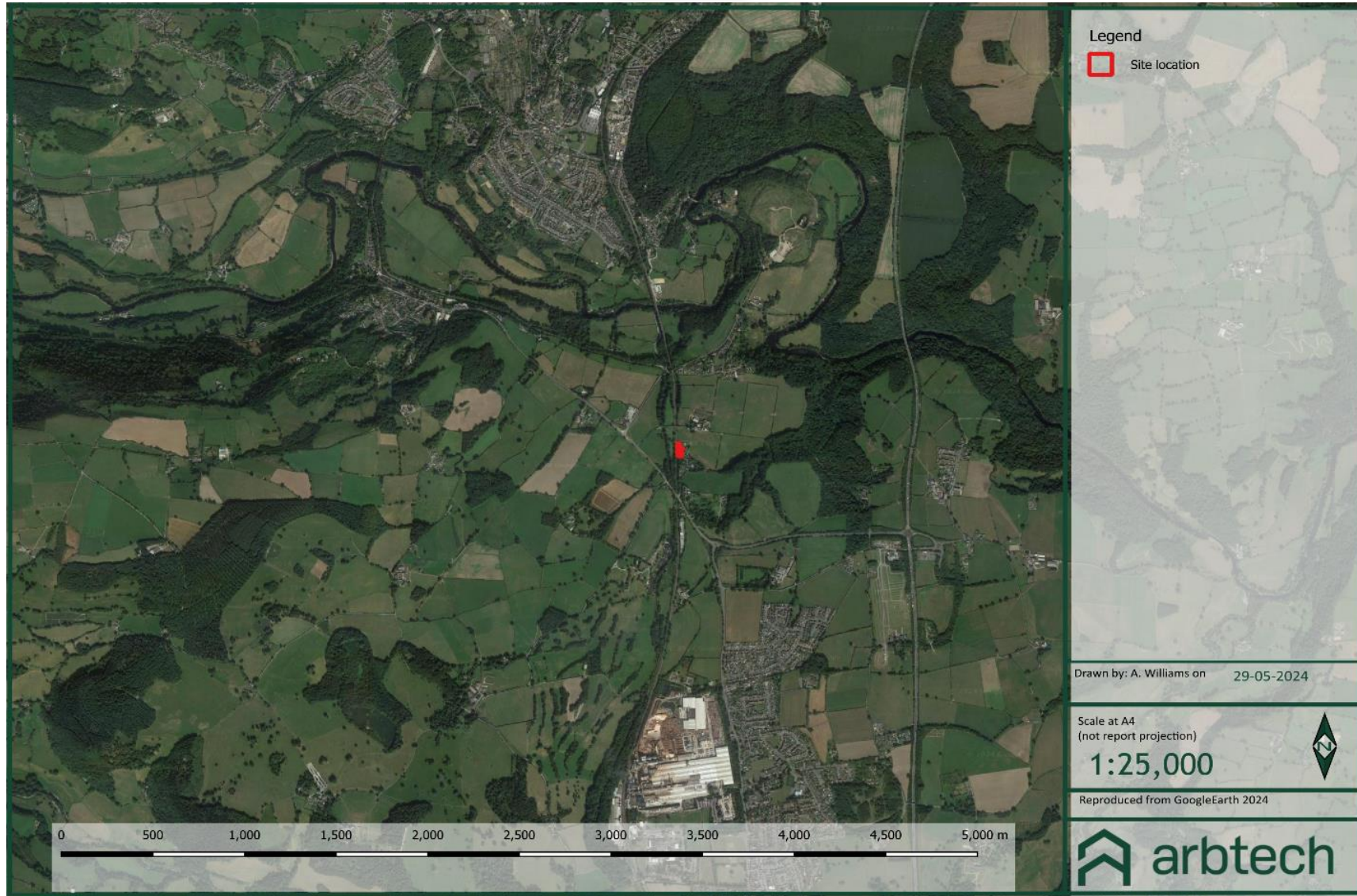
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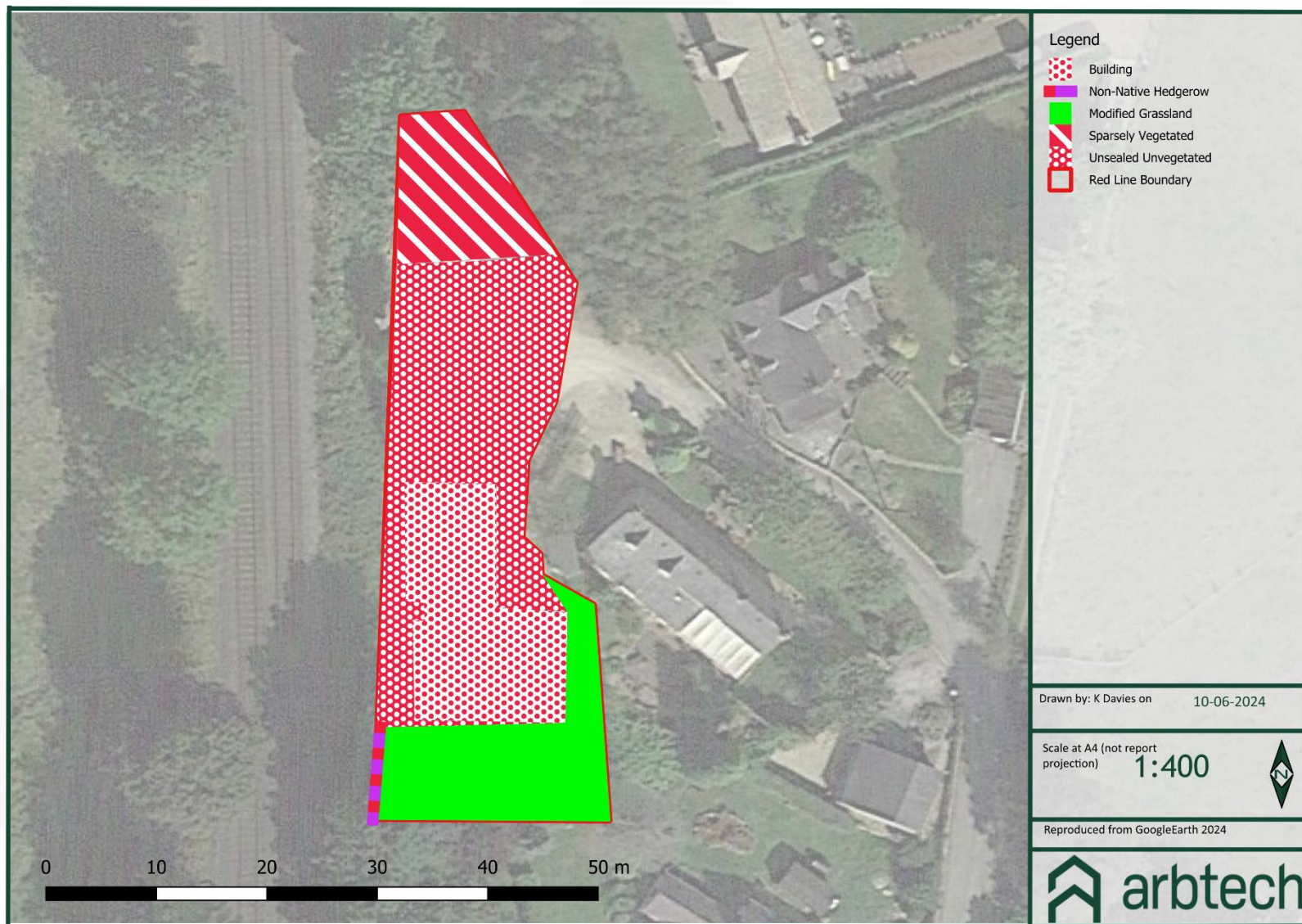
Appendix 1: Proposed Development Plan



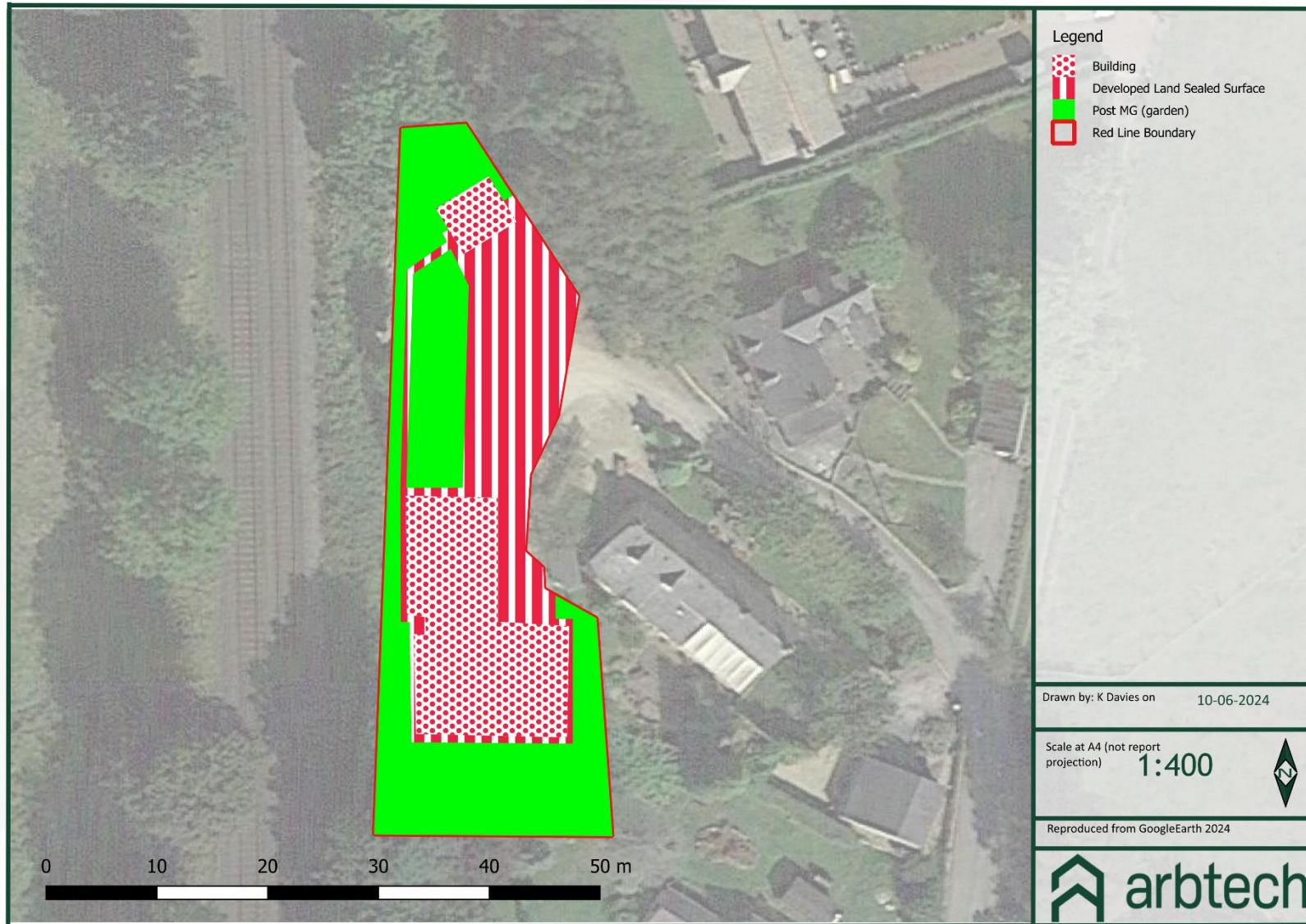
Appendix 2: Site Location Plan



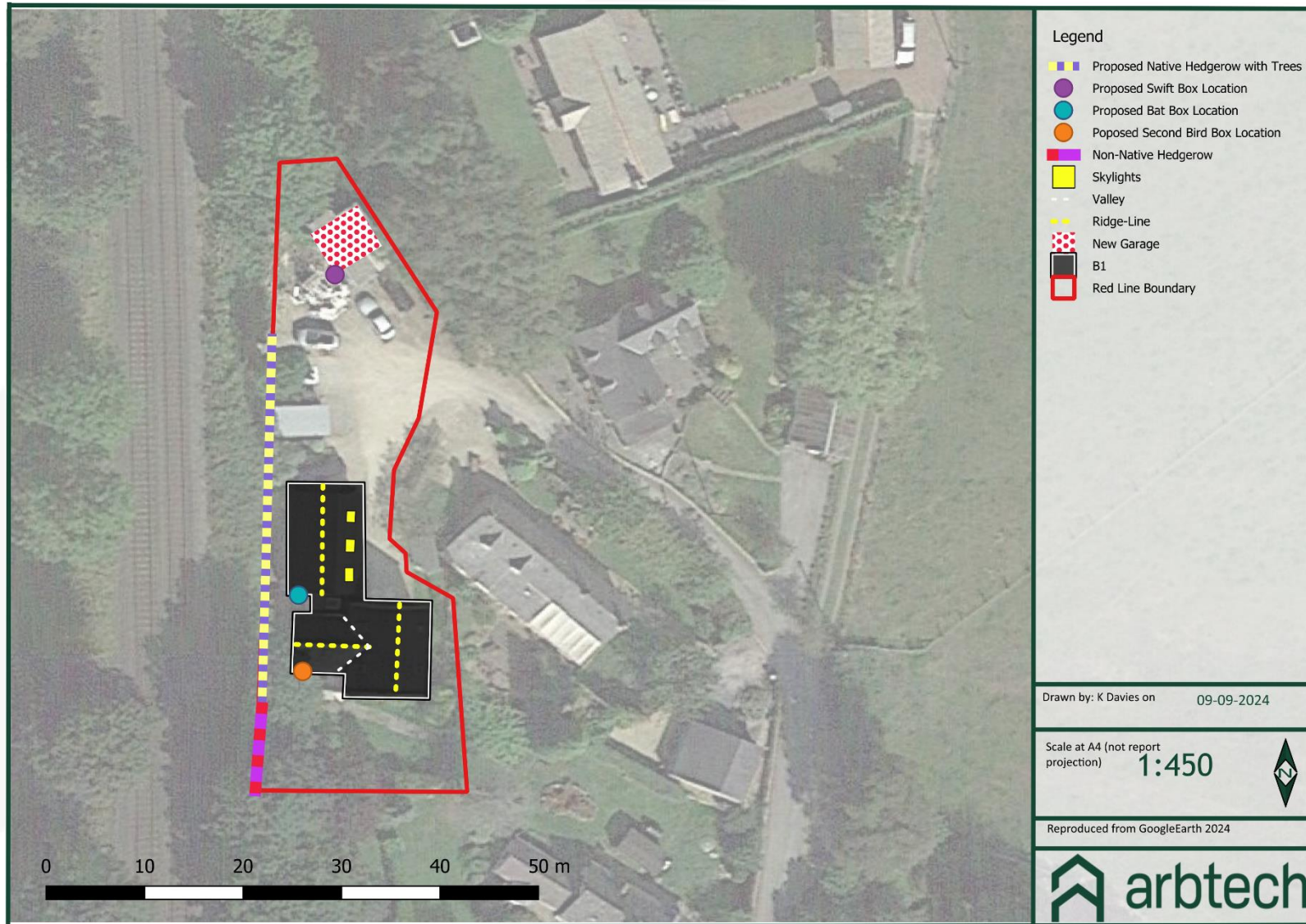
Appendix 3: Habitat Plan – prior to works



Appendix 4: Habitat Plan – post works



Appendix 5: Habitat Plan – Proposed Net Biodiversity Benefit



Appendix 6 – Photos

Area of Building	Suggested Wildlife Box
 The southern gable suggested location along the green linear feature of the eastern boundary.	 The Beaumaris Bat Box
	 Vivara Pro Sparrow Nestbox

Woodstone Build in Swift Box to be built into the southeastern facing wall of the new proposed garage.



Vivara Pro Woodstone Swift Box to be placed on exterior wall of the garage if built in option is not possible.

