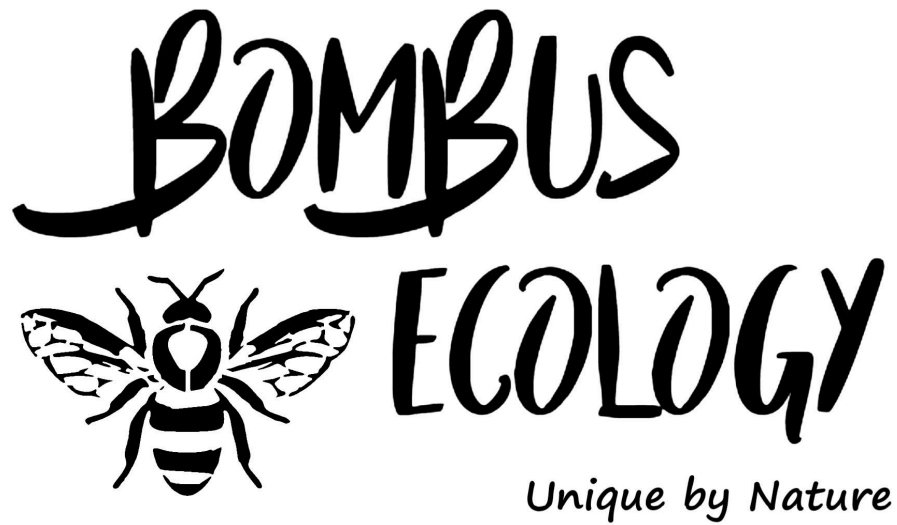




Biodiversity Calculations

Bombus Ecology Ltd

Ash Bank, Werrington

BOMPP2506

Date of Issue (V5): 27/08/2026

ASH BANK, WERRINGTON

CONTEXT

Ecological services and biodiversity management techniques are becoming an ever-increasing requirement for all aspects of planning, design and landscape management strategies. Following the successful implementation of the 'No net loss' principle, it is now required by law that all developments must show that existing biodiversity is not being adversely affected and that the habitat is improved on site by a minimum of 10%. DEFRA has created two Statutory Biodiversity Metrics to calculate the percentage change in habitat value between the start and end of a project. One metric is aimed at "small sites" and the other aimed at all sites that do not meet the small sites restrictions. The most recent State of Nature report (2023) identified that a large proportion of habitats and species are increasingly at risk from land use changes and developments. Therefore, it is becoming increasingly necessary to take biodiversity value and ecosystem services into account when looking at plans for the future of estates and land management strategies.

The site in question is known as Ash Bank, located within the area of Werrington. Plans for the site include erection of a retail unit. This assessment aims to quantify the biodiversity units of the site presently before any work is conducted, and the findings of this assessment can then be used to guide environmental planning to ensure that there is a net positive outcome for biodiversity on the site.

The onsite survey work and post works data collection for this report were conducted by Director of Ecology David Pollard, BSc (Hons) MRSB. David has over 30 years experience in the field of Natural History and has been a professional Ecologist for the last 20 years working on a diverse range of projects. David was assisted onsite by Trainee Ecologist, Holly Pollard, who has been surveying for bats as a volunteer with the Bat Conservation Trust for 5 years and is currently undertaking a BSc (Hons) degree in Zoology. The

analysis of the provided data, biodiversity calculations and production of this report were all carried out by Principal Ecologist Sarah Woods, MSc BSc (Hons) AMRSB Mem.RES. Sarah is a highly qualified Doctoral Candidate in the field of environmental ecology, as well as an experienced Ecologist who has been working in Wildlife Management for over 12 years, specialising in Combined Human and Natural Systems.

BIODIVERSITY ASSESSMENT

Biodiversity has been given several different definitions since it was first coined in the early 90's as a definition for life on earth. The currently accepted definition of biodiversity is 'the variety of all living things on earth, their ecological niches and their genetic diversity'. This means that habitats, connectivity, individual plant and animal species and their metapopulations, and biotic systems are all included.

Taking into account the nature and location of the assessment site and the current land use and anthropogenic disturbance rate of the area, Bombus Ecology was contracted to carry out an assessment of the current biodiversity value of the site.

All habitats within the Site were classified using the UK Habitat Classification (UKHab), the classification required by the Statutory Biodiversity Metric, with each parcel assigned a habitat code informed by the dominant and characteristic plant species present. Linear features such as hedgerows, treelines and watercourses were recorded separately in line with the Metric's treatment of linear habitats. Habitat condition was assessed against the criteria set out in the *Statutory Biodiversity Metric User Guide*, and habitat parcels were mapped in QGIS over Ordnance Survey base mapping and aerial imagery to derive the areas and lengths used in the Metric calculation. The survey represents a snapshot of the habitats present on the date of survey.

Following the completion of this initial survey work, a set of recommendations for enhancements were created and inputted into the Statutory Biodiversity Metric.

These calculations were based on the comparison between the site as it was at the time of survey, prior to the completion of any works, and how the site could prospectively be following works combined with appropriate ecological enhancements.

In order to accurately assess the biodiversity value of a given area, the following aspects need to be taken into consideration:

- Area of the habitat
- Local and strategic importance
- Habitat distinctiveness
- Functional connectivity
- Value for protected species
- Condition of the habitat
- Species richness, evenness and dominance

In order to prove that the necessary Net Gain has been achieved, a value must be produced representing the site before works are done, and then again following the works to see if biodiversity across the site changes.

To carry out this assessment, data collected by the team at Bombus Ecology was collated and then used in conjunction with the DEFRA Biodiversity Metric (Accessed April 26) as this is the calculation tool produced by Natural England and used to standardise Net Gain assessments across the UK. This calculator assesses all habitats

within the boundaries of the site, as well as the overall site within the wider context of landscape scale ecological value. This is to determine the baseline biodiversity value of the site.

The basic methodology as to how this assessment is carried out is as follows:

1. Initially, a site visit is conducted to establish the type of habitats present on site.
2. Datasets regarding the topography, land use, local planning strategy and records of protected species in the area are located, downloaded and combined with the information from the walkover survey into an interactive map using Geographical Information Systems (GIS). This then forms a map with additional metadata that can then be used to input values into the calculator.
3. The calculator itself is one of DEFRA's Statutory Biodiversity Metrics, with columns for adding in information about the types of habitat, size of site and of individual habitats, habitat condition, connectivity and value for protected species. Drop down menus in each of these sections (with the exception of the site size) allow you to choose from set UK Habitat definitions. When selected, preset information autopopulates the multiplier columns and gives the end value for biodiversity on the site.
4. Finally, enhancement measures are proposed for the site following the recommendations from Natural England to provide a new result for biodiversity on the site, which is then compared to the original baseline biodiversity score. The enhancement measures may require revision if the 10% criteria has not been met, but the finalised output must always exceed 10% biodiversity net gain on every site following the introduction of mitigation and enhancement measures are put in place.

The indicated biodiversity scores of the site pre and post works (estimated) are then compared, with any noted change in biodiversity units indicating the alteration of biodiversity of the site.

On the site at Ash Bank, local biological records are few in number. This could be due to a lack of surveyor effort if the area was not regularly monitored for species or could be reflective of the site offering little in the way of foraging and breeding opportunities to attain species diversity.

The overall value for biodiversity on the site prior to works being carried out was calculated by the model to be 0.38 biodiversity units within the overall area of the site. This value was calculated taking into account the size, connectivity, habitat distinctiveness, strategic value and protected species value of each of the on-site habitats, and their placement within the wider landscape which is illustrated within the appendices.

Following inclusion of planned habitat enhancements works, the calculations point to an estimated value of 0.46 biodiversity units. This is an increase of approximately 18.68% in biodiversity following completion of onsite works and habitat enhancement measures. To achieve this, additional planting needs to take place on site as outlined, with the new planting ideally consisting of a fruiting or flowering nature to provide extra floral resources. Tree species selected for planting should be native and of known value to invertebrates, birds and small mammals, with species such as crab apple (*Malus sylvestris*), rowan (*Sorbus aucuparia*), wild cherry (*Prunus avium*), bird cherry (*Prunus padus*), hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), goat willow (*Salix caprea*) and elder (*Sambucus nigra*) recommended for their combination of early nectar and pollen resources and autumn fruit. Tree planting shown on the post-development habitat plan below is indicative only and does not

represent the precise location at which each tree will be planted. Individual planting positions will be finalised at the detailed design stage and will be informed by site constraints such as services, levels and existing features. Planting will, however, be retained within the habitat parcel in which it is shown on the plan, such that the areas and habitat types used in the Biodiversity Metric calculation remain unaffected by any variation in the exact positioning of individual trees. The grassland area is planned to be seeded with a native wildflower mix. Usually an EM1 or EM2 mix would be recommended for wildflower meadow creation and the species on site at time of survey indicate that these would likely be successful. However, Werrington is placed on carboniferous bedrock and the area is known for sandy/loamy soils, so EM7 may also be an appropriate mix for the site. The grassland should be managed using a traditional twice yearly hay cut, with arisings removed. This allows for the wildflower species to set seed.

The majority of hedgerow within the site comprises species-poor native hedgerow in poor condition, reflecting a history of limited or inappropriate management. A short length of hedgerow to the south-west of the site is ornamental and non-native in composition, and this will be removed as part of the proposals. New hedgerow planting will comprise species-rich native hedgerow, established and managed in accordance with the condition criteria set out in the Statutory Biodiversity Metric. This represents a substantial uplift in both distinctiveness and condition relative to the existing baseline, and will deliver a meaningful gain in habitat value at the site as well as improved connectivity for foraging and commuting wildlife.

With these measures in place, the site should be effective in providing habitat niches for a wide variety of species. If these recommendations are followed, Bombus Ecology is confident that an increase in biodiversity is possible at this site.

Figure 1: Habitat Map detailing current site



Pre-works site map

This map is indicative of the site as it was at the time of survey. There are several buildings in a state of disrepair on site which have been assessed through a Preliminary Ecological Appraisal for presence of protected species.

Bombus Ecology Ltd: The White House, 50 Mackie Drive, Guisborough, North Yorkshire TS14 6DJ

email: david@bombusecology.co.uk – sarah@bombusecology.co.uk

Company number: 13233520

Figure 2: Proposed enhancement locations for the site



Post-works site map



This map is indicative of the site as it is intended to be following completion of works on site. The erection of a retail unit and parking is planned for this site. The grassland area that has been retained will be seeded with native wildflowers, new planting will take place on site and new hedging will be established.

Bombus Ecology Ltd: The White House, 50 Mackie Drive, Guisborough, North Yorkshire TS14 6DJ

email: david@bombusecology.co.uk – sarah@bombusecology.co.uk

Company number: 13233520

