Frontier Site,
Newbridge Industrial Estate, Pontllanfraith

Preliminary Ecological Appraisal

March 2024

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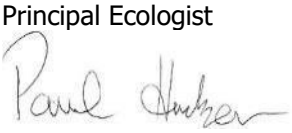
Revision	Date	Prepared by	Checked by	Verified by
1.0	15 March 2024	Kira Everett Assistant Ecologist 	Charlotte Ingram Assistant Ecologist 	Paul Hudson MCIEEM Principal Ecologist 

Summary

Brief and Site Location	Acer Ecology Ltd. were commissioned by DPP Planning to conduct a preliminary ecological appraisal of land at the Frontier Site, Newbridge Industrial Estate, Pontllanfraith, NP12 2FR within the boundary of Caerphilly County Borough Council (Ordnance Survey Grid Reference centred at: ST 1864 9606).
Development Proposals	The proposed development works comprise the construction of four industrial units and associated hard standing for car and HGV parking. Additional drainage is also proposed with an attenuation basin proposed for installation.
Impacts to Key Receptors	The development is not considered to have any adverse impacts to statutory on non-statutory nature conservation sites.
Required Actions	The following provisional recommendations have been developed based on the development proposals available at the time of writing. Further Work: • Potential Roost Feature (PRF) Inspection – endoscope surveys needed on both T407 and T408; • Precautionary measures – Protective fencing for retained trees; Recommendations for trees lacking PRF's; Pollution prevention measures; Timing of works for birds; Good construction practices for mammals; Precautionary measures for otters and other mammals; • Mitigation measures – Sensitive lighting strategy for bats; and • Compensation and enhancement measures – Bird and bat boxes; Sustainable Urban Drainage Systems (SuDs); Use of native landscaping scheme.
Licensing Requirements	A bat development licence may be required from NRW upon completion of the further bat surveys.
Conclusions	The full extent of ecological impacts and potential constraints of the proposed development cannot be fully determined, based on the results of the preliminary ecological appraisal survey alone. Further bat survey work is required to fully determine the ecological impacts of the proposed development. If development works do not begin within eighteen months to two years of the date of this report of this report, an update survey is likely to be required in accordance with guidance from Natural Resources Wales (NRW), (CIEEM, 2019) and BS 42020:2013, to determine if conditions have changed since those described in this report.

1. Introduction

1.1. Brief and Site Location

Acer Ecology Ltd. were commissioned by DPP Planning to conduct a preliminary ecological appraisal of land at the Frontier Site, Newbridge Industrial Estate, Pontllanfraith, NP12 2FR within the boundary of Caerphilly County Borough Council (Ordnance Survey Grid Reference centred at: ST 1864 9606)[1]. The assessment documents the baseline ecological condition of the survey area, which is shown by the red line boundary on Plan 1. Designated sites, habitats, protected and notable species of conservation interest that could be affected by the proposed works are identified, and subsequent recommendations provided.

This assessment will provide initial recommendations based on the development proposals available at the time of writing. They should be revised upon finalisation of the design.

1.2. Site Description

The site proposed for development measures approximately 0.65 ha, and mainly comprises bare ground/rubble, with lines of trees situation along the eastern, southern and western boundaries and patches of grassland. The site is situated at Newbridge Industrial Estate, Pontllanfraith, NP12 2FR. The site is surrounded by other industrial units to the north and east with the A4048 running 0.2km north of the site. Residential dwellings are surrounding the site to the south and west of the site with B4251 running directly south of the site.

1.3. Proposed Works

The proposed development works comprise the construction of four industrial units and associated hard standing for car and HGV parking. Drainage plans are also proposed with an attenuation basin additionally proposed.
The proposed development plan is provided in Appendix 1.

1.4. Scope of the Study

The study comprised the following:

- A desk study to identify existing information on statutory and non-statutory sites of nature conservation interest, and records of notable or protected habitats or species within the site and its surrounding area;
- A Phase 1 Habitat Survey of the site, extended to search for evidence of, and potential for, protected fauna; and
- Identification of potential ecological constraints to the proposed works at the site and assessments of impacts including appropriate mitigation measures where necessary.

[1] Latitude and Longitude: 51.657415 , -3.1775577 / what3words: fountain.situation.critic

1.5. Review of Historic Data

A relevant historic report exists for the proposed development: Be Ecological Ltd conducted a Preliminary Ecological Appraisal at the Frontier Site, Newbridge in January 2020. They found the majority of the trees scheduled to be removed from the site during this time had negligible roosting features and no further surveys were needed. Subsequenlty, phase clearance on trees has taken place over the last few years.

1.6. Reporting

This report aims to:

- Outline the methodology used during the survey;
- Present the baseline ecological information;
- Provide an ecological evaluation of on-site habitats, including an assessment of the potential for protected species;
- Assess the potential impacts of the development proposals on ecological receptors;
- Assess the potential ecological constraints to the proposals; and
- Provide recommendations for further survey, avoidance, mitigation and enhancement where appropriate.

2. Methods

2.1. Scope of Assessment

This assessment has been undertaken following the approach detailed in the Chartered Institute of Ecology and Environmental Management's 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (CIEEM, 2018). The assessment has focussed on 'Important Ecological Features' that are present within the 'Zone of Influence' of the project. Important Ecological Features, as detailed in Box 14 of the CIEEM's Guidelines comprise:

- Habitats and Species of Principal Importance for the Conservation of Biodiversity in Wales;
- Legally protected species; and
- Red Listed or rare species (based on Red Data Book lists, Birds of Conservation Concern and species considered to be nationally rare/scarce).

The Zone of Influence (ZoI) is the area over which the development proposal could have an influence on ecological features. The ZoI will vary for different features, although the ZoI for this development proposal is considered to comprise the land within the red line boundary as well as immediately adjacent habitat features.

2.2. Desk Study

2.2.1. Protected Sites, Habitats and Species

Existing information on designated sites and protected species was obtained from the sources detailed in Table 1.

Table 1: Sources of Data

Source	Data	Radius of Search
Natural resources Wales (NRW) Geographical Information Systems (GIS) Layers	Statutory and non-statutory nature conservation designated sites	Ramsar/Special Area of Conservation (SACs)/Special Area of Protection (SPAs)/Site of Special Scientific Interest (SSSIs) National Nature Reserves (NNRs), Local Nature Reserves (/LNRs), Ancient Semi-Natural Woodland, (ASNW), Restored Ancient Woodland Sites (RAWS) and Plantation on Ancient Woodland Sites (PAWS) - 2km^2 SACs (designated for bats) - 10km
South East Wales Biological Records Centre (SEWBReC)	Protected species records (SEWBReC unique reference: 0234-818) Site of Importance for Nature Conservation (SINC)	1km. 1km.

All available records of bat roosts, badger, dormouse, amphibians and reptiles were considered. For other species, only records collected within the last 10 years were considered relevant.

2.2.2. Landscape Context

The site and wider landscape were assessed and characterised using aerial images, Ordnance Survey maps and SEWBReC data. The presence of off-site features and habitats, which add to the ecological value within the wider area (for example, ponds within 0.5km of the site) were identified. Where appropriate, such features were scoped into the detailed assessment of impacts presented in Section 3.

2.2.3. Ancient Woodland

Although ancient woodland is not a designated site as such, it is often listed as a designated site due to its ecological significance and associated protection. Ancient woodland has therefore been included within the non-statutory designated site section of this report.

2.2.4. Planning Authority

The Caerphilly County Borough Council Planning portal[2] was consulted to determine if any previous survey information was available for the site, or immediate surroundings.

2.3. Field Study

2.3.1. Personnel

The field survey was undertaken in inclement weather on the 13th of February 2024 by Kira Everett[3] and Rebecca Jones[4].

2.3.2. Vegetation and Habitats

The vegetation and habitat types present within the survey area were categorised and mapped in accordance with the standard[5] Phase 1 Habitat assessment methodology (Joint Nature Conservation Committee, 2010), dominant and conspicuous plant species were recorded for each habitat. Target notes were used to record information on features of ecological interest such as evidence of, or habitats with potential to support, protected species, or where any features of interest too small to map were recorded. Following the completion of the survey, a colour-coded habitat plan was digitised using QGIS to show the extent and distribution of the different habitat types present within the site (see Plan 3).

[2] https://www.caerphilly.gov.uk/Services/Planning-and-building-control/Search,-track-and-comment-on-planning-applications
[3] Kira graduated with a degree in Wildlife Biology from the University of South Wales. Kira works as an Assistant Ecologist at Acer Ecology. Details of her qualification and experience can be found at https://www.linkedin.com/in/kira-everett-221860231/
[4] Rebecca graduated with a first-class degree in Ecology and Wildlife Conservation from the University of Reading. She has previously worked in the field of sustainable business and in learning development for the Field Studies Council. She is currently working as an Assistant Ecologist at Acer Ecology and completing her training in habitat and protected species survey techniques, including dusk emergence/ dawn re-entry surveys and preliminary roost assessments. Further details of her qualifications and experience can be found at: https://uk.linkedin.com/in/rebecca-jones-52564915b
[5] Some additional categories were also used if applicable e.g. hard standing and Japanese knotweed.

Habitats of principal importance detailed within Section 7 of Environment Wales Act 2016 were identified and assessed to ecological value of the features of the site.

Invasive plant species listed on Schedule 9[6] of the Wildlife and Countryside Act 1981 (as amended), such as Himalayan balsam (*Impatiens glandulifera*), giant hogweed (*Heracleum mantegazzianum*) and Japanese knotweed (*Fallopia japonica*) were also noted during the survey, if present.

2.3.3. Protected and Notable Species

Evidence of, and habitats with, potential to support protected or notable species were noted, especially species meeting any of the following criteria:

- Listed under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species (Amendment) (EU Exit) ['CHSAEU'] Regulations 2019;
- Listed under Section 7 of the Environment (Wales) Act 2016 as being of principal importance for maintaining and enhancing biodiversity in Wales;
- Listed as a local priority for conservation, for example in the relevant Local Biodiversity Action Plan (LBAP);
- Red Listed using International Union for the Conservation of Nature (IUCN) criteria (e.g. in one of the UK Species Status Project[7] reviews, in the Species of Conservation Concern Red, Amber or Near Threatened List[8], Birds of Conservation Concern in Wales[9], or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);
- Listed as a Nationally Rare or Nationally Scarce species (e.g. in one of the Species Status Project reviews) or listed as a Nationally Notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/or
- Endemic to a country or geographic location (it is appropriate to recognise endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place).

Only those species with potential to be present on-site are mentioned within this report. The methodologies used were as follows:

Birds

Any birds observed during the field survey were recorded, in addition to features capable of supporting nesting birds (e.g. trees, hedgerows, buildings, bramble, ruderal vegetation and rough grassland etc.). The site was also assessed for its actual and potential suitability to support Wildlife and Countryside Act 1981 (as amended) Schedule 1 species.

[6] Schedule 9 species of plants and animals are ones that do not naturally occur in Great Britain but have become established in the wild and represent a threat to the natural fauna and flora.

[7] The Species Status project is the successor to the JNCC's Species Status Assessment project, providing up-to-date assessments of the threat status of various taxa using the internationally accepted Red List guidelines (http://jncc.defra.gov.uk/page-1773).

[8] Eaton *et al.* (2015) Birds of conservation concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. British Birds 108: 708-746.

[9] Johnstone, I. and Bladwell, S. (2016) Birds of Conservation Concern in Wales 3: the population status of birds in Wales. Birds in Wales 13 (1).

A comprehensive bird survey, such as a breeding bird survey, was not undertaken as this was beyond the scope of the assessment.

Bats

Preliminary Ground-level Roost Assessment

A preliminary ground-level roost assessment of all of the trees within the survey area was undertaken, looking for features that bats could use for roosting (Potential Roost Features[10] (PRFs)) and evidence of bats (i.e. droppings in, around or below a PRF; odour emanating from a PRF; audible squeaking at dusk or during warm weather; or staining below the PRF). A systematic inspection was carried out around all accessible aspects of the tree, from both close to the trunk and further away. A high-powered torch (Clulite), binoculars and a ladder were used as appropriate during the survey. The location of the trees is shown on Plan 6.

The trees were assessed for their suitability to support roosting and hibernating bats in accordance with Table 4.2 of the Bat Conservation Trusts Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2023) whereby trees were categorised into the following categories:

- None – Either no PRFs in the tree or highly unlikely to be any;
- FAR – Further assessment required to establish if PRF are present in the tree; or
- PRF – A tree with at least one PRF present.

Where possible, PRFs were further categorised as detailed below:

- PRF-I - PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats;
- PRF – M PRF is suitable for multiple bats and may therefore be used by a maternity colony; and
- PRF – U Unknown if PRF could only be used by individuals or could be used by multiple bats and therefore used as a maternity roost.

The bat survey assessment was added into the table from the Tree Survey & Arboricultural Impact Assessment Report (ArbTS, 2024), detailed within Table 8 of this report.

Buildings Assessment

There are no buildings present within the survey area, therefore a building assessment was not carried out.

Terrestrial Habitat Assessment

[10] Potential Roost Features that bats may use identified by Andrews include: woodpecker-holes; squirrel-holes; knot-holes; pruning-cuts; tear-outs; wounds; cankers; compression-forks; butt-rots; lightning strikes; hazard-beams; subsidence-cracks; shearing cracks; transverse cracks; welds; lifting bark; frost-cracks; fluting and ivy.

A preliminary assessment of the value of the site for bats (and any potential roost sites therein) was made in accordance with Table 4.1 of the Bat Surveys for Professional Ecologists (Collins, 2023) (see Appendix 4). The assessment was based on the relative abundance and quality of habitat features within the site, and surrounding landscape, suitable for roosting, foraging and commuting bats.

Landscape features suitable for foraging and commuting bats include linear landscape features such as watercourses, transport corridors (e.g. roads, sunken lanes railways), walls, hedgerows, coppice, woodland fringe, tree lines, ditches and rhynes and areas of scrub and pasture.

Dormice

The scattered trees were assessed for their suitability to support dormice (*Muscardinus avellanarius*). The structure and composition of this habitat within the site was assessed with respect to the presence of flower, fruit or nut-bearing food-plants such as hazel (*Corylus avellana*) (a favoured food-plant of dormice), oak (*Quercus* sp.), honeysuckle (*Lonicera periclymenum*), bramble (*Rubus fruticosus* agg.) and sycamore (*Acer pseudoplatanus*), as well as other trees and shrubs listed in the Dormouse Conservation Handbook (Bright, Morris & Mitchell-Jones, 2006) as being of value to dormice. In addition, connectivity to other areas of suitable habitat in the wider landscape, such as hedgerows and woodland, was assessed.

A search for hazelnuts opened by dormice was undertaken to aid determination of their presence[11]. Very limited hazel was present on site and, therefore, it was not possible to undertake a search for hazelnut shells to determine if they had been opened by dormice.

A full nest tube/box/footprint tunnel survey was not undertaken as this was beyond the scope of the assessment.

Great Crested Newts

The survey area was appraised for its suitability to support great crested newts (*Triturus cristatus*) (GCN). The assessment was based on guidance outlined in the Herpetofauna Workers' Manual (Joint Nature Conservation Committee, 2003) and the Great Crested Newt Conservation Handbook (Langton, Beckett & Foster, 2001).

Ordnance Survey maps and aerial images of the land surrounding the site were consulted to determine if any waterbodies or watercourses were present within the site or within 0.5km of it. Two ponds and one watercourse were identified within 0.5km of the site (see Plan 6). The Habitat Suitability Index (HSI) (Oldham *et al.*, 2000) was applied to these ponds.

Pond 1 and 2 are separated from the proposed development site by the A4048. Major highways are considered to act as a barrier to GCN migration (English Nature, 2001) and therefore, the likelihood of GCN migrating onto the proposed development site is considered to be very low.

[11] As far as was practical given the vegetation structure within the survey area, the guidance set out in The Dormouse Conservation Handbook (Bright, Morris & Mitchell-Jones, 2006) was adhered to, whereby three 10m x 10m areas of heavily fruiting hazel were searched for 20 minutes each, therefore enabling an 80% confidence rating of dormouse absence in these areas.

As part of the assessment, ponds are scored using 10 suitability indices[12]: Each of these features is awarded a score between 0 and 1, and a final score is calculated, also between 0 and 1 (a higher score representing more optimal conditions for GCN). This final score enables the pond to be ranked in terms of its suitability (poor, below average, average, good or excellent) and to estimate the likely presence of GCN within the water body.

The HSI assessment is not a substitute for undertaking GCN surveys but can be used to inform the assessed likelihood of presence or absence. It is not sufficiently precise to prove that a higher score confirms presence, or a lower score confirms absence.

The streams also lies within 0.5km of the study area. However, fast flowing water is considered to act as a barrier to GCN migration (English Nature, 2001). This water body was therefore deemed unsuitable for supporting GCN.

Otters

A preliminary assessment for signs of otter (*Lutra lutra*) within the ditch within the site was undertaken following the advice provided by Strachan & Jefferies (1996) and Chanin (2003). The banks of the watercourse on site were searched for evidence of otter activity within 10m of the bank. Field signs of otter were recorded if present including spraints (faeces showing food remains), footprints, feeding remains and couches (above ground resting sites normally in thick vegetation cover), as well as potential or actual breeding sites and resting places (i.e. holts or natal dens) which are usually found under roots of bank side trees or in rock piles.

A full otter survey was not undertaken as this was beyond the scope of the assessment.

Water Voles

An assessment of the ditch within the site was undertaken to determine its suitability for supporting water voles (*Arvicola amphibius*), following methods set out in the Water Vole Conservation Handbook (Strachan & Moorhouse, 2006). In addition, a search for evidence of activity was undertaken, including droppings, latrines, burrows, footprints and feeding lawns, of any areas considered suitable.

A full water vole survey was not undertaken as this was beyond the scope of this assessment.

White-Clawed Crayfish

An assessment of the ditch within the site was undertaken to determine its suitability to support white-clawed crayfish (*Austropotamobius pallipes*) (WCC), based on the habitat requirements set out in the Ecology of the White-Clawed Crayfish Handbook (Holdich, 2003). Specifically, the presence of undermined/overhanging banks, soft banks for burrows, cobble and rock substrate, submerged refugia and macrophytes.

[12] The 10 suitability indices are: location, pond area, pond drying, water quality, shade, waterfowl presence, fish presence, number of ponds in the local area, terrestrial habitat, and macrophyte cover.

WCC are typically found in watercourses of 0.75m to 1.25m deep, although they may occur in very shallow streams (around 5cm) and in deeper, slow-flowing rivers (up to 2.5m) (Holdich, 2003). The stretch of the water course approximately 0.3km south-east of the site comprises a lowland section of river with an estimated depth of approximately 0.5m. The Caerphilly Local Biodiversity Action plan[13] states that there are no recent records of white-clawed crayfish within Caerphilly County Borough. The likelihood of WCC being present within this water body is therefore considered negligible, and they are not mentioned further in this report.

Badgers

Earth embankments, wooded copses, hedgerows and dense bramble beds are habitat features that often contain evidence of badgers (*Meles meles*). Where present on, these and other suitable habitat features were searched for such evidence. Where present, the location of badger signs such as setts, runs, dung pits or latrines, prints, hair and foraging snuffle holes were recorded.

Reptiles

An assessment of the suitability of on-site habitats to support reptiles was made. Reptiles require a diverse range of habitats to meet their needs such as hedgerows, scrub, rough grassland, woodpiles, rubble, banks and compost heaps. The potential of the site to provide hibernation opportunities and spring/ summer/autumn habitat was also assessed, with reference to guidance provided in the Herpetofauna Workers' Manual (Joint Nature Conservation Committee, 2003), the Reptile Management Handbook (Edgar, Foster & Baker, 2011) and the Reptile Mitigation Guidelines Technical Note TIN 102 (Natural England, 2013). The following factors were considered: vegetation type and structure; insolation (sun exposure); slope aspect; topography; surface geology; habitat connectivity; habitat size; prey abundance; refuge opportunity; hibernation opportunity; egg-laying potential for grass snake (*Natrix helvetica*); public pressure; percentage of shade; levels of disturbance and management regime.

A targeted presence/likely absence reptile survey was not undertaken as it was beyond the scope of this assessment.

Hedgehogs

The site's potential to support hedgehog was assessed using guidance on habitats of importance in Hedgehogs and Development (People's Trust for Endangered Species, 2022)[14] with the following habitats particularly favoured: dense scrub to build hibernation nests in during the winter; short grass to forage in for invertebrate prey; longer grass to forage in and to make nests in during the summer; areas of leaf litter to collect and use for hibernation nests; log piles and decaying vegetation to forage in and hibernate in; and hedgerows and boundary vegetation that are important corridors for travel and nesting sites.

Other Species

[13] https://www.caerphilly.gov.uk/CaerphillyDocs/Planning/Biodiversity-Action-Plan-Caerphilly-County-Borough.aspx
[14] https://www.hedgehogstreet.org/wp-content/uploads/2022/08/PTES-BHPS-Hedgehogs-and-development-guide-2022.pdf

General habitat suitability and incidental sightings of other animal species were also noted.

2.3.4. Assessment of Ecological Value

The value of the habitats and features of the site have been provisionally evaluated and graded in accordance with the Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland (CIEEM, 2018). The level of value of specific ecological receptors is assigned using a geographic frame of reference, i.e. international value being most important, then national, regional, county, district, local and, lastly, within the immediate zone of influence of the site only. Brief descriptions of how Acer Ecology interprets these categories are set out in Appendix 4.

In addition, the 2018 EcIA Guidelines from CIEEM make it clear that an EcIA should consider the impacts upon ecosystems, as well as habitats and species. Statements to this effect are found throughout the document, for example at sections 1.3, 1.9, 2.3, 4.1 and 4.8 etc.

Potential impacts on important ecological features are identified and assessed. Mitigation measures have been devised following the mitigation hierarchy and appropriate mechanisms for securing mitigation measures have been identified.

2.3.5. Limitations

General Temporal Limitations

Any ecological survey can only identify what was present on-site at the time the survey was conducted and habitat usage by species can change over time.

Seasonality of Survey

The present survey was undertaken outside of the optimal survey period for certain species of flora and fauna, with many species having died back or having become inconspicuous at the time of the survey. The survey can be considered as providing a reasonable, though not exhaustive or full, plant list. The survey noted the habitat types present on site and the dominant vegetation at the time of the survey, which is likely to be constant and a fair reflection of the habitat quality present.

Incomplete Survey Information

Full surveys for the protected species listed previously have not yet been carried out. For some species of fauna for which evidence has been found or which are considered likely to occur on site, further targeted survey is advisable at a more appropriate time of year (see Section 4).

3. Baseline Ecological Conditions, Evaluation and Development Impacts

The baseline conditions and evaluation of the *in-situ* habitats and the actual/potential presence of protected species are discussed in this section. Potential impacts on protected sites, *in-situ* habitats and protected or notable species arising from the proposed development are identified, including both direct and indirect impacts and those associated with construction and operational stages.

A summary of relevant legislation and planning policies relating to protected sites, habitats and species is provided in Appendices 2 and 3.

3.1. Statutory Nature Conservation Designated Sites

Statutory Sites (SACs or SSSIs) Designated for Bats within 10km of Site

The proposed development site lies within 10km of the following sites that have been specifically designated for bats:

Table 2: Statutory Sites Designated for Bats Within 10km

Site Name and Designation	Description	Distance and Direction from Development Site	Development Impacts
Ruperra Castle and Woodlands SSSI[15]	The site is of special interest as the only known nursery roost for the greater horseshoe bat (*Rhinolophus ferrumequinum*) in the Mid and South Glamorgan area and only one of only five known nursery roosts of this species in Wales. The SSSI supports a colony of greater horseshoe bats of national and international importance.	9.4km to the south of the development site.	No direct impacts are anticipated due to the small scale of the development and the distance from the SSSI.

SSSIs, LNRs and Country Parks within 2km of Site

The proposed development site lies within 2km of the following statutory sites:

Table 3: Statutory Sites Designated Within 2km

Site Name and Designation	Description	Distance and Direction from Development Site	Development Impacts
Memorial Park Meadows Pontllanfraith SSSI and LNR[16]	A large area of unimproved grassland made up of four fields which are the remnants of a traditionally managed farm unit now completely surrounded by urban development. The site also supports large populations of a number of locally rare species, including greater burnet (*Sanguisorba officinalis*), lady's	0.8km to the west of the development site.	No direct impacts are anticipated due to the small scale of the development proposals and the distance from the Statutory Sites.

[15] https://naturalresources.wales/media/669052/SSSI_2987_Map001f803.pdf
[16] https://naturalresources.wales/media/635362/SSSI_0106_Citation_EN001d5b5.pdf

	mantle (*Alchemilla xanthochlora)* and bistort (*Polygonum bistorta*).		
Penllwyn Grasslands SSSI[17]	This site is comprised of a mosaic of habitats including wet acid grassland, woodland, scrub, tall herb vegetation and species-rich Molinia grassland. This complex range of habitats supports a diversity of macro-invertebrate communities. More than 12 species of butterfly and 90 species of macro-moths have been recorded for this site including colonies of the rare marsh fritillary (*Eurodryas aurinia*).	1.8km to the west of the development site.	
Sirhowy Country Park[18]	No citations available.	1.9km to the south-west of the development site.	

3.2. Non-statutory Nature Conservation Designated Sites

SINCs

The proposed development site lies within 2km of the following non-statutory sites:

Table 4: Non-Statutory Sites Designated Within 2km

Site Name	Description	Distance and Direction from Development Site	Development Impacts
Enterprise Way Grasslands[19]	The western part of the SINC is a block of broadleaved woodland with a canopy of Oak and Beech, and a tangled understorey including bramble, holly, hazel, bird cherry and hawthorn. The ground flora is very sparse in the centre of the wood, but a number of semi-natural indicator species are present at the margins. A recently planted belt of trees beside the recently constructed road, the "Sirhowy Enterprise Way", links the woodland to habitats further east.	0.2km to the north of the development site.	No direct impacts are anticipated due to the small scale of the development proposals and the distance from the SINCs.
Glan-Brynar Woodlands[20]	A mix of habitats including three small broad-leaved woodlands, three small fields of damp neutral / marshy grassland, a small area of semi-improved acid grassland and a disused railway-line. The woodlands canopies mainly comprise oak, birch, and occasionally alder, with an understorey of hazel, blackthorn and hawthorn. The ground flora is generally species-poor and indicative	0.3km to the north of the development site.	

[17] https://naturalresources.wales/media/649636/SSSI_0702_Citation_EN001603e.pdf
[18] https://greenspacescaerphilly.co.uk/sirhowy-valley-country-park
[19] http://citations.lercwales.org.uk/sinc/cly/SINC190.pdf
[20] http://citations.lercwales.org.uk/sinc/cly/SINC072.pdf

	of damp conditions, but includes several semi-natural indicator species.		
River Sirhowy[21]	This SINC comprises the full length of the River Sirhowy within the county borough and adjacent semi-natural habitats. This is one of three main watercourses in the county borough and represents a significant linear wildlife corridor. The river and the adjacent semi-natural habitats have been included to incorporate the whole of the river corridor for ecological connectivity purposes. The river corridor includes the river, the riverbanks and the adjacent semi-natural habitats such as woodland, trees, wetland, hedgerows and species-rich grassland, to retain "ecological functionality".	0.5km to the west of the development site.	
Greenlands Meadow[22]	The site is a small horse-grazed field, with a short, moderately diverse neutral grassland sward. Species include common knapweed, devil's-bit scabious and Common centaury. bracken is present beside the hedge margins. The field also supports a high density of waxcap fungi.	0.6km to the north-east of the development site.	
Nant yr Odyn, East of Pontllanfraith[23]	The eastern part has a younger canopy and includes steep-sided disused quarries. The Nant yr Odyn stream runs in a steep, rocky channel through the valley. Abundant ferns, mosses and liverworts fringe its channel. A small, recently created pond containing Bulrush and pondweeds is present beside the southern woodland margin.	0.7km to the south of the development site.	
Penmaen Carr, East of Blackwood[24]	The SINC includes two small stands of wet woodland dominated by a canopy of alder and ash, with a dense understorey of holly, bird cherry and bramble. The ground flora is generally species-poor but includes yellow pimpernel, remote sedge, lady fern and mosses. The lower lying, less shaded southern edge of the woodland includes a shallow ditch with a diverse wetland flora. The woodland areas have been confirmed as important foraging and commuting routes for bats.	0.9km to the north of the development site.	

[21] http://citations.lercwales.org.uk/sinc/cly/SINC199.pdf
[22] http://citations.lercwales.org.uk/sinc/cly/SINC073.pdf
[23] http://citations.lercwales.org.uk/sinc/cly/SINC078.pdf
[24] http://citations.lercwales.org.uk/sinc/cly/SINC079.pdf

Ton-y-Pistyll Fields[25]	Several fields of neutral grassland, tall herb vegetation and developing scrub. The fields do not appear to have been grazed for several years. coarse grasses dominate the majority of the fields, including yorkshire fog, false oat-grass and cock's-foot, with a relatively low frequency of herb species. Areas of greater diversity are restricted to a few pockets and these include devil's-bit scabious, yellow rattle, common knapweed and meadow vetchling.	1km to the east of the development site.	

Ancient Woodland Sites

The following table shows the ancient woodland sites within 2km of the site:

Table 5: Ancient Woodland Sites Within 2km

Ancient Woodland Site	**Number within 2km of Site**
Ancient Semi-Natural Woodland (ASNW)[73]	47
Restored Ancient Woodland Sites (RAWS)[74]	12
Plantations on Ancient Woodland Sites (PAWS)[75]	Three
Nearest Area of Ancient Woodland	An unnamed area of ASNW located 0.5km north-west of the development site.
Development Impacts	None due to the distance between these woodlands and the proposed development site, together with the small scale of the works. They are therefore not mentioned further in this report.

3.3. Habitats and Vegetation

The results of the general survey of habitats and vegetation are shown on Plan 6. A botanical species list is provided in Appendix 5.

The site consists of the following elements which are described in detail overleaf. These comprise:

[25] http://citations.lercwales.org.uk/sinc/cly/SINC075.pdf

Table 6: Habitats and Vegetation			
Phase 1 Habitat	**Description**	**Ecological Value**	**Development Impacts**
Scattered Broadleaved Trees (A3.1)	There are scattered broadleaved trees along the western, southern, and the eastern boundaries of the site. Dominant species include poplar sp. (*Populus* sp.*)* and aspen (*Populus tremula*). Frequent species include sycamore (*Acer pseudoplatanus*), silver birch (*Acer pseudoplatanus)*, and wild cherry (*Prunus avium)*, with occasional alder (*Alnus glutinosa*) and oak sp. (*Quercus sp)*, rowan (*Sorbus aucuparia)*, crack willow (*Salix fragilis),* Norway maple (*Acer platanoides*), hazel (*Corylus avellana*) and blackthorn (*Prunus spinosa)*.	Site value	The majority of the scattered broad-leaved trees are going to be retained within the development. However, some trees, including T407 and T408, will be removed to facilitate the new site entrance. Further surveys are required to avoid and mitigate such impacts and are presented in Section 4.
Semi-Improved Neutral Grassland (B2.2)	There is a small patch of semi-improved neutral grassland towards the north-eastern boundary of the site. Dominant grass species include perennial rye-grass (*Lolium perenne*), and couch grass (*Elytrigia repens*) with occasional cock's-foot (*Dactylis glomerata*) and common bent *(Agrostis capillaris*). Dominant herb species include creeping buttercup (*Ranunculus repens)*. Abundant herb species include ground ivy (*Glechoma hederacea)*, and dandelion (*Taraxacum officinale agg.)*. Broad-leaved dock (*Rumex obtusifolius)* and herb Robert (*Geranium robertianum)* were frequent herb species, and occasional species include red clover (*Trifolium pratense)*, bramble (*Rubus fruticosus agg.)*, wood avens (*Geum urbanum)*, self-heal (*Prunella vulgaris)*, common ragwort (*Senecio jacobaea)* and groundsel (*Senecio vulgaris)*. Rare species include daffodil (*Narcissus sp)*, primrose (*Primula vulgaris)*, saffron crocus (*Crocus sativus*), and lesser celandine (*Ficaria verna)*. An unidentified Sedge (*Carex sp.)* was occasional within this habitat.	Site value	The area of semi-improved neutral grassland is proposed to be cleared to facilitate the development. Recommendations to compensate for the loss of this habitat are outlined in Section 4.

Improved Grassland (B4)	There is an area of improved grassland along the eastern and parts of the southern boundary of the development site. Dominant grass species include perennial rye-grass. Occasional herb species include ragwort and dandelion.	Site value	Parts of the semi-improved neutral grassland is proposed to be cleared to facilitate the development. Recommendations to compensate for the loss of this habitat are outlined in Section 4.
Standing Water (G.1)	There is a small area of standing water that runs along a slight ditch in the north-west boundary of the development site. However, it is likely that this will dry out in the summer months.	Negligible value	No impacts are anticipated as this area of water drains away consistently.
Bare Ground (J.4)	The majority of the site comprises bare ground. There are areas towards the north of the site that have become colonised by vegetation. Dominant grass species include perennial rye-grass. Abundant herb species include herb Robert and hairy bitter-cress (*Cardamine hirsuta)*, with occasional rosebay willowherb, common mouse-ear (*Cerastium fontanum)* and dove's foot crane's-bill (*Geranium molle)*.	Negligible value	This habitat will be lost as a result of the development. However, no adverse impacts are anticipated towards protected species.

Photo 1: Scattered trees along the western boundary

Photo 2: Scattered trees along the southern boundary

Photo 3: Semi-improved neutral grassland near the north-east boundary

Photo 4: Improved grassland near the southern boundary

Photo 5: Improved grassland along the eastern boundary

Photo 6: Ditch running along the northern boundary

Photo 7: Bare ground within the centre of the development site

Photo 8: Rubble humps within the bare ground

3.4. Invasive Plant Species

No invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded during the site visit.

3.5. Protected and Notable Species

3.5.1. Notable Plant Species

Data Trawl Results

SEWBReC returned records of 26 rare and/or 'notable' plants (including species regarded as 'Locally Important', LBAP species and UK Red Data Book-listed species).

One priority plant species were recorded within 1km of the site, namely: bluebell (*Hyacinthoides non-scripta*).

However, bluebell is mainly protected from sale via its listing under Schedule 8 of the Wildlife and Countryside Act.

Two plants listed as species of conservation concern were recorded within 1km of the site, namely: welsh poppy (*Meconopsis cambrica*), and marsh fern (*Thelypteris palustris*).

23 plant listed as locally important species were recorded within 1km of the site, namely: green field-speedwell (*Veronica agrestis*), various-leaved water-starwort (*Callitriche platycarpa*), bird cherry (*Prunus padus*), smooth lady's-mantle (*Alchemilla glabra*), thin-spiked wood-sedge (*Carex strigosa*), grey field-speedwell (*Veronica polita*), upright brome (*Bromopsis erecta*), smooth brome (*Bromus racemosus*), blunt-fruited water-starwort (*Callitriche obtusangula*), luzula multiflora subsp. congesta (*Luzula multiflora subsp. congesta*), goldilocks buttercup (*Ranunculus auricomus*), unbranched bur-reed (*Sparganium emersum*), wayfaring-tree (*Viburnum lantana*), horned pondweed (*Zannichellia palustris*), intermediate lady's-mantle (*Alchemilla xanthochlora*), common spotted-orchid (*Dactylorhiza fuchsii*), southern marsh-orchid (*Dactylorhiza praetermissa*), early-purple orchid (*Orchis mascula*), beech fern (*Phegopteris connectilis*), yellow-rattle (*Rhinanthus minor*), soft downy-rose (*Rosa mollis*), sweet-briar (*Rosa rubiginosa*), and hybrid woundwort (*Stachys sylvatica x palustris = S. x ambigua*).

Field Survey Results

No plant species, which individually are considered to be of either of national, regional or local significance were recorded on the site.

3.5.2. Birds

Desk Study Results

SEWBReC returned records of 28 priority bird species within 1km of the site, namely: goshawk (*Accipiter gentilis*), skylark (*Alauda arvensis*), kingfisher (*Alcedo atthis*), tree pipit (*Anthus trivialis*), black-headed gull (*Chroicocephalus ridibundus*), cuckoo (*Cuculus canorus*), peregrine (*Falco peregrinus*), kestrel (*Falco tinnunculus*), pied flycatcher (*Ficedula hypoleuca*), brambling (*Fringilla montifringilla*), herring gull (*Larus argentatus*), linnet (*Linaria cannabina*), red kite (*Milvus milvus*), yellow wagtail (*Motacilla flava*), curlew (*Numenius arquata*), house sparrow (*Passer domesticus*), dunnock (*Prunella modularis*), bullfinch (*Pyrrhula pyrrhula*), starling (*Sturnus vulgaris*), redwing (*Turdus iliacus*), song thrush (*Turdus philomelos*), fieldfare (*Turdus pilaris*), barn owl (*Tyto alba*), lapwing (*Vanellus vanellus*), lesser redpoll (*Acanthis cabaret*), spotted flycatcher (*Muscicapa striata*), merlin (*Falco columbarius*), and crossbill (*Loxia curvirostra*).

22 birds listed as species of conservation concern were recorded within 1km of the site, namely: long-tailed tit (*Aegithalos caudatus*), mallard (*Anas platyrhynchos*), meadow pipit (*Anthus pratensis*), swift (*Apus apus*), grey heron (*Ardea cinerea*), greenfinch (*Chloris chloris*), dipper (*Cinclus cinclus*), whitethroat (*Curruca communis*), snipe (*Gallinago gallinago*), swallow (*Hirundo rustica*), lesser black-backed gull (*Larus fuscus*), grey wagtail (*Motacilla cinerea*), wheatear (*Oenanthe oenanthe*), cormorant (*Phalacrocorax carbo*), willow warbler (*Phylloscopus trochilus*), green woodpecker (*Picus viridis*), goldcrest (*Regulus regulus*), whinchat (*Saxicola rubetra*), woodcock (*Scolopax rusticola*), mistle thrush (*Turdus viscivorus*), redstart (*Phoenicurus phoenicurus*), and sand martin (*Riparia riparia*).

SEWBReC also returned one bird listed as locally important species within 1km of the site, namely: buzzard (*Buteo buteo*).

Three birds listed as other bird species (i.e. invasive species) were recorded within 1km of the site, namely: Canada goose (*Branta canadensis*), ring-necked parakeet (*Psittacula krameri*), and budgerigar (*Melopsittacus undulatus*).

Field Survey Results

A low number of birds were recorded on site, including: blackbird (*Turdus merula*), blue tit (*Parus caeruleus*), magpie (*Pica pica*), and European herring gull (*Larus argentatus*).

Evaluation of Ecological Value of Site for Birds

The scattered trees along the western, southern, and eastern boundary provide a range of nesting and foraging opportunities for tree nesting bird species. As a whole, the site is considered to be of site value to birds. It contains individual features that offer suitable habitats for birds, but all these features are widespread in the surrounding landscape.

Impact Assessment of Proposed Development on Birds

The following direct impacts to nesting birds may occur as a result of the development:

- Death or injury to adults or destruction of nests during vegetation clearance. However, such impacts can be avoided either via the retention of the scattered trees, or by timing works so that they occur outside of the nesting bird season (September to February inclusive), as detailed in Section 4;

The following indirect impacts to nesting birds may occur as a result of the development:

- Habitat degradation; and
- Increases in disturbance levels.

3.5.3. Bats

Desk Study Results

SEWBReC returned a total of five records of bat roosts within 1km of the site. The roost records are summarised in the table below.

Table 7: Bat Roost Records

Species	Total Number of Records	Distance to Nearest Record	Most Recent Record	Maximum Count
Pipistrelle bat species (*Pipistrellus sp.)*	One	0.5km north-east of the site.	2013	-
Unidentified bats	Two	0.6km north of the site.	2013	-
Common pipistrelle (*Pipistrellus pipistrellus*)	Two	0.65km north of the site.	2013	One

In addition to the roost records, SEWBReC returned other records of bats foraging or commuting within 1km of the site. These included: common pipistrelle (*Pipistrellus pipistrellus*), *Myotis sp.,* lesser horseshoe (*Rhinolophus hipposideros*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared (*Plecotus auritus*), noctule (*Nyctalus noctula*) and Natterer's bat (*Myotis nattereri*).

Field Survey Results and Evaluation of Ecological Value of Site for Bats

Trees

The majority of scattered trees were semi-mature in age with low numbers of PRFs. However, some trees on site supported multiple PRFs. These have been described in detail in the table below and numbered on Plan 6, which should be read in conjunction with this section of the report.

Table 8: Trees Assessed for Bat Potential

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	**PRF**	**Suitability for Roosting Bats (Collins 2023)**
G3	*Populus hybrid spp* (Poplar hybrid spp), *Acer pseudoplatanus* (Sycamore), Corylus avellana (Hazel), *Quercus robur* (Common Oak), *Prunus spinosa* (Blackthorn), *Prunus avium* (Wild Cherry), *Alnus glutinosa* (Common Alder), *Ilex aquifolium* (Holly)	M	1	450	B2	The majority of the trees within this group have a high dense coverage of ivy, therefore obstructing the view of any PRF's beneath (Photos 9 and 10). These trees are to be retained within the development site, however, if plans change and these trees will need to be removed, then further assessment will be needed.	FAR
G7	*Acer saccharinum* (Silver Maple), *Populus hybrid spp* (Poplar hybrid spp), *Prunus avium* (Wild Cherry)	M	1	575	B2	One tree (Photo 11) within this group has a large split on the base of the trunk (Photo 12) that could potentially be utilized by roosting bats. There is also another potential deep cavity further up the trunk (Photo 13) that could support roosting bats. This tree is referenced as Target Note 1 (TN1). This tree is to be retained within the development site, however, if plans change and this tree will need to be removed, then further assessment will be needed.	FAR
T1	*Populus hybrid spp* (Poplar hybrid spp)	M	1	500	C2	N/A	None
T2	*Populus hybrid spp* (Poplar hybrid spp)	EM	1	400	C2	N/A	None
T3	*Prunus avium* (Wild Cherry)	M	1	320	C2	N/A	None

T393	*Betula pendula* (Silver Birch)	M	1	450	B2	N/A	None
T394	*Betula pendula* (Silver Birch)	M	1	450	C2	N/A	None
T404	*Acer pseudoplatanus* (Sycamore)	M	1	475	B2	N/A	None
T405	*Acer platanoides* (Norway Maple Crimson King)	M	1	350	B2	N/A	None
T406	*Acer pseudoplatanus* (Sycamore)	M	3		B2	N/A	None
T407	*Salix fragilis* (Crack Willow)	M	1	700	B2	Large deep crevice at the base of the trunk (Photo 15) that could be utilized by roosting bats. There is also another cavity (Photo 16) that could be deep enough to support roosting bats. This tree is to be removed to facilitate the new site entrance. Further surveys are therefore needed to avoid adverse impacts to roosting bats.	PRF-M
T408	*Populus tremula* (Aspen)	M	1	700	B2	Presence of a crevice (Photo 18) that could potentially be deep enough to support roosting bats. There is also evidence of flaking bark (Photo 19). This tree is to be removed to facilitate the new site entrance. Further surveys are therefore needed to avoid adverse impacts to roosting bats.	FAR
T409	*Sorbus aucuparia* (Rowan)	M	1	230	C2	N/A	None
T410	*Prunus avium* (Wild Cherry)	M	1	430	B2	N/A	None

Photo 9: Example of trees with high ivy coverage within G3

Photo 10: Example of trees with high ivy coverage within G3

Photo 11: TN1 - Silver maple within G7

Photo 12: TN1 - Large cavity (circled)

Photo 13: TN1 – Large cavity (circled)

Photo 14: T407 – large crevice (circled)

Photo 15: T407 – Close up of large crevice

Photo 16: T407 – Broken stem (circled)

Photo 17: T408

Photo 18: T408 – Broken stem (circled)

Photo 19: T408 – Flaking bark (circled)

T407 has been assessed as having PRF-M.

TN1, T408, G3 and G7 has been assessed as FAR (i.e requiring further assessment).

Potential Foraging and Commuting Habitat

The site is collectively considered to provide high-quality foraging and commuting habitat for bats due to the lines of trees surrounding the site which connect to larger areas of trees and woodland. These habitats form a continuous habitat corridor and connect the site to the wider landscape.

Impact Assessment of Proposed Development on Bats

The following direct impacts to bats may occur as a result of the development:

- T407 and T408 will be removed to facilitate construction access. T407 has been assessed as PRF-M and T408 has been assessed as having FA (i.e requiring further assessment). Felling may therefore result in the death, injury, or disturbance to any bats present at the time of works, or the loss of the roost. Further surveys will therefore be required, as detailed in Section 4;
- TN1 is proposed for retention. However, if plans change, the felling of the tree on site could result in the death, injury, or disturbance to any bats present at the time of works, or the loss of potential roost sites. In that scenario, further surveys would therefore be required as detailed in Section 4; and
- The proposals will result in a small area of high-quality foraging and commuting habitat being lost, and these losses will be permanent in nature. Further survey will be required before the extent of such impacts can be assessed, as detailed in Section 4.

The following indirect impacts to bats may occur as a result of the development:

- G3 and TN1 are proposed for retention. However, protective barriers will be installed prior to any site work, to ensure that no such inadvertent impacts occur (see Section 4). These will be established in line with the tree root protection zones detailed in the arboriculture report that has been produced for the site. If an adequate barrier cannot be established around TN1, this tree will require further survey, as detailed in Section 4.
- Trees with PRFs retained within the scattered broadleaf trees may subject to root damage as a result of heavy plant movement over the roost protection area, or accidental damage during general construction activities. Protective barriers will therefore be installed prior to any site work, to ensure that no such inadvertent impacts occur (see Section 4); and

3.5.4. Dormice

Desk Study Results

SEWBReC did not return any published records of dormice from 1km of the site.

Field Survey Results

No dormice or evidence of their presence, such as nuts with teeth-markings characteristic of having been opened by dormice, were noted on the site during the survey.

Evaluation of Ecological Value of Site and Impact Assessment of the Proposed Development for Dormice

The majority of the site was and is considered wholly unsuitable for dormice. Dormice are generally considered to be arboreal and reluctant to cross open spaces, instead favouring conditions where they can move easily between trees and shrubs without coming to the ground (Bright et al 2006). The scattered

trees and the bare ground being the dominant habitat on site does not allow the ecological connectivity that dormice favour. In addition, the desk study did not return any records of dormice from within the local area. These factors lower the likelihood of encountering dormice within the site. Therefore, the likelihood of dormice being present on site is considered to be negligible and no adverse impacts are subsequently anticipated. They are therefore not mentioned further in this report.

3.5.5. Great Crested Newt

Desk Study Results

SEWBReC did not return any records of GCN within 1km of the site. There are records of other amphibians, comprising two records of common toad (*Bufo bufo*).

Ponds Within 500m of Site

There are two ponds located within 500m of the development site. The A4048 separates the ponds and the development site and with the lack of GCN records within 1km, terrestrial migration is not anticipated to occur.

Field Survey Results

No direct observation or evidence of great crested newt was recorded on site although a targeted survey was not undertaken for this species. In addition, the current survey was undertaken outside of the active season for GCN.

Aquatic Habitat

The HSI assessments of the two suitable water bodies within 0.5km of the site are displayed in the table overleaf. The location of the water bodies are shown in Plan 5.

Table 9: Pond 1 HSI Scores/ HSI Scores

Pond Reference	**Water Body 1**	**Waterbody 2**
Distance and Direction from Site	0.3km north-east	0.3km north-east
SI1 Field location	0.5	0.5
SI2 Pond area	0.5	0.5
SI3 Pond drying	1	1
SI4 Water quality	0.67	0.67
SI5 Shade	1	1
SI6 Fowl	0.67	0.67
SI7 Fish	0.67	0.67
SI8 Ponds	0.67	0.67
SI9 Terrestrial habitat	0.67	0.67
SI10 Macrophytes	0.52	0.52
HSI SCORE:	**0.67**	**0.67**
Pond Suitability:	**Average**	**Average**

The results of the Habitat Suitability Index indicate the water body has 'average' potential to support breeding GCN.

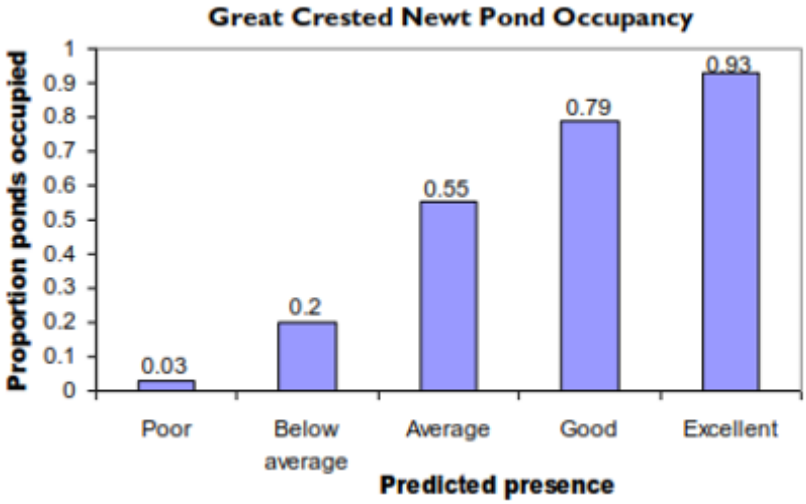
Photo 20: Pond 1

Photo 21: Pond 2

Terrestrial Habitats

Evaluation of Ecological Value of Site for Great Crested Newt

Water Body 1 and 2 scored 'Average' in the HSI assessment. The figure below (ARG, 2010) shows that the proportion of GCN presence in ponds that scored 'Average' IS 0.55 or 55%.



Impact Assessment of Proposed Development on Great Crested Newt

The scattered trees, bare ground and semi-improved grassland on site provide low optimal habitats for GCN. When considered in addition to the lack of published records of this species within the study area, and the hard barrier that the A4048 creates separating the development site, the likelihood of GCN being present on site is considered to be negligible and no adverse impacts are subsequently anticipated. They are therefore not mentioned further in this report.

3.5.6. Otter

Desk Study Results

SEWBReC returned a total of 10 otter records within 1km of the site. The nearest record was made in 2019, approximately 0.5km away towards the west of the site. Otters are known to be present on much of the River Sirhowy (SEWBReC data 2024), approximately 0.6km to the west of the site, although there are no records in the immediate vicinity of the site itself.

Field Survey Results

No direct evidence of otters was recorded on site

Evaluation of Ecological Value of Site for Otters

No evidence of otters was recorded on site by the surveyors present. However, it remains possible that the otters that forage and commute along the small waterbody running adjacent to the west of the development site and may venture onto the site in the future due to the river corridors west of the site having good vegetation cover.

Impact Assessment of Proposed Development on Otter

The following direct impacts to otters may occur as a result of the development:

- Death or injury during vegetation clearance; and
- Habitat degradation via pollution incidents into the small watercourse running adjacent to the west boundary.

The following indirect impacts to otters may occur as a result of the development:

- Light disturbance; and
- Increases in disturbance levels along banks of the small watercourse.

Precautionary measures and good construction practices for otters are outlined in Section 4 to ensure no otters potentially moving through the site are injured during the construction phase of the development.

3.5.7. Water Vole

Desk Study Results

SEWBReC did not return any records of water vole from within 1km of the site.

Field Survey Results

No water voles, or signs of water vole were recorded on site although a full targeted survey was not undertaken, and the survey was undertaken outside the optimal time for surveying water voles.

Evaluation of Ecological Value and Impact Assessment of Site for Water Voles

The nearest suitable water body lies directly adjacent to the west of the site, and the larger stream approximately 0.3km south-east of the development site. Therefore, the likelihood of water voles being present within the site is possible.

However, the habitats comprising the majority of the development area such as the bare ground and scattered trees are unsuitable for water voles, containing no suitable vegetative cover. Therefore, the likelihood of water voles being on site is considered negligible and are therefore not mentioned further in this report.

3.5.8. Badgers

Desk Study Results

SEWBReC returned one badger record within 1km of the site comprising: Two individuals commuting 0.8km west of the site in 2004.

Field Survey Results

No setts or other evidence of badgers were recorded on site.

Evaluation of Ecological Value and Impact Assessment of the Proposed Development on Badgers

The site contains foraging opportunities for badgers due to the presence of the scattered trees and semi-improved neutral grassland habitats. However, there is little potential for the site to be used for sett building due to the absence of banks and limited ecological connectivity to the wider landscape due to multiple fences, and watercourses. Badgers may venture onto the site from the west to forage sporadically and therefore the presence of badgers on site cannot be ruled out completely. Precautionary measures are outlined in Section 4.

3.5.9. Reptiles

Desk Study Results

SEWBReC returned two records of reptiles within 1km of the site. These included: Two records of slow-worm (*Anguis fragilis*).

Field Survey Results

No direct evidence of reptiles was recorded on site. However, the field survey was undertaken in February, a time when reptiles would be expected to be inactive and hibernating.

Evaluation of Ecological Value of Site for Reptiles

The site has the potential to support reptiles. This is due to a variety of suitable habitats, including the semi-improved neutral grassland, and bare ground habitats which provide a range of foraging, hibernacula and refugia opportunities. The outskirts of the bare ground , specifically towards the north, provide potential refugia and hibernacula features for reptiles, as well as rubble piles towards the south of the site.

Photo 22: Brick piles towards the north of the site

Photo 23: Rubble/spoil piles towards the south of the site (TN2)

Photo 24: Rubble piles within the south of the site (TN3)

Impact Assessment of Proposed Development on Reptiles

The presence of reptiles on site cannot be ruled out completely. The proposed works will result in the complete loss of potential reptile habitat, as parts of the bare ground and semi-improved neutral grassland vegetation are planned for removal/development.

The following direct impacts to reptiles may occur as a result of the development:

- Death or injury during vegetation clearance;
- Death or injury during operational activities; and
- Habitat loss.

The following indirect impacts to reptiles may occur as a result of the development:

- Fragmentation of small, unviable populations; and
- Increases in disturbance levels.

The proposed works will result in the loss of potential moderate-quality reptile habitat. Precautionary measures are outlined in Section 4.

3.5.10. Other Mammals

Desk Study Results

SEWBReC returned nine records of other mammals within 1km of the site, comprising: nine common hedgehog (*Erinaceus europaeus*).

Field Survey Results

No direct evidence of other mammals was recorded on site.

Evaluation of Ecological Value and Impact Assessment of Site for Other Mammals

There are some suitable habitats on site, such as the semi-improved grassland and improved grassland that could support a range of mammals, including hedgehogs, shrews (*Sorex sp.*) occurring either as a resident species or whilst foraging and/or commuting.

The presence of other mammals cannot be ruled out completely. The impact on potential other mammal habitat on site is considered to be moderate, therefore the clearance of vegetation may result in the accidental killing or injury of other mammals. Precautionary measures to avoid such impacts are detailed in Section 4.

3.5.11. Invertebrates

Desk Study Results

SEWBReC returned records of 18 notable invertebrate species from within the study area, comprising:

Seven priority invertebrate species were recorded within 1km of the site, namely: small blue (*Cupido minimus*), dingy skipper (*Erynnis tages*), ghost moth (*Hepialus humuli*), shoulder-striped wainscot (*Leucania comma*), white ermine (*Spilosoma lubricipeda*), cinnabar (*Tyria jacobaeae*), and latticed heath (*Chiasmia clathrata*).

Two invertebrates listed as species of conservation concern were recorded within 1km of the site, namely: glocianus punctiger (*Glocianus punctiger*), and *Saldula orthochila*.

Nine invertebrate listed as locally important species were recorded within 1km of the site, namely: emerald damselfly (*Lestes sponsa*), southern hawker (*Aeshna cyanea*), migrant hawker (*Aeshna mixta*), emperor dragonfly (*Anax imperator*), azure damselfly (*Coenagrion puella*), common blue damselfly (*Enallagma cyathigerum*), blue-tailed damselfly (*Ischnura elegans*), scarce blue-tailed damselfly (*Ischnura pumilio*), and common darter (*Sympetrum striolatum*).

Field Survey Results

No incidental observations of invertebrates were recorded during the survey.

Evaluation of Ecological Value of Site for Invertebrates

Due to the habitats present it is assumed the site will support an assemblage of invertebrates but is unlikely to support notable or rare species.

Impact Assessment of Proposed Development on Invertebrates

The invertebrates using the site for habitat are unlikely to solely rely on the site for their continued survival. While some habitat loss will occur across the site, this can be more than offset by providing a range of new habitats within the development that will benefit invertebrates. Plans for widespread planting across the site have potential to greatly increase the floristic diversity of the site, therefore introducing more opportunity for a wider range of invertebrates to utilise the site post-development.

4. Required Actions and Conclusions

The following recommendations have been developed based on the development proposals available at the time of writing. The implementation of these recommendations will ensure compliance with the Planning Policy Wales version 11 (Welsh Government, 2021)[26], TAN 5 *Nature Conservation and Planning* (2009), Section 6 and 7 of the Environment Wales Act, 2016, the Conservation of Habitats and Species Regulations 2017 which has been updated by the Conservation of Habitats and Species (Amendment) (EU Exit) ['CHSAEU'] Regulations 2019 and the Caerphilly Council Borough Local Development Plan 2021.

The recommendations aim to avoid or minimise adverse impacts on the environment and protected species, mitigate and compensate for losses where damage is unavoidable and promote opportunities to enhance biodiversity. There is a requirement that developments must provide net benefit for biodiversity.

4.1. Stepwise Approach to Maintaining Biodiversity

As part of the Future Wales: The National Plan 2040 and Planning Policy Wales (PPW) Edition 12 - 24th Feb 2024, planning authorities must follow a stepwise approach to maintain and enhance biodiversity and resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for; enhancement must be secured wherever possible. The first priority for planning authorities is to avoid damage to biodiversity and ecosystem functioning. Where there may be harmful environmental effects, planning authorities will need to be satisfied that any reasonable alternative sites that would result in less harm, no harm or gain have been fully considered. This policy is mirrored within the Local Development Plan.

The development should seek to maintain as much of the existing scattered trees as possible and minimise the number of areas where the trees needs to be removed.

4.2. Biodiversity and Ecosystem Enhancement Scheme/Green Infrastructural Plan

Local Authorities have a duty (known as the Biodiversity and resilience of ecosystems duty) under the Environment (Wales) Act 2016 to seek to maintain and enhance biodiversity in the exercise of their functions. Where possible the existing on-site habitat will be retained to ensure that species are not adversely affected by the development. Native species of local provenance grown in the UK will be used for any new planting on the site. A soft and hard landscaping plan will need to be provided which includes:

- Detailed planting/sowing specifications including species, size, density spacing, cultivation protection (fencing, staking, guards) and methods of weed control; and
- Details of surfacing, boundary treatments and landscaping structures including design, location, hedgehog accessibility, size, colour, materials and openings.

[26] Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions … and in so doing promote the resilience of ecosystems. Development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity.

A Biodiversity and ecosystem enhancement scheme such as the incorporation of permanent bat roosting feature(s), hedgehog homes and nesting opportunities for birds will need to be provided. A green infrastructure statement will need also to be produced for the site.

4.3. Further Work

It will not be possible to determine the planning application until the surveys outlines below have been carried out. Results from these surveys will inform and allow for targeted recommendations for the avoidance (timing of works), future mitigation and compensation measures required as part of the development and determine if any protected species derogation licences are required.

4.3.1. Potential Roost Feature (PRF) Inspection Survey

T407 and T408 are proposed for removal to facilitate the new site entrance into the development site. T407 has been assessed as having PRF-M, and T408 has been assessed as FAR (i.e requiring further assessment). A Potential Roost Feature (PRF) Inspection survey will be needed on T408. This will allow a more detailed assessment of their likely suitability for bats and determine if the tree has suitability for supporting individual bats only (PRF-I) or could support maternity roosts (PRF -M). If the tree is assessed as having PRF-I, then no further surveys are needed. However, if the tree is assessed as having PRF-M, then the three endoscope surveys will be required undertaken between May and September. In addition, a search will be undertaken for evidence of bats such as live or dead bats and droppings. As T407 has been assessed as having PRF-M, it will require three endoscope surveys.

For T407 and T408 too if it assessed as having potential to support a maternity roost, three surveys will need to be carried out between May and September, spacing them out three weeks apart.

As these PRF's can be assessed from ground level, no climbing surveys are needed.

4.4. Precautionary Measures

4.4.1. Timing of Works for birds

If proposals require the clearance of the tree habitats, they should be undertaken from September to February, outside of the bird breeding season (March to August inclusive). Alternatively, any works undertaken from March to August will be subject to a check for nesting birds by a suitably qualified ecologist immediately prior to the works. If any active nests are found these will be protected, along with an appropriate buffer zone of between 5-10m, until the nesting is complete, and the young have fledged.

4.4.2. Protective Fencing for Retained Trees

The retained trees around the periphery of the development site could be accidentally affected by plant during the general construction activities. Such an occurrence also runs a risk of adversely affecting a range of protected species and the intrinsic values of the habitat. Therefore, a degree of protection is required. To prevent accidental damage, the retained scattered broadleaved trees will be securely fenced-off with

appropriate temporary fencing (e.g. Heras fencing) and treated in accordance with British Standard BS5837 (2012) *Trees in Relation to Design, Demolition and Construction – Recommendations.*

It is recommended that the trees deemed as FAR (G3, G7) that are to be retained, will have a temporary fence erected around them which is at least as wide as the maximum canopy spread. This is to prevent accidental harm or damage to the tree, for example, from the compaction of soil over the roots which may otherwise be caused by heavy vehicles tracking too close to the tree, oil spills onto the soil, collision damage to the bark and boughs etc. The temporary fences referred to above should be left in place and maintained until development of the site has been completed. If the development is anticipated to lead to significantly increased anthropogenic disturbance, then some form of permanent fencing should be installed.

If plans change and in the event the trees with bat potential require felling, further surveys or supervised felling will be required.

4.4.3. Trees which Require Further Assessment (FAR)

The trees needing further assessment are to be retained within the development site, However, if plans change, the following recommendations will be made:

- The felling or removal of Trees G3 and G7 will take place between October and February to coincide with the period of lowest bat activity and likelihood of bats being present. This timescale would also eliminate the risk of causing accidental harm to nesting birds. If this timescale is not possible and works take place within the nesting bird season (March-August inclusive), a nesting bird check will be required to prior to any works;
- Tree surgeons undertaking felling and pruning works will be warned of the possible presence of roosting bats (and/or nesting birds), and of their protected status. It will be clearly understood that in the event of any bats (or occupied birds' nests) being found the contractor must stop works in the area surrounding the roost (i.e. at least 15m from the identified roost) and advice sought from the bat consultant or Natural Resources Wales. No works will continue on the affected trees until a bat licence has been sought from NRW;
- The trees will be 'soft felled' or 'soft pruned' whereby tree sections or branches will be carefully lowered to the ground. If any previously unidentified hollow sections of any tree, or any limbs with cavities or other potential roost features such as lifting bark are found the tree will need to be reassessed by an ecologist to determine if its suitability has changed and if further surveys are required. Assuming, that they are not the feature will be severed above and below the cavity, taking care not to cut through any potential cavities or hollows, and lowered to the ground with minimal force using rope, pulley slings or winches. Alternatively, the trees can be pushed over slowly and carefully uprooted by an excavator with control at all times so that the tree trunk or branches do not hit the ground at speed;
- Any removed hollow sections or other roosting features such as lifted bark which cannot be fully examined for bats will be removed to a shaded location and left undisturbed on the ground in a safe condition for 24 hours. This will allow any bats present to rouse themselves and fly off after

nightfall. The sections will be positioned on the ground so that access to the cavities is unobstructed, but so that the cavities do not become filled with rainwater;

- Particular care will be taken when chainsawing into any obvious cavities, splits or hollows, with frequent checking to make sure that no bats (or birds) are concealed within; and
- The services of an appropriately qualified and licensed bat consultant will be available on an 'on-call' basis at all stages of the works to deal with any unexpected encounters with bats or nesting birds.

4.4.4. Good Construction Practices for Mammals

In line with good practice, any open trenches and excavations associated with the development will either be closed at night, or a means of escape provided (e.g. a wide plank at no greater angle than 45°) to help any badgers, hedgehogs or other trapped animals escape.

Additionally, it is recommended that any security fencing erected on site is permeable to wildlife movement. A gap of at least 15cm should be left at regular intervals along the bottom of the fence under which a badger could pass. This will also make the site permeable to other species such as hedgehog.

4.4.5. Precautionary Measures for Otters

The following precautionary measures should be implemented in order to minimise disturbance to otters:

- Any and all lighting will be directed away from the waterbodies to minimise disturbance as a result of light;
- There will be no night-time working;
- All materials will be stored within a secure otter-proof fenced compound;
- Any excavations will be covered overnight or where this is not possible, a means of escape will be provided (e.g. a wide plank at no greater angle than 45°); and
- An appropriately experienced ecologist will be "on-call" for the duration of the project in the unlikely event that otters are found on site, in which case the relevant work will cease immediately, and NRW will be contacted. A development licence may be required prior to any further work being carried out. No further work will be undertaken without the approval of NRW.

4.4.6. Pollution Prevention Measures

Appropriate pollution control measures, both during construction and post construction, will be employed to protect the water quality of the water course that runs through the eastern boundary and adjacent to the northern site boundary. Surface water/pollutant run-off from the construction site into this water course will be avoided during site preparation and construction phases. Current Natural Resources Wales best practice guidance will be observed. The measures to be implemented are party outlined in the Environment Agencies guidance document 'Working at construction and demolition sites: PPG6 Pollution Prevention Guidelines' and 'Guidance for Pollution Prevention Works and maintenance in or near water: GPP 5'. In

addition, the following measures have been adapted from the best practice guidelines for pollution prevention (GPP).

Contingency Measures

Contingency measures for unforeseen incidents such as spillages will be set in place prior to commencement of construction works. Such procedures and measures will cover atmospheric, aquatic or land pollution and procedures in the event of fire. Contingencies to control and contain hydrocarbon spillages from, for example parked vehicles, once the area is developed will also be implemented. Plan ahead for intense and prolonged wet weather and consider all relevant pollution mitigation measures including:

- Minimise the amount of time stripped ground and soil stockpiles are exposed;
- Only remove vegetation from the area that needs to be exposed in the near future; and
- Seed or cover stockpiles.

Spill Response

If an accidental spill does occur on site, a quick response is needed to contain the spilled material (e.g. fuel, hazardous material etc.). Spill kits and a staff induction will be provided prior to the start of works to enable a quick response.

Deliveries

Deliveries to site can be a common cause of pollution. Vehicles can cause water, noise and dust pollution as they enter and exit the site, for example by spreading mud or contaminated material on neighbouring roads. Pollution can also be caused at the point of delivery, especially with fuels, oils and hazardous materials; for example, a fuel hose not correctly connected. Measures to prevent pollution caused by deliveries include:

- Ensure all deliveries are made as far away from watercourses and drains as possible (i.e. at the north and east of the site);
- Define times for deliveries to site and communicate these to suppliers and those working on site. Make sure these delivery times are suitable for neighbours, i.e. after 9am;
- Ensure any tanks, drums or containers coming to site are in a satisfactory condition. These will be regularly checked for damage or leaks;
- Clearly define delivery and material storage areas;
- Make sure that deliveries of polluting materials are delivered directly to a safe storage area, and not left anywhere else on site; a safe storage area may need secondary containment depending on the material to be stored e.g. oil and hazardous chemicals; and
- Ensure that all material deliveries will be supervised, especially hazardous materials.

Hard Surfaces

Any footpaths and hard surfaces will utilise infiltration systems as far as practicable, for example, by utilising porous paving solutions.

Duty of Care for Waste

The developer must comply with the Duty of Care Regulations and has a legal responsibility to ensure controlled waste is produced, stored, transported and disposed of without harming the environment. This involves:

- Accurately describing waste, including any hazardous properties;
- Safe and secure storage of waste;
- Segregation of recyclable waste;
- Segregation of hazardous/special waste; and
- The use of a registered waste carrier to remove waste from the site.

4.5. Compensation and Enhancement Measures and Biodiversity Net Gain

4.5.1. Bird and bat boxes

Bird nesting and bat roosting opportunities will be enhanced within the site by erecting artificial bat and bird boxes on suitable features at the perimeter of the site. A variety of durable, woodcrete bat and bird boxes, including maintenance free boxes suitable for trees, are available from Schwegler (see Appendices 10 and 11).

At least two bat boxes will be installed upon the scattered trees at the west of the site. A variety of bat boxes are available from NHBS[27]. Ideally, they will be placed near to linear features to allow bats undisrupted dispersal to local foraging habitat, and in positions where the entrance is not artificially illuminated at night. Boxes should be positioned a minimum of 3m from the ground.

One bird box should also be erected upon the scattered trees at the east of the site. This will be located in a secluded position, ideally within dense cover and at a minimum height of 3 metres from ground level. The peripheral vegetation of the site provides suitable locations for such boxes.

Specialised boxes that cater for specific bird species include open fronted nest boxes, which cater for a range of bird species, including thrush, blackbird, robin, dunnock, wren, pied wagtail, redstart and flycatcher. Due to the more exposed nature of these nest boxes, it is especially important to ensure that they are located in dense cover in order to avoid the attention of potential predators.

See Plan 7 to see suitable locations of bird and bat boxes.

4.5.2. Use of Native Landscaping Scheme

[27] https://www.nhbs.com/browse/subject/421/bat-boxes

Any new soft landscaping scheme for the site will include habitat enhancements that will benefit invertebrates, birds, and foraging bats. They will include the provision of shrubs or trees that bear berries or nuts. Native trees and shrubs that are indigenous to the region will be utilised, and any new plantings of native species should be of UK provenance. Suitable species for use in any new tree or shrub planting include holly, common hawthorn (*Crataegus monogyna*), wild cherry (*Prunus avium*), rowan (*Sorbus aucuparia*) and guelder rose (*Viburnum opulus*). These shrubs could be planted in the boundaries of the proposed hardstanding and in the woodland planting proposed for the south-east corner.

4.5.3. Sustainable Urban Drainage Systems (SuDs)

As of 7th January 2019, all new developments of more than one dwelling house or where the construction area is 100m² or more are required to have SuDS to manage on-site surface water (whether they require planning permission or not). These SuDS must be designed and constructed in accordance with the Welsh Government Standards for Sustainable Drainage[28].

In regard to the development site, it has been confirmed by the client that the SuDS proposed at the site will convey runoff over a grassy filter strip, through a filter drain and through a grassy detention basin. These SuDS features are recognised to provide certain pollution mitigation characteristics for suspended solids, metals and hydrocarbons, per the SuDS Manual, and in this configuration at the Site will be suitable for the expected runoff. Water will eventually be discharged to the box culvert at an existing chamber within the boundary of the Site. No significant adverse effect is expected on the culverted stream following treatment through these SuDS features. Planting at the detention basin is proposed to include an 80/20 seed mix of native wildflower and grass species to meet the SAB biodiversity criteria.

4.6. Licensing

It has not been possible to determine whether a NRW European Protected Species mitigation licence with respect to bats will be required. This will be determined after the further targeted surveys detailed in Section 4.4 have been completed.

4.7. Longevity of Report

If development works do not begin within eighteen months to two years of the date of this report, an update survey is likely to be required in accordance with guidance from NRW[29], CIEEM (2019) and BS 42020:2013[30], to determine if conditions have changed since those described in this report.

4.8. Conclusions

[28] https://gov.wales/sites/default/files/publications/2019-06/statutory-guidance.pdf

[29] As set out in Point 5 of the NRW *Bat Surveys - Frequently Asked Questions* and Point 4 of the guidance included within the NRW European Protected Species Development Application Form.

[30] As set out in Section 6.2.1, point 7 which states that ecological information should not normally be more than two/three years old, or as stipulated in good practice guidance).

The full extent of ecological impacts and potential constraints of the proposed development cannot be fully determined, based on the results of the preliminary ecological appraisal survey alone. Further surveys are required before the ecological impact of the proposed development can made, as detailed in Section 4.2.

Notwithstanding, the further surveys required, as detailed above, at this stage, the site's ecological value is not considered to represent a fundamental in-principal constraint to the proposed development.

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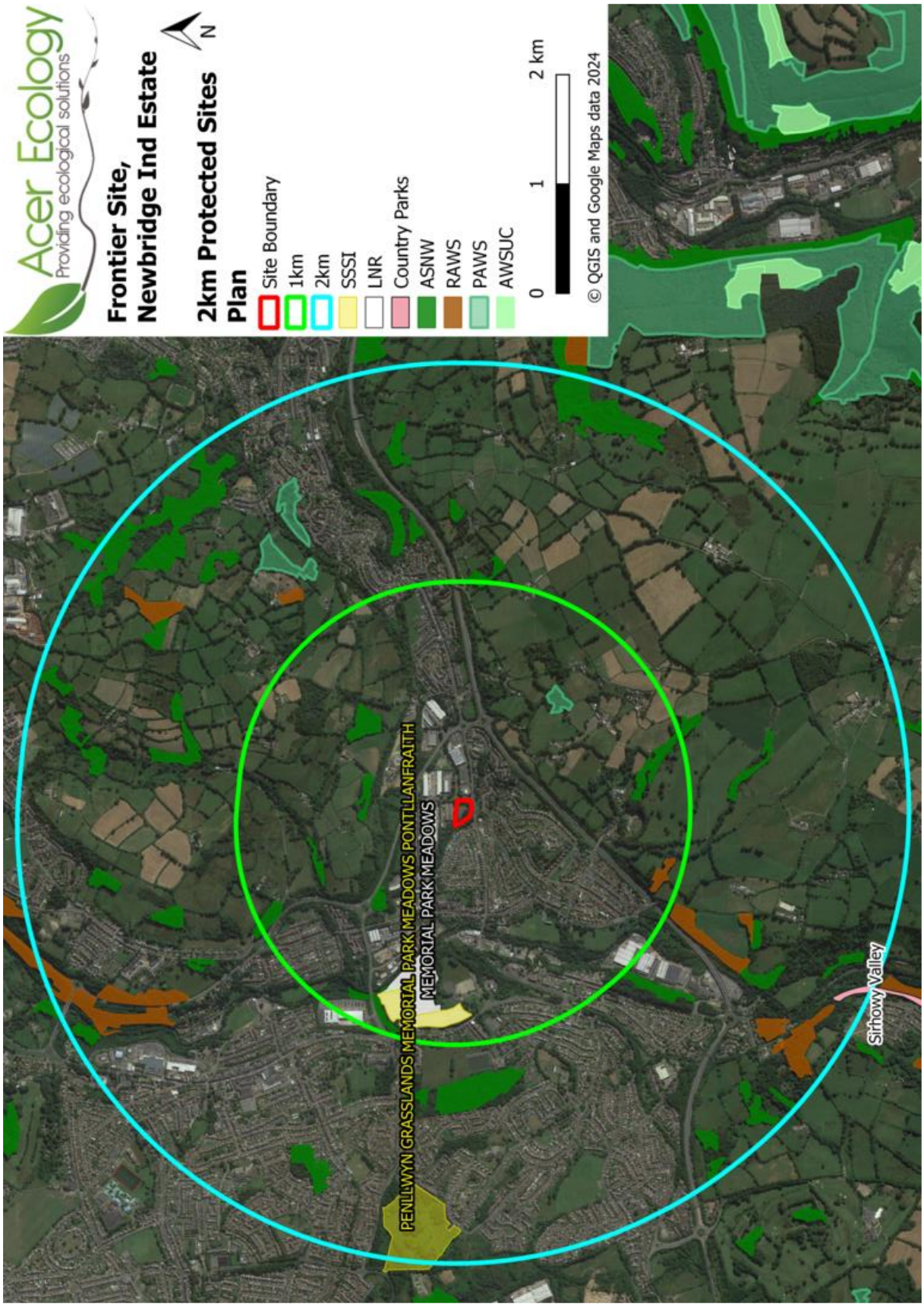
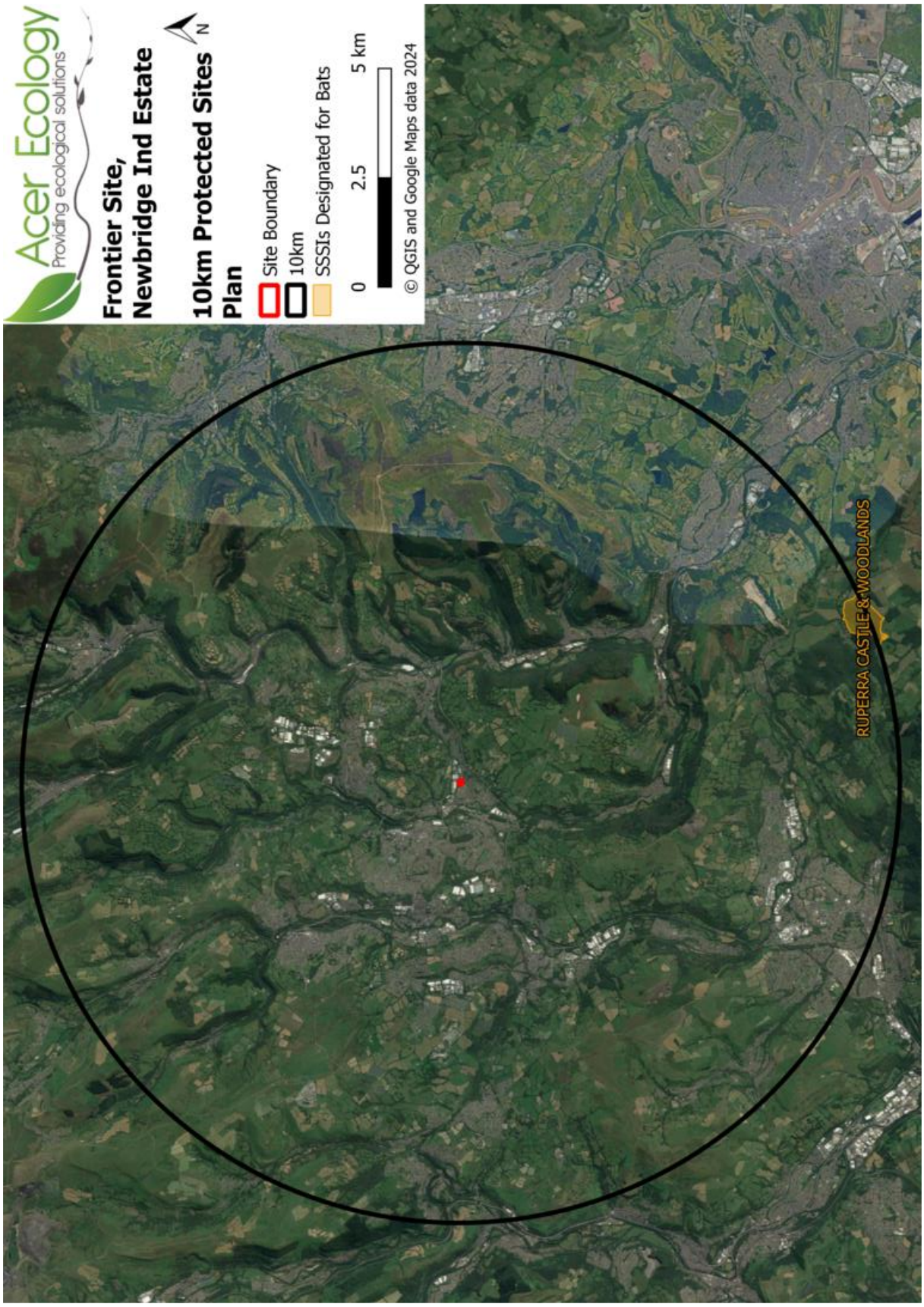
Plan 1: Site Location

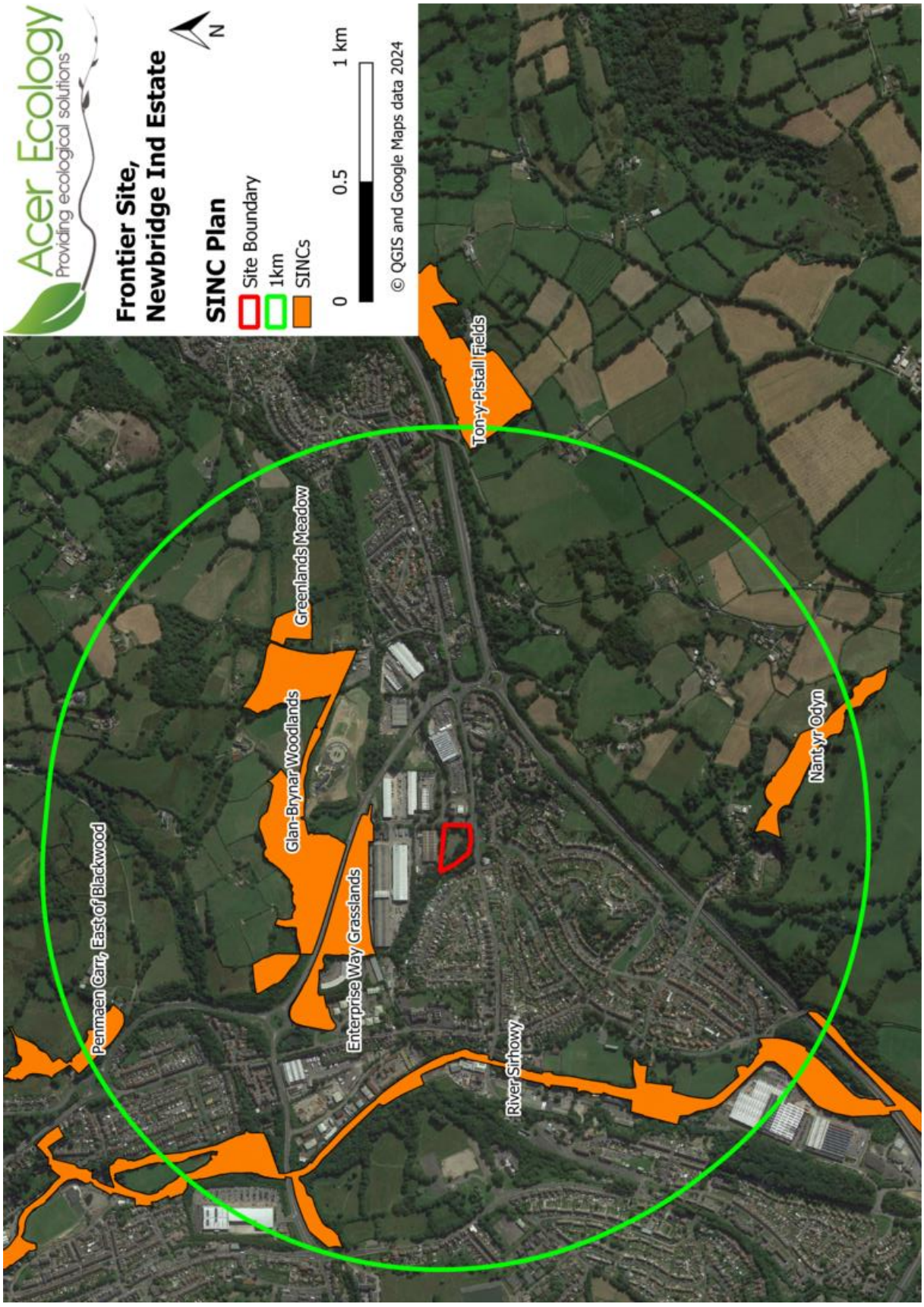
Plan 2: Site Location and Protected Sites Within 2km



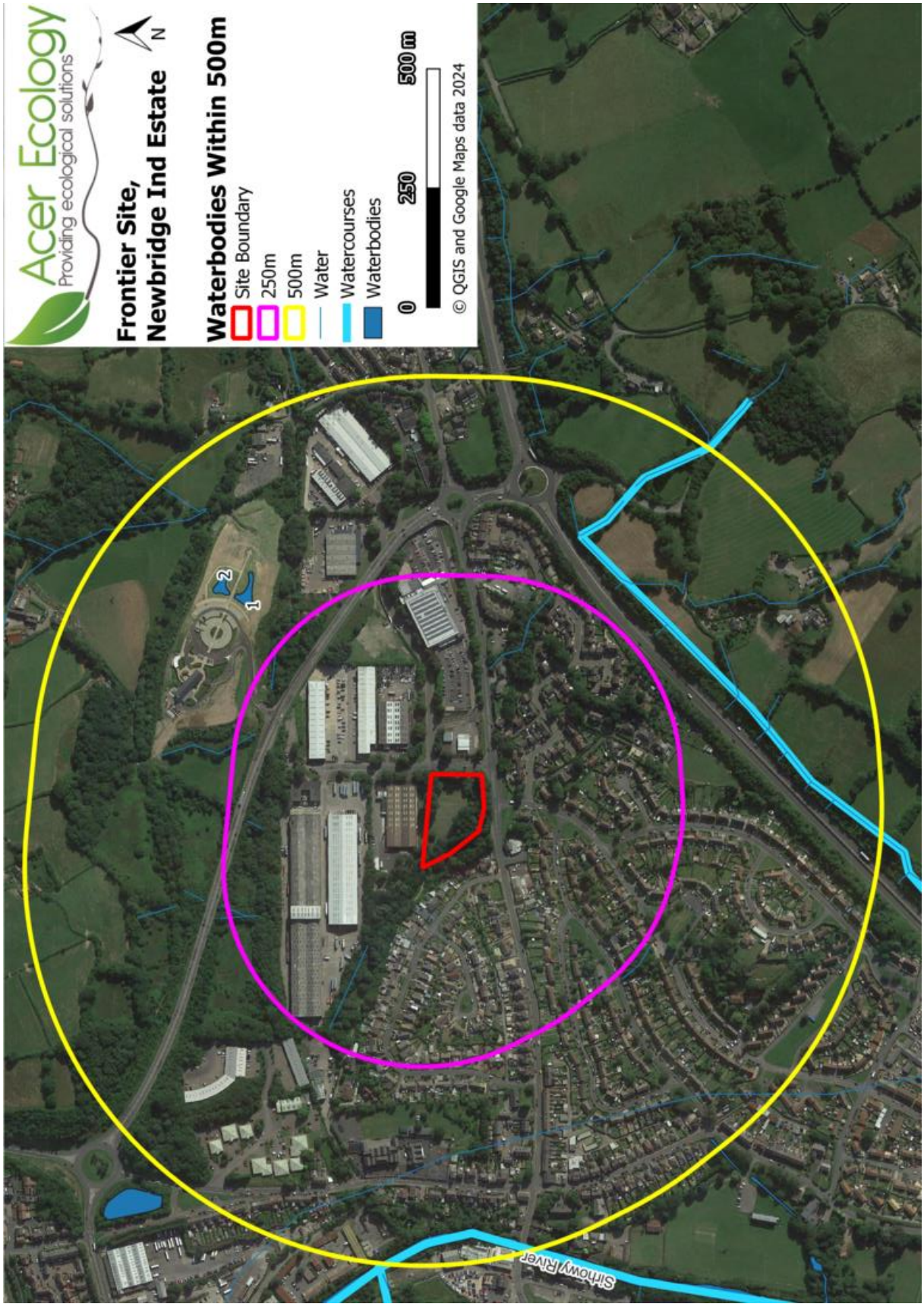
Plan 3: Site Location and Protected Sites Within 10km



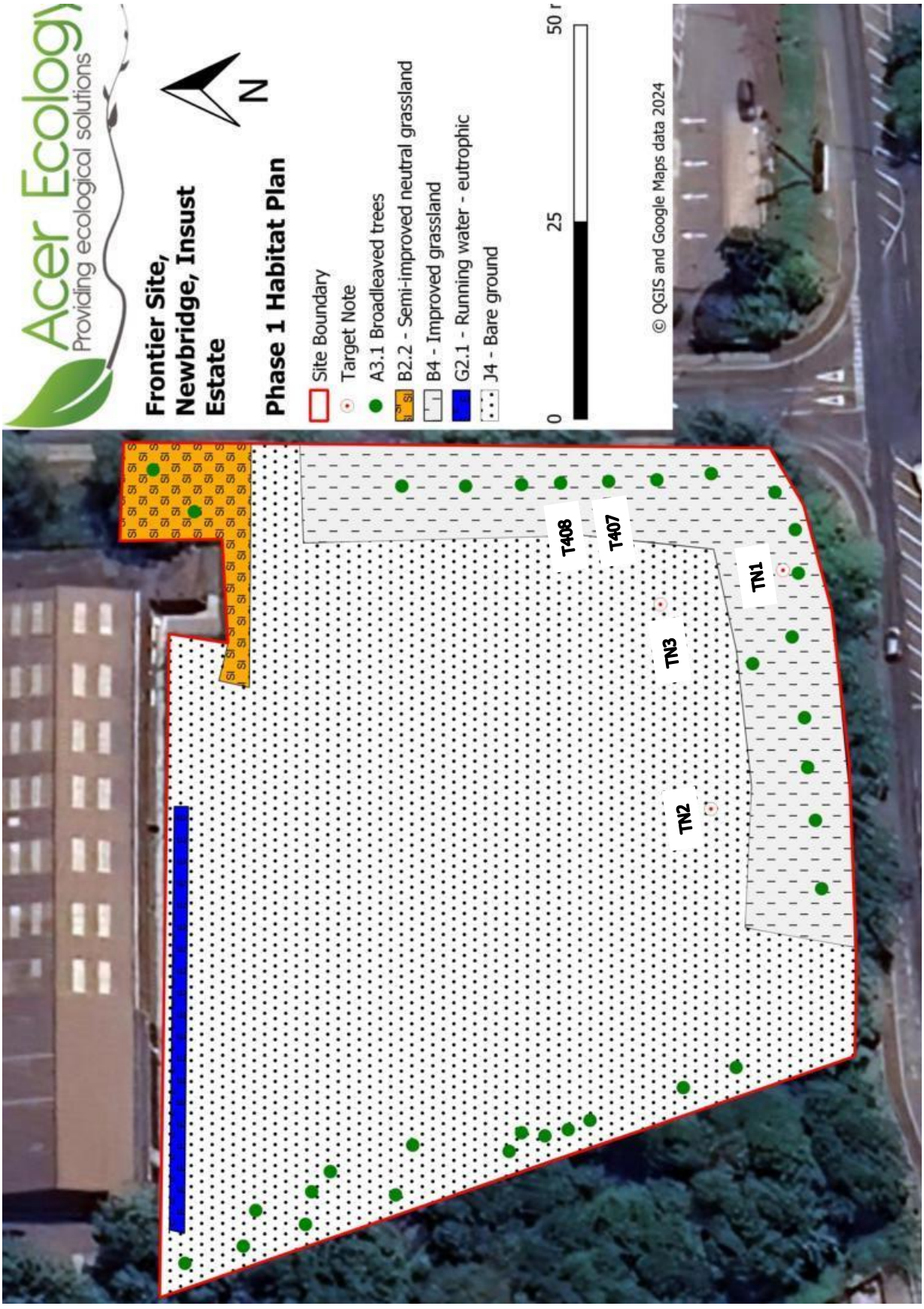
Plan 4: Site Location and SINCs Within 1km



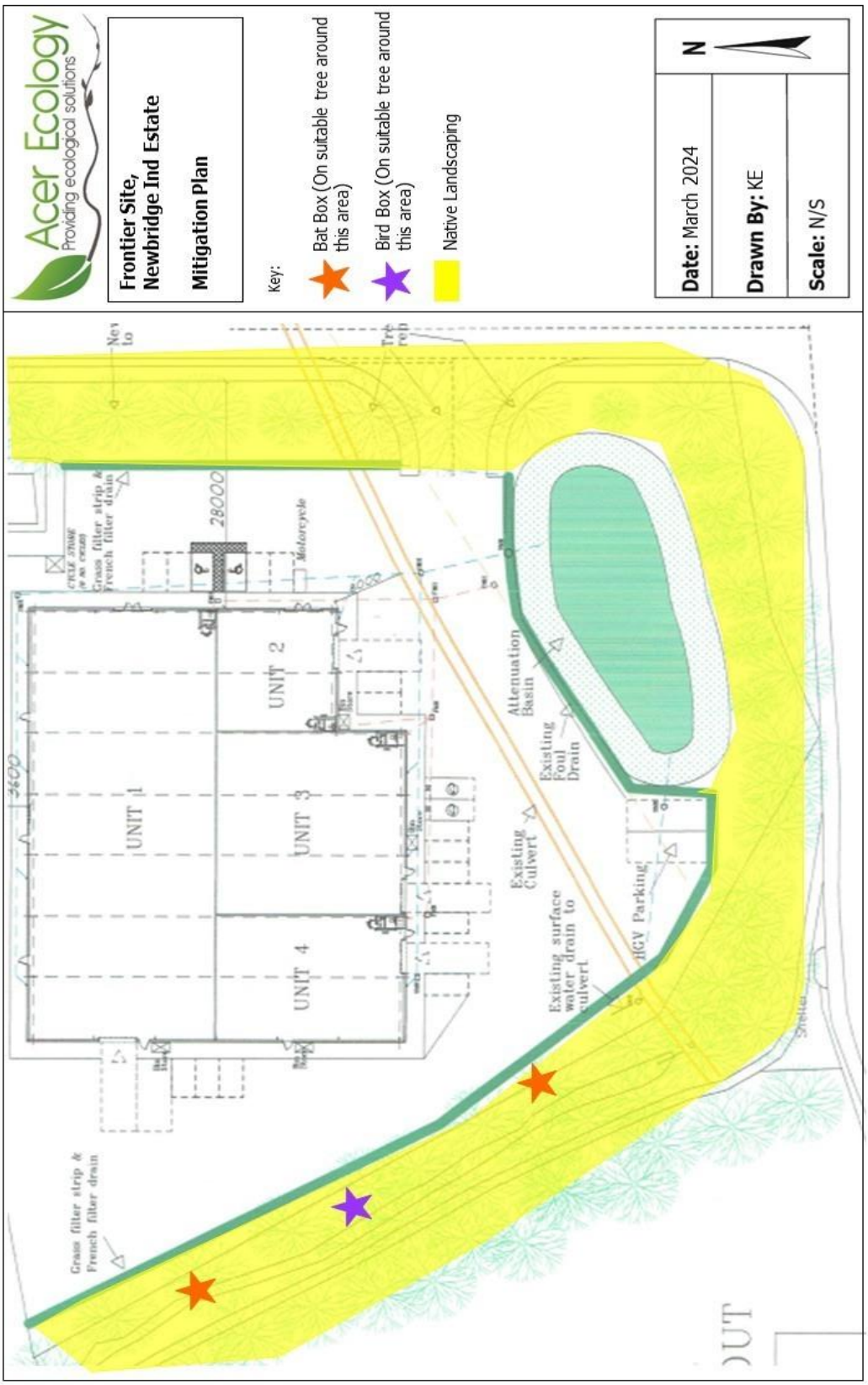
Plan 5: Location of Water Bodies within 0.5km of Site



Plan 6: Habitats and Vegetation



Plan 7: Mitigation Plan



Appendix 1: Proposed Development Works

Appendix 2: Legislation and Policy Relating to Statutory and Non-Statutory Designated Sites and Planning Policy Relevant to Site

Environment (Wales) Act 2016

The Environment (Wales) Act Section 6 duty, or the Biodiversity Duty, requires public authorities to seek to maintain and enhance biodiversity and in so doing promote the resilience of ecosystems. In fulfilling this duty, planning authorities must have regard to the list of habitats and species of principal importance for Wales, published under Section 7 of the Environment (Wales) Act 2016.

The Section 6 duty requires that developments should not be permitted which result in net loss of value to biodiversity, and must seek to achieve biodiversity net gain. Where net loss cannot be achieved through avoidance or mitigation, compensation is required.

Future Wales - the National Plan 2040

Future Wales is the national development framework, setting the direction for development in Wales to 2040. It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of our communities. Future Wales - the national plan 2040 is the national development framework and it is the highest tier plan, setting the direction for development in Wales to 2040. It is a framework which will be built on by Strategic Development Plans at a regional level and Local Development Plans. Planning decisions at every level of the planning system in Wales must be taken in accordance with the development plan as a whole.

National Planning Policy Wales (2024)

The primary objective of PPW is to ensure the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-being of Future Generations (Wales) Act 2015 and other key legislation.

Planning Policy Wales (PPW) Edition 12 - 24th Feb 2024 states that planning authorities must follow a stepwise approach to maintain and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for; enhancement must be secured wherever possible. The first priority for planning authorities is to avoid damage to biodiversity and ecosystem functioning. Where there may be harmful environmental effects, planning authorities will need to be satisfied that any reasonable alternative sites that would result in less harm, no harm or gain have been fully considered.

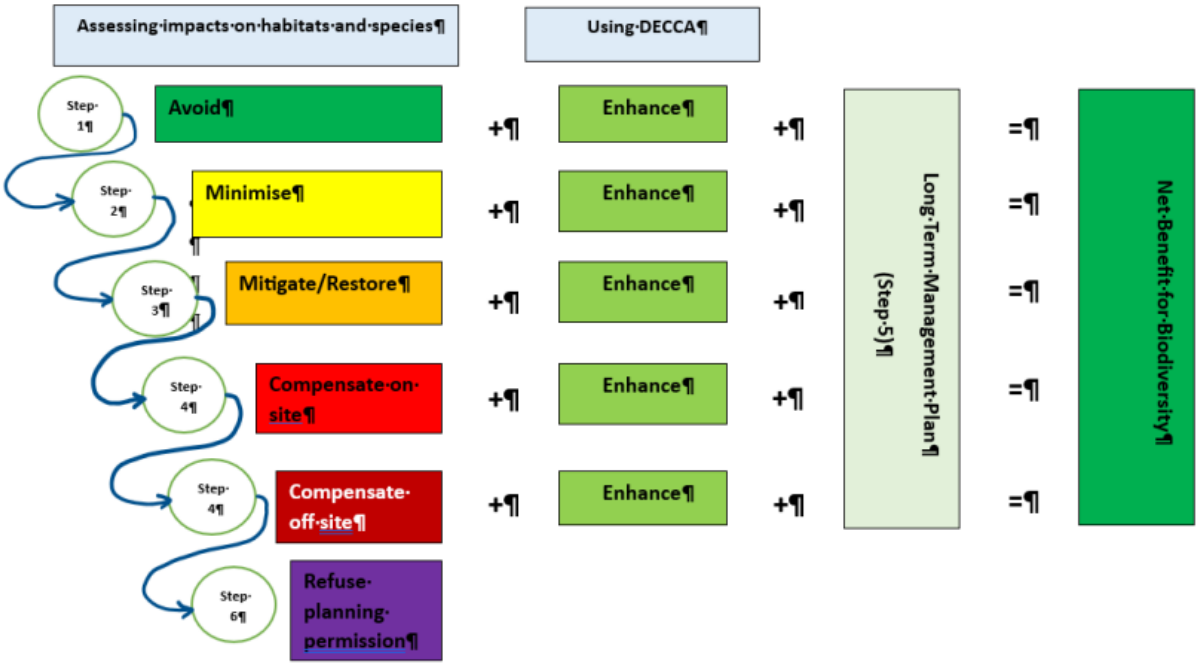
Changes to 2024 Version of Planning Policy Wales

On 11th October 2023 Julie James MS Minister for Climate Change finalised policy for inclusion in the next iteration of Planning Policy Wales (version 12)[31] which was published in February 2024. The main changes to policy can be summarised as follows:

Green Infrastructure: stronger emphasis on taking a proactive approach to green infrastructure covering cross boundary considerations, identifying key outputs of green infrastructure assessments, the submission of proportionate green infrastructure statements with planning applications and signposting Building with Nature standards.

Net Benefit for Biodiversity and the Step-wise Approach: further clarity is provided on securing net benefit for biodiversity through the application of the step-wise approach, including the acknowledgement of off-site compensation measures as a last resort, and, the need to consider enhancement and long-term management at each step.

The use of the green infrastructure statement as a means of demonstrating the stepwise approach is made explicit. The importance of strategic collaboration to identify and capture larger scale opportunities for securing a net benefit for biodiversity is recognised.



Trees and Woodlands: closer alignment with the stepwise approach, along with promoting new planting as part of development based on securing the right tree in the right place.

Caerphilly Local Development Plan

[31] https://www.gov.wales/sites/default/files/publications/2023-10/annex-addressing-the-nature-emergency-through-the-planning-system.pdf

Caerphilly County Borough Local Development Plan 2021[32] was adopted in 2010. The LDP ensured the protection of the `*environment as a whole whilst balancing the need for development with the need to conserve valuable resources'* (pg.20).

The report does not include biodiversity net-gain guidance, however, key objective 12 of the council is to `*identify, protect and enhance sites of nature conservation and earth science interest and ensure the biodiversity of the County Borough is enhanced' pg.21.*

The following policies relate directly to the impacts of the proposed development on the SINC:

Policy SP6 highlights that *"Development proposals should contribute to creating sustainable places by having full regard to the context of the local, natural, historic, and built environment and its special features through:*
A - An appropriate mix of uses that reflect the role and function of settlements;
B - A high standard of design that reinforces attractive qualities of local distinctiveness;
C - Design in accordance with best practice in terms of designing out crime;
D - A location and layout that reflects sustainable transport and accessibility principles and provides full, easy, and safe access for all;
E - The incorporation of resource efficiency and passive solar gain through layout, materials, construction techniques, water conservation, and where appropriate the use of sustainable drainage systems;
F - The efficient use of land, including higher densities where development is close to key transport nodes; and
G - The incorporation and enhancement of existing natural heritage features H The incorporation of mitigation measures that improve and maintain air quality."

Policy CW4 states that *"Development proposals that affect locally designated natural heritage features, will only be permitted:*
A – Where they conserve and where appropriate enhance the distinctive or characteristic features Special Landscape Area (SLA) or Visually Important Local Landscape (VILL); and
B – Within, or in close proximity to sites designated as Sites of Importance for Nature Conservation (SINC), Local Nature Reserves (LNR), Regionally Important Geological Sites (RIGS), Green Corridors, or Local Priority Habitats and Species, where proposals either:
i – Conserve where appropriate, enhance the ecological or geological importance of the designation; or
ii – Are such that the need for the development outweighs the ecological importance of the site, and where harm is minimised by mitigation measures and offset as far as practicable by compensation measures designed to ensure that there is no reduction in the overall value of the area or the feature.

Policy CW6 states that *"Development proposals on sites containing trees, woodlands and hedgerows, or which are bordered by one of more such as trees or hedgerows, will only be permitted provided that:*

[32] https://www.caerphilly.gov.uk/CaerphillyDocs/LDP/written-statement.aspx

A – Where arboricultural surveys are required, they are submitted and approved, including any mitigation, compensation, or management requirements, as part of the planning application;
B – Root systems will be retained and adequately protected for the duration of all development activity on the site;
C – Development proposals have made all reasonable efforts to retain, protect and integrate trees, woodlands and hedgerows within the development site; and
D – Where trees, woodlands or hedgerows are removed, suitable replacements are provided where appropriate.

Biodiversity Net Gain

Planning Policy Wales (PPW) 12 states that "*planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means that development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity*" (NBB) (para 6.4.5 refers). This policy and subsequent policies in Chapter 6 of PPW 12 respond to the Section 6 Duty of the Environment (Wales) Act 2016.

DECCA is the framework that Natural Resources Wales (NRW) has developed for evaluating ecosystem resilience to demonstrate a net benefit for biodiversity (NBB)[33]. This is based on the following attributes:

- Diversity, extent, condition and connectivity;
- Adaptability, recovery and resistance; and
- Aspects of ecosystem resilience.

To comply with these requirements the main ecosystems on site and within the zone of influence need to be identified and set out how the diversity, extent, connectivity and condition of those ecosystems will be maintained and enhanced post-development. Recent changes to planning policy Wales[34] mean that some additional guidance will be required.

[33] https://cdn.cyfoethnaturiol.cymru/media/693356/resilient-ecological-networks-practitioner-guide.pdf?mode=pad&rnd=132612537900000000
[34] https://www.gov.wales/addressing-nature-emergency-through-planning-system-update-chapter-6-planning-policy-wales

Appendix 3: Protected Species Legislation Relevant to Site

Birds

All wild British birds (while nesting, building nests and sitting on eggs), their nests and eggs (with certain limited exceptions) are protected by law under Section 1 of the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000. Included in this protection are all nests (at whatever stage of construction or use) and all dependent young until the nest is abandoned and the young have fledged and become independent. Particularly rare species such as barn owl (*Tyto alba*) are listed on Schedule 1 which gives them additional protection from disturbance whilst nest building, whilst near a nest with eggs or young, or from disturbing the dependent young.

Section 10.8 of the Conservation of Habitats and Species Regulations 2017 state that Local authorities must use all reasonable endeavours to avoid any deterioration of habitats of wild birds.

Bats

All species of bats and their roosting sites are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 which continues to apply in UK law through the Conservation of Habitats and Species (Amendment) (EU Exit) ['CHSAEU'] Regulations 2019.

All species of UK bats are designated as 'European protected species'. Seven species of bat (soprano pipistrelle (*Pipistrellus pygmaeus*), barbastelle (*Barbastella barbastellus*), Bechstein's (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), brown long-eared (*Plecotus auritus*), lesser horseshoe (*Rhinolophus hipposideros*) and greater horseshoe bats (*Rhinolophus ferrumequinum*)) are listed under Section 7 of the Environment (Wales) Act 2016 as being of principal importance for maintaining and enhancing biodiversity in Wales.

Regulation 55(2) of the Conservation of Habitats and Species Regulations 2017 defines the circumstances where derogation is allowed for an affected EPS and a license could be issued by Natural Resources Wales. All three test are to be met by the proposals prior to planning permission being allowed which include:

1. The first test set out in Regulation 55(2)(e) deems that the need for the development should be in the interests of public health, public safety and an imperative reason of overriding public interest, which includes beneficial consequences of primary importance for the environment;
2. The second test set out in Regulation 55(9)(a) deems that there should be and 'no satisfactory alternative';
3. The third test set out in Regulation 55(9)(b) deems that the development should have no detrimental effect on the favourable conservation status of an EPS.

Great Crested Newt

GCN is a 'European protected species' afforded full protection under UK legislation. This protection extends to the habitats which support GCN and it is generally assumed that the species might be present in

terrestrial habitats up to 0.5km[35] of a breeding pond, depending on habitat quality, connectivity and population size. The GCN newt is a priority species in Wales under Section 7 of the Environment (Wales) Act 2016.

Regulation 55(2) of the Conservation of Habitats and Species Regulations 2017 defines the circumstances where derogation is allowed for an affected EPS and a licence could be issued by Natural England. All three test are to be met by the proposals prior to planning permission being allowed which include:

1. The first test set out in Regulation 55(2)(e) deems that the need for the development should be in the interests of public health, public safety and an imperative reason of overriding public interest, which includes beneficial consequences of primary importance for the environment;
2. The second test set out in Regulation 55(9)(a) deems that there should be and 'no satisfactory alternative';
3. The third test set out in Regulation 55(9)(b) deems that the development should have no detrimental effect on the favourable conservation status of an EPS.

The GCN district licensing scheme can be used instead of making a GCN licence development application to Natural England.

Otters

Otters are a 'European Protected Species'. Their breeding sites or resting places[36] are fully protected under UK legislation. Otter is a priority species in Wales Under Section 7 of the Environment (Wales) Act 2016.

Works affecting otter are subject to licensing procedures by NRW.

Badgers

Badgers are protected under the Protection of Badgers Act 1992. Protection applies both to the animal itself and to its nesting burrows (setts), and current interpretation of the Act also confers some protection to key foraging areas.

Reptiles

With the exception of smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) (which are afforded greater protection), common reptiles are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). They are given so-called 'partial protection', which prohibits the deliberate killing or injury of individuals. The habitats of common reptiles are not specifically protected. These species are listed as priority species in Wales under Section 7 of the Environment (Wales) Act 2016.

[35] Great Crested Newts have been recorded travelling long distances: 1.3km within a 7-week period by an immature individual GCN (Kupfer 1998, detailed in Jehle et al 2011); 250m in a study by Beebee and Griffiths (2000) and 120-360m in a study by Arntzen and Tenuis (1993). In addition, a study by Duff (1989) found that over half of a population overwintered in an area more than 120m away from the main breeding pond. However, long-distance movement of GCN is rare and most studies indicate that much shorter distances are typical (Jehle et al 2011). As a general rule, suitable habitats within 250m of a breeding pond are likely to be used most frequently (English Nature 2001).

[36] Resting places are defined as 'areas that are essential to sustain an animal or group of animals when they are not active' (Anon 2007).

Hedgehogs

Hedgehogs are listed as a Red List mammal species in Britain and are protected under Schedule 6 of the Wildlife and Countryside Act (1981). They are "protected from being killed or taken by certain methods under Section 11(1) of the Wildlife and Countryside Act 1981. The methods listed are: self-locking snares, bows, crossbows, explosives (other than ammunition for a firearm), or live decoys. The species listed are also protected from the following activities: trap, snare or net, electrical device for killing or stunning, poisonous, poisoned or stupefying substances or any other gas or smoke, automatic or semi-automatic weapon, device for illuminating a target or sighting device for night shooting, artificial light, mirror or other dazzling device, sound recording, and mechanically propelled vehicle in immediate pursuit. They are also listed as priority species under Section 7 of the Environment (Wales) Act 2016.

The legislation afforded to hedgehogs in Section 7 of the Environment (Wales) Act 2016 means that every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity[37]. In effect, 'conserving biodiversity' includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.

[37] Biodiversity conservation in respect to hedgehogs is interpreted as a commitment to restoring or enhancing their population.

Appendix 4: Definitions of Site Value

International Value

Internationally designated or proposed sites such as Ramsar Sites, Special Protection Areas, Biosphere Reserves and Special Areas of Conservation, or non-designated sites meeting criteria for international designation. Sites supporting populations of internationally important species or habitats.

National Value

Nationally designated sites such as Sites of Special Scientific Interest (SSSIs), or non-designated sites meeting SSSI selection criteria (NCC 1989), National Nature Reserves (NNRs) or Nature Conservancy Review (NCR) Grade 1 sites, viable areas of key habitats within the UK Biodiversity Action Plan. Sites supporting viable breeding populations of Red Data Book (RDB) species (excluding scarce species), or supplying critical elements of their habitat requirements.

Regional Value

Sites containing viable areas of threatened habitats listed in a regional Biodiversity Action Plan, comfortably exceeding Site of Importance for Nature Conservation (SINC) criteria, but not meeting SSSI selection criteria. Sites supporting regionally significant areas of BAP habitats or large and viable populations Nationally Scarce species, or those included in the Regional Biodiversity Action Plan on account of their rarity, or supplying critical elements of their habitat requirements.

County Value/District Value

Site identified as a Site of Importance to Nature Conservation (SINC) at the district level; meeting South Wales Wildlife Sites Partnership (SWWSP) 2004 published designation criteria, but falling short of SSSI designation criteria, whether designated as a SINC or not. Ancient woodlands and sites supporting regionally significant areas of UK BAP habitat. Large scale examples of BAP habitats or areas supporting small populations of protected, UK BAP/ LBAP or threatened species (other than badger).

High Local

Habitats which just fail to meet Regional value criteria, but which appreciably enrich the ecological resource of the locality. Sites supporting species which are notable or uncommon in the county; or species which are uncommon, local or habitat-restricted nationally, and which might not otherwise be present in the area. Moderate scale examples of BAP habitats or areas supporting small populations of protected, UK BAP/LBAP or threatened species.

Local Value

Old hedges, woodlands, ponds, significant areas of species-rich grassland, small scale examples of BAP habitats or areas supporting small populations of protected, UK BAP/LBAP or threatened species. Undesignated sites or features which appreciably enrich the habitat resource in the context of their immediate surroundings, parish or neighbourhood (e.g. a species-rich hedgerow). Rare or uncommon species may occur but are not restricted to the site or critically dependent upon it for their survival in the area.

Site Value (within the immediate zone of influence)

Low-grade and widespread habitats. Woodland plantations, structured planting, small areas of species-rich grassland and other species-rich habitats not included in the UK or Local BAP.

Negligible

No apparent nature conservation value.

Appendix 5: Species Recorded

All species recorded by Acer Ecology, 2024

Taxonomic Name	Common Name	W	LM	CG	LDA	PMG	PIL	TF	Status
Trees and Shrubs									
Acer pseudoplatanus	Sycamore								Alien
Acer pseudoplatanus	Silver birch								
Populus tremula	Aspen	W							
Prunus avium	Wild cherry								
Prunus spinosa	Blackthorn								
Quercus sp	Oak								
Rubus fruticosus agg.	Bramble								
Salix fragilis	Crack willow								
Sorbus aucuparia	Rowan								
Herbaceous Plants									
Agrostis capillaris	Common bent								
Cardamine hirsuta	Hairy bitter-cress								
Cerastium fontanum	Common mouse-ear								
Epilobium angustifolium	Rosebay willowherb								
Elytrigia repens	Couch grass								
Geranium molle	Dove's-foot crane's-bill								
Geranium robertianum	Herb-robert								
Geum urbanum	Wood avens								
Glechoma hederacea	Ground-ivy								
Lolium multiflorum	Italian rye-grass								Alien
Narcissus sp	Garden daffodil								Alien
Plantago lanceolata	Ribwort plantain								
Poa annua	Annual meadow-grass								
Primula vulgaris	Primrose	W							
Prunella vulgaris	Self-heal								
Ficaria verna	Lesser celandine								
Ranunculus repens	Creeping buttercup								
Rumex obtusifolius	Broad-leaved dock								
Senecio jacobaea	Common ragwort								
Senecio vulgaris	Groundsel								
Taraxacum officinale agg.	Dandelion								
Trifolium pratense	Red clover		LM						

'Habitat Indicator Species' Totals (Wales Biodiversity Partnership 2008[38])		2	1	0	0	0	0	0	
		W	**LM**	**CG**	**LDA**	**PMR**	**PIL**	**TF**	

[38] Wales Biodiversity Partnership (2008) Wildlife Sites Guidance Wales: A Guide to Develop Local Wildlife Systems in Wales. Wales Biodiversity Partnership/Welsh Assembly Government.

'Primary' and 'Contributory' Totals (Wales Biodiversity Partnership 2008)	0	0
	Primary Species	**Contributory Species**

Key to Indicator Species (Wales Biodiversity Partnership 2008[39])

W - Woodland, LM – Lowland meadow, CG - Calcareous Grassland, LDA – Lowland Dry Acid Grassland, PMR Purple moor-grass and rush pasture, PIL – Post Industrial Land, TF Species-rich Tillage Fields and Margins, PS – Primary Species, CS – Contributory Species

Appendix 6: Guidelines for Assessing the Suitability of Trees on Proposed Development Site for Bats

2023 Guidelines – Based upon Table 6.2 from Collins (2023)

Suitability	Description
None	Either no PRFs in the tree or highly unlikely to be any.
FAR (T408)	Further assessment required to establish if PRFs are present in the tree.
PRF	A tree with at least one PRF present.

PRFs can be further categorised according to the below:

Suitability	Description
PRF-1	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats
PRF-M (T407)	PRF is suitable for multiple bats and may therefore be used by a maternity colony
PRF-U	Unknown if PRF could only be used by individuals or could be used by multiple bats and therefore used as a maternity roost.

Appendix 7: Guidelines for Assessing Potential Suitability of Proposed Development Site for

Table 4.1. Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

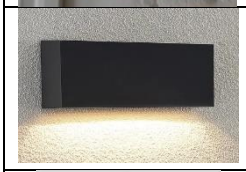
Potential suitability	Description	
	Roosting habitats in structures	Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible[a]	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[b] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats[c]).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions[b] and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions[b] and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

a Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).

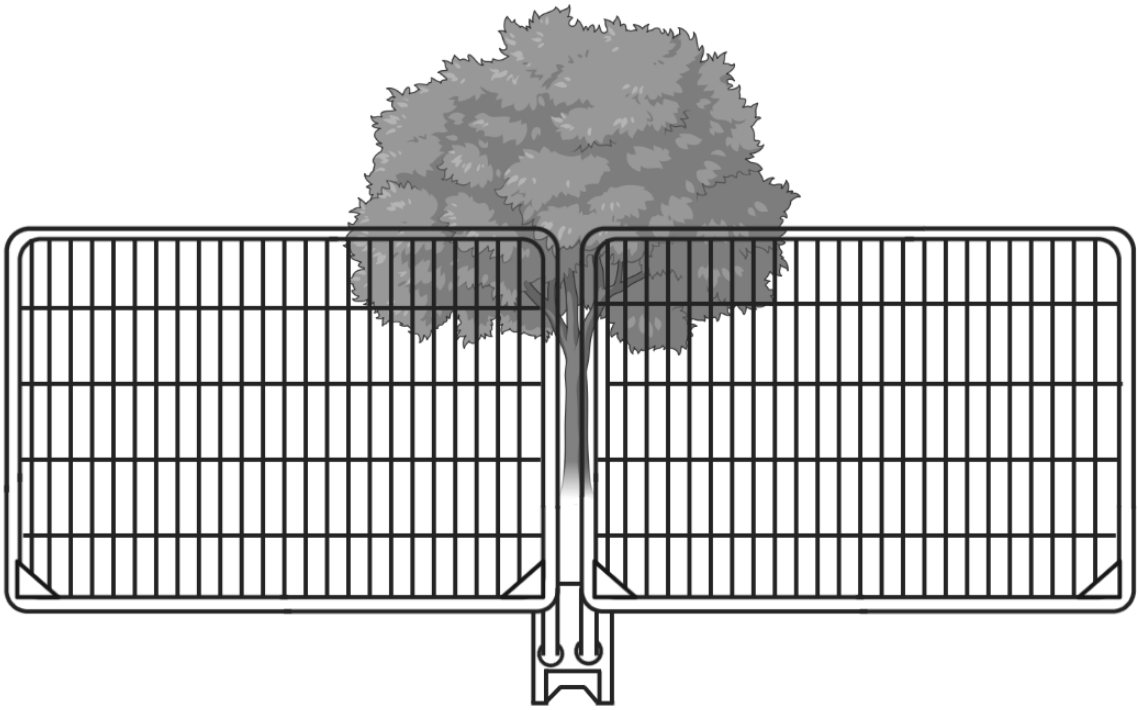
b For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

c Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.*, 2016 and Jansen *et al.*, 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.

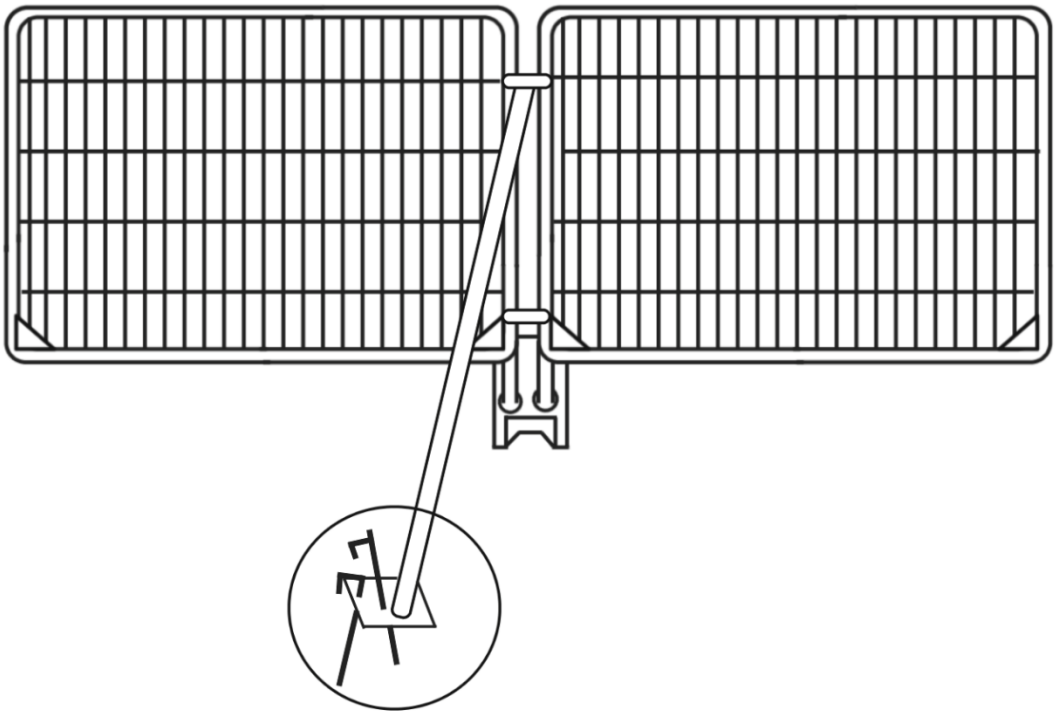
Appendix 8: Example of Suitable Wall Light Fittings

	Description
	Light fitting sourced from http://www.energylightbulbs.co.uk/products/single-outdoor-wall-with-pir-movement-sensor-stainless-steel?gclid=CLuf2c63hM4CFYVAGwod0sYPvg
	Light fitting sourced from https://www.screwfix.com/p/lap-bronx-outdoor-wall-light-black/7323r
	Lighting sourced from https://energylightbulbs.co.uk/outdoor-lighting/single-wall-lights/black-single-wall-lights/single-outdoor-wall-light-black-stainless-shttps://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/#!/Bronze-Outdoor-LED-Wall-Lantern-Sconce/p/50117847/category=12541418 teel-ip65-zlc076b
	Light fittigng sourced from https://energylightbulbs.co.uk/outdoor-lighting/single-wall-lights/black-single-wall-lights/cone-shape-outdoor-wall-light-stainless-steel-black-finish-exterior-single-downlight-zlc068b
	Lighting sourced from https://www.dunelm.com/product/houston-outdoor-wall-light-1000189390?defaultSkuId=30730458
	Lighting sourced from https://www.lights.co.uk/lindby-jarte-led-outdoor-wall-light-23-9-cm-down.html?gclid=Cj0KCQiAys2MBhDOARIsAFf1D1cN-g6FdvDbjkJcq57t5Ym6RuP5BjjnsVPsMI465W2D8SlLoTRmA5kaAkHZEALw_wcB&gclsrc=aw.ds
	No longer available from previous stockist
	No longer available from previous stockist
	Lighting sourced from http://www.theopenboxshop.com/hampton-bay-lexington-collection-outdoor-rustic-bronze-led-medium-wall-lantern/ Note: bulb is in unit above glass casing.
A tool for finding ' bat-friendly' lighting is available at https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/ although the majority of suppliers are based in America	

Appendix 9: Protective Barriers



Wildlife barrier surrounding tree



Stabilizer strut with base plate secured with ground pins

Redrawn by Acer Ecology Ltd after BS 5837:2012 Figure 1

Appendix 10: Vivara Pro Woodstone Bat Box

The Vivara Pro WoodStone Bat Box is a hard waring bat box. It is made from WoodStone, a mixture of wood fibres from fully certified FSC wood sources and concrete, and it is designed to last for years.

It is breathable so there will be no problems with condensation and WoodStone maintains a consistent temperature inside, providing excellent insulation for roosting bats. WoodStone also provides a rough surface which the bats can easily cling to and move around the box. The Vivara Pro WoodStone Bat Box is black with a grey front panel.

Siting - The box can be attached to either a wall or a tree and should be sited at a height of at least 3 m from the ground. Bats prefer to change roosts to benefit from varying ambient temperatures, so bat boxes should ideally be clustered in small groups.

Dimensions - (H) 250 x (W) 190 x (D) 165 mm, weight: 4.5 kg.

Bat Box Availability

The bat box is available from NHBS (www.nhbs.com) where it retails at approximately £20.99 including VAT.

Appendix 11: Vivara Barcelona WoodStone Open Nest Box

These attractive nest boxes are manufactured from WoodStone which is a mix of concrete and FSC certified wood fibres. Unlike a traditional wooden nest box, these boxes will not rot away or deteriorate and are guaranteed for 10 years. This robust material safeguards against attacks from predators such as woodpeckers, cats, and squirrels, whilst also providing a well-insulated interior with a more consistent internal temperature than an ordinary wooden box. This is especially important during the breeding season and ensures that young birds have a greater chance of survival. Nesting sites have become rare for cavity nesting birds due to changes in woodland management practices, so you can provide much-needed space for rearing chicks and birds that are roosting overwinter with these durable, long-lasting nest boxes.

These open nest boxes are suitable for wrens, robins, spotted flycatchers, pied and grey wagtails, song thrushes and blackbirds, and they are available in brown, green or grey to complement both natural woodland and garden settings.

The best height for your nest box is between 1.5m and 3m high, and open nest boxes should be sited in undergrowth such as ivy to provide cover for the nest.

These nest boxes have a removable front panel for easy cleaning. Although birds will clean their own nest boxes before each breeding season, cleaning the boxes out at the end of each breeding season may encourage them to be used again in future years, as it reduces parasites. The nesting time of birds varies from species to species so we suggest you wait until October when the last of the birds will have left before cleaning. The nest may come out easily but if there are any deposits scrape them out. We recommend using hot water rather than chemicals to remove any parasites that remain.

Bird Box Availability

The bird box is available from NHBS (www.nhbs.com) where it retails at approximately £22.99 including VAT.