Celtic Ecology and Conservation Ltd

PROPOSED DEVELOPMENT:

SITE FOR HOUSING:
LAND AT TY ISAF,
PENYRHEOL & ABERTRIDWR,
CAERPHILLY

ECOLOGICAL ASSESSMENT

JULY 2021

Ms F Jackson

Issue: 1
Revision: A

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Proposed Development: site for housing - land at Ty Isaf, Penyrheol & Abertridwr, Caerphilly

Ecological Assessment

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This report has been issued and amended as follows:

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1	A	Amendment to wording of section 6.1.7 Bats – Mitigation measures	HD	18.08.2021

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Drawings

Drawing number	Title
SK_100	Proposed Site Plan

NON-TECHNICAL SUMMARY

An Ecological Assessment was undertaken of an area of land between Penyrheol and Abertridwr in Caerphilly in south Wales to support a planning-application to the Local Planning Authority (Caerphilly County Borough Council (CCBC)) for the construction of a number of domestic dwellings.

The work involved a biological records data search, a site visit to determine the nature of the habitats on the site, an assessment of the site's ability to provide suitable habitats for protected species, potential impacts on them and recommendations for further survey and the potential impacts (if any) on protected sites and recommendations for further ecological actions if considered necessary.

There are no international or nationally designated sites within the data search results.

The site is wholly within the Cwm yr Aber Site of Importance for Nature Conservation. The Nant yr Aber, notified as a SINC in its own right, flows through the Cwm yr Aber SINC and therefore adjacent to the development site. The site is largely comprised of Ancient Semi Natural Woodland.

The site is surrounded by housing, gardens and roads to the south and east, woodland to the south west and open pastoral fields to the west.

The habitats on the site are dominated by woodland and scrub with a roadside hedge.

There are no man-made structures on the site which could be used by bats for roosting.

The site contains a number of mature trees which due to their size, age and condition could offer bats potential roost features.

Otters are known to use the Nant yr Aber.

There are records of badger within 1km.

It should be assumed that reptiles are likely to utilise the more open areas of the site for foraging, basking, sheltering and hibernation purposes.

It should be assumed that birds will utilise the trees and scrub on and adjacent to the site during the nesting season.

No evidence of protected species was recorded during the survey visit.

Further ecological surveys may be required, in respect of

1. Bats

This report is valid for a period of 18 months from date of issue.

1 INTRODUCTION

1.1 OBJECTIVE

The objectives of this report are to identify any potential ecological constraints that there might be on any potential development on the site, including:

- the presence of designated / protected sites on the site or in the area;
- the potential of the development to impact (adversely and positively) those sites;
- the habitats present on the site;
- the potential for protected species to be present on site;
- to determine whether there may be any impacts (both positive and negative) on the habitats and species present.

And to:

- provide recommendations for further survey as necessary; and
- suggest potential mitigation and enhancement ideas and principles

1.2 METHODOLOGY

To achieve the objectives set out above, a field based assessment was carried out in respect of habitats and protected species on the site.

1.3 SITE DESCRIPTION

The red line development site boundary (shown at **Appendix F**)encloses an area of approximately 1ha and is located on the south western side of the B4263 between Penyrheol and Abertridwr to the north west of Caerphilly in south Wales (centred on NGR ST 13748819; **Figures 1 & 2**).

Photos are at **Appendix A**.

The habitats on the site are dominated by woodland, scrub and bracken.

1.3.1 Woodland

The woodland (Plate 1) is located on a relatively steep slope and is therefore generally dry; however, there are a number of drainage channels which take (presumably) surface water run off from the road at the top of the slope. The canopy of the woodland is relatively open and is dominated by ash (*Fraxinus excelsior*) and alder (*Alnus glutinosa*) with occasional oak (*Quercus robur*) over grey willow (*Salix cinerea*.) and hazel (*Corylus avellana*). There is no understorey to speak of other than a number of sparse hawthorns (*Crataegus monogyna*). The shrub layer is thin and dominated by bramble (*Rubus fruticosus* agg.). The number of trees is low, which with the presence of old fences indicates that the site has been cleared at some point in the past, probably for grazing with the trees remaining either being along old hedge lines, in field trees or natural regeneration.

1.3.2 Scrub

The non-woodland areas of the site (Plate 2) are dominated by bramble scrub with tall ruderal species such as great willowherb (*Epilobium hirsutum*), rosebay willowherb (*Chamerion angustifolium*), common nettle (*Urtica dioica*) and bracken (*Pteridium aquilinum*). Hedge bindweed (*Calystegia*

sepium), field bindweed (*Convolvulus pluricaulis*), dog rose (*Rosa canina*) and grey willow (*Salix cinerea*) are also present. Scattered butterfly bush (*Buddleia davidii*) plants were also observed.

1.3.3 Hedge

The roadside vegetation (Plate 3) is dominated by an ash, hawthorn, blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*) and hazel hedge.

1.3.4 Watercourses

The Nant yr Aber (Plate 4) flows north west to south east adjacent to the development site area. The river is a spate river, the channel of which is narrow, averaging 5m in width, and generally shallow, less than 0.5m, flowing over a substrate of rocks, pebbles and gravel with small areas of fine sediment.

Parts of the banks have been modified in the development site area to provide hard walls.

1.3.5 Bare ground

Areas of the woodland were bare ground at the time of the survey visit due to recent land management, spoil tipping and previous grazing.

1.3.6 Invasive non-natives

Himalayan balsam (*Impatiens glandulifera*) is present on the development site; Japanese knotweed (*Fallopia japonica*) is present adjacent to the site (within 20m) (TN 1).

1.3.7 Non-ecological considerations

There is no formal public access to the site. However, informal access has been made for anti-social activities, including shooting and poaching.

Figure 1 - aerial overview of the proposed development site (circled red) and approximate ownership (area outlined blue)

(Image courtesy of Google Earth)

Figure 2 – detail of the proposed development site (approximate red line boundary in red)

(Image courtesy of Google Earth)

1.4 PROPOSED DEVELOPMENT

It is understood that the development proposal is for the construction of up to 4 domestic dwellings.

1.5 STUDY AREA

The field survey looked at the red line development area itself and up to 20m from the site boundaries where appropriate.

1.6 PREVIOUS SURVEYS

Ecological information was gathered by CCBC during the notification process for the Sites of Importance for Nature Conservation.

A walkover survey and Preliminary Ecological appraisal was undertaken by Celtic Ecology and Conservation Ltd (*Preliminary Ecological Appraisal - land at Ty Isaf, Penyrheol & Abertridwr ISSUE* December 2020) to provide information for a pre-application consultation with the LPA on the possibility of constructing 10 eco lodges within the woodland area to the north west of the current red line boundary area.

However, there are no other known ecological surveys of this site.

1.7 CONSTRAINTS

The survey visit was undertaken at a time of year when the full botanical diversity of the site was not apparent; however, this did not prevent the classification of the habitats.

There may be biological records that have not yet been submitted to, or digitised by, the biodiversity information provider. The lack of records of any species cannot be taken as a proof of absence.

There were no other constraints to the survey.

2 REGULATORY FRAMEWORK

2.1 INTERNATIOAL

European Union legislation requires that member states designate sites for the protection of habitats and species included in the annexes of both Council Directive 92/43/EC on the Conservation of Natural Habitats and of Wild Flora and Fauna (the Habitats Directive) and Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). This legislation is implemented in the UK by the Conservation of Habitats and Species Regulations 2017 (as amended) ("the Habitat Regulations"). This results in sites being designated as Special Areas of Conservation (SACs) and Special Protection Areas respectively (SPAs).

This legislation has since been amended by The Conservation of Habitats and Species (Amendment) (EU EXIT) Regulations 2019 to reflect the UKs exit from the European Union on 31 January 2020.

2.2 NATIONAL (UK)

The Wildlife and Countryside Act 1981 (as amended) allows sites to be designated as Sites of Special Scientific Interest (SSSI) for one or all of the following categories:

- Flora;
- Fauna;
- Habitat; and
- Geological importance.

European designated sites (as described in **section 2.1** above) are automatically designated as SSSIs prior to their designation.

Other relevant legislation includes:

- The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended);
- The Conservation of Habitats and Species Regulations 2019;
- The Well Being of Future Generations (Wales) Act 2015;
- Countryside and Rights of Way Act 2000;
- Environment (Wales) Act 2016
- Wild Mammals (Protection) Act 1996;
- [redacted]
- The Hedgerow Regulations 1997.

Section 40 of the Natural Environment and Rural Communities Act 2006 (as amended) requires all public bodies to have regard wherever possible to conserving biodiversity. Section 42 of the Act requires that a list of habitats and species of Principle Importance for the Conservation of Biological Diversity in Wales be produced; however, this has been replaced by Section 7 of the Environment (Wales) Act 2016 Priority Habitats and Species lists.

The Environment (Wales) Act 2016 requires that all public authorities, when carrying out their functions in Wales, seek to "maintain and enhance biodiversity" where it is within the proper exercise of their functions. In doing so, public authorities must also seek to "promote the resilience of ecosystems".

This ensures that biodiversity is an integral part of the decisions that public authorities take in relation to Wales. It also links biodiversity with the long-term health and functioning of our ecosystems, therefore helping to align the biodiversity duty with the framework for sustainable natural resource management provided in the Act.

In Wales, this legislation replaces and enhances the Natural Environment and Rural Communities Act (2006) which sought to raise the profile of biodiversity and to make sure that it is considered in all local authority decisions by ensuring 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.".

Other elements of NERC 2006 may, however, still apply.

Biodiversity Action Plans (BAPs) are tools which are used to monitor, manage and enhance those habitats and species which are of significance to an area or organisation, The United Kingdom BAP lists a number of priority habitats and species which are of conservation concern.

2.3 NATIONAL (WALES)

Planning Policy Wales (Welsh Government, 2018) and Planning Policy Wales Technical Advice Note 5: Nature Conservation and Planning (Welsh Assembly Government, September 2009) set out the protection given to wildlife (sites, habitats and species) by the planning system operational in Wales.

2.4 LOCAL AND REGIONAL

The proposed development is wholly within the Caerphilly County Borough Council (CCBC) area of responsibility. Therefore, all policies adopted by that Planning Authority will apply, including policies which may not be specific to nature conservation or the natural environment but that may apply or be relevant and should be considered during the planning process.

The Biodiversity Action Reporting System (BARS) shows that there are a number of habitats and species which are of a high priority to the Council. These have been determined following examination of the UK BAP and the Environment (Wales) Act Section 7 list of Priority Species and Habitats and those habitats and species determined to be locally important by the Local Biodiversity Partnership.

2.5 PLANNING FRAMEWORK

The track construction will be undertaken wholly under the auspices of the Town and Country Planning Act 1990 (as amended).

3 DESK STUDY

3.1 SUMMARY

There are no biological records from the site. There are multiple records from within 2000m.

There are two statutorily designated sites within 2000m of the proposed development site.

There are nine non-statutorily designated sites notified by CCBC within 2000m of the site.

3.2 BACKGROUND

A desk study provides background information on historical and current biological data which can identify ecological constraints, mitigation, and biodiversity enhancement opportunities.

3.3 METHODOLOGY

The South East Wales Biodiversity Records Centre (SEWBReC) was consulted in order to provide biological information on the presence of species and sites on or adjacent to the site.

A 2000m search buffer was applied to priority and protected species, species of local conservation concern and other species of conservation concern, statutorily designated (for nature conservation purposes) sites and locally designated sites.

The Multi-Agency Geographical Information System (MAGIC) website (www.magic.gov.uk) and the Local Biodiversity Action Plan (LBAP) for CCS were also consulted.

3.4 CONSTRAINTS

There were no constraints to the data search.

3.5 RESULTS

3.5.1 Statutorily protected sites

There are two Sites of Special Scientific Interest (SSSIs) within 2km of the site: Llanbradach Quarry and Gwaun Gledyr.

Gwaun Gledyr SSSI is notified for the presence of species rich marshy and neutral grasslands, overgrown field boundaries and broadleaved woodland. The SSSI is at a distance from the proposed development site whereby neither it nor the features for which it is designated will be adversely impacted by the proposed development. Additionally, the development site contains habitats which are markedly different to those on the SSSI. Therefore this site will not be considered further in this report.

Llanbradach Quarry is designated for its geological interest and will therefore not be considered further in this report.

3.5.2 Non-statutory designations

There are 9no. Sites of Importance for Nature Conservation (SINCs) listed within the data search results See **Table 1** for details.

All the identified SINC sites are at a distance from the site whereby they will not be affected by the proposed development. Therefore, this classification will not be considered further in this report.

Table 1 - non-statutorily designated sites within 2km of the proposed Ty Isaf development site:

Site	Designation	Grid reference	Area (ha)	Reason for designation	Distance (m)
River Rhymney	SINC	from ST22508357 (south) to SO10171048 (north)	202	Waters with bullhead, trout & salon, otter, rare bryophytes, natural channel forms, exposed sediment features, riparian woodlands, wetlands & grasslands	1648
Mynydd Eglwysilan, North of Senghenydd	SINC	ST120927	504	Acid grassland, marshy grassland, ancient woodland with streams & rock exposures / dry stone walls. Cornish moneywort	1302
Mynydd Dimlaith and Cwm-y-Bwch, South East of Llanbradach	SINC	ST156902	65	Semi-natural woodland, acid grassland, acid flushes / marshy grassland with streams, bracken & rock exposures. Dormouse	1818
Craigyfedw, Abertridwr	SINC	ST129892	37	Acid grassland, marshy grassland, bracken, scrub, streams, rock exposures	175
Cwm yr Aber, South of Abertridwr	SINC	ST132885, 133885 & 138878	17	Semi-natural woodland, bracken, semi-improved neutral grassland, tall herb vegetation	0
Coed y Brain, Penyrheol	SINC	ST145896	39	Semi-natural woodland, swamp with bracken, scrub, semi-improved neutral grassland, pond, stream & a quarry	1164
Mynydd Meio, South of Abertridwr	SINC	ST119881	115	Acid grassland, heathland, mire / wet heath with bracken, flushes, streams, rock exposures. Anthills	953
Gypsy Lane Wetland, South of Groeswen	SINC	ST134870	42	Marshy grassland, acid grassland with neutral grassland, hedgerows, streams. Water vole, marsh fritillary butterfly	742
Nant yr Aber River	SINC			River, exposed sediments & channel features with bullhead, trout, salmon & otter. Riparian woodland, wetlands & grasslands	0

3.5.3 Species: SEWBReC data search

There is a single record, of a dunnock, from the development site.

There are 1688 records of 572 species from within 2000m, including a wide range of protected species, species of conservation concern, locally important species as well as those without any particular conservation status.

The closest record is of a hedgehog from 260m away

A summary of the species found in the data search buffer and their legislative status is at **Appendix B**.

3.6 PREVIOUS SURVEYS

None known.

4 PROTECTED SITES

4.1 STATUTORILY DESIGNATED SITES

Not applicable.

4.2 NON-STATUTORILY DESIGNATED SITES

4.2.1 Cwm yr Aber SINC

4.2.1.1 Cwm yr Aber - evaluation

The notification form for this site is at **Appendix E**.

A large part of the site is an Ancient Semi Natural Woodland site (TN 2) meaning it has been present since at least 1600AD. Management will have been applied at various points but the extents of this are unknown.

The woodland is dominated by alder, ash silver birch and willow species with oak, hawthorn, holly and hazel over a bramble shrub layer. Within the proposed development boundary, the shrub layer is sparse but with a number of dense stands around hawthorn and trees. Himalayan balsam is abundant and there are numerous stands of Japanese knotweed. Ground vegetation is sparse due to the regular flooding from the Nant yr Aber and is dominated by opposite golden leaved saxifrage and ivy.

Woodlands are slow growing three dimensional habitats which provide a range of habitats for a wide range of species. The older a woodland is the more valuable it is as it has provided those habitats for a longer continuous period, thereby allowing more species greater time to colonise it. The amount of management, or lack thereof is also a factor to consider, however, in the case of ancient woods, this factor is arguably not as important as the ecosystem can be allowed to develop naturally.

However, in the context of the proposed development site, the Cwm yr Aber is of a **high regional (county)** ecological importance.

4.2.1.2 Cwm yr Aber SINC - impact characterisation

It is considered that there will be a loss of habitat from the SINC as a result of the construction of the main access track, installation of eco-lodges, the tracks linking them a car parking area and the creation of recreational areas.

However, the area chosen for the main access is already in use. The areas chosen for the lodges and required infrastructure will be in areas without woodland resulting in the loss of bracken and bramble scrub only. The minimal / no dig method of construction proposed for the lodges will result in the vegetation being able to recover very quickly. Additionally, any areas used can be planted to re-establish woodland and / or shrub vegetation.

It is likely that there will be an element of disturbance to the SINC as a result of the construction and operation of the lodges.

It is proposed to manage the remaining woodland to benefit nature conservation as well as provide recreational space for users of the lodges. This will have a long term positive impact.

4.2.1.3 Cwm yr Aber SINC – impact assessment without mitigation

It is likely that there could be a **certain long term adverse** impact at a **local (regional)** level.

4.2.1.4 Cwm yr Aber SINC - potential mitigation measures

Measures may include (but not be limited to) the following:

- Implementation of positive woodland management (including coppicing, creation of standing and lying deadwood etc.) to benefit nature conservation;
- Clearance of invasive non-native species from the development site and retained woodland;
- Planting of native species around lodges and recreation areas;
- Establishing a hedge along the site's south western boundary with the cycleway;
- Minimising all site lighting.

4.2.1.5 Cwm yr Aber SINC – impact assessment with mitigation

It is anticipated that with the correct mitigation there could be a **certain short term reversible adverse** impact at a **local (site)** level.

4.2.1.6 Cwm yr Aber SINC – significance of the impact

Without mitigation:

It is anticipated that the significance of the impacts due to the development could be **moderate**.

With mitigation:

It is anticipated that the significance of the impacts due to the development could be **neutral - slight**.

4.2.2 Nant yr Aber SINC

4.2.2.1 Nant yr Aber SINC - evaluation

The notification form for this site is at **Appendix E**.

The Nant yr Aber (TN 3) is notified because it is a relatively unpolluted main watercourse which provides suitable habitat for a range of fish species and otters. There are multiple examples of woodland and grassland which are included within the site boundaries. Therefore, it is considered that, within the context of the development, the SINC site is of a **high regional (county)** value.

4.2.2.2 Nant yr Aber SINC - impact characterisation

It is considered that there will be no direct impacts on the SINC from the development as the river channel is over 20m from the red line boundary.

However, it is possible for pollution incidents to be caused as a result of the entry of sediments, fuels, oils and/or lubricants to the watercourse. These would affect fish and vegetation in and adjacent to the channel and mammals and birds which depend on the river as a foraging, commuting and dispersal resource.

It is possible that there may be indirect adverse impacts as a result of activities undertaken within the development site boundary (e.g. dust and noise) and during the operational phase of the development e.g. untreated waterborne pollution in surface water runoff and drainage overflow).

4.2.2.3 Nant yr Aber SINC - impact assessment without mitigation

It is considered that there would be a **possible major medium term adverse** impact at a **local (regional) level** on the SINC.

4.2.2.4 Nant yr Aber SINC - mitigation measures

Mitigation against potential direct and indirect impacts will be required. These will relate primarily to method of working to ensure that there is no possibility of any naturally occurring or imported materials from the development site entering the watercourse during the construction and operational phases of the development and should be summarised in a Construction Environment Management Plan (CEMP) to be approved by the LPA prior to any development commencing. Mitigation measures might include (but not limited to) the following:

- Any drainage structure allowing entry of water into the river will be designed in accordance with all relevant policies, guidelines and legislation. All water should be treated and attenuated prior to its release;
- A minimum 5m buffer will be maintained between all watercourses and any clearance, construction or other development activities. This buffer will be fenced (or otherwise demarcated) to prevent access by plant, machinery and site personnel prior to any works commencing on site with evidence of the demarcation (photos and / or site plans) being supplied to the LPA prior to the works commencing;
- There will be no vegetation removal within 5m of the bank of any watercourse bordering the development site; All vegetation removal and disturbance within 10m of a watercourse may only be undertaken following a check of the affected area and under ecological supervision;
- There will be no working within 5m of a watercourse without an appropriate permit to work and the appropriate statutory consents;
- All work on the proposed development site will be undertaken in accordance with relevant NRW / Environment Agency guidance on working in proximity to a watercourse;
- The free flow of water along the watercourse will be ensured at all times;
- There will be no lighting of the watercourse at all;
- Works within 5m of any the watercourses must not start any earlier than 1 hour after sunrise and must finish no later than 1 hour before sunset;
- There will be no access for personnel, plant and machinery into any watercourse unless required as part of the development; in this eventuality, access will be in accordance with an approved method statement, by permit only and strictly monitored;
- To prevent accidental discharge of sediment and other contaminants, the development site will be either bounded on its south western boundary by sediment fencing, siltation ponds or other sediment trapping devices e.g. silt busters provided at appropriate locations to prevent sediment runoff during the construction phase of the development. These will be put in place prior to any clearance or earthworks commencing;
- Designated areas will be provided for parking, washing facilities, refuelling, storage of fuels, oils, lubricants and materials e.g. cement, concrete, none of which will be within 10m of the watercourse;
- Drip trays will be placed under all stationary and parked plant, machinery and vehicles during the construction period;
- Storage of fuels and other liquids will only be in bunded (to 110% capacity) containers;
- All plant, machinery and vehicles will be inspected for leaks and malfunctions on a daily basis;
- All plant and machinery will be washed down after leaving the previous contract site and before entering the compound / work site for the first time;

- Relevant construction activities will cease during high rainfall periods to ensure mitigation measures are not overwhelmed;
- Spill kits and other pollution restricting measures e.g. hay bales will be provided along with relevant and appropriate training for personnel as necessary);
- Activity specific permits linked to risk assessments and a risk register will be required before any works which might adversely impact on watercourses;
- All watercourses will be subject of visual monitoring of water quality at least twice per day during the construction phase: at start and close of the working day; more detailed monitoring may be required should it be necessary; and
- Dust suppression measures will be employed as necessary during spells of dry weather to ensure no dust is emitted from the site.

In order to prevent any pollution incidents arising during the operational phase of the development, it is recommended that the drainage system is constructed to a high strength standard with surface water run-off being treated before discharge from the site.

4.2.2.5 Nant yr Aber SINC - impact assessment with mitigation

It is considered that there will be an **extremely unlikely minor short term adverse** impact at a **local (site) level**.

4.2.2.6 Nant yr Aber SINC – significance of the impact

Without mitigation:

It is anticipated that the significance of the impacts due to the development will be **slight**.

With mitigation:

It is anticipated that the significance of the impacts due to the development will be **neutral**.

5 PHASE 1 HABITAT SURVEY

5.1 SUMMARY

A number of habitats were recorded across the survey area and are mapped at **Figure 3** below. These included:

- Woodland;
- Scattered trees;
- Scrub;
- Semi-improved grassland and
- Watercourses.

The potential for a number of protected species was recorded, including habitats suitable for:

- Bats;
- Dormouse;
- Otter;
- Badger;
- Breeding birds;
- Reptiles; and
- Fish

5.2 BACKGROUND

The Phase 1 habitat survey was carried out to assess the existing habitats, identify any protected habitats or species that may be present, determine the impact of the proposed works on them, and identify any mitigation measures that may be necessary. This was done by undertaking both a desk study and field survey.

The survey was undertaken on the 28th October 2020.

Phase 1 habitat survey is a way of recording the basic habitat data to form a baseline level of knowledge of the ecology of a site and provide recommendations for future surveys if considered necessary.

5.3 METHODOLOGY

5.3.1 Desk study:

A biological data search was undertaken. Refer to **section 3** above.

5.3.2 Field survey:

An experienced surveyor from Celtic Ecology and Conservation Ltd carried out a habitat assessment and mapping exercise in October 2020 with a further visit in December 2020 using the Phase 1 habitat survey technique. Features of note are assigned Target Notes and referenced accordingly and described at **Appendix C**. Nomenclature follows Stace (1997)[1].

[1] Stace, C (1997). *New Flora of the British Isles* (2nd Ed.). Cambridge University Press

5.4 CONSTRAINTS

The full botanical diversity of the site may not have been apparent due to the time of year; however, it is considered that although the full array of species may not have been not visible, this constraint did not impede the characterisation of the habitats present.

There were no other constraints to the survey.

5.5 RESULTS

5.5.1 Habitats

The following habitats are those which are likely to be affected by the proposed access track and will be considered further in this report:

- Woodland;
- Scattered trees;
- Scrub;
- Semi-improved grassland; and
- Watercourses.

Photos are located at **Appendix A**.

The habitats are shown on **Figure 3** below.

Figure 6 – habitat survey results

(Image courtesy of Goole Earth)

5.5.1.1 Woodland

The site is wholly within the Cwm yr Aber SINC which is dominated by wet alder woodland, the majority of which is considered to be Ancient Semi Natural Woodland.

Some of this habitat is likely to be lost to the proposed development and, therefore, this habitat will be considered further in this report.

5.5.1.2 Scattered trees

There were a number of mature trees on and adjacent to the development site standing over dense scrub including ash, grey willow, alder, hazel and hawthorn.

This habitat will be considered further in this report.

5.5.1.3 Scrub

Scrub was found across the development site. It comprised dense bramble scrub with hawthorn and bracken interspersed with tall ruderal vegetation with a maximum height of 2m.

This habitat will be considered further in this report.

5.5.1.4 Semi-improved grassland

There was a small area of grassland along the current access track and at the bottom of the track. It is not known whether or not this area is likely to be affected by the proposed development and will therefore be considered further in this report.

5.5.1.5 Watercourses

The Nant yr Aber flows through the centre of the proposed development site. This watercourse is notified as a SINC.

This habitat will be considered further in this report.

5.5.2 Protected species assessment

5.5.2.1 Bats

There are multiple records of bats in the data search, but none from the development site.

There are no man made structures on the site and, therefore, no man made roosting habitat.

A number of the trees on the site do appear to provide potential roosting features. This is as a result of their age and condition, and includes features relating to damage and injury.

It is yet to be confirmed which trees, if any, will be affected by the development.

Therefore, on completion of final layout designs and construction requirements, the trees likely to be affected will be subject of a detailed ground based assessment prior to any site clearance or other arboricultural work. This assessment may identify the need for further surveys (e.g. climb and inspect &/or activity / emergence surveys). No clearance of trees or woodland will take place until such a time as the assessments have been completed and any further surveys undertaken.

It should be assumed that bats will forage over the site and along the site boundaries; however, foraging habitat is not protected *per se*.

This group will be considered further in this report.

5.5.2.2 Dormouse

There are no records of dormouse within 2km of the development site, the closest being from 3km to the south. The habitat on the site is suitable for foraging and other summer uses but is unlikely to be used for hibernation as the ground is subject of regular flooding and is very wet for much of the year. The understorey is relatively sparse throughout and does not provide the continuous dense canopy that this species might normally prefer.

The areas of bramble scrub are perhaps more attractive to this species, but these are relatively isolated and small and subject of disturbance.

While the habitat is outwardly suitable for dormice, it is considered that due to the lack of records, the nature of the vegetation and underlying ground conditions and the relative isolation of the site from other suitable habitat, that it is unlikely that dormice will be present.

Therefore, this species will not be considered further in this report.

5.5.2.3 Amphibians

There are no records for any amphibian species within 1.5km of the site. The closest records are of frogs (*Rana temporia*) and common toad (*Bufo bufo*) from Llanbradach Quarry 1.5 km to the north east. The closest record of a great crested newt is from 1.6km to the south.

While there appear to be no waterbodies on or in close proximity to the site which could provide amphibians with breeding habitat, all the watercourses being too fast and providing habitat for fish and birds. The terrestrial habitat is, however, suitable for all species.

This species group will be considered further in this report.

5.5.2.4 Otter

There are multiple records for this species in the data search, primarily from the River Taff 3km to the west.

The habitats on and adjacent to the development site are suitable for this species and therefore, this species will be considered further in this report.

[redacted]

5.5.2.6 Water vole

There is a single recent record of this species from 1.4km to the south west; there are also are historical records of this species from Caerphilly to the south.

The habitats on the site are unsuitable for this species, the watercourses being too fast flowing for this species as well as being densely shaded by woodland and scrub with not enough soft herbaceous vegetation.

This species will not be considered further in this report.

5.5.2.7 Breeding birds

There are records of three commonly found species in this group, in the data search: song thrush (*Turdus philomelos*), starling (*Sturnus vulgaris*) and black headed gull (*Chroicocephalus ridibundus*). There are multiple records for members of this group outwith the development site but within the data search.

There is suitable nesting and foraging habitat on the site for this group in the woodland and scrub, the open grassland areas are considered to be too small and too overlooked for use by ground nesting species. It is possible that wintering birds (e.g. wood cock (*Scolopax rusticola*)) may utilise the site, although these species would most likely prefer denser woodland.

Tree and scrub nesting species will be considered further in this report.

5.5.2.8 Reptiles

The site offers suitable habitat for this group. The south west facing slope below the north eastern boundary provides basking, foraging, sheltering and hibernation habitat for grass snake (*Natrix natrix*), common lizard (*Lacerta vivipara*) and slow worm (*Anguis fragilis*) and possibly adder (*Vipera berus*). However, the site is relatively isolated by woodland, scrub, roads and watercourses and it is probable that reptiles will only be present in very low numbers. The lower areas of the slopes are too wet for all species except grass snake, and the dense shading may discourage this species to the point where they are not present.

A terrestrial (refugia) survey is likely to provide only presence / absence information and highly unlikely to provide any indication of likely population class of any of the reptile species found in the area due to the density of the scrub cover. Indeed, due to the dense scrub, it is thought that an effective refugia survey may not be possible.

This group will be considered further in this report.

5.5.2.9 Fish

In addition to the watercourse itself, the Nant yr Aber SINC is notified for the presence of a number of fish species.

The habitats used by fish differ markedly between species; however the presence in the river of a variety of habitats including varying width, depths, substrates, shading, aspect, channel form, bank form etc. result in the various species having multiple opportunities at all stages of their life cycles. Additionally, as time goes on, the pollution levels from the area's industrial past continue to decline, improving water quality and therefore enhancing the habitats further.

As the presence of fish depends on the water quality of the river, the impacts on this group will be considered with those of the Nant yr Aber and watercourses and will not be considered separately in this report.

5.5.3 Other protected species

There are multiple records of protected species in the data search within 2000m of the site and it is therefore likely that some individuals of these species will use the site.

However, no other protected species, evidence for them or habitat suitable for them was observed during the survey visit.

5.6 HABITATS - EVALUATION, IMPACT CHARACTERISATION AND ASSESSMENT

5.6.1 Woodland

5.6.1.1 Woodland – evaluation

Please refer to Cwm yr Aber SINC, section 4.2.1 above.

5.6.1.2 Woodland - impact characterisation

Please refer to Cwm yr Aber SINC, section 4.2.1 above.

5.6.1.3 Woodland - impact assessment without mitigation

Please refer to Cwm yr Aber SINC, section 4.2.1 above.

5.6.1.4 Woodland - mitigation measures

Please refer to Cwm yr Aber SINC, section 4.2.1 above.

5.6.1.5 Woodland - impact assessment with mitigation

Please refer to Cwm yr Aber SINC, section 4.2.1 above.

5.6.1.6 Woodland – significance of the impact

With mitigation:

Please refer to Cwm yr Aber SINC, section 4.2.1 above.

With mitigation:

Please refer to Cwm yr Aber SINC, section 4.2.1 above.

5.6.2 Scattered trees

5.6.2.1 Scattered trees - evaluation

The species found on the site are all native, common and widespread in the area. The individuals found were both immature and mature; with only one, a willow (TN 4) providing any potential roosting features (PRFs) useable by bats. It should be assumed that all the trees will be used by birds for nesting purposes during the breeding season, although the open nature of the canopies of most of the trees and their relative isolation within the site may make it less likely.

Unless the presence of bats is determined, the trees are therefore considered to be of a **low local (site)** ecological importance.

5.6.2.2 Scattered trees - impact characterisation

It is not yet been confirmed how many trees will need to be removed. However, trees will need to be removed and that this may have an adverse impact on roosting bats and/or breeding birds. This vegetation would be lost from the SINC on a permanent basis.

5.6.2.3 Scattered trees - impact assessment without mitigation

It is considered that in the absence of mitigation there would be a **certain significant permanent adverse** impact on this habitat at **a local (site)** level

5.6.2.4 Scattered trees - mitigation measures

However, mitigation will revolve around the avoidance of tree removal and, where necessary, replanting with similar species (excluding ash due to ash die back disease) of as local a provenance as possible. It is anticipated that translocation is not a viable option due to the location on a steep slope and the size of the trees.

5.6.2.5 Scattered trees - impact assessment with mitigation

It is considered that there would be a probable minor long term adverse impact on the habitat gradually reducing over time as new planting ages and matures.

5.6.2.6 Scattered trees – significance of the impact

Without mitigation:

It is considered that the significance of the impact would be **slight**.

With mitigation:

It is considered that the significance of the impact would be **neutral**.

5.6.3 Scrub

5.6.3.1 Scrub - evaluation

Scrub is a widespread habitat with the species found on the development site being common and widespread. Due to its extent and density, this habitat can provide a valuable source of food and shelter to a range of birds and mammals and provides a vegetated link outwith the woodland.

It is considered that the scrub habitats are of a **low – moderate** ecological value at a **local (site) level**.

5.6.3.2 Scrub - impact characterisation

It is anticipated that the majority of the site will be cleared and that the greater part of this is comprised of scrub which will therefore be lost to the development. Removal during the breeding season could have adverse impacts on nesting birds. This vegetation would be lost from the SINC on a permanent basis.

5.6.3.3 Scrub - impact assessment without mitigation

It is considered that there would be a **certain permanent adverse** impact at a **local (site level)** on this habitat as a result of the development. .

5.6.3.4 Scrub - mitigation measures

The extent of any mitigation has not yet been confirmed. However, mitigation would revolve around the avoidance of scrub removal in the first instance and ensuring that a similar area to that lost is either replanted with similar species of as local a provenance as possible, or allowed to regenerate naturally in an adjacent area (as long as this does not compromise any other ecologically valuable habitat).

Any removal should preferentially take place outwith the breeding bird season (I.e. March – August inclusive) unless the area is checked no more than 24 hours in advance by a suitably experienced ecologist and then under the supervision of the ecologist. Should any evidence of breeding birds be observed, then no vegetation removal or other work may take place within 10m of the nest site. Work may recommence once the nest site has been vacated naturally.

5.6.3.5 Scrub - impact assessment with mitigation

It is considered that there would be a **possible minor short term adverse** impact at a **local (site)** level.

5.6.3.6 Scrub – significance of the impact

Without mitigation:

It is considered that the significance of the impact would be **slight**.

With mitigation:

It is considered that the significance of the impact would be **neutral**.

5.6.4 Semi-improved grassland

5.6.4.1 Semi-improved grassland – evaluation

The grassland is of a type associated with unmanaged swards which are returning to scrub and eventually woodland. The habitat is common in the area and the species present are widespread, common and representative of the habitat, location and area. There are no species of ecological importance present. Given the levels of disturbance, the habitat is of interest primarily for its ability to provide habitat for other ecological receptors, particularly invertebrates, reptiles and small mammals. However, this habitat is wholly outwith the proposed development area.

It is considered that the grassland on the site is of a **low local (site)** ecological importance.

5.6.4.2 Semi-improved grassland - impact characterisation

It has not been confirmed, but it is likely that this habitat will not be affected by the development and retained in its entirety.

5.6.4.3 Semi-improved grassland - impact assessment without mitigation

It is considered that, will be **no adverse** impacts on this habitat as a result of the development.

5.6.4.4 Semi-improved grassland - mitigation measures

Mitigation will not be required unless it becomes necessary to include this area in the development boundary.

It is recommended that consideration be given to the preparation and implementation of a post construction landscaping scheme to manage the grassland for the benefit of nature conservation.

5.6.4.5 Semi-improved grassland - impact assessment with mitigation

Not applicable.

5.6.4.6 Semi-improved grassland – significance of the impact

Without mitigation:

It is anticipated that the significance of the impacts due to the development will be **neutral**.

With mitigation:

It is anticipated that the significance of the impacts due to the development will be **neutral**.

5.6.5 Hedgerows

5.6.5.1 Hedgerows – evaluation

Hedgerows are an integral part of the landscape in the United Kingdom. The purpose of a hedgerow is to provide a stock proof barrier which also provides shade and shelter to livestock. They were also used as a source of firewood and timber. In the area surrounding the development site, hedgerows are perhaps less common, with stone walls being more prevalent due to the amount of quarrying and industry found around.

The sites northern boundary is a typical enclosure hedge of hawthorn, blackthorn, and hazel with occasional ash. Over time butterfly bush has also become established. There are no mature trees, the maximum canopy height being approximately 2.5m. The overall length of the hedge is approximately 90m.

Hedgerows are protected by the Hedgerow Regulations 1997 (as amended) and therefore it is not allowed to remove a hedge without undertaking various surveys and obtaining relevant permissions.

They are considered to be vital habitats in their own right as well as providing habitat links and connections. In this instance there is no connectivity as the hedge runs alongside the road between a line of houses and stops at a junction with a stone wall. It is therefore considered that it has only a **low** ecological value at a **local (site level)**.

5.6.5.2 Hedgerows - impact characterisation

It is anticipated that the hedgerow will be lost in its entirety to the development. Clearance during the breeding birds season may lead to the killing and injury of birds and damage or destruction of nests. Other fauna may be affected.

5.6.5.3 Hedgerows - impact assessment without mitigation

Without mitigation, it is anticipated that there would be a **certain significant permanent adverse** impact on this habitat at a **local (site)** level.

5.6.5.4 Hedgerows - mitigation measures

Mitigation will be required and will require the planting of a new hedge along the southern boundary of the development using similar species of as local a provenance as possible. It is a requirement that clearance be undertaken preferentially outwith the breeding season i.e. September – February inclusive. If clearance within the breeding season is required, it may only happen after a site check by a suitably experienced ecologist no more than 24 hours in advance. There must be no clearance within 10m of any nest site until it is vacated naturally. Clearance must begin at the north western end of the hedge (by the junction with the stone wall and progress in a south easterly direction towards the existing houses.

5.6.5.5 Hedgerows - impact assessment with mitigation

It is considered that there will be a **certain minor short term adverse** impact at a local level followed by a long term positive impact.

5.6.5.6 Hedgerows – significance of the impact

Without mitigation:

It is anticipated that the significance of the impacts due to the development will be **slight**.

With mitigation:

It is anticipated that the significance of the impacts due to the development will be **neutral**.

5.6.6 Watercourses

5.6.6.1 Watercourses – evaluation

Please refer to Nant yr Aber SINC, section 4.2.2 above.

5.6.6.2 Watercourses - impact characterisation

Please refer to Nant yr Aber SINC, section 4.2.2 above.

5.6.6.3 Watercourses - impact assessment without mitigation

Please refer to Nant yr Aber SINC, section 4.2.2 above.

5.6.6.4 Watercourses - mitigation measures

Please refer to Nant yr Aber SINC, section 4.2.2 above.

5.6.6.5 Watercourses - impact assessment with mitigation

Please refer to Nant yr Aber SINC, section 4.2.2 above.

5.6.6.6 Watercourses – significance of the impact

Without mitigation:

Please refer to Nant yr Aber SINC, section 4.2.2 above.

With mitigation:

Please refer to Cwm yr Aber SINC, section 4.2.2 above.

6 PROTECTED SPECIES

6.1 BATS

6.1.1 Summary

There are no records of bats from the site, but there are a number of records within the data search. There is no man-made roosting habitat on the site. There is one tree on the site which provides potential roosting features (PRFs). No evidence of bats was recorded from the site.

6.1.2 Ecology

British bats are small flying nocturnal mammals that feed exclusively upon insects. There are 17 species resident in Britain, ranging in size from the small pipistrelle species up to the larger noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*) and greater horseshoe bat (*Rhinolophus ferrumequinum*). Bats are active from April through to October and hibernate when insects are in short supply in the winter months. Bats emerge from hibernation in late March - early April and move into their transition / intermediary roosts. Female bats will move to maternity sites by the beginning of May and will give birth to a single baby between June and early July. The baby is reared solely by the mother and is weaned and independent by end of August. After breeding, bats move to transition / intermediary roosts and females will visit males at mating roosts. During the autumn, bats feed voraciously to gain weight for the hibernation ahead.

Although traditionally trees, caves and rock faces were used by roosting bats and are still used, many different structures are used nowadays by bats, which take advantage of readymade (man-made) roosts. Structures used frequently include bridges, ice-houses, pill-boxes, disused railway tunnels, houses and barns etc. Bats have home ranges which vary from species to species; from just 3-4km from the roost for the smaller bats while the larger noctule may fly 20km or more. Threats to bats include habitat destruction and the severance of commuting routes, use of agricultural pesticides, intensification of farming methods and deliberate persecution by man. Bats have few natural predators; however the domestic cat is probably the most efficient predator.

6.1.3 Legislation

6.1.3.1 Conservation of Habitats & Species Regulations 2019

Prior to the 31st January 2020, European Union legislation required that member states designate sites for the protection of habitats and species included in the annexes of both Council Directive 92/43/EC on the Conservation of Natural Habitats and of Wild Flora and Fauna (the Habitats Directive) and Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). This legislation was implemented in the UK by the Conservation of Habitats and Species Regulations 2017 ("the Habitat Regulations"). This results in sites being designated as Special Areas of Conservation (SACs) and Special Protection Areas respectively (SPAs).

Following the UK's exit from the European Union on 31st January 2020, the law responsible for continuing to implement this legislation through the transition period is The Conservation of Habitats and Species (Amendment) (EU EXIT) Regulations 2019. All legislation within the Conservation of Habitats and Species Regulation 2017 still apply within the UK under the amendment to the 2017 regulations until otherwise notified.

With regards to bats, the offences are as follows:

- Deliberately (or recklessly in Scotland) capture, injure or kill a bat
- Deliberately (or recklessly in Scotland) disturb a bat in a way that would (significantly in Scotland) affect its ability to survive, breed or rear young (or hibernate or migrate in England,

Wales and Northern Ireland) or (significantly in England, Wales and Scotland) affect the local distribution or abundance of the species.
- Damage or destroy a roost (this is an 'absolute' offence)
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat

Working in protected sites or disturbing protected species is possible as long as consent has been issued by Natural Resources Wales (NRW).

It is possible to undertake damaging activities under the auspices of a European Protected Species Licence issued by Natural Resources Wales which provides a derogation from the Regulations, meaning that an otherwise illegal operation carried out under licence is lawful.

6.1.3.2 Wildlife & Countryside Act 1981

The Wildlife & Countryside Act 1981 (as amended) is the legislation for England and Wales for nature conservation, making it an offence to:

- Intentionally or recklessly disturb a bat in or at a roost;
- Intentionally or recklessly obstruct access to a roost;
- Intentionally destroy, damage or otherwise disturb a roost (whether bats are present or not); and
- Intentionally or recklessly kill, injure or take (capture) a bat.

6.1.3.3 The Environment (Wales) Act, 2016

The Environment (Wales) Act 2016 requires that all public authorities, when carrying out their functions in Wales, seek to "maintain and enhance biodiversity" where it is within the proper exercise of their functions. In doing so, public authorities must also seek to "promote the resilience of ecosystems". This ensures that biodiversity is an integral part of the decisions that public authorities take in relation to Wales. It also links biodiversity with the long-term health and functioning of our ecosystems, therefore helping to align the biodiversity duty with the framework for sustainable natural resource management provided in the Act.

In Wales, this legislation replaces and enhances the Natural Environment and Rural Communities Act (2006) which sought to raise the profile of biodiversity and to make sure that it is considered in all local authority decisions by ensuring 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."

Other elements of NERC 2006 may still apply.

6.1.4 Bats - evaluation

There were no records of this group from the development site, but there were multiple records within the area.

There is no man made roosting habitat on the site, but there are a number of trees in the woodland which appear to provide potential roost features (PRFs).

One tree in particular, a willow (**Plate 5**; TN3), appeared to provide bats with PRFs in the form of hazard beams (lateral splits in horizontal branches); however, neither bats nor evidence of bats was observed in any of the PRFs, all of which were accessible from the ground.

Foraging habitat is not protected *per se*, so while bats are likely to forage over the development site which provides excellent habitat for this purpose, there is sufficient alternative retained habitat which will still be available to them.

Bats are protected by international and UK legislation and therefore they are of **high national** ecological importance.

Overall the site appears to be generally of a **low - moderate** ecological value to this group at a **local (site) level**.

6.1.5 Bats - impact characterisation

In the absence of mitigation, bats could be killed, injured and / or disturbed during tree removal and their places of shelter destroyed, damaged or disturbed.

It appears likely that the willow tree will be lost to the development.

6.1.6 Bats - impact assessment without mitigation

It is anticipated that there will be a requirement for some limited tree removal and it is likely that the willow tree will be lost to the development.

Therefore, it is considered that in the absence of mitigation there could be a **possible major long term adverse** impact at a **local (site)** level as a result of a roost site being destroyed and / or bats being killed or injured during the removal.

6.1.7 Bats - mitigation measures

Mitigation will be primarily based on reducing the requirement for tree loss as far as possible, followed by the installation of two pole mounted nest boxes on the line of the new southern boundary hedge.

Due to the delay between the issuing of this report, the consenting of any planning application and the implementation of any such permission, it is considered that there is no requirement for further surveys at this time. However, each and every tree scheduled for removal will be subject of a ground based assessment prior to any felling or pruning work commencing. Should any potential for bats be confirmed or evidence of them, further surveys will be required e.g. climb and inspect and / or activity / emergence. Should evidence of bats be observed at any stage (either animals, feeding remains or droppings) then a development licence should be sought and obtained from Natural Resources Wales (NRW) prior to commencing any arboricultural work.

In addition, the following measures will be included where necessary:

- Minimisation of lighting through design;
- Use of low level PIR operated lighting systems;
- Positioning lights so as not to light up retained vegetation, trees and newly planted areas

6.1.8 Bats - impact characterisation with mitigation

It is anticipated that there would be an **unlikely minor short term adverse** impact at a **local (site)** level.

6.1.9 Bats - significance of the impact

Without mitigation

It is considered that the significance of the impact could be **slight**.

With mitigation

It is considered that the significance of the impact could be **neutral**.

6.2 OTTER

6.2.1 Ecology

Otters (*Lutra lutra*) are one of Great Britain's largest land mammals. Territories must therefore be large provide enough foraging and shelter, both for everyday use and breeding. Territories may comprise up to forty kilometres of waterway including rivers, streams, ditches, wetlands, lakes, ponds and reservoirs, which the otter will defend. Although mainly nocturnal, otters will emerge during daylight to patrol their territories and hunt. Prey is comprised mainly of fish; however, they will take anything they can catch without risk to themselves, particularly amphibians and birds.

There are usually a number of places of shelter (holts) along territories. These are supplemented by the use of lying up sites which are used in addition to the main holts. Holts can take many forms: holes in banks, cavities in the root systems of riparian trees, under fallen timber, areas of dense scrub, and even areas of long grass. Breeding holts tend to be located away from rivers and potential disturbance. Otters can breed at any time of the year; the kits remain with the bitch for up to a year.

Otters have been recorded regularly on watercourses throughout south Wales.

6.2.2 Legislation

6.2.2.1 Conservation of Habitats & Species Regulations 2019

Prior to the 31st January 2020, European Union legislation required that member states designate sites for the protection of habitats and species included in the annexes of both Council Directive 92/43/EC on the Conservation of Natural Habitats and of Wild Flora and Fauna (the Habitats Directive) and Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). This legislation was implemented in the UK by the Conservation of Habitats and Species Regulations 2017 ("the Habitat Regulations"). This results in sites being designated as Special Areas of Conservation (SACs) and Special Protection Areas respectively (SPAs).

Following the UK's exit from the European Union on 31st January 2020, the law responsible for continuing to implement this legislation through the transition period is The Conservation of Habitats and Species (Amendment) (EU EXIT) Regulations 2019. All legislation within the Conservation of Habitats and Species Regulation 2017 still apply within the UK under the 2019 amendment to the 2017 regulations until otherwise notified.

With regards to otters, the offences are as follows:

- Deliberately capture, injure or kill any otter
- Deliberately disturb a otter
- Damage or destroy a breeding site or resting place of an otter

Disturbance is defined as that which is likely:

- to impair their ability –
  - To survive, to breed or reproduce, or to rear or nurture their young, or
  - In the case of animals of a hibernating or migratory species, to hibernate or migrate; or
- To affect significantly the local distribution or abundance of the species to which they belong

Working in protected sites or disturbing protected species is possible as long as consent has been issued by Natural Resources Wales (NRW).

It is possible to undertake damaging activities under the auspices of a European Protected Species Licence issued by Natural Resources Wales which provides a derogation from the Regulations, meaning that an otherwise illegal operation carried out under licence is lawful.

6.2.2.2 Wildlife & Countryside Act 1981

The Wildlife & Countryside Act 1981 (as amended) is the legislation for England and Wales for nature conservation, making it an offence to:

- Intentionally or recklessly disturb an otter in a place of shelter;
- Intentionally or recklessly obstruct access to a place of shelter;
- Intentionally destroy, damage or otherwise disturb a place of shelter (whether otters are present or not); and
- Intentionally or recklessly kill, injure or take (capture) an otter.

6.2.2.3 The Environment (Wales) Act, 2016

The Environment (Wales) Act 2016 requires that all public authorities, when carrying out their functions in Wales, seek to "maintain and enhance biodiversity" where it is within the proper exercise of their functions. In doing so, public authorities must also seek to "promote the resilience of ecosystems". This ensures that biodiversity is an integral part of the decisions that public authorities take in relation to Wales. It also links biodiversity with the long-term health and functioning of our ecosystems, therefore helping to align the biodiversity duty with the framework for sustainable natural resource management provided in the Act.

In Wales, this legislation replaces and enhances the Natural Environment and Rural Communities Act (2006) which sought to raise the profile of biodiversity and to make sure that it is considered in all local authority decisions by ensuring 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."

Other elements of NERC 2006 may still apply.

6.2.3 Otter - evaluation

Otters are found in every river catchment in Wales and the UK. They are known to use the Nant yr Aber further downstream and it is probable that they will be utilising the section of the Nant yr Aber running through the development site for foraging, commuting and dispersal purposes.

The woodland and scrub habitats are also suitable for use as lying up sheltering.

No evidence of this species was observed during either of the field visits; this was likely due to recent heavy rain washing away spraint and footprints as well as encouraging animals to take shelter.

Overall the site appears to be generally of a **moderate - high** ecological value to this group at a **local (site) level**.

6.2.4 Otter - impact characterisation

In the absence of mitigation, otters could be killed, injured and / or disturbed and their places of shelter destroyed, damaged or disturbed during vegetation removal and bridge construction.

6.2.5 Otter - impact assessment without mitigation

It is anticipated that there will be a requirement for some limited tree and scrub removal; however, it has not yet been confirmed how many or which trees might be scheduled for removal. Therefore, it is not possible to provide an accurate impact assessment at this stage.

However, in general terms, it is considered that in the absence of mitigation there could be a **possible major medium term adverse** impact at a **local (site)** level.

6.2.6 Otter - mitigation measures

Mitigation will be based on reducing the requirement for tree and vegetation loss as far as possible, preventing disturbance to the river channel and ensuring that there is no light spill into the river channel and retained / unaffected vegetation.

The site will be checked by a suitably experienced ecologist for the presence of otters no more than 24 hours in advance of any clearance commencing. Should any evidence of otters be observed during this inspection or at any other time during the clearance, the ecologist will advise on the nest way forward; it may be necessary to consult with Natural Resources Wales (NRW). A development licence from NRW may be required prior to commencing or continuing any site clearance work. All clearance will be supervised by a suitably experienced and licensed ecologist.

6.2.7 Otter - impact characterisation with mitigation

It is not possible to accurately characterise any impacts on bats without any further information.

6.2.8 Otter - significance of the impact

Without mitigation

It is considered that the significance of the impact could be **moderate**.

With mitigation

Currently unknown.

6.3 BREEDING BIRDS

6.3.1 Ecology

Most British avian species are found breeding during the spring and summer months, between April and August, although some, such as pigeons, and doves will frequently breed at all times of year, as they are not dependent on small, soft-bodied invertebrates to provide food for their chicks. Some other species, such as barn owl (*Tyto alba*) have also been recorded breeding in the winter months, in years when winters have been mild, and small mammal prey plentiful, although such breeding attempts are unusual, with chicks frequently failing to fledge. The breeding season can be extended for most species if the weather is mild, and food plentiful.

Contrary to common belief, whilst some bird species, such as crows and rooks, nest high in trees, often more than 10m high, the majority of British breeding birds will nest within 2m of the ground (or on the ground) within dense scrub or within holes and other natural and manmade cavities in rocks and walls.

Most bird species take considerably less than 60 days from egg-laying to chick fledging, whilst others, such as barn owl, can take more than 90 days. Many, but not all British species will make multiple breeding attempts if environmental conditions and food availability allow.

6.3.2 Legislation

In Britain, all naturally occurring avian species are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). The legislation protects all birds, their nests and eggs, and it is an offence to:

- Intentionally kill, injure or take a wild bird;
- Intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built; and
- Intentionally take or destroy the egg of any wild bird.

In addition, birds listed on Schedule 1 of the Act, such as the Red Kite (*Milvus milvus*), are afforded further protection, and it is an offence to:

- Intentionally or recklessly disturb the bird whilst nest building or while at (or near) a nest with eggs or young; and
- Disturb the dependant young of such a bird.

6.3.3 Breeding birds – evaluation

There were multiple records of breeding, passage and wintering birds in the data search.

The site was dominated by wet woodland and scrub to a maximum height of 2m with scattered trees in the scrub areas.

All habitats on the site were suitable for nesting and foraging purposes, providing a variety of food sources.

It is considered that the site does not provide suitable habitat for ground nesting species.

Birds should be considered to be of **high national** importance as a result of the legislation protecting them.

There is abundant suitable habitat on the site for tree and scrub nesting species to utilise for breeding and foraging. Within the context of the site, it is therefore considered that birds are of a **moderate local (site)** ecological importance.

6.3.4 Breeding birds - impact characterisation

It is anticipated that, the majority of the scrub on the site will be lost to the development while the majority of the woodland will be retained and enhanced.

Clearance of nesting habitat during the breeding season could result in the destruction of nests, the killing and / or injury of young birds, adult birds and dependant young.

6.3.5 Breeding birds - impact assessment without mitigation

In the absence of mitigation, the removal of vegetation during the breeding season could result in a **certain moderate medium term adverse** impact at a **local (site)** level.

6.3.6 Breeding birds – potential mitigation measures

Mitigation will be required and should include (but not be limited to) the following measures:

- Vegetation loss should be minimised through design;
- Ideally, vegetation clearance should be phased so not all the habitat is lost at once;
- All vegetation removal should preferentially be undertaken outwith the breeding season i.e. between mid-August / September and April inclusive;
- Any clearance close to the start and end of this period should only be undertaken following an assessment by a suitably experienced ecologist as the breeding season is not fixed and is subject to annual variation;
- Where clearance is required during the breeding season, all areas should be subject to an assessment no more than 48 hours in advance to check for the presence of breeding birds;
- Should evidence of breeding birds, in particularly nests, be recorded, no clearance may be undertaken within 10m of any nest site until such time as the nest is vacated naturally;
- Planting will be undertaken to replace the areas of woodland and hedge lost; and
- Providing an ecological management plan to ensure that retained and planted habitats are managed for the benefit of nature conservation, including birds.

6.3.7 Breeding birds - impact characterisation with mitigation

As the area of vegetation removal and number of trees to be removed are unknown, it is considered that an accurate assessment of impacts with mitigation is not possible.

6.3.8 Breeding birds - significance of the impact

Without mitigation

It is considered that the significance of the impact is **slight**.

With mitigation

It is considered that the significance of the impact is **neutral**.

6.4 REPTILES AND AMPHIBIANS

6.4.1 Ecology

Reptiles are ectothermic, meaning they have to rely on external heat sources to warm their blood sufficiently to allow foraging and other activity. During the winter they are in brumation (similar to hibernation), emerging in April (or when the temperatures are consistently warm enough). Males tend to emerge before females, to enable them to prepare for mating. Females emerge a few weeks later and mating takes place. Female reptiles in the UK generally breed every other year to allow them to build up sufficient energy reserves. Grass snakes are the UK's only egg-laying reptile, eggs are laid in summer in warm piles of decomposing vegetation (or similar) and left to develop and hatch on their own. Young reptiles are born/hatch in late summer/early autumn. Brumation (hibernation) starts again as temperatures fall in the autumn.

The four more commonly occurring species of reptile in the UK (adder (*Vipera berus*), grass snake (*Natrix natrix*) slow worm (*Anguis fragilis*) and common lizard (*Lacerta vivipara*)) have different preferences for habitat and diet. Adders generally prey on small mammals in drier habitats, grass snakes primarily hunt amphibians in wetter areas and aquatic habitats, slow worms take small, slow-moving invertebrates and inhabit drier areas and common lizards prey on small, faster-moving invertebrates and tolerate both wet and dry habitats.

6.4.2 Legislation

The four common species listed above are protected by the Wildlife and Countryside Act 1981 (as amended) against killing, injury and sale.

Smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) are not found in this area, having very specific geographical distribution within Britain, and so will not be referred to in this report despite the higher legislative protection afforded to them.

Smooth newt, palmate newt, common frog and common frog are protected by the Wildlife and Countryside Act 1981 (as amended) against killing and injury. Great crested newts are protected by the Habitat and Species Regulations 2017 (as amended) against disturbance, killing, injury and their places of shelter against destruction.

6.4.3 Evaluation

No records of reptiles and amphibians were returned for the site. Records of all common species of both groups were found in the data search i.e. within 2km.

The habitats on the site are considered to be generally sub-optimal for reptiles as the woodland and scrub cover means there are few basking opportunities. There are though opportunities for foraging, sheltering and hibernation habitats on the drier areas of the site. The wet ground and river reduce the potential of the site for this group further.

There are no waterbodies on the site that could be used by amphibians for breeding purposes. The site does provide optimal habitat for foraging and hibernation.

The site is relatively isolated, being bounded by roads, a fast flowing river and housing development.

Reptiles and amphibians are protected by UK legislation and therefore they are of **medium** to **high national** ecological importance.

It should be assumed that grass snake, slow worm and common lizard will utilise the site and that adders are unlikely to be present. The vegetation types and ground conditions would suggest that there is likely to be a low population of each species. It is unlikely that adders would be present.

A terrestrial (refugia) search is highly unlikely to provide any presence / absence information let alone any indication of likely population class of any of the amphibian species found in the area due to the distance between the site and any suitable breeding habitat. Indeed, it is considered that due to the density of the woodland and scrub cover, a refugia survey would not be possible. It should also be assumed that common frog and common toad are likely to use the site, but in low populations. It is possible that palmate and smooth newts may utilise the site.

Overall the site appears to be generally of a **low - moderate** ecological value to these groups at a **local (site) level**.

6.4.4 Reptiles and amphibians - impact characterisation

It is anticipated that all the semi-improved grassland and some of the woodland and scrub cover on the site will be lost.

In the absence of mitigation, reptiles and amphibians could be killed or injured during site clearance.

6.4.5 Reptiles and amphibians - impact assessment without mitigation

It is considered that in the absence of mitigation there would be a **certain minor short term adverse** impact at a **local (site)** level.

6.4.6 Reptiles and amphibians - mitigation measures

As the development areas of the site are covered with dense scrub and it is not possible to see most of it, as long as an assumption of presence of the three common reptile and four common species of amphibian is made, clearance of the site in accordance with a method statement and under ecological supervision will ensure that the animals will not be injured or killed. It will also allow the early identification of ecological constraints.

It is considered that a full trapping and translocation exercise is not required, and that habitat manipulation and denial as outlined in, and implemented via, a method statement is an appropriate method of ensuring that reptiles are not harmed during the site clearance.

Therefore, the following mitigation will be adopted:

- Clearance will be conducted in accordance with a Method Statement to ensure that should animals be found in the course of site clearance or any other development activity, they will not be harmed and can be adequately cared for
- Clearance will only be undertaken during the active season (March - October, inclusive);
- Clearance outwith this period is possible, but depends on weather and temperatures being suitable to ensure that reptiles are likely to be active;
- There will be no clearance of hibernation habitat outwith the active season;
- Animals will be excluded from entering or re-entering the site during clearance/operational phase of works by ensuring that the site is kept as bare ground i.e. clear of any vegetation or other shelter;
- If maintenance as bare ground is not possible, fencing will be required to ensure that animals cannot enter the area once it has been cleared; and
- Any post development management plan should give consideration to including a reptile hibernaculum 4m x 2m on retained land to provide additional shelter for reptiles. The location of the hibernaculum will be confirmed in consultation with the ecologist.

6.4.7 Reptiles and amphibians - impact characterisation with mitigation

It is considered that there will be an **unlikely minor short term adverse** impact at a **local (site) level** as followed by a **probable long term positive impact** at a **local (site)** level.

6.4.8 Reptiles and amphibians - significance of the impact

Without mitigation

It is considered that the significance of the impact is **slight**.

With mitigation

It is considered that the significance of the impact is **neutral**.

6.5 FISH

Please refer to the Nant yr Aber SINC at section 4.2.2 above.

7 CONCLUSION AND RECOMMENDATIONS

Overall the site is of a low ecological value, however, due to its notification as a SINC its value is increased to moderate - high at local (regional) level due to the designations applied to it as a direct result of the habitats, vegetation and species present.

There is no man-made roosting habitat on the site; there is the potential for bats to use trees on the site for roosting purposes. Bats should be assumed to forage over the site.

Otters should be assumed to use the Nant yr Aber for commuting, foraging, and dispersal and the adjacent woodland and scrub for lying up purposes. Bats may utilise a number of the trees for roosting purposes.

Breeding birds, amphibians and reptiles should be assumed to be present on the site.

Mitigation for these species and groups will therefore be required as described above. Note that the final scheme design and construction methodologies will determine what mitigation is actually required and implemented and the extent of any such mitigation.

A development licence may be required in respect of bats and otters if it is found that either species is using any of the relevant features for sheltering. Note that a licence can only be applied for on receipt of a consented planning permission.

In addition to the mitigation, an ecological management plan will be prepared and implemented across the development site, mitigation and most importantly, the retained land within the ownership boundary. This management plan will provide positive management to an area which has not received management for a considerable number of years and result in extensive benefits to nature conservation.

All site clearance and construction activities, particularly the proposed river crossing, will be undertaken in accordance with appropriate method statements and where necessary under ecological supervision. This will allow for the identification of ecological features which may have been obscured by the dense vegetation on the site and any associated mitigation that may be required.

The timings of site clearance will need to be addressed with care as to ensure that the constraints associated with the various ecological receptors do not overlap or block each other.

It is considered that further ecological surveys will be required in respect of bats and otters. The assessments described above should be updated with the results of any further surveys and the final design and proposed methodologies. The potential mitigation measures outlined above should be reviewed in light of the findings of the further surveys.

The development should be subject of a landscaping scheme and appropriate management to ensure as great a biodiversity benefit within the development as possible.

It should be noted that the findings of this report are valid for a period of 18 months from date of issue.

8 REFERENCES

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APPENDIX A - PHOTOS

PHASE 1 HABITAT SURVEY PHOTOS

Plate 1 – Woodland

Plate 2 – Scrub

Plate 3 – Roadside hedge (looking south)

Plate 4 – Nant yr Aber

Plate 5 – Willow (TN 4) with hazard beam PRFs

APPENDIX B – SEWBReC DATA SEARCH SUMMARY

Scientific Name	Common Name	Category	Status
Acanthis cabaret	Lesser Redpoll	Birds	Priority Species
Accipiter gentilis	Goshawk	Birds	Priority Species
Actitis hypoleucos	Common Sandpiper	Birds	Species of Conservation Concern
Aegithalos caudatus	Long-tailed Tit	Birds	Species of Conservation Concern
Aix galericulata	Mandarin Duck	Birds	Other Species
Alauda arvensis	Skylark	Birds	Priority Species
Alcedo atthis	Kingfisher	Birds	Priority Species
Anas acuta	Pintail	Birds	Priority Species
Anas crecca	Teal	Birds	Species of Conservation Concern
Anas penelope	Wigeon	Birds	Species of Conservation Concern
Anas platyrhynchos	Mallard	Birds	Species of Conservation Concern
Anas strepera	Gadwall	Birds	Species of Conservation Concern
Anser albifrons	White-fronted Goose	Birds	Priority Species
Anthus pratensis	Meadow Pipit	Birds	Species of Conservation Concern
Anthus trivialis	Tree Pipit	Birds	Priority Species
Apus apus	Swift	Birds	Species of Conservation Concern
Ardea cinerea	Grey Heron	Birds	Locally Important Species
Asio flammeus	Short-eared Owl	Birds	Species of Conservation Concern
Asio otus	Long-eared Owl	Birds	Species of Conservation Concern
Aythya ferina	Pochard	Birds	Species of Conservation Concern
Aythya fuligula	Tufted Duck	Birds	Species of Conservation Concern
Branta bernicla subsp. bernicla	Dark-bellied Brent Goose	Birds	Priority Species
Branta bernicla	Brent Goose	Birds	Species of Conservation Concern
Branta canadensis	Canada Goose	Birds	Other Species
Branta leucopsis	Barnacle Goose	Birds	Species of Conservation Concern
Bucephala clangula	Goldeneye	Birds	Priority Species
Buteo buteo	Buzzard	Birds	Locally Important Species
Chlidonias niger	Black Tern	Birds	Priority Species
Chloris chloris	Greenfinch	Birds	Locally Important Species
Chroicocephalus ridibundus	Black-headed Gull	Birds	Priority Species
Cinclus cinclus	Dipper	Birds	Species of Conservation Concern
Circus cyaneus	Hen Harrier	Birds	Priority Species
Coccothraustes coccothraustes	Hawfinch	Birds	Priority Species
Crex crex	Corncrake	Birds	Priority Species
Cuculus canorus	Cuckoo	Birds	Priority Species
Cygnus columbianus	Bewick's Swan	Birds	Priority Species
Cygnus olor	Mute Swan	Birds	Species of Conservation Concern
Delichon urbicum	House Martin	Birds	Species of Conservation Concern
Emberiza cirlus	Cirl Bunting	Birds	Priority Species
Emberiza citrinella	Yellowhammer	Birds	Priority Species
Emberiza schoeniclus	Reed Bunting	Birds	Priority Species
Falco columbarius	Merlin	Birds	Priority Species
Falco peregrinus	Peregrine	Birds	Priority Species
Falco tinnunculus	Kestrel	Birds	Priority Species
Ficedula hypoleuca	Pied Flycatcher	Birds	Priority Species
Fringilla montifringilla	Brambling	Birds	Priority Species
Gallinago gallinago	Snipe	Birds	Species of Conservation Concern
Haematopus ostralegus	Oystercatcher	Birds	Species of Conservation Concern
Hirundo rustica	Swallow	Birds	Species of Conservation Concern
Jynx torquilla	Wryneck	Birds	Priority Species
Lanius collurio	Red-backed Shrike	Birds	Priority Species
Larus argentatus	Herring Gull	Birds	Priority Species
Larus canus	Common Gull	Birds	Species of Conservation Concern
Larus fuscus	Lesser Black-backed Gull	Birds	Species of Conservation Concern
Larus marinus	Great Black-backed Gull	Birds	Species of Conservation Concern
Larus melanocephalus	Mediterranean Gull	Birds	Priority Species
Larus michahellis	Yellow-legged Gull	Birds	Locally Important Species
Limosa limosa	Black-tailed Godwit	Birds	Priority Species
Linaria cannabina	Linnet	Birds	Priority Species
Locustella naevia	Grasshopper Warbler	Birds	Priority Species
Loxia curvirostra	Common Crossbill	Birds	Priority Species

Scientific Name	Common Name	Category	Status
Melanitta nigra	Common Scoter	Birds	Priority Species
Mergellus albellus	Smew	Birds	Species of Conservation Concern
Mergus serrator	Red-breasted Merganser	Birds	Species of Conservation Concern
Milvus milvus	Red Kite	Birds	Priority Species
Motacilla cinerea	Grey Wagtail	Birds	Locally Important Species
Motacilla flava	Yellow Wagtail	Birds	Priority Species
Muscicapa striata	Spotted Flycatcher	Birds	Priority Species
Oenanthe oenanthe	Wheatear	Birds	Species of Conservation Concern
Pandion haliaetus	Osprey	Birds	Priority Species
Passer domesticus	House Sparrow	Birds	Priority Species
Periparus ater	Coal Tit	Birds	Species of Conservation Concern
Phalacrocorax carbo	Cormorant	Birds	Species of Conservation Concern
Phoenicurus ochruros	Black Redstart	Birds	Priority Species
Phoenicurus phoenicurus	Redstart	Birds	Species of Conservation Concern
Phylloscopus sibilatrix	Wood Warbler	Birds	Priority Species
Phylloscopus trochilus	Willow Warbler	Birds	Species of Conservation Concern
Picus viridis	Green Woodpecker	Birds	Species of Conservation Concern
Pluvialis apricaria	Golden Plover	Birds	Priority Species
Prunella modularis	Dunnock	Birds	Priority Species
Pyrrhula pyrrhula	Bullfinch	Birds	Priority Species
Regulus ignicapilla	Firecrest	Birds	Priority Species
Regulus regulus	Goldcrest	Birds	Species of Conservation Concern
Riparia riparia	Sand Martin	Birds	Species of Conservation Concern
Saxicola rubetra	Whinchat	Birds	Locally Important Species
Scolopax rusticola	Woodcock	Birds	Species of Conservation Concern
Sterna hirundo	Common Tern	Birds	Species of Conservation Concern
Sterna paradisaea	Arctic Tern	Birds	Species of Conservation Concern
Streptopelia turtur	Turtle Dove	Birds	Priority Species
Sturnus vulgaris	Starling	Birds	Priority Species
Sylvia borin	Garden Warbler	Birds	Species of Conservation Concern
Sylvia communis	Whitethroat	Birds	Species of Conservation Concern
Tadorna tadorna	Shelduck	Birds	Species of Conservation Concern
Tringa nebularia	Greenshank	Birds	Priority Species
Tringa ochropus	Green Sandpiper	Birds	Priority Species
Tringa totanus	Redshank	Birds	Species of Conservation Concern
Turdus iliacus	Redwing	Birds	Priority Species
Turdus philomelos	Song Thrush	Birds	Priority Species
Turdus pilaris	Fieldfare	Birds	Priority Species
Turdus torquatus	Ring Ouzel	Birds	Priority Species
Turdus viscivorus	Mistle Thrush	Birds	Locally Important Species
Tyto alba	Barn Owl	Birds	Priority Species
Vanellus vanellus	Lapwing	Birds	Priority Species
Bryum pallescens	Tall-clustered Thread-moss	Bryophytes	Locally Important Species
Didymodon nicholsonii	Nicholson's Beard-moss	Bryophytes	Locally Important Species
Fissidens bryoides var. caespitans	Curnow's Pocket-moss	Bryophytes	Locally Important Species
Fissidens incurvus	Short-leaved Pocket-moss	Bryophytes	Locally Important Species
Hygroamblystegium fluviatile	Brook-side Feather-moss	Bryophytes	Locally Important Species
Hygroamblystegium tenax	Fountain Feather-moss	Bryophytes	Locally Important Species
Kindbergia praelonga	Common Feather-moss	Bryophytes	Locally Important Species
Orthotrichum tenellum	Slender Bristle-moss	Bryophytes	Locally Important Species
Ptilidium ciliare	Ciliated Fringewort	Bryophytes	Locally Important Species
Racomitrium aquaticum	Narrow-leaved Fringe-moss	Bryophytes	Locally Important Species
Riccardia multifida	Delicate Germanderwort	Bryophytes	Locally Important Species
Scorpidium revolvens	Rusty Hook-moss	Bryophytes	Locally Important Species
Sphagnum compactum	Compact Bog-moss	Bryophytes	Locally Important Species
Sphagnum cuspidatum	Feathery Bog-moss	Bryophytes	Locally Important Species
Sphagnum tenellum	Soft Bog-moss	Bryophytes	Locally Important Species
Straminergon stramineum	Straw Spear-moss	Bryophytes	Locally Important Species
Tortella nitida	Neat Crisp-moss	Bryophytes	Locally Important Species
Anguilla anguilla	Eel	Fish	Priority Species
Barbatula barbatula	Stone Loach	Fish	Locally Important Species
Cottus gobio	Bullhead	Fish	Locally Important Species
Gasterosteus aculeatus	Three-spined Stickleback	Fish	Locally Important Species
Salmo trutta subsp. fario	Brown Trout	Fish	Locally Important Species

Scientific Name	Common Name	Category	Status
Acasis viretata	Yellow-barred Brindle	Invertebrates (insect)	Locally Important Species
Acronicta rumicis	Knot Grass	Invertebrates (insect)	Priority Species
Adscita statices	Forester	Invertebrates (insect)	Priority Species
Aeshna cyanea	Southern Hawker	Invertebrates (insect)	Locally Important Species
Agrochola helvola	Flounced Chestnut	Invertebrates (insect)	Priority Species
Agrochola lychnidis	Beaded Chestnut	Invertebrates (insect)	Priority Species
Allophyes oxyacanthae	Green-brindled Crescent	Invertebrates (insect)	Priority Species
Amblyptilia acanthadactyla	Beautiful Plume	Invertebrates (insect)	Locally Important Species
Anania crocealis	Ochreous Pearl	Invertebrates (insect)	Locally Important Species
Anax imperator	Emperor Dragonfly	Invertebrates (insect)	Locally Important Species
Arctia caja	Garden Tiger	Invertebrates (insect)	Priority Species
Argynnis paphia	Silver-washed Fritillary	Invertebrates (insect)	Locally Important Species
Boloria selene	Small Pearl-bordered Fritillary	Invertebrates (insect)	Priority Species
Bombus campestris	Field Cuckoo Bee	Invertebrates (insect)	Locally Important Species
Bombus lapidarius	Large Red Tailed Bumblebee	Invertebrates (insect)	Locally Important Species
Bombus lucorum	White-Tailed Bumblebee	Invertebrates (insect)	Locally Important Species
Bombus pascuorum	Common Carder Bee	Invertebrates (insect)	Locally Important Species
Bombus pratorum	Early Bumblebee	Invertebrates (insect)	Locally Important Species
Bombus terrestris	Buff-Tailed Bumblebee	Invertebrates (insect)	Locally Important Species
Calamotropha paludella	Bulrush Veneer	Invertebrates (insect)	Species of Conservation Concern
Calopteryx splendens	Banded Demoiselle	Invertebrates (insect)	Locally Important Species
Calopteryx virgo	Beautiful Demoiselle	Invertebrates (insect)	Locally Important Species
Caradrina morpheus	Mottled Rustic	Invertebrates (insect)	Priority Species
Cepphis advenaria	Little Thorn	Invertebrates (insect)	Locally Important Species
Ceramica pisi	Broom Moth	Invertebrates (insect)	Priority Species
Chiasmia clathrata	Latticed Heath	Invertebrates (insect)	Priority Species
Coenagrion puella	Azure Damselfly	Invertebrates (insect)	Locally Important Species
Coenonympha pamphilus	Small Heath	Invertebrates (insect)	Priority Species
Cordulegaster boltonii	Golden-ringed Dragonfly	Invertebrates (insect)	Locally Important Species
Craniophora ligustri	Coronet	Invertebrates (insect)	Locally Important Species
Diarsia rubi	Small Square-spot	Invertebrates (insect)	Priority Species
Ecliptopera silaceata	Small Phoenix	Invertebrates (insect)	Priority Species
Enallagma cyathigerum	Common Blue Damselfly	Invertebrates (insect)	Locally Important Species
Ennomos fuscantaria	Dusky Thorn	Invertebrates (insect)	Priority Species
Epirrhoe rivata	Wood Carpet	Invertebrates (insect)	Locally Important Species
Erynnis tages	Dingy Skipper	Invertebrates (insect)	Priority Species
Euchoeca nebulata	Dingy Shell	Invertebrates (insect)	Locally Important Species
Eugnorisma glareosa	Autumnal Rustic	Invertebrates (insect)	Priority Species
Euphydryas aurinia	Marsh Fritillary	Invertebrates (insect)	Priority Species
Harmonia axyridis	Harlequin Ladybird	Invertebrates (insect)	Other Species
Hepialus humuli	Ghost Moth	Invertebrates (insect)	Priority Species
Hipparchia semele	Grayling	Invertebrates (insect)	Priority Species
Hoplodrina blanda	Rustic	Invertebrates (insect)	Priority Species
Hydraecia micacea	Rosy Rustic	Invertebrates (insect)	Priority Species
Ischnura elegans	Blue-tailed Damselfly	Invertebrates (insect)	Locally Important Species
Lampropteryx otregiata	Devon Carpet	Invertebrates (insect)	Locally Important Species
Lasiommata megera	Wall	Invertebrates (insect)	Priority Species
Leptophyes punctatissima	Speckled Bush-cricket	Invertebrates (insect)	Locally Important Species
Leucania comma	Shoulder-striped Wainscot	Invertebrates (insect)	Priority Species
Leucania obsoleta	Obscure Wainscot	Invertebrates (insect)	Locally Important Species
Libellula depressa	Broad-bodied Chaser	Invertebrates (insect)	Locally Important Species
Libellula quadrimaculata	Four-spotted Chaser	Invertebrates (insect)	Locally Important Species
Libellula	Libellula	Invertebrates (insect)	Locally Important Species
Lycia hirtaria	Brindled Beauty	Invertebrates (insect)	Priority Species
Melanargia galathea serena	Marbled White	Invertebrates (insect)	Locally Important Species
Melanchra persicariae	Dot Moth	Invertebrates (insect)	Priority Species
Mesoleuca albicillata	Beautiful Carpet	Invertebrates (insect)	Locally Important Species
Pediasia contaminella	Waste Grass-veneer	Invertebrates (insect)	Species of Conservation Concern
Platynaspis luteorubra	Platynaspis luteorubra	Invertebrates (insect)	Species of Conservation Concern
Platyptilia gonodactyla	Triangle Plume	Invertebrates (insect)	Locally Important Species
Polydrusus formosus	Polydrusus formosus	Invertebrates (insect)	Species of Conservation Concern
Pyrausta aurata	Small Purple & Gold	Invertebrates (insect)	Locally Important Species
Pyrrhosoma nymphula	Large Red Damselfly	Invertebrates (insect)	Locally Important Species
Rhizedra lutosa	Large Wainscot	Invertebrates (insect)	Priority Species

Scientific Name	Common Name	Category	Status
Scopula immutata	Lesser Cream Wave	Invertebrates (insect)	Locally Important Species
Spilosoma lubricipeda	White Ermine	Invertebrates (insect)	Priority Species
Spilosoma lutea	Buff Ermine	Invertebrates (insect)	Priority Species
Stilbia anomala	Anomalous	Invertebrates (insect)	Priority Species
Sympetrum striolatum	Common Darter	Invertebrates (insect)	Locally Important Species
Tetheella fluctuosa	Satin Lutestring	Invertebrates (insect)	Locally Important Species
Tetrix subulata	Slender Ground-hopper	Invertebrates (insect)	Locally Important Species
Tholera cespitis	Hedge Rustic	Invertebrates (insect)	Priority Species
Tyria jacobaeae	Cinnabar	Invertebrates (insect)	Priority Species
Watsonalla binaria	Oak Hook-tip	Invertebrates (insect)	Priority Species
Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet	Invertebrates (insect)	Priority Species
Xestia castanea	Neglected Rustic	Invertebrates (insect)	Priority Species
Xylena vetusta	Red Sword-grass	Invertebrates (insect)	Locally Important Species
Zeuzera pyrina	Leopard Moth	Invertebrates (insect)	Locally Important Species
Arvicola amphibius	Water Vole	Mammals (terrestrial)	Priority Species
Chiroptera	Unknown Bat	Mammals (terrestrial)	Priority Species
Erinaceus europaeus	Hedgehog	Mammals (terrestrial)	Priority Species
Lepus europaeus	Hare	Mammals (terrestrial)	Priority Species
Lutra lutra	Otter	Mammals (terrestrial)	Priority Species
Meles meles	Badger	Mammals (terrestrial)	Priority Species
Muscardinus avellanarius	Hazel Dormouse	Mammals (terrestrial)	Priority Species
Mustela nivalis	Weasel	Mammals (terrestrial)	Priority Species
Mustela putorius	Polecat	Mammals (terrestrial)	Priority Species
Myotis daubentonii	Daubenton's Bat	Mammals (terrestrial)	Priority Species
Myotis mystacinus/brandtii agg.	Whiskered/Brandt's Bat agg.	Mammals (terrestrial)	Priority Species
Myotis nattereri	Natterer's Bat	Mammals (terrestrial)	Priority Species
Myotis	Myotis Bat Species	Mammals (terrestrial)	Priority Species
Neovison vison	American Mink	Mammals (terrestrial)	Other Species
Nyctalus noctula	Noctule Bat	Mammals (terrestrial)	Priority Species
Pipistrellus nathusii	Nathusius's Pipistrelle	Mammals (terrestrial)	Priority Species
Pipistrellus pipistrellus agg.	Pipistrelle agg.	Mammals (terrestrial)	Priority Species
Pipistrellus pipistrellus	Common Pipistrelle	Mammals (terrestrial)	Priority Species
Pipistrellus pygmaeus	Soprano Pipistrelle	Mammals (terrestrial)	Priority Species
Pipistrellus	Pipistrellus Bat Species	Mammals (terrestrial)	Priority Species
Plecotus auritus	Brown Long-eared Bat	Mammals (terrestrial)	Priority Species
Plecotus	Long-eared Bat Species	Mammals (terrestrial)	Priority Species
Rhinolophus ferrumequinum	Greater Horseshoe Bat	Mammals (terrestrial)	Priority Species
Rhinolophus hipposideros	Lesser Horseshoe Bat	Mammals (terrestrial)	Priority Species
Sciurus carolinensis	Grey Squirrel	Mammals (terrestrial)	Other Species
Anguis fragilis	Slow-worm	Reptiles and Amphibians	Priority Species
Bufo bufo	Common Toad	Reptiles and Amphibians	Priority Species
Natrix helvetica	Grass Snake	Reptiles and Amphibians	Priority Species
Rana temporaria	Common Frog	Reptiles and Amphibians	Priority Species
Trachemys scripta	Red-eared Terrapin	Reptiles and Amphibians	Other Species
Triturus cristatus	Great Crested Newt	Reptiles and Amphibians	Priority Species
Zootoca vivipara	Common Lizard	Reptiles and Amphibians	Priority Species
Acer campestre	Field Maple	Vascular Plants	Locally Important Species
Achillea ptarmica	Sneezewort	Vascular Plants	Locally Important Species
Aethusa cynapium	Fool's Parsley	Vascular Plants	Locally Important Species
Agrimonia eupatoria	Agrimony	Vascular Plants	Locally Important Species
Agrostis vinealis	Brown Bent	Vascular Plants	Locally Important Species
Aira caryophyllea	Silver Hair-grass	Vascular Plants	Locally Important Species
Alchemilla filicaulis subsp. vestita	Lady's-Mantle	Vascular Plants	Locally Important Species
Allium schoenoprasum	Chives	Vascular Plants	Species of Conservation Concern
Anagallis tenella	Bog Pimpernel	Vascular Plants	Locally Important Species
Anemone nemorosa	Wood Anemone	Vascular Plants	Locally Important Species
Anthyllis vulneraria	Kidney Vetch	Vascular Plants	Locally Important Species
Barbarea vulgaris	Winter-cress	Vascular Plants	Locally Important Species
Berula erecta	Lesser Water-parsnip	Vascular Plants	Locally Important Species
Briza media	Quaking-grass	Vascular Plants	Locally Important Species
Carex caryophyllea	Spring-sedge	Vascular Plants	Locally Important Species
Carex divulsa	Grey Sedge	Vascular Plants	Locally Important Species

Scientific Name	Common Name	Category	Status
Carex flacca	Glaucous Sedge	Vascular Plants	Locally Important Species
Carex hostiana x viridula = C. x fulva	Sedge	Vascular Plants	Locally Important Species
Carex hostiana	Tawny Sedge	Vascular Plants	Locally Important Species
Carex laevigata	Smooth-stalked Sedge	Vascular Plants	Locally Important Species
Carex otrubae	False Fox-sedge	Vascular Plants	Locally Important Species
Carex pallescens	Pale Sedge	Vascular Plants	Locally Important Species
Carex panicea	Carnation Sedge	Vascular Plants	Locally Important Species
Carex paniculata	Greater Tussock-sedge	Vascular Plants	Locally Important Species
Carex pilulifera	Pill Sedge	Vascular Plants	Locally Important Species
Carex pulicaris	Flea Sedge	Vascular Plants	Locally Important Species
Carex sylvatica	Wood-sedge	Vascular Plants	Locally Important Species
Centaurea	Knapweed	Vascular Plants	Locally Important Species
Ceratocapnos claviculata	Climbing Corydalis	Vascular Plants	Locally Important Species
Ceterach officinarum	Rustyback	Vascular Plants	Locally Important Species
Clinopodium vulgare	Wild Basil	Vascular Plants	Locally Important Species
Conopodium majus	Pignut	Vascular Plants	Locally Important Species
Cornus sanguinea	Dogwood	Vascular Plants	Locally Important Species
Cotoneaster bullatus	Hollyberry Cotoneaster	Vascular Plants	Other Species
Cotoneaster horizontalis	Wall Cotoneaster	Vascular Plants	Other Species
Cotoneaster simonsii	Himalayan Cotoneaster	Vascular Plants	Other Species
Crataegus laevigata	Midland Hawthorn	Vascular Plants	Locally Important Species
Crocosmia pottsii x aurea = C. x crocosmiiflora	Montbretia	Vascular Plants	Other Species
Cryptogramma crispa	Parsley Fern	Vascular Plants	Locally Important Species
Dactylorhiza fuchsii	Common Spotted-orchid	Vascular Plants	Locally Important Species
Dactylorhiza maculata subsp. ericetorum	Heath Spotted-Orchid	Vascular Plants	Locally Important Species
Dactylorhiza maculata	Heath Spotted-orchid	Vascular Plants	Locally Important Species
Dactylorhiza praetermissa	Southern Marsh-orchid	Vascular Plants	Locally Important Species
Danthonia decumbens	Heath-grass	Vascular Plants	Locally Important Species
Dipsacus fullonum	Wild Teasel	Vascular Plants	Locally Important Species
Elodea canadensis	Canadian Waterweed	Vascular Plants	Other Species
Epilobium tetragonum	Square-stalked Willowherb	Vascular Plants	Locally Important Species
Equisetum telmateia	Great Horsetail	Vascular Plants	Locally Important Species
Erica cinerea	Bell Heather	Vascular Plants	Locally Important Species
Erica tetralix	Cross-leaved Heath	Vascular Plants	Locally Important Species
Erigeron acris	Blue Fleabane	Vascular Plants	Locally Important Species
Eriophorum angustifolium	Common Cottongrass	Vascular Plants	Locally Important Species
Eriophorum vaginatum	Hare's-tail Cottongrass	Vascular Plants	Locally Important Species
Euphorbia amygdaloides subsp. robbiae	Spurge	Vascular Plants	Locally Important Species
Euphrasia arctica subsp. borealis	Eyebright	Vascular Plants	Locally Important Species
Euphrasia nemorosa	Eyebright	Vascular Plants	Locally Important Species
Euphrasia officinalis agg.	Eyebright agg.	Vascular Plants	Locally Important Species
Euphrasia officinalis subsp. anglica	Small-flowered Sticky Eyebright	Vascular Plants	Priority Species
Euphrasia officinalis subsp. pratensis	Eyebright	Vascular Plants	Priority Species
Fallopia japonica	Japanese Knotweed	Vascular Plants	Other Species
Frangula alnus	Alder Buckthorn	Vascular Plants	Locally Important Species
Galium verum	Lady's Bedstraw	Vascular Plants	Locally Important Species
Glebionis segetum	Corn Marigold	Vascular Plants	Species of Conservation Concern
Hieracium sabaudum	Yellow-glandular Hawkweed	Vascular Plants	Locally Important Species
Hieracium umbellatum	Hawkweed	Vascular Plants	Locally Important Species
Hippuris vulgaris	Mare's-tail	Vascular Plants	Locally Important Species
Hyacinthoides non-scripta x hispanica = H. x massartiana	Bluebell	Vascular Plants	Other Species
Hyacinthoides non-scripta	Bluebell	Vascular Plants	Priority Species
Hydrocotyle vulgaris	Marsh Pennywort	Vascular Plants	Locally Important Species
Hypericum hirsutum	Hairy St John's-wort	Vascular Plants	Locally Important Species
Hypericum perforatum x maculatum = H. x desetangsii	Des Etangs' St John's-wort	Vascular Plants	Locally Important Species
Hypericum pulchrum	Slender St John's-wort	Vascular Plants	Locally Important Species

Scientific Name	Common Name	Category	Status
Impatiens glandulifera	Himalayan Balsam	Vascular Plants	Other Species
Jasione montana	Sheep's-bit	Vascular Plants	Locally Important Species
Juncus inflexus	Hard Rush	Vascular Plants	Locally Important Species
Knautia arvensis	Field Scabious	Vascular Plants	Locally Important Species
Lamiastrum galeobdolon subsp. montanum	Yellow Archangel	Vascular Plants	Locally Important Species
Lathyrus nissolia	Grass Vetchling	Vascular Plants	Locally Important Species
Leontodon hispidus	Rough Hawkbit	Vascular Plants	Locally Important Species
Leontodon saxatilis	Lesser Hawkbit	Vascular Plants	Locally Important Species
Lepidium campestre	Field Pepperwort	Vascular Plants	Species of Conservation Concern
Lepidium ruderale	Narrow-leaved Pepperwort	Vascular Plants	Locally Important Species
Linum catharticum	Fairy Flax	Vascular Plants	Locally Important Species
Lotus tenuis	Narrow-leaved Bird's-foot-trefoil	Vascular Plants	Locally Important Species
Luzula multiflora	Heath Wood-rush	Vascular Plants	Locally Important Species
Luzula pilosa	Hairy Wood-rush	Vascular Plants	Locally Important Species
Luzula sylvatica	Great Wood-rush	Vascular Plants	Locally Important Species
Lysimachia nemorum	Yellow Pimpernel	Vascular Plants	Locally Important Species
Lythrum portula	Water-purslane	Vascular Plants	Locally Important Species
Lythrum salicaria	Purple-loosestrife	Vascular Plants	Locally Important Species
Meconopsis cambrica	Welsh Poppy	Vascular Plants	Species of Conservation Concern
Melampyrum pratense	Common Cow-wheat	Vascular Plants	Locally Important Species
Melica uniflora	Wood Melick	Vascular Plants	Locally Important Species
Mentha arvensis x aquatica = M. x verticillata	Whorled Mint	Vascular Plants	Locally Important Species
Mentha arvensis	Corn Mint	Vascular Plants	Locally Important Species
Mentha suaveolens	Round-leaved Mint	Vascular Plants	Locally Important Species
Moehringia trinervia	Three-nerved Sandwort	Vascular Plants	Locally Important Species
Mycelis muralis	Wall Lettuce	Vascular Plants	Locally Important Species
Myosotis discolor	Changing Forget-me-not	Vascular Plants	Locally Important Species
Myosotis laxa subsp. caespitosa	Myosotis laxa subsp. caespitosa	Vascular Plants	Locally Important Species
Myosotis laxa	Tufted Forget-me-not	Vascular Plants	Locally Important Species
Myosotis secunda	Creeping Forget-me-not	Vascular Plants	Locally Important Species
Narthecium ossifragum	Bog Asphodel	Vascular Plants	Locally Important Species
Odontites vernus	Red Bartsia	Vascular Plants	Locally Important Species
Ophrys apifera	Bee Orchid	Vascular Plants	Locally Important Species
Orchis mascula	Early-purple Orchid	Vascular Plants	Locally Important Species
Oreopteris limbosperma	Lemon-scented Fern	Vascular Plants	Locally Important Species
Osmunda regalis	Royal Fern	Vascular Plants	Locally Important Species
Oxalis acetosella	Wood-sorrel	Vascular Plants	Locally Important Species
Pedicularis sylvatica	Lousewort	Vascular Plants	Locally Important Species
Phragmites australis	Common Reed	Vascular Plants	Locally Important Species
Picris hieracioides	Hawkweed Oxtongue	Vascular Plants	Locally Important Species
Pimpinella major	Greater Burnet-saxifrage	Vascular Plants	Locally Important Species
Pimpinella saxifraga	Burnet-saxifrage	Vascular Plants	Locally Important Species
Plantago media	Hoary Plantain	Vascular Plants	Locally Important Species
Polygala serpyllifolia	Heath Milkwort	Vascular Plants	Locally Important Species
Polygala vulgaris	Common Milkwort	Vascular Plants	Locally Important Species
Polypodium interjectum	Intermediate Polypody	Vascular Plants	Locally Important Species
Polystichum aculeatum	Hard Shield-fern	Vascular Plants	Locally Important Species
Polystichum setiferum	Soft Shield-fern	Vascular Plants	Locally Important Species
Populus tremula	Aspen	Vascular Plants	Locally Important Species
Potamogeton crispus	Curled Pondweed	Vascular Plants	Locally Important Species
Primula veris	Cowslip	Vascular Plants	Locally Important Species
Prunus laurocerasus	Cherry Laurel	Vascular Plants	Other Species
Prunus padus	Bird Cherry	Vascular Plants	Locally Important Species
Pulicaria dysenterica	Common Fleabane	Vascular Plants	Locally Important Species
Pyrus pyraster	Wild Pear	Vascular Plants	Locally Important Species
Ranunculus circinatus	Fan-leaved Water-crowfoot	Vascular Plants	Locally Important Species
Ranunculus ficaria subsp. bulbilifer	Lesser Celandine	Vascular Plants	Locally Important Species
Ranunculus omiophyllus	Round-leaved Crowfoot	Vascular Plants	Locally Important Species
Raphanus raphanistrum	Radish	Vascular Plants	Locally Important Species
Reseda lutea	Wild Mignonette	Vascular Plants	Locally Important Species
Reseda luteola	Weld	Vascular Plants	Locally Important Species

Scientific Name	Common Name	Category	Status
Rhinanthus minor	Yellow-rattle	Vascular Plants	Locally Important Species
Rorippa microphylla	Narrow-fruited Water-cress	Vascular Plants	Locally Important Species
Rosa rubiginosa	Sweet-briar	Vascular Plants	Locally Important Species
Salix alba	White Willow	Vascular Plants	Locally Important Species
Salix caprea x cinerea = S. x reichardtii	Willow	Vascular Plants	Locally Important Species
Salix cinerea x aurita = S. x multinervis	Willow	Vascular Plants	Locally Important Species
Salix repens	Creeping Willow	Vascular Plants	Locally Important Species
Sambucus ebulus	Dwarf Elder	Vascular Plants	Locally Important Species
Sanicula europaea	Sanicle	Vascular Plants	Locally Important Species
Scrophularia auriculata	Water Figwort	Vascular Plants	Locally Important Species
Scutellaria minor	Lesser Skullcap	Vascular Plants	Locally Important Species
Sedum album	White Stonecrop	Vascular Plants	Other Species
Silene flos-cuculi	Ragged-Robin	Vascular Plants	Locally Important Species
Sinapis arvensis	Charlock	Vascular Plants	Species of Conservation Concern
Solidago virgaurea	Goldenrod	Vascular Plants	Locally Important Species
Sorbus aria	Common Whitebeam	Vascular Plants	Locally Important Species
Stachys officinalis	Betony	Vascular Plants	Locally Important Species
Stachys palustris	Marsh Woundwort	Vascular Plants	Locally Important Species
Succisa pratensis	Devil's-bit Scabious	Vascular Plants	Locally Important Species
Tanacetum vulgare	Tansy	Vascular Plants	Locally Important Species
Tragopogon pratensis	Goat's-beard	Vascular Plants	Locally Important Species
Trichophorum caespitosum	Deergrass	Vascular Plants	Locally Important Species
Trichophorum germanicum	Deergrass	Vascular Plants	Locally Important Species
Trifolium campestre	Hop Trefoil	Vascular Plants	Locally Important Species
Trifolium medium	Zigzag Clover	Vascular Plants	Locally Important Species
Tripleurospermum inodorum	Scentless Mayweed	Vascular Plants	Locally Important Species
Umbilicus rupestris	Navelwort	Vascular Plants	Locally Important Species
Vaccinium myrtillus	Bilberry	Vascular Plants	Locally Important Species
Valeriana dioica	Marsh Valerian	Vascular Plants	Locally Important Species
Valerianella locusta	Common Cornsalad	Vascular Plants	Locally Important Species
Veronica agrestis	Green Field-speedwell	Vascular Plants	Locally Important Species
Veronica montana	Wood Speedwell	Vascular Plants	Locally Important Species
Veronica officinalis	Heath Speedwell	Vascular Plants	Locally Important Species
Veronica polita	Grey Field-speedwell	Vascular Plants	Locally Important Species
Veronica scutellata	Marsh Speedwell	Vascular Plants	Locally Important Species
Viburnum opulus	Guelder-rose	Vascular Plants	Locally Important Species
Viola arvensis	Field Pansy	Vascular Plants	Locally Important Species
Viola canina	Heath Dog-violet	Vascular Plants	Locally Important Species
Viola palustris	Marsh Violet	Vascular Plants	Locally Important Species

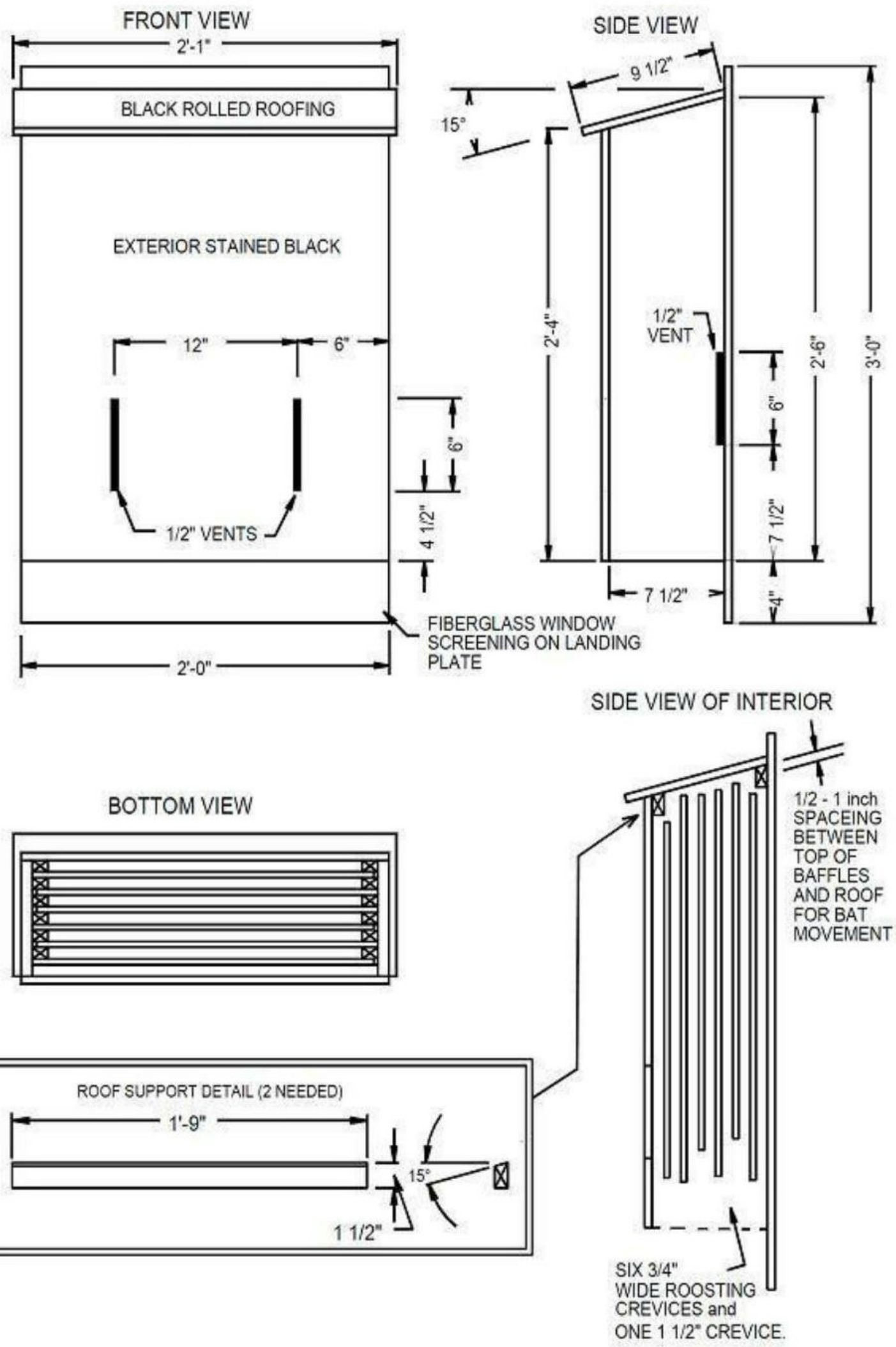
APPENDIX C – TARGET NOTES

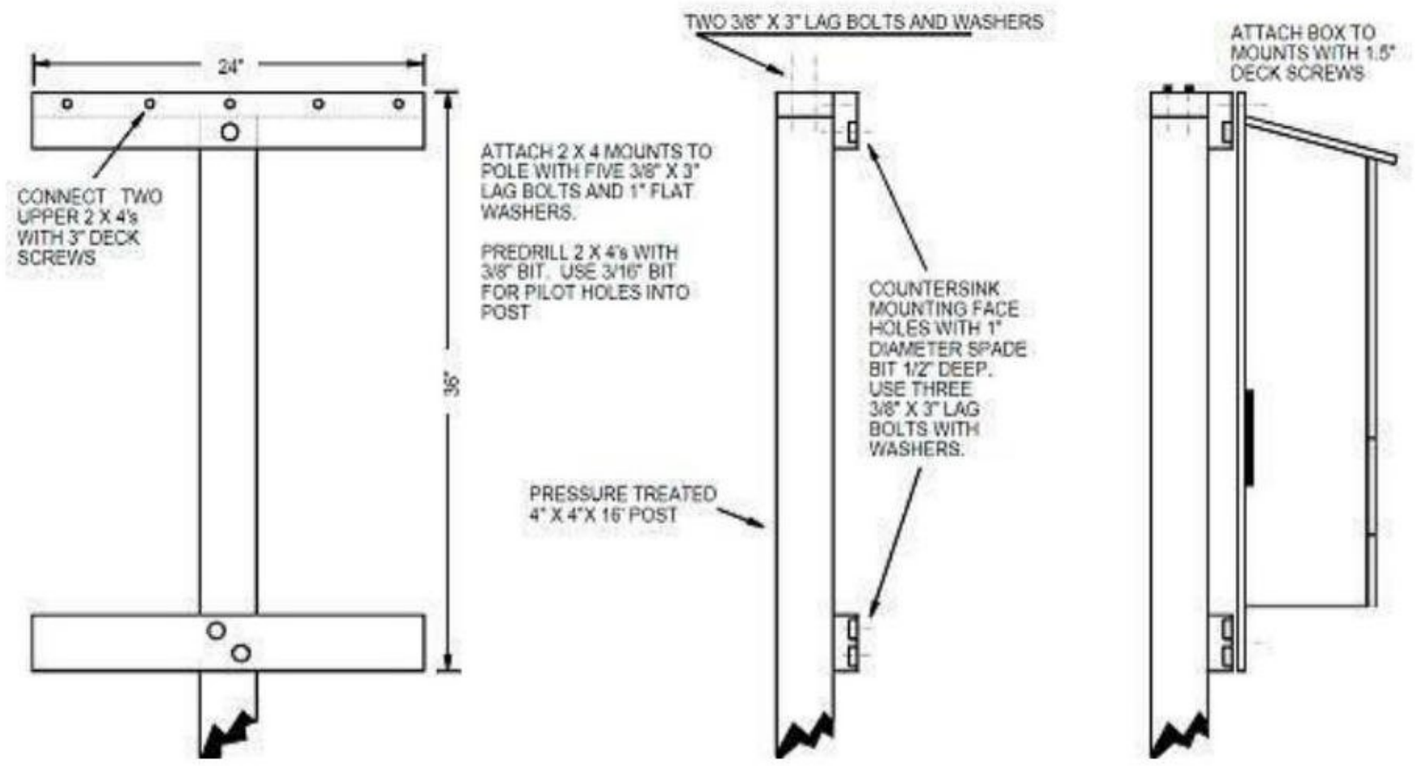
Target note number	Description
TN 1	Japanese knotweed and Himalayan balsam
TN 2	Cwm yr Aber SINC (ancient semi-natural woodland)
TN 3	Nant yr Aber SINC (watercourse)
TN 4	Willow tree with PRFs useable by bats

APPENDIX D – POLE MOUNTED BAT BOX DESIGN

American style bat box design

Detail of American style bat box enhancement to be mounted with the base of the box at least 3.5m above ground level (e.g. on a telegraph pole or similar)




24"
36"
CONNECT TWO UPPER 2 X 4's WITH 3" DECK SCREWS
ATTACH 2 X 4 MOUNTS TO POLE WITH FIVE 3/8" X 3" LAG BOLTS AND 1" FLAT WASHERS.
PREDRILL 2 X 4's WITH 3/8" BIT. USE 3/16" BIT FOR PILOT HOLES INTO POST
TWO 3/8" X 3" LAG BOLTS AND WASHERS
COUNTERSINK MOUNTING FACE HOLES WITH 1" DIAMETER SPADE BIT 1/2" DEEP. USE THREE 3/8" X 3" LAG BOLTS WITH WASHERS.
PRESSURE TREATED 4" X 4"X 16' POST
ATTACH BOX TO MOUNTS WITH 1.5" DECK SCREWS

APPENDIX E – SINC NOTIFICATIONS

CWM YR ABER, SOUTH OF ABERTRIDWR

Grid Reference: ST33885

Area (hectares): 17.14

Survey date: 7th & 8th June 2007

Qualifying features:

Primary

- Semi-natural woodland with an assemblage of indicator species.
- Stream with natural channel features and fringing vegetation, with native fish population.

Secondary

- Bracken.
- Semi-improved neutral grassland.
- Tall herb vegetation.

NANT YR ABER

Grid Reference:

Area (hectares): 13.18

Survey date:

Qualifying features:

Primary

- Waters with resident populations of sea/river/brook lamprey, sturgeon, allis/twaite shad, Atlantic salmon, grayling, common goby, bullhead, bleak, smelt, brown trout or sea trout.
- Watercourses used as regular migratory routes by anadromous species listed above.

Secondary

- Probable breeding Otter, plus areas for foraging, laying up and territorial use.
- Watercourses with exposed sediment/ erosion features (e.g. soft cliffs).
- *Adjacent semi-natural wetland, grassland and woodland habitats as part of the wider stream corridor.*

APPENDIX F – PROPOSED SITE PLAN