HEOL MARTIN:

BIODIVERSITY STATEMENT

DATE	ECOLOGIST	APPROVED	VERSION	COMMENTS
12/12/2019	Peter Kneen	Rhian Hughes	V1	NB – this report is not currently suitable for submitting with planning – further surveys are required, therefore conclusions are yet to be completed
09/11/2020	Peter Kneen	Keymar Wake	V2	Results from reptile survey added and mitigation strategy included.

Report Ref: EE.652.19.PK.01

Contents

Executive Summary

Site	Heol Martin, Eglwysbach, LL285AJ (SH 80275 70403).
Surveyor	Peter Kneen
Proposed work	Building 10 affordable homes and 4 market value homes.
Habitats affected	Improved grassland, scattered trees, tall ruderal, dense scrub, river.
Type of survey	Preliminary Ecological Appraisal (28th November 2019)
Results of survey	• Himalayan Balsam found onsite. • Areas of the site suitable for reptiles, records of which are within 100m. • No statutory protected sites will be impacted. • There will be no significant loss of highly biodiverse habitat. • Small numbers of slow worms were present within the site.
Survey conclusions	• Slow worms were present on site and will need to be removed from site prior to clearance works commencing. Details included in section 8. • Himalayan Balsam was present onsite and will need to be removed prior to works commencing.
RAMs and Mitigation	• A reptile mitigation strategy will be produced before works can commence. • Reptiles will be removed by installing reptile fencing around the site perimeter and then an intense period of trapping. Details included in section 8. • A biosecurity method statement will be produced for the removal of Himalayan balsam prior to works commencing. • Further RAMs for other ecological constraints included in section 8.

1.0 Introduction

1.1 Enfys Ecology Limited were commissioned by Robin Roberts & Son to carry out a Biodiversity Statement at Heol Martin, Eglwysbach, LL28 5AJ (SH 80275 70403). The survey site consists of a small pastoral field adjacent to a small river (Afon Hiraethlyn). The proposal for the site is to develop it for housing; including 10 affordable homes and up to four detached properties.

1.2 The site as surveyed measures approximately 0.6Ha and is made up, primarily, of improved grassland. There is access via the north west of the site.

1.3 Enfys Ecology carried out an assessment of the biodiversity on the site including a Phase 1 habitat survey, protected species survey and a desk study examining local ecological records held for the area by Cofnod, the local environmental record centre for the North Wales region. In addition, the trees on site were assessed for bat roost potential, though a full Preliminary Roost Assessment (PRA) of individual trees was outside the scope of this survey. The river adjacent to the site was assessed for use by water vole and otter, though from within the site. A reptile survey of the site was also carried out in July 2020. No previous ecological assessments have been made of the site.

1.4 The purpose of the survey was to gain baseline ecological data on the species and habitats present on the site, identify any potential ecological constraints to potential development arising from the site or surrounding area, and recommend suitable general mitigation and/or compensation strategies for these issues, as appropriate.

1.5 The survey work to inform the phase 1 report was carried out on 28th November 2019 and considered to be outside the ideal season for identification of species on site as the majority of species are no longer in flower. Habitats and species found within a discrete area of land are obviously subject to change; this report should therefore be considered valid for a period of two years in accordance with best practice.

2.0 Site Description

2.1 The survey area comprised a small field currently used for the occasional grazing of sheep and cutting for silage. The site is surrounded on three sides by residential properties and is separated from these by way of stock fencing and panel fencing. To the south west of the site is the Afon Hiraethlyn which flows roughly north. At the time of survey the river was running high. Along the south western boundary of the site the stock fence has been over grown with bramble and other species and now resembles a hedgerow. Other hedgerows on the site border residential properties and are managed heavily.

2.2 The site and survey boundary are shown in figure 2.1. The site slopes gently towards the south west.

2.3 The wider landscape surrounding the site is largely pasture farm land with small amounts of forestry. Immediately surrounding the site to the north and the east are residential properties and the small village of Eglwsbach.

FIGURE 2.1. SITE LOCATION - THE APPROXIMATE SURVEY BOUNDARY IS SHOWN IN RED
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FIGURE 2.2. WIDER SITE LOCATION - THE APPROXIMATE SURVEY BOUNDARY IS SHOWN IN RED
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3.0 Methodology

3.1 *Desk study*

The desk study comprised a consultation with Cofnod, the local environmental record centre for North Wales, to determine the presence of statutory and non-statutory sites for nature conservation, and records of protected, notable, or (formerly) Biodiversity Action Plan (BAP) species and habitats from within and around the proposed development within a 1km radius of the site. The records were used to inform the survey and recommendations, and to provide context for evaluating the species and habitats found during the survey.

3.2 *Extended Phase 1 Habitat Survey*

A survey was conducted by an experienced ecologist walking over the site and (where access permitted) immediately adjacent areas. All habitat types on site were visited. Notes were taken on the habitat types present, and their suitability for protected species, and target notes were used to record any habitats or features of particular note, following the standard methodology (JNCC 2010). A list of floral species was recorded.

A search for evidence of protected species was carried out, including amphibians (including great crested newt (*Triturus cristatus*)), bats, and water vole (*Arvicola amphibious)*. Evidence of badgers (*Meles meles*) including setts, dung pits, hairs, footprints, and scratching posts or trees was searched for. Trees with suitable features for roosting bats, including knot holes and other crevices, hollow trunks and dense ivy coverage were identified.

The extended phase 1 habitat survey of the site was conducted on the 28th November 2019 by Peter Kneen, a suitably experienced professional ecologist. Conditions were dry and overcast.

The results of this survey consist only of those species encountered during a short space of time on one day; during the survey. Species that use the site infrequently or at different times of the year may not be recorded, and the absence of species from the results of a single survey should not be taken as indicating the species definite absence from the area in question. Descriptions of plant species concentrate on the most obvious and abundant species present as determinant of habitats present. Where possible an attempt has been made to list all species present, but this is not exhaustive. Any rare or notable protected or invasive species are discussed in the text.

3.3 *Reptile Survey*

3.3.1 Due to the suitable habitat a reptile survey was carried out to determine if reptiles were present on site. The reptile survey was principally undertaken during July 2020 and based on the standard methodology (Froglife 1999).

3.3.2 Two survey techniques were used to survey the site for reptiles:-

a) Direct observation survey - a visual search for reptiles basking in the open or partial cover.
b) Artificial refuge survey - checking underneath and on top of artificial refugia (in this case 50cm x 50cm squares of black roofing felt), which are placed in suitable locations eleven days before the start of the survey. These refuges heat up in the sun faster than the surrounding area and therefore provide a secluded and safe basking spot, which attracts reptiles, and can be observed by looking under the refuges.

3.3.3 A total of 70 artificial refuges were placed at intervals in appropriate places within the site on the 1st July 2020. The refugia were positioned in order to cover all the potential reptile habitat on site between 1.5 and 3m apart. The refugia were then left in place for eleven days for reptiles to locate and become familiar with them. The first survey visit was carried out on the 10th July 2020.

3.3.4 Seven surveys are recommended by Froglife, 1999, to include both a direct observation survey and an artificial refuge survey, which must be carried out during appropriate weather conditions when reptiles are active or under refuges. All surveys were carried out in appropriate conditions, which are:

- Air temperature: 10-18°C
- Sun: Bright sun up to 15°C, hazy or intermittent sun; above 15°C
- Wind: None to moderate
- Rain: None

3.3.5 *Limitations*

The survey visits took place in July, which is generally considered sub-optimal for reptile surveys due to high temperatures; however, all surveys were carried out in appropriate temperatures and other weather conditions, and where necessary, were carried out earlier or later in the day in order to achieve the best possible conditions. It is not considered that this had a significant effect on the findings of the survey for the purposes of this report.

3.4 *Report and Terminology*

For the purposes of this report, the terms 'site' and 'survey area' refer to the area surveyed on the ground by the ecologist at the client's request, which usually includes the entire area which is subject to the proposed development. 'Search area' is used to refer to the wider 1km radius from which records were sought for the desk study. Where used, 'development area' refers to the area of land directly impacted by the proposed development.

English species names are generally used in the text, Latin names generally being given after the first appearance of a species in the report, however these may be repeated where useful for clarity. English names are also used for plant species in the habitat descriptions, but all Latin names are provided in the species list in the Appendices.

4.0 Survey Results: Desk Study

4.1 *Statutory and Non-Statutory Designated Sites*

Cofnod returned details of no statutory and 35 non-statutory designated sites (of ecological relevance) within 1km of the survey area (though some cover the same areas). There are seven local wildlife sites (LWS) (county level protected areas) within 1km, the closest being Coed Ty-Gwyn; a broad leaved woodland 360m away.

Table 4.1 below provides a summary of these sites.

TABLE 4.1. STATUTORY AND NON-STATUTORY DESIGNATED SITES WITHIN A 1KM SEARCH RADIUS, EXCLUDING ANCIENT WOODLAND SITES.

Site Type	Site Name	Distance from Site
Ancient Woodland Sites	36697: Restored Ancient Woodland Site	264
Ancient Woodland Sites	34759: Ancient Semi Natural Woodland	303
Ancient Woodland Sites	28361: Ancient Semi Natural Woodland	336
Wildlife Sites	77/37: Coed Ty-Gwyn	362
Ancient Woodland Sites	27368: Ancient Semi Natural Woodland	406
Wildlife Sites	77/35: Coed Meddiant Uchaf	441
Ancient Woodland Sites	34760: Ancient Semi Natural Woodland	444
Wildlife Sites	76/28: Coed Goleu	479
Ancient Woodland Sites	45145: Plantation on Ancient Woodland Site	488
Ancient Woodland Sites	29639: Restored Ancient Woodland Site	493
Ancient Woodland Sites	35926: Ancient Semi Natural Woodland	515
Ancient Woodland Sites	36698: Restored Ancient Woodland Site	516
Ancient Woodland Sites	29640: Restored Ancient Woodland Site	520
Ancient Woodland Sites	29643: Ancient Semi Natural Woodland	598
Ancient Woodland Sites	28362: Ancient Semi Natural Woodland	621
Ancient Woodland Sites	45146: Plantation on Ancient Woodland Site	625
Ancient Woodland Sites	35930: Ancient Semi Natural Woodland	653
Wildlife Sites	87/45: Coed Nant-y-Rhaglaw	665
Ancient Woodland Sites	36699: Restored Ancient Woodland Site	681
Ancient Woodland Sites	30773: Restored Ancient Woodland Site	685
Ancient Woodland Sites	45148: Plantation on Ancient Woodland Site	727
Ancient Woodland Sites	28360: Ancient Semi Natural Woodland	734
Ancient Woodland Sites	35929: Ancient Semi Natural Woodland	749
Ancient Woodland Sites	45147: Plantation on Ancient Woodland Site	766
Ancient Woodland Sites	29642: Ancient Semi Natural Woodland	786
Ancient Woodland Sites	29641: Restored Ancient Woodland Site	819
Wildlife Sites	87/49: Ddol Hyfryd	823
Ancient Woodland Sites	45418: Plantation on Ancient Woodland Site	828
Ancient Woodland Sites	47225: Plantation on Ancient Woodland Site	884
Ancient Woodland Sites	35932: Ancient Semi Natural Woodland	914

Site Type	Site Name	Distance from Site
Ancient Woodland Sites	26733: Ancient Semi Natural Woodland	922
Wildlife Sites	77/36: Coed Cauedig	924

4.2 *Species*

4.2.1 *Overview*

The data search returned 154 records and of these, at least 27 records are species with European and/or UK Legal Protection, Section 42 [NERC] Species or UK BAP Priority Species).

The majority of the records were of birds, but also including flowering and non-flowering plants, terrestrial mammals, and invertebrates. There were few records of reptile or amphibian species. The closest record to the site was of slow-worm (*Anguis fragilis*) 100m from the site. The full Cofnod data search is provided in Appendix 2. Discussion of any relevant records to the survey are included within the survey results in section 5 of this report.

4.2.2 *Protected and Notable Fauna*

The data search returned records of numerous bird species (the majority of records), terrestrial mammals, invertebrates, flowering plants, and one lichen species. There were no records of protected species from within the survey area itself, and the closest faunal record is of a slow worm recorded 100m to the south east. In addition, a number of species were recorded outside a 1km radius but due to their mobility may be found within 1km of the survey area.

Birds

There are multiple records of birds within the 1km search area the closest being a record of a quail (*Coturnix coturnix*) 224m from the site. More bird species were recorded to the south including; goshawk (*Accipiter gentilis*), hen harrier (*Circus cyaneus*) and red kite (*Milvus milvus*). However, all the records were made at 1km grid square level meaning the actual distance from site is likely to vary.

Mammals

The closest mammal recorded was of a hedghog (*Erinaceus europaeus*) recorded 100m from the site, followed by a record of a pipistrelle bat (*Pipistrellus pipistrellus*) 141m from the site. There are several records of badger and polecat (*Mustela putorius)* from within 1km. Lesser horseshoe bat (*Rhinolophus hipposideros*) and soprano pipistrelle (*Pipistrellus phygmaeus*) have also been recorded over 700m away.

Butterflies and moths

There are four records of notable insects within 1km of the site. All four records were from 255m from the site and were garden tiger (*Arctia caja*), pearl-bordered fritillary (*Boloria euphrosyne*) and two records of holly blue (*Celastrina argiolus britanna*).

4.2.3 *Protected and Notable Flora*

Cofnod hold no records of protected or notable flora from within the survey area. The closest notable floral species is Sickle-leaved Hook-moss (*Sanionia uncinata)* just outside the 1km search area.

4.3 *Invasive species*

Records of one invasive species exist within 1km of the site and include birds and flowering plants. There are no records of invasive non-native species from the site itself. The closest is Himalayan balsam (*Impatiens glandulifera*) recorded 255m from the site. In addition, several species of cotoneaster (*Cotoneaster sp.)* have been recorded within 2km.

5.0 Survey Results: Extended Phase 1 Habitat Survey

5.1 *Habitat Types*

The following phase 1 habitat and feature types were recorded within and adjacent to the site:

Habitat	Area (Ha)
A3.1 Scattered Trees	(Majority just outside site boundary) – 0.08Ha
B4 Improved Grassland	0.57Ha
C3.1 Tall Ruderal	0.005Ha
J2.1.2 Species Poor Hedge Row	0.08Ha
G2 Running water	(Offsite feature no area calculated)
J2.4 Fence	(Linear feature no area calculated)

A phase 1 habitat map of the site is provided in Figure 5.1. A description of the habitats including some species information and details of target notes from the map are provided below. Photographs of the site are included with the text.

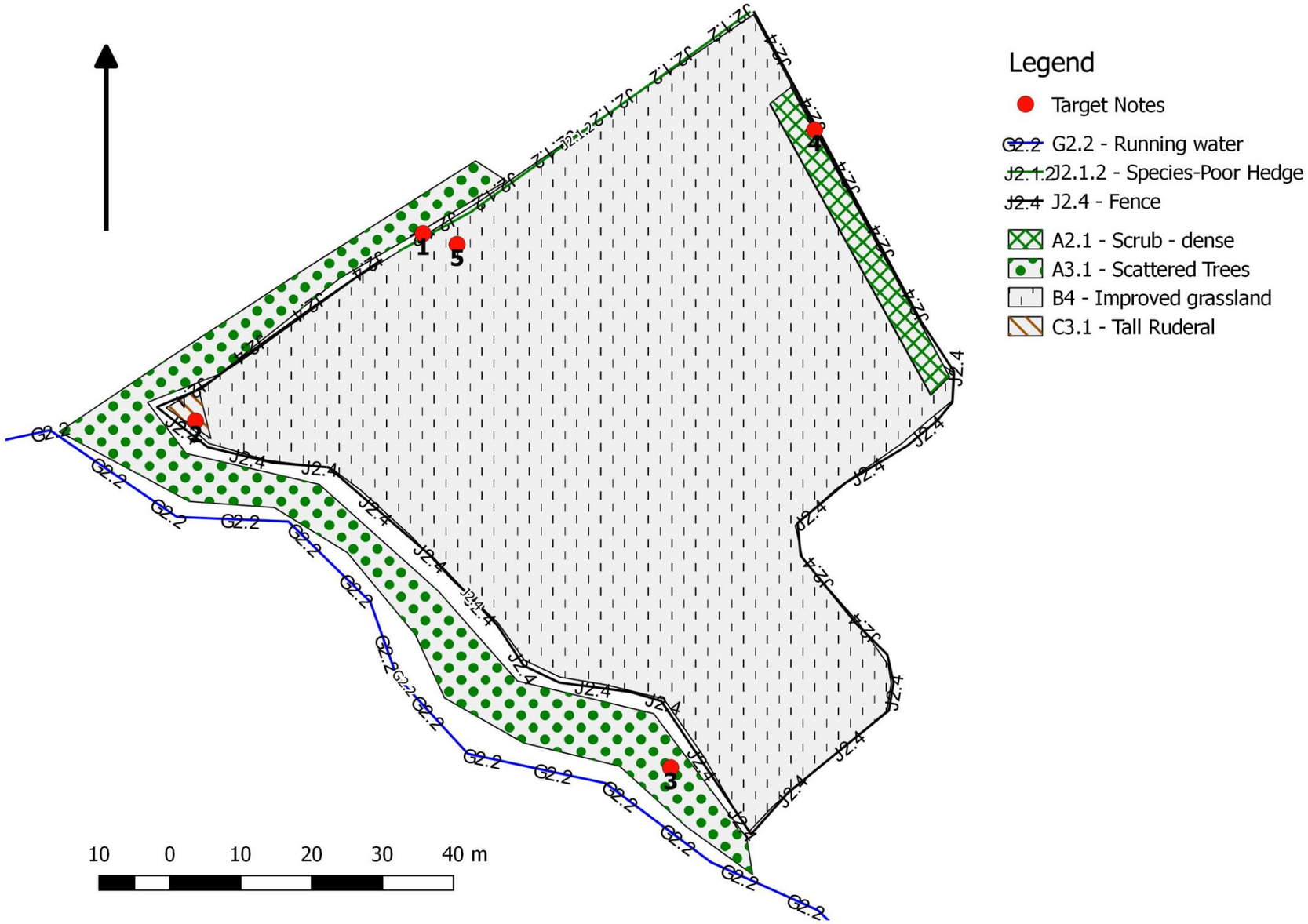

FIGURE 5.1. PHASE 1 HABITAT MAP OF THE SURVEY AREA. TARGET NOTES AND DESCRIPTIONS OF THE HABITATS FOLLOW IN THE SUBSEQUENT SECTIONS.

5.2 *Target Notes*

Target note (TN)	Description	Photo
1	*Mature Oak* Adjacent to the site entrance in the west of the site there is a large mature oak tree.	

Target note (TN)	Description	Photo
2	*Himalayan Balsam (Impatiens glandulifera)* In the south western corner of the site there are several stands of Himalayan Balsam. It is estimated that the number of individual plants onsite is less than ten, however as Himalayan balsam dies back over winter, it is possible more plants may be present.	
3	*Stone wall* In the south eastern corner of the site there is a stone retaining wall adjacent to the river. This is only visible from this point however it is considered likely that this feature extends the entire length of the site along the river. The stones are large with gaps between them.	

Target note (TN)	Description	Photo
4	*Compost in the hedge* On the north eastern boundary there is compost and garden waste which has been discarded on the site from adjacent sites. At the time of the survey no evidence of invasive species was observed here.	
5	*Stone Piles* Adjacent to the entrance in the north west of the site, under the large oak tree, there are two small piles of large loose stones. These appear to have been left on site relatively recently as there is little vegetation growing through them. The stones are loose and have large gaps and holes between them.	

5.3 *Habitats*

A full (non-exhaustive) species list of each of the habitats on site is provided in Appendix 3.

5.3.1 *Improved Grassland (B4)*

The majority of the site was covered in improved grassland. The vegetation was kept low by grazing and cutting for silage.

The species found within this habitat included perennial ryegrass (*Lolium perenne*), common nettle (*Urtica dioica*), hogweed (*Heracleum sphondylium*), white clover (*Heracleum sphondylium*), yarrow (*Achillea millefolium*) and dandelion (*Taraxacum officinale*).

PHOTO 5.1. IMPROVED GRASSLAND

5.3.2 *Hedgerow – species poor (J2.3)*

In the north western corner of the site there was a hedgerow which delineates the boundary between the site and the residential property next door. This hedge has been managed and cut to approx. 1.5m in height and 1m in width. The species within this 30m stretch of hedge include: dog rose (*Rosa canina*), blackthorn (*Prunus spinose)*, bramble (*Rubus fruticosus*) and oak (*Quercus sp.*). Beneath the hedgerow the ground flora was almost entirely made up of ivy (*Hedera sp.)* as far as could be observed from the site.

PHOTO 5.2. HEDGEROW – SPECIES POOR

5.3.3 *Running Water (G2.2)*

Directly adjacent to the site to the south west there was a river (Afon Hiraethlyn) which flows towards the north. The river at the time of survey was running high. The channel was approx. 6m in width with the average water level being >0.5m. Anecdotal evidence shows that the river runs dry almost every summer. There was little vegetation within the river itself though the bank on the side of the site was densely vegetated with species such as; hogweed, rosebay willow herb (*Chamerion angustifolium)*, common nettles (*Urtica dioica*) and bramble (*Rubus sp.).* The opposite side of the bank from the site did not have stock fencing and so grazing animals would be able to get to the water's edge and therefore there was less vegetation visible on that side. In addition there were several young trees including an alder (*Alnus sp.*). There were several mature trees on the banks of the river on both sides. These were all sycamore (*Acer pseudoplatanus)* and willow (*salix* sp.).

PHOTO 5.3. AFON HIRAETHLYN

5.3.4 *Tall Ruderal (C3.1)*

In the western corner of the site adjacent to the river there was a small area of the field which appeared to be used for the storage of a small number of silage bales. Behind this area there was a small amount of tall ruderal habitat which contained species such as; hogweed, rosebay willowherb, common nettle and spear thistle (*Cirsium vulgare*). Within this area Himalayan balsam was present, only approx. five stems were observed during the survey, however due to the time of year the survey was undertaken the balsam would not have been at its more distinct and some smaller plants may have been missed. It was not possible to observe past the vegetation towards the river as the vegetation was too dense.

PHOTO 5.4. TALL RUDERAL

5.3.5 *Fence (J.2.4.)*

The entire perimeter was fenced using stock proof fencing save for two parts. On the north western boundary, a section of approx. 30m was made up of panel fencing (~2m high). The other section was a new gap in the north eastern perimeter which appeared to be access to an adjacent site/garden.

PHOTO 5.5. ACCESS TO AN ADJACENT SITE

5.3.6 *Dense Scrub (A2)*

On the north eastern perimeter of the site there was an area of dense scrub. It measured approx. 5m wide and 50m long. The dominant species within this area is bramble with some nettles and rosebay willowherb.

PHOTO 5.6. DENSE SCRUB ON THE NORTH EASTERN BOUNDARY

5.4 *Invasive Species*

Approximately five stands of Himalayan balsam were observed in the western corner of the site adjacent to the river. No further invasive species were found onsite.

5.5 *Fauna*

5.5.1 *Amphibians*

There were two small ponds within the landowners garden adjacent to the survey area. These were lined and contained fish and are not considered to support breeding amphibians. It is not considered likely that protected species of amphibians use the site for foraging or breeding due to the lack of suitable breeding habitat and the management/grazing regime the site is under.

There were no records of amphibians within 1km of the site.

5.5.2 *Badger*

There was no evidence of badger activity in the area e.g. latrines, setts etc. and it is very unlikely that badgers are resident on site as there are no suitable banks/areas for burrowing. The site is also relatively disconnected from high quality habitat, however there is the potential for badgers to travel along the river corridor, especially considering the river itself is dry for much of the summer.

The data search returned a single record of badger 1044m from the centre of the site.

5.5.3 *Bats*

The site contained few mature trees and no buildings that would be used by bats for roosting or hibernating purposes. The mature oak (*Quercus.*) tree along the northern boundary could offer potential for bats, however there were no obvious features which could be seen from the ground. The trees on the western boundary could only be viewed from one side due to their position adjacent to the river. The open grassland, river corridor and hedgerows may be used for foraging purposes, however the site is considered to have good connectivity to the wider landscape via the river.

The data search returned twelve bat records. The closest records were for pipistrelle (*Pipistrellus sp.)* species at 140m from the site. There are records of soprano pipistrelle bats (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*), brown long eared bats (*Plecotus auritus*) and lesser horseshoe bats (*Rhinolophus hipposideros*) within 750m of the site.

5.5.4 *Nesting birds*

The site has good habitat for nesting birds within the hedgerows and mature trees as well as bankside habitat adjacent to the site to the west. The grassland vegetation has potential to support ground nesting species, however the utility of this habitat is reduced as the site is grazed and mown throughout the summer.

The data search returned 19 records of bird species within 1km of the site boundary, the closest of which was a quail (*Coturnix coturnix)* 225m away. The specially protected goshawk (*Accipiter gentilis*), red kite (*Milvus milvus)* and hen harrier (*Circus cyaneus*) have been recorded within 1km of the site, however are unlikely to use the site for breeding.

5.5.5 *Reptiles*

The site presents good connectivity for reptiles along the river corridor. Although the grassland is managed heavily through grazing and mowing, there are piles of stone in the north and areas of unmanaged short ruderal in the north west of the site which have potential to offer habitat for breeding and foraging. There are slow worm present within the site; the reptile survey is detailed in Section 6.

There are two records of slow worms (*Anguis fragilis*) within 1km of the centre of the site, the closest being within 100m from the site.

5.5.6 Otter and water vole

The river running adjacent to the site is not considered to be suitable habitat for water voles as the water level changes dramatically, there is very little in the way of aquatic plants and there is anecdotal evidence of the river drying up each summer. There is good potential for the river to be used by otters (*Lutra lutra*) as a commuting corridor between sites, however the site itself offers little habitat for otters to lay up.

No records of water voles were returned from the data search, however there is a record of otter from 160m from the site.

5.5.7 *Invertebrates*

No notable invertebrates were observed during the survey, however given the time of year the survey took place and the weather conditions during the survey, it would have been unlikely to observe many invertebrates. There is little habitat on site for invertebrates as the grass is heavily managed and there are few flowering species.

There are four records of notable insects within 1km of the site. All four records were from 255m from the site and were garden tiger (*Arctia caja*), pearl-bordered fritillary (*Boloria euphrosyne*) and two records of holly blue (*Celastrina argiolus britanna*).

5.5.8 *Other species*

There were no signs of other protected species on site, or suitable habitat considering the area is isolated and uniform. There are records of hedgehog (*Erinaceus europaeus*), hare (*Lepus europaeus*), and polecat within a 1km radius. However, it is possible that these species could visit the site for commuting or foraging.

6.0 Reptile Survey Results

6.1 The survey covered any potential reptile habitat identified across the entire site, focusing on areas against the hedge and tree boundaries along the improved grassland, and where there were areas available for basking. A total of 70 refugia were laid out at 1.5m – 3m intervals.

6.2 The surveys were carried out in July 2020 by Annie Williams, a suitably experienced ecologist, and all were carried out in agreeable weather conditions. A summary of the survey conditions and species found on each of the seven site visits is shown in Table 6.1.

TABLE 6.1. SUMMARY OF REPTILE VISITS AND RESULTS

Date	Weather Conditions	Reptiles
10/07/2020	13 degrees, cloudy with sunny intervals	No reptiles
16/07/2020	16 degrees, cloudy with sunny intervals	1 adult slow worm, north eastern boundary.
20/07/2020	14 degrees, cloudy with sunny intervals	No reptiles
22/07/2020	15 degrees, cloudy with sunny intervals	2 adult slow worms on the north eastern boundary
24/07/2020	15 degrees, cloudy with sunny intervals	1 juvenile slow worm north eastern boundary.
26/07/2020	15 degrees, cloudy with sunny intervals	No reptiles
28/07/2020	16 degrees, cloudy with sunny intervals	1 juvenile slow worm. 2 adult slow worms on the north eastern boundary.

6.3 Seven slow worms were found across the seven visits; there are at least three slow worms present on the site. The slow worms were all found underneath the artificial refugia and along the north eastern hedge boundary.

6.4 No other reptile species were found in the surveys.

7.0 Discussion and Evaluation

7.1 *Proposed works*

The proposed works are to clear the site and build 14 residential buildings within it. The current site will be cleared of vegetation however, it is believed that the surrounding hedgerows will be maintained.

7.2 *Protected Sites*

7.2.1 There are no statutory protected sites within 2km of the site and therefore the works is unlikely to have any detrimental impact on any such sites. However, the river, which only runs for part of the year may well increase the distance of impact of any runoff/ pollution caused by the site.

7.3 *Habitats*

No rare, semi-rare or notable habitats were present within the surveyed area, and no habitats are considered to be Habitats of Principal Biological Importance on Section 7 of the Environment (Wales) Act, 2016, important habitats based on the guidelines from the Institute of Ecology and Environmental Management (IEEM 2006) or Priority Habitats on the former national biodiversity Action Plan (UK BAP 2007) or local Biodiversity Action Plan (BAP). Most of the ecological interest on this site, especially from a planning perspective is the important reptile habitat within the north eastern part of the site, the areas of Himalayan Balsam and the adjacent river. The natural plant communities are not uncommon in the adjacent area, and the remaining plants comprised non-native ornamental hedge species.

7.4 *Flora*

7.4.1 Floral diversity of the site was relatively low due to the field being used to graze sheep on. None of the species recorded during the survey are protected by the Wildlife and Countryside Act 1981 (as amended) or considered rare nationally or locally.

7.4.2 Himalayan balsam was recorded in the south western corner of the site and is likely to be present along the whole of the boundary between the site and the river due to the way seeds are distributed. The species did not appear to be undergoing any sort of management at the time of survey. This species is an invasive non-native, which is listed under Schedule 9 to the Wildlife and Countryside Act 1981 with respect to England and Wales. As such, it is an offence to plant or otherwise allow this species to grow in the wild. Therefore, this plant will require control as part of the works to the site. A biosecurity method statement will need to be produced and followed before any vegetation removal within the site, if it is to be removed from site a licence will be needed from NRW.

7.5 *Fauna*

7.5.1 Reptiles

The site provides good habitat for reptile species. The survey conducted in 2020 showed a small number of slow worms utilising the north eastern part of the site. No other reptile species were found within the site. The site, and the surrounding areas are suitable for grass snake and their absence from the surveys is not conclusive that they are not present within, or do not visit the site.

The proposed works will require the clearance of the site and will cause disturbance during construction and increased footfall post construction. Common reptiles are protected by Schedule 5, Section 9 (1 and 5) of the Wildlife and Countryside Act 1981 (as amended) and the CRoW Act 2000 against deliberate or reckless killing and injuring, and from being sold.

Given the presence of slow worms and proximity of the animals to the works it is considered that the only way to effectively prevent reptiles being harmed during the works will be to translocate and exclude them from the works area. It is therefore recommended that a suitable strategy is put in place to exclude reptiles from the works area during the build. This should involve installation of a suitable reptile exclusion fence around the works area to prevent reptiles accessing the area. Reptile fencing needs to be installed between March - September (after approval of planning permission) around the boundary of the works area, and a relocation strategy to remove any remaining reptiles from within the area of improved grassland needs to be implemented.

A mitigation strategy document for reptiles within the site will need to be produced and followed before any works can commence on the site (subject to the approval of planning permission). Further details of the required reptile mitigation are discussed in Section 8.

7.5.2 Amphibians

The habitats present on the site and the fact that the field is regularly mowed and grazed indicated that it the site is considered moderate potential for amphibian foraging, with dense hedges, but they will not be breeding on site. No specific further surveys for amphibians are required; however, as common species may be present in small numbers some specific working measures (Reasonable Avoidance Measures or RAMs) to reduce the likelihood of killing or injuring amphibians (and other wildlife on site) should be put in place during any works as a precaution. If common animals are found during works, they should be carefully moved to adjacent habitat away from the construction zone. Details of these are provided in section 8.

7.5.3 Badger

The area contained suitable foraging habitat for badgers, but there was no suitable sett building areas in addition to the fact that the site is surrounded by houses on three sides and

a river on the other. No further work is necessary, but basic RAMs will be put in to place for the works to protect any badgers that do visit the area during works.

7.5.4 Otter and Water vole

The river to the west of the site could be suitable to otters foraging and commuting but it is unlikely to be used for breeding as it runs dry during the summer. The river is not considered to be suitable for water voles due to a lack of bank suitability.

7.5.5 Bats

The site provides adequate bat foraging habitat, however the river provides good foraging and commuting corridor. Bats using the site and immediate surrounding areas may be disturbed by increased noise and light spillage during the construction and post-construction stages of the proposed development. It is important that the lighting scheme for the site is designed to minimise impacts on bat usage of the site; further information on lighting is provided in section 8. If any mature trees are to be felled then a further assessment will need to be carried out to determine if these could provide roosting potential, this will initially be through a ground based assessment, however tree climbing or emergence surveys may be required.

7.5.6 Nesting Birds

The site contains several habitats that are suitable for nesting birds. All birds (and their nests) are legally protected under the wildlife and countryside act 1981 and it is an offence to intentionally take, damage or destroy the nest of any wild bird while it is in use or being built (as well as kill or injure wild birds of their eggs). Any destructive works to these areas will be constrained by the bird nesting season, or require checks by an ecologist immediately prior to works. Compensation for the loss of bird nesting areas will be in the form a variety of bird boxes around the site. Full mitigation and compensation will be detailed in Section 8.

7.5.7 Other species

Hedgehogs (and other species) may use the areas to forage. General measures recommended for other species (see section 9) should be implemented, and will serve to protect these species.

8.0 Mitigation, compensation and enhancement

8.1 *Invasive species and biosecurity.*

8.1.1 The Himalayan Balsam growing within the site is an invasive non-native plant listed under schedule 9 of the Wildlife and Countryside Act 1981. As such it is an offence to cause or allow the plant to grow in the wild. Prior to works commencing a biosecurity method statement for invasive species removal and management needs to be produced. The balsam should be eliminated from the site; however, this species appears sporadically in the local area, and could potentially reappear within the site due to the nearby river; therefore, frequent

vigilance and management within the site will be required (and ideally working in conjunction with neighbouring land owners to make wider efforts to remove the plant if possible). If the plant is to be removed from site a licence from NRW would be required.

8.2 *Reptiles*

8.2.1 The site is considered important habitat for reptiles and surveys showed resident slow worms within the site. Subject to the granting of planning permission of the site, a reptile mitigation strategy needs to be produced and followed prior, during and after the proposed works. The document will provide detailed specifics of the reptile mitigation necessary for the site but a summary of what will be required is given below:

8.2.2 Prior to works commencing

- To deter reptiles from encroaching into the site, the grassland needs to continue to be managed and kept at a short sward. Any mowing of the edges of the grassland, along the hedgerow boundaries and scrub should be avoided. If it is necessary to manage these areas before works commence it is to be done with caution and vigilance and any reptiles present will be encourage to move away on their own accord.
- Reptile fencing should be installed around the perimeter of the site (between March - September), this area within the reptile fencing will be the work zone and the fence will prevent any reptiles entering it prior to and during the works. The fence will remain in place throughout the entirety of the project, kept intact by construction workers at the site. NO works or storage of materials will occur outside of the work zone/fenced area.
- The fence installation, and any subsequent vegetation removal to facilitate it, will be supervised by a an ecologist.
- Artificial refugia will be laid out within the working area from 2 weeks – 1 month before the fencing is installed; this will allow time for the reptiles to familiarise themselves with the refugia and start using them, increasing the likelihood of the majority of reptiles on site being found and translocated.
- To ensure all/ as many as possible reptiles are absent from the work zone, an intensive translocation programme will be carried out immediately after the fence is erected. This will involve daily visits by a suitably experienced ecologist to check the artificial refugia laid out within the workzone and relocating any reptiles found within the area. The reptiles will be relocated to the river corridor, outside of the work zone. An appropriate period of trapping (designed in accordance with Froglife, 1999) for the population present will be used, plus 5 days clear of reptiles to ensure the workzone is absent of reptiles.
- A tool box talk will be provided to all construction workers involved in the project before works commence

8.2.3 During works

- The reptile fence is to be maintained and intact at all times, with scheduled checks required.
- A suitable method for the fence to cross the site entrance will be required. This is likely to be via fixing fencing to a gate. Material will be attached to the bottom of the gate, a large flap at the bottom will be kept flush to the ground with sandbags placed on it. The gate will be kept closed except for during access to the site. If there are any concerns over the integrity of the reptile fence the ecologist needs to be called immediately.
- All works and material storage will occur WITHIN the workzone or on the hard standing outside the property (and stored above ground).
- The removal of vegetation/scrub within the workzone can be carried at any time after the completed translocation – subject to nesting bird mitigation (See Section 8.4). This may require supervision depending on the amount of scrub coverage within the site at the time of the translocation and how many refuge areas it offers to reptiles that may have been missed in the translocation.
- The stripping of any top soil within the workzone will be supervised and carried out in a directional manner, to reduce the risk to any reptiles that may have been missed during the translocation.
- Reptiles within the fence will be relocated to suitable habitat outside the workzone: If slow worms are discovered within the workzone during works they can be picked up (with gloves) and relocated to the other side of the fence.

8.2.4 Post construction

- The reptile fencing can only be removed once all works have been completed.
- The river corridor and the vegetation on the river side of the existing fence will be left, unmanaged and no works or developments will be carried out in this area as it will cause disturbance and potentially destroy the commuting corridor for reptiles and other animals.

8.3 *Bats*

8.3.1 To reduce the potential impact of any light spillage on commuting bats during the construction and post construction phases of the development, lighting design for the site (both during the works and of the completed building) should seek to minimise the levels of light along any areas used by bats, i.e. the area around the river. The following recommendations should be used when forming the lighting plan for the proposed development (Bat Conservation Trust (2018) and Stone, E.L. (2013)):

8.3.7 *General Lighting Guidance*

- There must be no lights focused on individual trees, the river, or the tree and hedge/shrub lines along the boundaries of the site.
- Construction should not continue after dark during the summer months (May – August) to prevent light and noise levels disturbing the bats using the site.
- Any external or security lighting should be limited to provide some dark periods during the night. Lighting should be motion activated, and not stay on longer than one minute (after the activity has stopped), in order to provide maximum darkness when not needed as well as providing safe lighting conditions of residents when required.

8.3.2 The following luminaire specifications are provided by Bat Conservation Trust and Institute of Lighting Professionals (2018) and must be incorporated into the lighting plan for the proposed development.

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.

- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.

- A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.

- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.

- Column heights should be carefully considered to minimise light spill.

- Only luminaires with an upward light ratio of 0% and with good optical control should be used.

- Luminaires should always be mounted on the horizontal, ie no upward tilt.

- Any external security lighting should be set on motion-sensors and short (1min) timers.

- As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

8.4 *Nesting birds*

8.4.1 Vegetation removal should be undertaken outside the nesting bird season (April-September inclusive) Vegetation removal within this time must only be undertaken following a nesting bird check by a suitably qualified ecologist.

8.4.3 If active nests are found then all work in the vicinity of the nest **must** be delayed until all chicks have fledged.

8.4.4 To compensate for the loss of bird nesting habitat, bird nesting opportunities will be provided by including bird boxes on the building and the trees along the east and western boundaries. A minimum of four (non-wood) boxes suitable for small birds need to be erected on site, - two suitable for house sparrows with a 32mm entrance, and two for smaller birds (28mm). Examples of suitable bird boxes can be found at the following links: https://www.nhbs.com/vivara-pro-seville-32mm-woodstone-nest-box; https://www.nhbs.com/vivara-pro-seville-28mm-woodstone-nest-box. Woodstone next boxes are more durable and require less maintenance than wooden boxes. These boxes will be erected onto the garage extension in the northern section of the site and on the remaining mature trees along the east or west boundary. Advice on situating these boxes once works are complete can be provided by Enfys Ecology.

8.4.5 It is recommended that these boxes that are to be mounted on the trees, are done so securely using non-harmful nails (non-rusting – ideally aluminium). The boxes should face north/northeast.

8.5 *Reasonable Avoidance Measures*

8.5.1 Suitable Reasonable Avoidance Measures (RAMS) will be implemented to reduce the potential to impact to badgers, amphibians, bats, nesting birds and other species that may be found on site.

The following measures should be implemented at all times during the works:

- Working areas should be kept to the minimum required,
- If works are taking place in close proximity to trees, root protection zones must be clearly marked and adhered to.
- Should it be necessary to have any excavation left open these excavations should ideally be covered with plywood boards (or similar). The boards are to be bedded on sand to prevent small animals from taking shelter under exposed edges. If this is not possible, then these trenches must be thoroughly checked prior to back filling, or if leaving pits or trenches open is unavoidable, a suitable ramp (such as a plank or branch) must be provided to allow animals to escape the pit. Ramps could be created by grading the slope at the edges or using scaffold boards.
- Trenches must be checked each morning (by site operatives) prior to works commencing to ensure that amphibians/reptiles etc. are not present.

- At the end of works each day, the site should be inspected by a responsible individual to ensure that the above protocols are being complied with.

- Works should be avoided within 1 hour of dawn and dusk where possible to avoid disturbance to nocturnal animals. If works outside this time are needed, all lighting should be directional and be directed away from the woodland areas, i.e. onto the site from the perimeter.

- Storage of fuel must follow best practice. Refuelling of machines must be undertaken on the road/hard standing at the north of the site using drip trays/plant nappies as appropriate. Potential pollutants should be restricted to site compounds and hardstanding areas, well away from the ditches and field drains, so that runoff can be prevented from entering the sea at the bottom of the cliff and the neighbouring nature reserve.

- If at any point in the works a reptile or amphibian is found all works in the vicinity of the sighting must immediately cease; if a common amphibian, slow worm or lizard, the animal can moved from the site by hand (wearing gloves) and put over the reptile fencing. If a great crested newt or an adder is found, all works must stop and an ecologist called. The ecologist will then review the situation and advise on further action.

- Any terrestrial mammals, for example badgers, seen must be allowed to leave the area on their own. If this is not possible e.g. the animal is injured or trapped then an ecologist must be called.

9.0 Timing of further surveys/mitigation

9.1 Table 9.1 provides a basic timetable of when further survey and mitigation measures are required. This timetable is an example and actual timings will be detailed in the reptile mitigation strategy. The initial laying of refugia and fence installation can happen anytime from the end of March/ April up to September to provide sufficient time in agreeable conditions for the translocation to be carried out successfully.

	March 2021	April 2021	June 2021	July 2021
Production of reptile mitigation strategy				
Laying of refugia within workzone				
Erection of reptile fencing				
Reptile translocation – to commence immediately after fence erection for appropriate time period dependant on site and individuals found				
Removal of vegetation and soil onsite – following nesting bird checks				

10.0 Legislation

10.1 *Reptiles*

All British reptiles are protected from intentional killing, injuring and sale under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). These are as follows:

- Adder, *Vipera berus*
- Grass snake, *Natrix natrix*
- Slow worm, *Anguis fragilis*
- Common lizard, *Lacerta vivipara*

This legislation aims to protect them from persecution and also exploitation in the pet trade.

Our rarest terrestrial reptile, the sand lizard (Lacerta agilis), and all our marine turtles also receive protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) from the following:

- disturbing whilst occupying a place of shelter or protection
- obstructing access to a place of shelter or protection

- sale / offering for sale

10.2 *Bats*

The Wildlife and Countryside Act (WCA) 1981 (as amended) forms the key legislation protecting habitats and species in the UK. All UK bat species are fully protected under the 1981 Act through inclusion on Schedule 5. All bats are also listed under Schedule 2 of the Conservation of Habitats and Species Regulations (2017) which transcribes the EC Habitats Directive into UK law. In combination, this legislation makes it an offence to:

- Deliberately or recklessly take, injure or kill a bat;
- Deliberately or recklessly damage or destroy a place or structure used by bats for shelter or protection;
- Deliberately or recklessly obstruct access to a bat roost; or
- Deliberately or recklessly disturb bats while occupying a roost.

Bat roosts are protected under these laws whether the animals are present at the time of survey or not. Under both laws the Welsh Government and D.E.F.R.A. are empowered to issue licences to carry out work to bat roosts for reasons of overriding public interest. It is not illegal to tend to a disabled bat pending recovery.

10.3 *Birds*

In addition, under the Wildlife and Countryside Act, 1981 (as amended) and the Countryside and Rights of Way, 2000, all wild birds, their nests and eggs are protected during the breeding season (typically March to August inclusive). This makes it an offence to:

- Intentionally kill, injury or take any wild bird.
- Take, damage or destroy the nest of a wild bird included in Schedule ZA1.
- Take, damage or destroy the nest of any wild bird while that nest is in use or being built.
- Take or destroy an egg of any wild bird.

10.4 *Biodiversity Net Gain*

- Section 6 of the Environment (Wales) Act 2016:

Biodiversity and resilience of ecosystems duty

(1)A public authority must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions.

(2)In complying with subsection (1), a public authority must take account of the resilience of ecosystems, in particular the following aspects—

(a)diversity between and within ecosystems;

(b)the connections between and within ecosystems;

(c)the scale of ecosystems;

(d)the condition of ecosystems (including their structure and functioning);

(e)the adaptability of ecosystems.

…. (5) In complying with subsection (1), a public authority other than a Minister of the Crown or government department must have regard to—

(a)the list published under section 7;

- Section 7 of the Environment (Wales) Act 2016:

Biodiversity lists and duty to take steps to maintain and enhance biodiversity

(1)The Welsh Ministers must prepare and publish a list of the living organisms and types of habitat which in their opinion are of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales.

(2)Before publishing a list under this section the Welsh Ministers must consult the Natural Resources Body for Wales ("NRW") as to the living organisms or types of habitat to be included in the list.

(3)Without prejudice to section 6, the Welsh Ministers must—

(a)take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and

(b)encourage others to take such steps

11.0 References and Information Sources

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UK BAP 2007 Available: http://jncc.defra.gov.uk/default.aspx?page=5705

12.0 Appendices

Appendix A. Plant Species List.

(This list is Not Exhaustive). No protected or notably rare species were found. *Impatiens glandulifera* are invasive species listed under schedule 9 of the wildlife and countryside act.

English Name	Latin name
Bramble	*Rubus fruticosus*
Broadleaved dock	*Rumex obtusifolius*
Cock's foot	*Dactylis glomerata*
Common daisy	*Bellis perennis*
Common nettle	*Urtica dioica*
Common sorrel	*Rumex acetosa*
Common vetch	*Vicia sativa*
Creeping buttercup	*Ranunculus repens*
Curled dock	*Rumex crispus*
Forget-me-not	*Myosotis sp.*
Germander speedwell	*Veronica chamaedrys*
Goosegrass/cleavers	*Galium aparine*
Hedge bindweed	*Calystegia sepium*
Herb robert	*Geranium robertianum*
Himalayan Balsam	*Impatiens glandulifera*
Holly	*Ilex aquifolium*
Ivy	*Hedera helix*
Meadow grass	*Poa. Sp*
Oak	*Quercus petrea*
Perrennial rye	*Lolium perenne*
Red campion	*Silene dioica*
Rosebay willowherb	*Chamaenerion angustifolium*
Roses (garden)	*Rosa Sp.*