



Preliminary Ecological Appraisal and Preliminary Roost Assessment Survey

Cartref, Bedwell Road, Cross Lanes, Wrexham LL13 0TS

Baker Builders

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Guidelines

This assessment has been designed to meet:

- Chartered Institute of Ecology and Environmental Management 'Guidelines for Preliminary Ecological Appraisal Second Edition, December 2017';
- Chartered Institute of Ecology and Environmental Management 'Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine, September 2018'; and
- British Standard 42020 (2013) 'Biodiversity – Code of Practice for Planning and Development'.

Proportionality

The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.

This approach is enshrined in Government planning guidance, for example, paragraph 193 of the National Planning Policy Framework for England.

The desk studies and field surveys undertaken to provide a Preliminary Ecological Appraisal (PEA) might in some cases be all that is necessary.

(BS 42020, 2013)

In consequence of the scale and intensity of the proposed development, the low impact on ecological receptors identified through both the site survey and search of local biological records, and the passive interface with the mitigation hierarchy, this plan-led report is considered adequate and proportionate. It communicates all relevant information necessary to determine a planning application or support the recommendations for further surveys.

Executive Summary

Arbtech Consulting Limited was commissioned by Baker Builders to undertake a Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) at Cartref, Bedwell Road, Cross Lanes, Wrexham LL13 0TS. The survey was completed on 28th September 2021. The aim of the survey was to complete an Extended Phase 1 Habitat Survey of the survey area (all land that will be impacted by the proposals) and to search for bats or field signs of bats and to consider the value and suitability of the structures for roosting bats and analyse this against a desk study to assess any ecological constraints.

Summary of Recommendations

The survey site consists of two buildings, with a garden area at the front (eastern side of site) formed by an amenity grass lawn and hard standing driveway, with an improved grassland field and hedgerow at the western side of the site. The survey conclusions and recommendations have been summarised below. For full details and site-specific enhancements please see section 4.2 of the report.

Ecological Factor	Survey assessment conclusions (with justification)	Foreseen impacts	Recommendations
Bats	B1 is a confirmed roost as droppings were found internally. There were external suitable roosting features for crevice-dwelling bats across the building. B2 has low habitat value for supporting roosting bats due to the presence of small number of suitable external roosting features for crevice-dwelling bats. A large mature oak tree located along the northern site boundary was found to possess suitable bat roosting features, however this tree will be retained as part of the proposed works. The hedgerow and trees on site are likely to offer suitable bat foraging and commuting habitat, however this will all be retained as part of the proposed development.	As the proposals include the extension and re-roof of B1, the roost will be destroyed. This could result in death or injury of bats. As the proposals include the extension and removal of the roof structure of B2, any bat roosts present would be destroyed. This could result in death, injury or disturbance of bats. There is potential for any new lighting on site to impact bat foraging areas.	(B1) Three bat emergence and re-entry surveys are required during the active bat season (May – September) to characterise the roosts present. At least two of the surveys should be completed during the optimal survey period mid-May to August inclusive. (B2) One bat emergence or re-entry survey is required during the active bat season (May – September) to confirm presence or likely-absence of a bat roost in the building. The survey must be completed during the optimal survey period mid-May to August inclusive. Lighting will be controlled across the developed site. Please see table 8 for full lighting measures.

Amphibians	There is a high density of ponds across the landscape surrounding the site (30 ponds), some of which are known GCN breeding ponds and some of which are located within commuting distance of the site with no major barriers to block amphibian migration. There is limited suitable GCN terrestrial habitat onsite, with only the poor semi-improved grassland and hedgerow at the western end of the site offering suitable habitat. The piles of refuse around the site may offer suitable hibernation habitat for GCN and other common amphibians.	There are currently no proposed plans to remove any of vegetation identified as suitable for GCN. The proposed works will be restricted to the existing building and hard standing areas only. As such there are not expected to be any impact upon GCN or other common amphibians.	A precautionary method of working is considered adequate to reduce the small risk of harm or injury to common amphibians and Great Crested Newts (GCN) during development. For full details please see table 8.
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1.0 Introduction and Context

1.1 Background

Arbtech were commissioned by Baker Builders to undertake a Preliminary Ecological Appraisal (PEA) and a Preliminary Roost Assessment (PRA) at Cartref, Bedwell Road, Cross Lanes, Wrexham LL13 OTS. The survey was completed on 28th September 2021. The aim of the survey was to complete an Extended Phase 1 Habitat Survey of the survey area (all land that will be impacted by the proposals) and to consider the value and suitability of the structures for roosting bats.

No previous reports have been produced for this site by Arbtech Consulting Ltd or another consultancy.

1.2 Project Description

The development proposals are for the renovation of the existing residential dwelling (including re-roofing) and an extension to the rear. A planning application is being prepared for submission to Wrexham County Borough Council.

1.3 Site Context

The site is located at National Grid Reference SJ 37387 47736 and has an area of approximately 0.1ha. The site consists of two buildings with a garden at the front of the site (eastern side of the site) and a poor semi-improved grassland field at the rear (western side of site).

1.4 Scope of the Report

This report describes the baseline ecological conditions at the site, evaluates habitats within the survey area in the context of the wider environment and describes the suitability of those habitats for notable or protected species. The PRA element of the survey the report provides a description of all features suitable for roosting bats and evaluates those features in the context of the site and wider environment. It further documents any physical evidence collected or recorded during the site survey that establishes the presence of roosting bats. It identifies significant ecological impacts as a result of the development proposals and summarises the requirements for further surveys and mitigation measures to inform subsequent mitigation proposals, achieve planning or other statutory consent and to comply with wildlife legislation.

To achieve this, the following steps were taken:

- The desk study area and field survey area (generally 50m from the site boundary or proposed footprint and including the 'zone of influence' of the scheme) have been identified.
- A desk study has been carried out.
- Baseline information on the site and surrounding area has been recorded through an 'extended phase 1 habitat survey', including a phase 1 habitat survey (JNCC 2010) and recording further details in relation to notable or protected habitats and species.
- The ecological features present within the survey area have been evaluated where possible (CIEEM, December 2017).
- Invasive plant and animal species (such as those listed on Schedule 9 of the Wildlife & Countryside Act) have been identified.
- Likely impacts on features of value, as a result of the development proposals, have been identified.

- Recommendations for further survey and assessment have been made.
- Recommendations for mitigation and enhancements of the developed site have been provided based on current information.

A survey plan is presented in Appendix 1, proposed plans in Appendix 2 (where available), desk study results in Appendix 3 and a summary of relevant legislation is presented in Appendix 4.

2.0 Methodology

2.1 Desk Study Methodology

The desk study included a 2km radius review of statutory designated sites, priority habitats under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and granted Natural England European Protected Species Mitigation Licence (EPSML) records held on magic.gov.uk database (none held for Natural Resources Wales). An assessment of the surrounding landscape structure was also completed using aerial images from Google Earth and OS maps.

2.2 Site Survey Methodology

The survey was undertaken by Mel Reid BSc (Hons) MRes MRSB, Consultant (Natural England Bat Licence Number: 2019-43774-CLS-CLS) on 28th September 2021.

The methodology for the Phase 1 habitat survey is based on the best practice publication Phase 1 Habitat Survey Methodology (JNCC, 2010). All land parcels are described and mapped according to JNCC Phase 1 habitat classification. Where appropriate, target notes provide supplementary information on habitat conditions, features too small to map to scale, species composition, structure and management.

During the survey, habitats were assessed for their suitability to support protected species, and field signs indicating their presence recorded. The assessment takes into consideration the findings of the desk study, the habitat conditions on site and in the context of the surrounding landscape and the ecology of the protected species. The likelihood of the presence of protected species is ranked; the habitats on site are evaluated against their likelihood to provide suitable habitat for protected species.

The ecological value of the survey area has been assessed based on the Guidelines for ecological impact assessment (CIEEM, 2018), and the Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring (Hill, 2005), using geographic frames of reference. The biodiversity value of any identified designated sites, habitat types and associated species assemblages has been considered. The distribution and extent of invasive species listed on Schedule 9 of the Wildlife and Countryside Act (1981 as amended 1996) were also noted throughout the survey area. The methodology for the PRA is informed by the Bat Conservation Trust publication Bat Surveys for Professional Ecologists – Good Practice Guidelines (Collins, 2016). All features that will be impacted by the project proposals were assessed for their bat roosting and/or commuting habitat. The surveyor systematically surveyed all features suitable for bats and signs of bat activity.

For any surveyed buildings:

A non-intrusive visual appraisal from the ground using binoculars, inspecting the external features of the building(s) for potential access or egress points, and for signs of bat use. An internal inspection of the building was also made, including the living areas of derelict or abandoned buildings and the accessible roof spaces of all buildings, using an endoscope, torch and ladders. The surveyor paid particular attention to the floor and flat surfaces, window shutters and frames, lintels above doors and windows, and carried out a detailed search of numerous features within the roof space.

For any surveyed trees

A visual inspection from ground level using binoculars and where accessible an internal inspection of suitable roosting features using an endoscope, torch and ladders.

The surveyor also made note of any other ecological constraints observed during the survey, notably the likelihood of presence or signs of breeding birds, and the suitability of the site for barn owls *Tyto alba*.

2.3 Suitability Assessment

The likelihood of occurrence of protected species is ranked according to the criteria listed in Table 1. The habitats on site were evaluated as to their likelihood to provide sheltering, roosting, foraging, basking or nesting habitat.

Table 1: showing criteria considered when assessing the likelihood of occurrence of protected species

Present	Species are confirmed as present from the current survey or historical confirmed records.
High	Habitat and features of high quality for species or species assemblage. Species known to be present in wider landscape (desk study records). Good quality surrounding habitat and good connectivity.
Medium	Habitat and features of moderate quality. The site in combination with surrounding land provides all habitat or ecological conditions required by the species or assemblage. Within known national distribution of species and local records in desk study area. Limiting factors to suitability, including small area of suitable habitat, some severance or poor connectivity with wider landscape, poor to moderate habitat suitability in local area.
Low	Habitats within the survey area poor quality. Few or no records from data search. Despite above, presence cannot be discounted as within national range, all required features or conditions present on site and in surrounding landscape. Limiting factors could include isolation, poor quality landscape, or disturbance.
Negligible	Very limited poor-quality habitats and features. No local records from desk study; site on edge of, or outside, national range. Surrounding habitats considered unlikely to support species or species assemblage.

For the PRA element of the survey all affected survey features on site were categorised according to the likelihood of bats being present, in line with best practice guidelines (Collins, 2016).

The features that dictate the likelihood of roosting bats are summarised in Tables 2 and 3 below. Roost suitability is classified as high, moderate, low and negligible and dictates any further surveys required before works can proceed.

Table 2: Features of a building that are correlated with use by bats

Likelihood of bats being present	Feature of building and its context
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Higher	Buildings or structures with features of particular significance for roosting bats e.g. mines, caves, tunnels, icehouses and cellars. Habitat on site and surrounding landscape of high quality for foraging bats e.g. broadleaved woodland, tree-lined watercourses and grazed parkland. Site is connected with the wider landscape by strong linear features that would be used by commuting bats e.g. river and or stream valleys and hedgerows. Site is proximate to known or likely roosts (based on historical data).
Lower	A small number of possible roost sites or features, used sporadically by more widespread species. Habitat suitable for foraging in close proximity, but isolated in the landscape. Or an isolated site not connected by prominent linear features. Few features suitable for roosting, minor foraging or commuting.

Table 3: Features of a tree that are correlated with use by bats

Likelihood of bats being present	Feature of tree and its context
Higher	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Lower	A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential.

2.4 Limitations

It should be noted that whilst every effort has been made to describe the baseline conditions within the survey area, and evaluate these features, this report does not provide a complete characterisation of the site. This assessment provides a preliminary view of the likelihood of protected species being present. This is based on suitability of the habitats on the site and in the wider landscape, the ecology and biology of species as currently understood, and the known distribution of species as recovered during the searches of historical biological records.

A biological records data (BRD) search was not commissioned by the client, therefore historical records of protected species have not been factored into this report. The recommendations in this report aim to compensate for the lack of biological records.

These limitations have been taken into account during the evaluation of the site and requirement for further surveys.

3.0 Results and Evaluation

3.1 Desk Study Results

A summary of the desk study results is provided below; full details are included in Appendix 3.

3.2 Designated Sites

Details of any statutory designated sites within a 2km radius of the survey site, including their reasons for notification, are provided in Table 4 below.

Table 4: Designated sites within 2km radius of the site

Designated Site Name	Distance from Site (approx.)	Reasons for Notification from Natural Resources Wales
Statutory Sites		
River Dee Site of Special Scientific Interest (SSSI)	1900m south-east	Afon Dyfrdwy (River Dee) is of special interest for its fluvial geomorphology, Carboniferous geology, range of river habitat types, saltmarsh transition habitats, populations of floating water plantain <i>Luronium natans</i> , slender hare's-ear <i>Bupleurum tenuissimum</i> , sea barley <i>Hordeum marinum</i> , hard-grass <i>Parapholis strigosa</i> , otter <i>Lutra lutra</i> , salmon <i>Salmo salar</i> , bullhead <i>Cottus gobio</i> , brook lamprey <i>Lampetra planeri</i> , river lamprey <i>Lampetra fluviatilis</i> , sea lamprey <i>Petromyzon marinus</i> , club-tailed dragonfly <i>Gomphus vulgatissimus</i> and other aquatic invertebrates.
River Dee and Bala Lake Special Area of Conservation (SAC)	1900m south-east	Designated site due to the presence of bull head <i>Cottus gobio</i> , river lamprey <i>Lampetra fluviatilis</i> , brook lamprey <i>Lampetra planeri</i> , floating water-plantain <i>Luronium natans</i> , otter <i>Lutra lutra</i> , sea lamprey <i>Petromyzon marinus</i> , Atlantic salmon <i>Salmo salar</i> and rivers with floating vegetation
Non-statutory Sites		
None known as a BRD has not been undertaken		

3.3 Landscape

A review of the designated sites, aerial photographs (Figure 1), the magic.gov.uk database and OS maps has been undertaken. Collated together, the site's local habitat is described below:

The site is situated in a rural area of Wrexham, North Wales. The landscape is dominated by agricultural fields with hedgerow and tree-lined boundaries, providing foraging and commuting habitat for local wildlife. There are scattered areas of woodland across the landscape which will provide further suitable habitat for a variety of species. There is a high density of ponds across the landscape, some of which are confirmed great crested newt (GCN) *Triturus cristatus* breeding ponds, based on local knowledge of the area.

Priority habitats within 1km of the site are listed in Table 5.

Table 5: priority habitat inventory within 2km (Magic.gov.uk):

Habitat	Closest distance from site
None known	

* The desk study results may not include certain habitats due to limited data being available on MAGIC for Wales and further data should be obtained from the LRC to support the desk study



Figure 1: Aerial photo of site, showing landscape structure

3.4 Historical Records

A search of the Magic database for granted European Protected Species Mitigation Licences (EPSMLs) for bats within a 2km radius of the site was completed. However, this database only includes licences granted by Natural England. There is currently no online database of bat mitigation licences granted by Natural Resources Wales. As the 2km search radius does not cross the Wales-England border, it is not known if there are any nearby sites with bat mitigation licences issued by Natural Resources Wales.

Table 6: Granted EPSMLs within 2km of the site

Case reference of granted application	Approx. distance from site	Bat Species Effected	Licence Start Date:	Licence End Date:	Impacts allowed by licence
Unknown					

3.5 Field Survey Results

The site consists of two buildings with a garden at the front of the site (eastern side of the site) and an improved grassland field at the rear (western side of site) and is illustrated in the map in Appendix 1. The weather conditions recorded at the time of the survey are shown in Table 7.

Table 7: Weather conditions during the survey

Date: 28/09/2021	
Temperature	8°C
Relative Humidity	89%
Cloud Cover	100%
Wind	5mph
Rain	None

3.6 Site Feature Descriptions and Photos

Rear garden, facing south (pictured opposite).

J1.2 Amenity grassland (J1.2), Scattered trees (A1.3) and Hard standing (J4)

The front garden area (eastern side of site) consists of amenity grassland with scattered trees and hard standing. The dominant species include perennial ryegrass *Lolium perenne*, dandelion *Taraxacum sp.*, ribwort plantain *Plantago lanceolata*, thistle *Cirsium vulgare* and creeping buttercup *Ranunculus repens*. There are scattered trees along the eastern site boundary which are predominantly apple *Malus domestica* and laurel *Prunus laurocerasus*. There is a hard standing pathway surrounding the amenity grass lawn as well as hard standing driveway along the

northern end of the site. There is a small area of bramble *Rubus sp.* scrub along the northern side of the hard standing driveway. There is a large pile of refuse along the northern end of the site.

Poor semi-improved grassland (B6) and Species-poor intact hedgerow (J2.1.2)

The area to the rear of the building (western side of site) consists of a poor semi-improved grassland field, with a species-poor hedgerow along the northern boundary, and wooden fence along the western and southern boundaries. Species present across the improved grassland include buttercup, bitter dock *Rumex obtusifolius*, thistle. Dominant grass species could not be identified due to the time of the year. Species present along the hedgerow include hawthorn *Crataegus monogyna*, bramble, nettle *Urtica dioica*, rosebay willowherb *Chamaenerion angustifolium* and oak *Quercus sp.* trees. There is a large mature oak tree along the northern site boundary which was found to possess suitable bat roosting features in the form of previous wounds and pruning cuts. This tree will be retained and will be unimpacted by the proposed works. There is a drainage ditch running underneath the hedgerow along the northern site boundary which was found to contain a small amount of standing water. This will be retained as part of the proposed works.



Amenity grass front lawn (pictured above).



Scattered trees along eastern site boundary (pictured above).



Refuse pile along northern end of site (pictured above).



Hard standing driveway (pictured above).



Improved grassland field (pictured above).



Hedgerow along northern site boundary (pictured above).



Hedgerow along northern site boundary (pictured above).



Mature oak tree along northern site boundary (pictured above).



Scattered trees along northern site boundary (pictured above).

Adjacent (off-site) habitats

The habitats immediately surrounding the site consists largely of agricultural fields. There is a high density of ponds within the surrounding landscape with a total of 30 ponds within 500m. Of these ponds, seven are within commuting distance of the site with no major barriers such as roads. Some of these ponds are known GCN breeding ponds (based on local knowledge of the area). Two of the known GCN breeding ponds could be accessed however all other ponds were on private land and as such could not be inspected. However due to the high density of ponds and known populations of GCN it is presumed that GCN will be present within the area.



Adjacent field to south of site (pictured above).



Adjacent field to north of site (pictured above).



Known GCN breeding pond approximately 130m from site (pictured above).



Known GCN breeding pond approximately 130m from site (pictured above).

J3.6 Buildings

B1 Exterior

There are two buildings on site; B1 which is the main dwelling and B2 which is a small outbuilding to the west of B1. B1 is a brick-built double-storey dwelling with a hipped roof clad in slate roof tiles. The brickwork around the building appears in an excellent condition with no gaps or cracks suitable for crevice-dwelling bats. There are gaps across the roof structure, including lifted and missing tiles and gaps under the ridge tiles, which will provide suitable roosting habitat for crevice-dwelling bats. The building eaves are wooden and appear in a good condition with no suitable bat roosting features. There is a small single-storey sub-roof on the eastern elevation of B1, which has some missing tiles providing suitable roosting habitat for crevice-dwelling bats.

All suitable roosting features have been highlighted in the photos below.



Eastern elevation of B1 (pictured above).



Close-up of roof structure on eastern elevation of B1 (pictured above).



Single-storey sub-roof on eastern elevation of B1 (pictured above).



Close-up of building eaves on eastern elevation of B1 (pictured above).



Southern elevation of B1 (pictured above).



Western elevation of B1 (pictured above).



Close-up of roof structure on western elevation of B1 (pictured above).



Close-up of roof structure on northern elevation of B1 (pictured above).



Close-up of eaves on northern elevation of B1 (pictured above).

B1 Interior

Internally there is one loft space within B1, however the ceilings have previously been removed and as such the loft space is open. As such there are no dark areas which would provide suitable roosting habitat for void-dwelling bats. There are areas of the roof where daylight is entering indicating gaps in the roof which could be utilised by bats for access or egress into the loft void.



Interior of B1 (pictured above).



Interior of B1 (pictured above).



Interior of B1 (pictured above).



Interior of B1 (pictured above).

B2 Exterior

B2 is a single-storey brick-built outbuilding with a hipped roof clad in slate roof tiles. The brickwork around the building appears in an excellent condition with no gaps or cracks suitable for crevice-dwelling bats. There are gaps across the roof structure under the ridge tiles and where roof tiles have slipped or become lifted. The building eaves are wooden and appear in a goof condition with no suitable bat roosting features.



Southern elevation of B2 (pictured above).



Close-up of roof structure on southern elevation of B2 (pictured above).



Western elevation of B2 (pictured above).



Close-up of eaves on western elevation of B2 (pictured above).



Eastern elevation of B2 (pictured above).



Eastern elevation of B2 (pictured above).

B2 Interior

Internally there are four separate rooms within B2, some of which are open to the roof structure, others which have been converted and have internal roof linings or have been boarded up and plastered. The internal areas of B2 are unlikely to offer to offer suitable void-dwelling bat habitat due to the high levels of light and lack of space.



3.7 Protected species evidence

B1 Evidence of bats

There were approximately 10 small-sized bat droppings located across the upper floor of B1, scattered across the whole building. The size, shape and colour of the droppings indicates that they were recently deposited by a pipistrelle bat species *Pipistrellus* sp.

A sample of the bat droppings was retained for DNA analysis to confirm the species.

The droppings have been circled in the photos below for clarity.





4.0 Conclusions, Impacts and Recommendations

4.1 Informative Guidelines

Likelihood of the presence of protected species

Where physical evidence of the presence of protected species is indeterminate during the survey, the habitats on site are evaluated as to their likelihood to provide sheltering, roosting, foraging, basking or nesting habitat. The likelihood of occupancy of protected species is ranked according to the criteria listed in Table 1.

Where this report supports a planning application, the ecological interest of the study area (including the survey area) and the proposed development has also been evaluated in terms of the planning policies relating to biodiversity. It is clearly stated where a preliminary value can be given and where further information is required.

Likelihood of the presence of bats

There are three possible outcomes of the PRA element of the survey, each with specific recommendations. These are outlined below:

Confirmed bat roost

Best practice survey guidelines (Collins, 2016) recommend additional surveys for confirmed roosts. Three further surveys are required to characterise the bat roost present including species, roost type and access points to inform a European Protected Species Mitigation Licence (EPSML) application with Natural England. Surveys must be completed during the active bat season (May – September). At least two of the surveys should be completed during the optimal survey period mid-May to August, and at least one of the surveys should be a dawn re-entry survey (Collins, 2016).

Low, moderate or high likelihood of a bat roost present

Best practice survey guidelines (Collins, 2016) recommend additional surveys for features assessed as having low to high suitability for roosting bats. One, two or three further surveys are required to confirm presence or likely absence of a bat roost, based on a low, medium or high roost likelihood evaluation. Surveys must be completed during the active bat season (May – September). If more than one survey is recommended, at least one of them should be completed during the optimal survey period mid-May to August, and at least one of the surveys should be a dawn re-entry survey (Collins, 2016). If two or one further survey is recommended these surveys must be completed during the optimal survey period (mid-May to August). For low and moderate roost likelihood evaluation the survey effort recommended at this stage is iterative and if bats roosts are confirmed in the building, a further survey will be required to provide sufficient information to inform an EPSML application to Natural England.

Negligible likelihood of a bat roost present

Buildings assessed as comprising negligible suitability for roosting bats do not normally require further surveys. However, if bats are found during any stage of the development, work should stop immediately, and a suitably qualified ecologist should be contacted for further advice.

Appropriate justification for this assessment is provided in Section 2.3 of this report.

4.2 Evaluation

Taking the desk study and site survey results into account, the following conclusions for ecological factors has been reached.

Table 8: Evaluation of site

Ecological factor	Survey assessment conclusions (with justification)	Foreseen impacts	Recommendations	Enhancements The Local Planning Authority has a duty to ask for enhancements under the PPW (2018)
Designated sites	The site is not subject to any statutory designation. However, the Magic database shows that the River Dee SSSI and SAC is located within 2km of the site. As a BRD has not been undertaken, no information on non-statutory designated sites is available.	The proposed development is not of a sufficient scale to have an impact on any nearby statutory designated sites.	None.	None.
Habitats and plants	The Magic database shows that there are no priority habitats on site, or within the zone of influence of the proposed works. The habitats on the site are largely of low ecological value and are ubiquitous in the local landscape. A native hedgerow is present on the northern site boundary. Hedgerows are a priority habitat under Section 41 of the NERC Act 2006.	The hedgerow will be retained in the proposed development. Works will largely be restricted to the existing building footprint and surrounding hardstanding and very little vegetation removal is proposed. Any small losses of vegetation are likely to be inconsequential.	It is recommended that reference is made to Pollution Prevention Guidelines Series in particular PPG 6 - Working at construction and demolition sites and GPP 5 – Works and maintenance in or near water; these documents can be found at: http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-pgps-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/ Measures to avoid accidental pollution of the water course should be implemented (COSHH).	None.
Invasive / Non-native species	No invasive and non-native species recorded on site.	None.	None.	None.
Bats	B1 is a confirmed roost as droppings were found internally. There were external	As the proposals include the extension and re-roof of B1, the roost will be destroyed.	(B1) Three bat emergence and re-entry surveys are required during the active bat season (May – September) to characterise the roosts	To be confirmed following further surveys.

	suitable roosting features for crevice-dwelling bats across the building. B2 has low habitat value for supporting roosting bats due to the presence of small number of suitable external roosting features for crevice-dwelling bats. A large mature oak tree located along the northern site boundary was found to possess suitable bat roosting features, however this tree will be retained as part of the proposed works. The hedgerow and trees on site are likely to offer suitable bat foraging and commuting habitat, however this will all be retained as part of the proposed development.	This could result in death or injury of bats. As the proposals include the extension and removal of the roof structure of B2, any bat roosts present would be destroyed. This could result in death, injury or disturbance of bats. There is potential for new lighting on site to impact bat foraging areas.	present. At least two of the surveys should be completed during the optimal survey period mid-May to August inclusive. Sub-optimal: early May and September. One of these surveys must be a dawn re-entry survey. Three surveyors are required to provide full coverage of the building. (B2) One bat emergence or re-entry survey is required during the active bat season (May – September) to confirm presence or likely-absence of a bat roost in the building. The survey must be completed during the optimal survey period mid-May to August inclusive. Sub-optimal: early May and September. The survey can be either a dusk emergence or dawn re-entry survey. This will be carried out during the first of the surveys for B1 outlined above. No extra surveyors will be required. If bat roosts are confirmed in the building two additional surveys will be required to inform an EPSML application to Natural Resources Wales once planning permission has been granted. At least one of the additional surveys will need to be completed during the peak survey period (mid-May to August). Lighting will be controlled across the developed site. No lighting will be installed that illuminates the adjacent priority habitat to the east (see figure 5). Low impact lighting strategies will be adopted from the guidance outlined in the Bat Conservation Trust's 'Bats and Lighting' publications: http://www.bats.org.uk/pages/bats_and_lighting.html The lighting on the site will: • Use narrow spectrum light sources to lower the range of species affected by lighting • Use light sources that emit minimal ultra-violet light • Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue shortwave length content they should be of a warm / neutral colour temperature <4,200 kelvin. • Not use bare bulbs and any light pointing upwards. The spread of light will be kept in line with or below the horizontal. Light spill will be reduced via the use of low-level lighting used in conjunction with hoods, cowls, louvers and shields. Lights will also be directional to ensure that light is directed to the intended areas only. External lighting will be on PIR sensors that are sensitive to large	
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			objects only (so that they are not triggered by passing bats) and will be set to the shortest time duration to reduce the amount of time the lights are on. Wall lights and security lights will be 'dimmable' and set to the lowest light intensity settings. There are several products on the market that allow the control of the light intensity and the duration that the lights are on. All lighting on the developed site will make use of the most up to date technology available	
Birds	No evidence of nesting birds was found during the survey; however birds could use the vegetation on site for nesting.	There are currently no plans to remove any vegetation on site and as such there are not expected to be any impact upon nesting birds.	None.	Integrated bird boxes can be installed within the new extension on site, which will provide new permanent bird nesting provision on site. Suitable bird boxes include the Vivara Pro WoodStone House Sparrow Nest Box and the WoodStone Build-in Swift Nest Box A. These should be installed during construction and should be placed on an elevation facing greenery, at a minimum height of 5m.
Reptiles	The site provides a small area of reptile habitat, particularly along the northern site boundary where the hedgerow offers refuge for reptiles.	There are currently no proposed plans to remove or impact any vegetation on site and as such there are not expected to be any impact upon reptiles.	None.	Waste materials created during the development e.g. log piles, brash, rocks etc. Can be used to create hibernacula and refugia for common reptiles. These should be positioned on the site boundaries below the existing hedgerow which will be retained.
Amphibians	There is a high density of ponds across the landscape surrounding the site (30 ponds), some of which are known GCN breeding ponds and some of which are located within commuting distance of the site with no major barriers to block amphibian migration. There is limited suitable GCN terrestrial habitat onsite, with	There are currently no proposed plans to remove any of vegetation identified as suitable for GCN. The proposed works will be restricted to the existing building and hard standing areas only. As such there are not expected to be any	A precautionary method of working is considered adequate to reduce the small risk of harm or injury to common amphibians and Great Crested Newts (GCN) during development, any clearance of scrub will take place when the amphibians are found in their aquatic habitat and not in terrestrial habitat (core breeding season: March-May inclusive). In addition to altering the timing of the works to reduce the low risk of harm to common amphibians and GCN, the scrub clearance will be supervised by a licensed ecologist. This will include the clearing of any log piles and refugia by hand that may be used by amphibians. In addition, all trenches will be backfilled before nightfall,	Waste materials created during the development e.g. log piles, brash, rocks etc. Can be used to create hibernacula and refugia for amphibians. These should be positioned on the site boundaries below the existing hedgerow which will be retained.

	only the poor semi-improved grassland and hedgerow at the western end of the site offering suitable habitat. The piles of refuse around the site may offer suitable hibernation habitat for GCN and other common amphibians.	impact upon GCN or other common amphibians.	or a ramp will be left to allow amphibians to easily exit. Any stored materials (that might act as temporary resting places) will be raised off the ground, e.g. on pallets. If a GCN is found during the development all work must immediately cease and a licensed ecologist contacted for advice.	
Other Terrestrial Mammals	Badgers No evidence of badger presence was detected on site during the survey and there was limited badger foraging habitat and sett excavation opportunities.	Badgers None.	Badgers None.	Badgers Planting fruit trees on the developed site will provide additional foraging resources for badgers.
	Water Vole No suitable habitat. There is a small drainage ditch present along the northern site boundary, however the levels of water present in the ditch are unlikely to offer suitable habitat for water voles. Furthermore, there is little in the way of food sources for water voles in this ditch as it is heavily shaded by the adjacent hedgerow.	Water Vole None.	Water Vole None.	Water Vole None.
	Otter No suitable habitat.	Otter None.	Otter None.	Otter None.
	Hedgehogs The site provides suitable habitat for hedgehogs. The hedgerow could provide	Hedgehogs There are currently no proposed plans to remove or impact any vegetation on	Hedgehogs	Hedgehogs Gaps should be created in new boundary fences to provide commuting routes through the

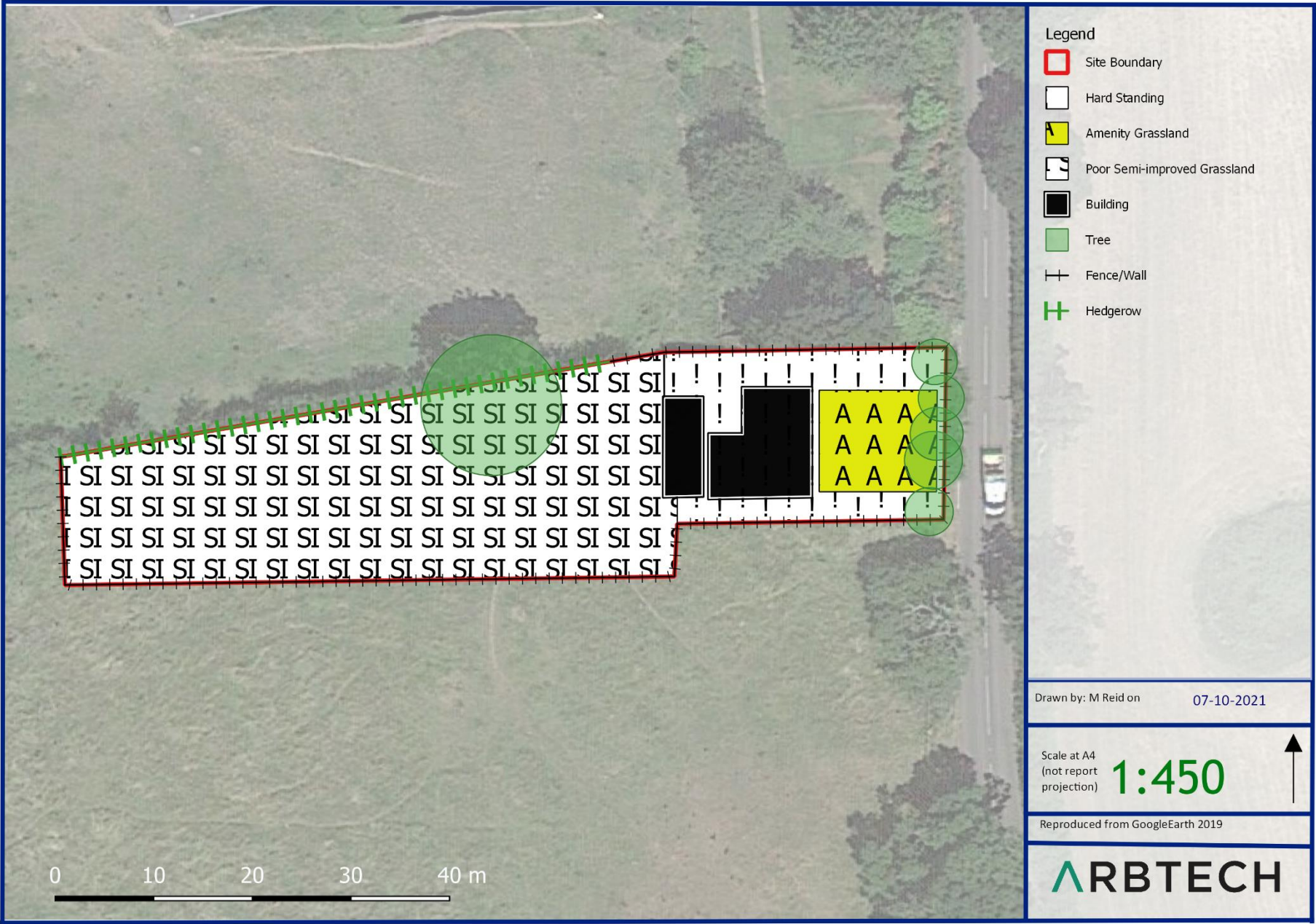
	opportunities for shelter and the grassland for foraging.	site and as such there are not expected to be any impact upon hedgehogs.	The following precautionary recommendations are given in order to mitigate against potential harm to hedgehogs during the development works. • Any trenches dug should either be covered at night or have a rough sawn plank placed in them to act as a ramp for any wildlife which may fall in. • Security lighting to be directed away from the undergrowth. • Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations.	developed site/new garden areas of the developed site for hedgehogs. Hedgehog houses should be incorporated into the developed site positioned beneath the hedgerow boundaries/site boundaries/in shady areas of the new gardens.
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5.0 Bibliography

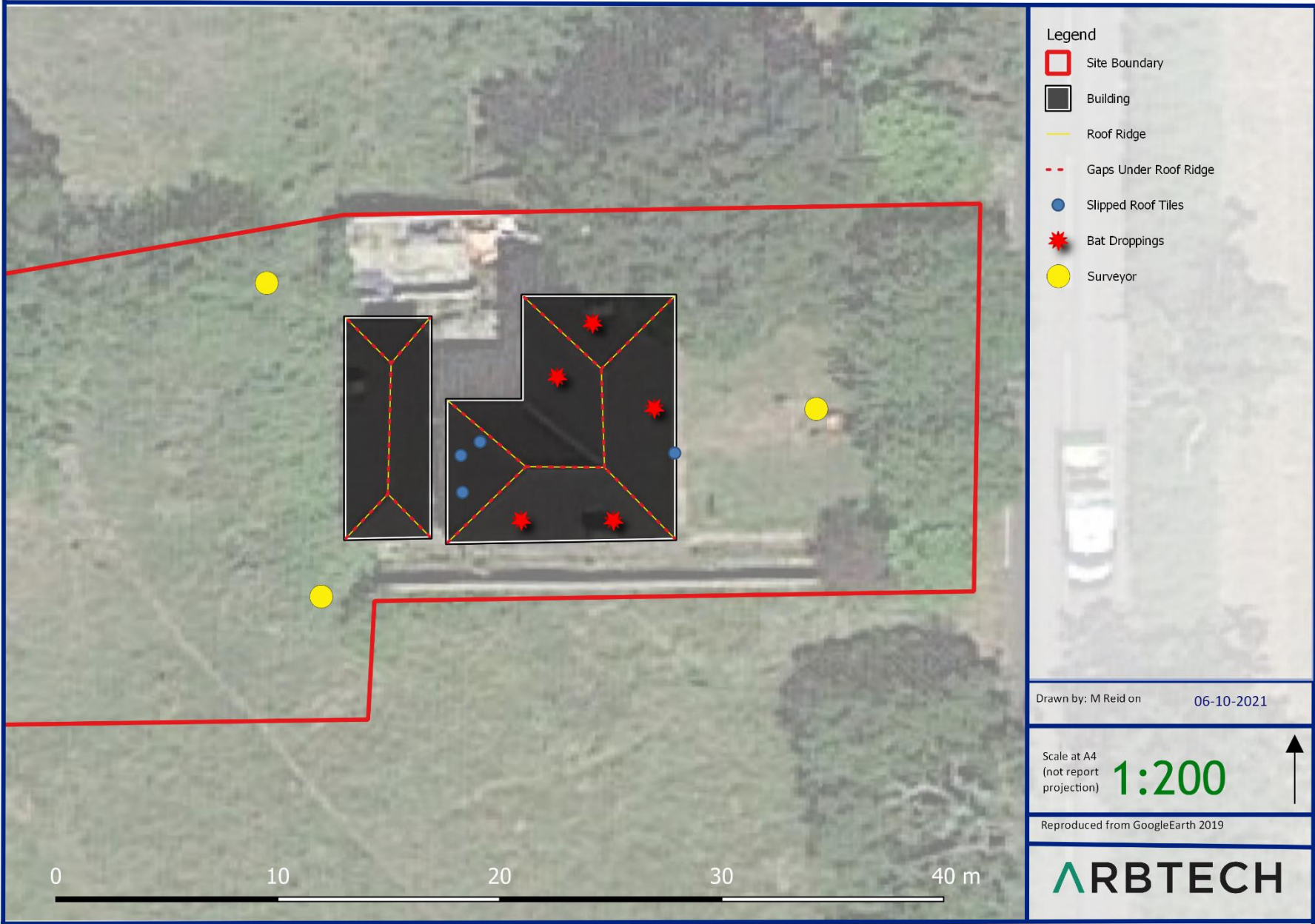
- British Trust for Ornithology (2016) www.bto.org/about-birds/nbnw/putting-up-a-nest-box
- BS 42020, Biodiversity – Code of practice for planning and development (2013) <http://www.eoebiodiversity.org/pdfs/BS42020.pdf>
- BS 42020, Biodiversity – Code of practice for planning and development (2013) <http://www.bsigroup.com/LocalFiles/en-GB/biodiversity/BS-42020-Smart-Guide.pdf>
- Cheffings, C. and Farrell, L. (eds.) (2005) The Vascular Plant Red Data List for Great Britain. Joint Nature Conservation Committee, Peterborough.
- CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester. http://www.cieem.net/data/files/Publications/EcIA_Guidelines_Terrestrial_Freshwater_and_Coastal_Jan_2016.pdf
- CIEEM (2017) Guidelines for Preliminary Ecological Appraisal Institute of Ecology https://www.cieem.net/data/files/Publications/Guidelines_for_Preliminary_Ecological_Appraisal_Jan2018_1.pdf Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists — Good Practice Guidelines, 3rd edition, Bat Conservation Trust, London. <https://www.bats.org.uk/resources/guidance-for-professionals/bat-surveys-for-professional-ecologists-good-practice-guidelines-3rd-edition>
- Garland & Markham (2008) Is important bat foraging and commuting habitat legally protected? <http://biodiversitybydesign.co.uk/cmsAdmin/uploads/protection-for-bat-habitat-sep-2007.pdf>
- Google Earth (2021) accessed on 06/10/2021.
- Gregory R.D., et al (2009). Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. <https://www.bto.org/sites/default/files/u12/bocc3.pdf>
- HMSO: Wildlife and Countryside Act 1981 (as amended 01.04.1996) <http://jncc.defra.gov.uk/page-1377>
- HMSO: The Protection of Badgers Act 1992 (as amended) <http://www.legislation.gov.uk/ukpga/1992/51/contents>
- HMSO: Countryside & Rights of Way Act (2000) <http://jncc.defra.gov.uk/page-1378>
- HMSO: Natural Environmental and Rural Communities Act (2006) <http://www.legislation.gov.uk/ukpga/2006/16/contents>
- HMSO: The Conservation of Habitats and Species Regulations (2017) <http://www.legislation.gov.uk/uksi/2017/1012/contents/made>
- HMSO: Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 <https://www.legislation.gov.uk/uksi/2019/579/contents/made>
- JNCC (2004) Bat Workers Manual, 3rd Edition. <http://jncc.defra.gov.uk/page-2861>
- Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey a technique for environmental audit. http://jncc.defra.gov.uk/PDF/pub10_handbookforphase1habitatsurvey.pdf
- Magic database (2021) <http://www.magic.gov.uk/MagicMap.aspx> accessed on 06/10/2021.
- Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough.

- Planning Policy Wales (2018) <https://gov.wales/sites/default/files/publications/2019-02/planning-policy-wales-edition-10.pdf>
- Natural England (2007). Badgers and Development a Guide to Best Practice and Licensing. Natural England. Bristol. <http://www.wildlifeco.co.uk/wp-content/uploads/2014/03/badgers-and-development.pdf>
- Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000) Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10(4), 143-155. <https://www.thebhs.org/publications/the-herpetological-journal/volume-10-number-4-october-2000/1617-03-evaluating-the-suitability-of-habitat-for-the-great-crested-newt-triturus-cristatus/file>
- Paul Edgar, Jim Foster and John Baker (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth <http://downloads.gigl.org.uk/website/Reptile%20Habitat%20Management%20Handbook.pdf>
- Tom Langton, Catherine Beckett and Jim Foster (2001). Great Crested Newt Conservation Handbook. Froglife. Suffolk. http://www.froglife.org/wp-content/uploads/2013/06/GCN-Conservation-Handbook_compressed.pdf

Appendix 1a: Phase 1 Habitat Survey Map



Appendix 1b: Preliminary Roost Assessment Survey Map



[illegible]

Appendix 3: Desk Study Information

At the time of writing the report the Magic website was not fully working and maps could not be produced. These will be added when the database is working again.

Appendix 4: Legislation and Planning Policy

LEGAL PROTECTION

New legislation (2020)

The ***Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019*** came into force when Britain left the European Union on 31st January 2020. It covered amendments relevant to this survey to:

Wildlife and Countryside Act 1981: England and Wales (x1 amendment)

Conservation of Habitats and Species Regulations 2017 (x29 amendments)

National and European Legislation Afforded to Habitats***International Statutory Designations***

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are sites of European importance and are designated under the EC Habitats Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the Habitats Directive) and the EC Birds Directive 2009/147/EC on the conservation of wild birds respectively. Both form part of the wider Natura 2000 network across Europe.

Under the Habitats Directive Article 3 requires the establishment of a network of important conservation sites (SACs) across Europe. Over 1,000 animal and plant species, as well as 200 habitat types, listed in the directive's annexes are protected in various ways:

Annex II species (about 900): core areas of their habitat are designated as sites of Community importance (SCIs) and included in the Natura 2000 network. These sites must be managed in accordance with the ecological needs of the species.

Annex IV species (over 400, including many annex II species): a strict protection regime must be applied across their entire natural range within the EU, both within and outside Natura 2000 sites.

Annex V species (over 90): Member States must ensure that their exploitation and taking in the wild is compatible with maintaining them in a favourable conservation status.

SPAs are classified under Article 2 of the Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds both for rare bird species (as listed on Annex I) and for important migratory species.

SACs and SPAs up to 12 nautical miles from the coast (i.e. 'territorial waters') are afforded protection in the UK under the Conservation of Habitats and Species Regulations 2017 which consolidate all amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994.

The Conservation of Offshore Marine Habitats and Species Regulations 2017 consolidate and update the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007. The 2017 Regulations introduce amendments which transfer responsibility for European nature conservation in the Welsh offshore region to Welsh Ministers. This gives Welsh Ministers similar powers in Welsh offshore waters to those currently exercised by Scottish Ministers in Scottish offshore waters. These regulations transpose into national law Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive), and elements of Council Directive 2009/147/EC on the conservation of wild birds (Wild Birds Directive) in the UK offshore area. They came into force on 30th November 2017. These regulations apply to the UK's offshore marine area which covers waters beyond 12 nautical miles, within British Fishery

Limits and the seabed within the UK Continental Shelf Designated Area. The Conservation of Habitats and Species Regulations 2017 form the legal basis for the implementation of the Habitats and Birds Directives in terrestrial areas and territorial waters out to 12nm in England and Wales (including the inshore marine area) and to a limited extent in Scotland and Northern Ireland. Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention covers all aspects of wetland conservation and recognises the importance of wetland ecosystems in relation to global biodiversity conservation. The Convention refers to wetlands as *“areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres”*. However, they may also include riparian and coastal zones. Ramsar sites are statutorily protected under the Wildlife & Countryside Act 1981 (as amended 01.04.1996) with further protection provided by the Countryside and Rights of Way (CROW) Act 2000. Policy statements have been issued by the Government in England and Wales highlighting the special status of Ramsar sites. The Government in England and Wales has issued policy statements which ensure that Ramsar sites are afforded the same protection as areas designated under the EC Birds and Habitats Directives as part of the Natura 2000 network (e.g. SACs & SPAs). Further provisions for the protection and management of SSSIs have been introduced by the Nature Conservation (Scotland) Act 2004.

National Statutory Designations

Sites of Special Scientific Interest (SSSI) are designated by nature conservation agencies in order to conserve key flora, fauna, geological or physio-geographical features within the UK. The original designations were under the National Parks and Access to the Countryside Act 1949 but SSSIs were then re-designated under the Wildlife & Countryside Act 1981 (as amended). As well as reinforcing other national designations (including National Nature Reserves), the system also provides statutory protection for terrestrial and coastal sites which are important within the European Natura 2000 network and globally.

Local Statutory Designations

Local authorities in consultation with the relevant nature conservation agency can declare Local Nature Reserves (LNRs) under the National Parks and Access to the Countryside Act 1949. LNRs are designated for flora, fauna or geological interest and are managed locally to retain these features and provide research, education and recreational opportunities.

Non- Statutory Designations

All non-statutorily designated sites are referred to as Local Wildlife Sites (LWS) and can be designated by the local authority for supporting local conservation interest. Combined with statutory designation, these sites are considered within Local Development Frameworks under the Town and Country Planning system and are a material consideration during the determination of planning applications. The protection afforded to these sites varies depending on the local authority involved.

Regionally Important Geological Sites (RIGs) are the most important geological and geomorphological areas outside of statutory designations. These sites are also a material consideration during the determination of planning applications.

The Hedgerow Regulations 1997

The Hedgerow Regulations 1997 are designed to protect ‘important’ countryside hedgerows. Importance is defined by whether the hedgerow (a) has existed for 30 years or more; or (b) satisfies at least one of the criteria listed in Part II of Schedule 1 of the Regulations.

Under the Regulations, it is against the law to remove or destroy hedgerows on or adjacent to common land, village greens, SSSIs (including all terrestrial SACs, NNRs and SPAs), LNRs, land used for agriculture or forestry and land used for the keeping or breeding of horses, ponies or donkeys without the permission of the local authority. Hedgerows 'within or marking the boundary of the curtilage of a dwelling-house' are excluded.

National and European Legislation Afforded to Species

The Habitats Directive

The EC Habitats Directive aims to promote the maintenance of biodiversity by requiring Member States to take measures to maintain or restore wild species listed on the Annexes to the Directive at a favourable conservation status, introducing robust protection for those species of European importance. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2017 (the Conservation Regulations) and the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended). This has been amended by the ***Conservation of Habitats and Species Regulations (amendment) (EU Exit) Regulations (2019)*** which continue the same provision for European protected species, licensing requirements and protected sites after the UK leaves the EU.

The following notes are relevant for all species protected under the EC Habitats Directive:

In the Directive, the term 'deliberate' is interpreted as being somewhat wider than intentional and may be thought of as including an element of recklessness.

The Habitats Regulations do not define the act of 'migration' and, therefore, as a precaution, it is recommended that short distance movement of animals for e.g. foraging, breeding or dispersal purposes are also considered.

In order to obtain a European Protected Species Mitigation (EPSM) licence, the application must demonstrate that it meets all of the following three 'tests':

- The action(s) are necessary for the purpose of preserving public health or safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequence of primary importance for the environment;
- There is no satisfactory alternative; and
- The action authorised will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

The Wildlife and Countryside Act (WCA) 1981 (as amended)

The Wildlife and Countryside Act (WCA) 1981 (as amended) implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1979, implemented 1982) and implements the species protection requirements of EC Birds Directive 2009/147/EC on the conservation of wild birds in Great Britain (the birds Directive). The WCA 1981 has been subject to a number of amendments, the most important of which are through the Countryside and Rights of Way (CROW) Act (2000) and Nature Conservation (Scotland) Act 2004.

Other legislative Acts affording protection to wildlife and their habitats include:

- Deer Act 1991
- Natural Environment & Rural Communities (NERC) Act 2006

- Protection of Badgers Act 1992
- Wild Mammals (Protection) Act 1996

Badgers

Badgers *Meles meles* are protected under The Protection of Badgers Act 1992 which makes it an offence to:

- Wilfully kill, injure, take, or attempt to kill, injure or take a badger
- Cruelly ill-treat a badger, including use of tongs and digging
- Possess or control a dead badger or any part thereof
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett or any part thereof
- Intentionally or recklessly disturb a badger when it is occupying a badger sett
- Intentionally or recklessly cause a dog to enter a badger sett
- Sell or offers for sale, possesses or has under his control, a live badger

Effects on development works:

A development licence will be required from the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) for any development works likely to affect an active badger sett, or to disturb badgers whilst they occupy a sett. Guidance has been issued by the countryside agency's to define what would constitute a licensable activity. It is no possible to obtain a licence to translocate badgers.

Birds

With certain exceptions, all birds, their nests and eggs are protected under Sections 1-8 of the WCA. Among other things, this makes it an offence to:

- Intentionally (or recklessly in Scotland) kill, injure or take any wild bird
- Intentionally (or recklessly in Scotland) take, damage or destroy (or, in Scotland, otherwise interfere with) the nest of any wild bird while it is in use or being built
- Intentionally take or destroy an egg of any wild bird
- Sell, offer or expose for sale, have in his possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.
- Intentionally or recklessly obstruct or prevent any wild bird from using its nest (Scotland only)

Certain species of bird, for example the barn owl, bittern and kingfisher receive additional protection under Schedule 1 of the WCA and Annex 1 of the European Community Directive on the Conservation of Wild Birds (2009/147/EC) and are commonly referred to as "Schedule 1" birds.

This affords them protection against:

- Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young
- Intentional or reckless disturbance of dependent young of such a bird
- In Scotland only, intentional or reckless disturbance whilst lekking
- In Scotland only, intentional or reckless harassment

Effects on development works:

Works should be planned to avoid the possibility of killing or injuring any wild bird, or damaging or destroying their nests. The most effective way to reduce the likelihood of nest destruction in particular is to undertake work outside the main bird nesting season which typically runs from March to August. Where this is not feasible, it will be necessary to have any areas of suitable habitat thoroughly checked for nests prior to vegetation clearance.

Schedule 1 birds are additionally protected against disturbance during the nesting season. Thus, it will be necessary to ensure that no potentially disturbing works are undertaken in the vicinity of the nest. The most effective way to avoid disturbance is to postpone works until the young have fledged. If this is not feasible, it may be possible to maintain an appropriate buffer zone or standoff around the nest.

Reptiles (Amphibians and reptiles)

The sand lizard *Lacerta agilis*, smooth snake *Coronella austriaca*, natterjack toad *Epidalea calamita*, pool frog *Pelophylax lessonae* and great crested newt *Triturus cristatus* receive full protection under Habitats Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
 - To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
 - To impair their ability to hibernate or migrate
 - To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

With the exception of the pool frog, these species are also listed on Schedule 5 of the WCA and they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Other native species of reptiles are protected solely under Schedule 5, Section 9(1) & (5) of the WCA, i.e. the adder *Vipera berus*, grass snake *Natrix natrix*, common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis*. It is prohibited to:

- Intentionally or recklessly kill or injure these species.

Effects on development works:

A European Protected Species Mitigation (EPSM) Licence issued by the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) will be required for works likely to affect the breeding sites or resting places amphibian and reptile species protected under Habitats Regulations. A licence will also be required for operations liable to result

in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licences are to allow derogation from the relevant legislation, but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Although not licensable, appropriate mitigation measures may also be required to prevent the intentional killing or injury of adder, grass snake, common lizard and slow worm, thus avoiding contravention of the WCA.

Water voles

The water vole *Arvicola terrestris* is fully protected under Schedule 5 of the WCA. This makes it an offence to:

- Intentionally kill, injure or take (capture) water voles
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection
- Intentionally or recklessly disturb water voles while they are occupying a structure or place used for shelter or protection

Effects on development works:

If development works are likely to affect habitats known to support water voles, the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) must be consulted. It must be shown that means by which the proposal can be re-designed to avoid contravening the legislation have been fully explored e.g. the use of alternative sites, appropriate timing of works to avoid times of the year in which water voles are most vulnerable, and measures to ensure minimal habitat loss. Conservation licences for the capture and translocation of water voles may be issued by the relevant countryside agency for the purpose of development activities if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population. The licence will then only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of works.

Otters

Otters *Lutra lutra* are fully protected under the Conservation Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
- To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
- To impair their ability to hibernate or migrate
- To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Otters are also currently protected under the WCA through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

Effects on development works:

An EPSM Licence issued by the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) will be required for works likely to affect otter breeding or resting places (often referred to as holts, couches or dens) or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, and rear young). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored

Bats

All species are fully protected by Habitats Regulations 2010 as they are listed on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. All bats)
- Deliberate disturbance of bat species in such a way as:
- To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
- To impair their ability to hibernate or migrate
- To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Bats are afforded the following additional protection through the WCA as they are included on Schedule 5:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

Effects on development works:

An EPSM Licence issued by the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) will be required for works are likely to affect a bat roost or an operation which are likely to result in an illegal level of disturbance to the species will require an EPSM licence. The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

Dormice

Hazel Dormice *Muscardinus avellanarius* are fully protected under Habitats Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
- To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
- To impair their ability to hibernate or migrate
- To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Dormice are also protected under the WCA through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

Effects on development works:

Works which are liable to affect a dormice habitat or an operation which are likely to result in an illegal level of disturbance to the species will require an EPSM licence issued by the relevant countryside agency (i.e. Natural England, Natural Resources Wales (NB: Hazel Dormouse are entirely absent from Scotland)). The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

White clawed crayfish

There is a considerable amount of legislation in place in an attempt to protect the White-clawed crayfish *Austropotamobius pallipes*. This species is listed under the European Union's (EU) Habitat and Species Directive and is listed under Schedule 5 of the Wildlife and Countryside Act (1981). This makes it an offence to:

- Protected against intentional or reckless taking
- Protected against selling, offering or advertising for sale, possessing or transporting for the purpose of sale

It is also classified as Endangered in the IUCN Red List of Endangered Species. As a result of this and other relevant crayfish legislation such as the Prohibition of Keeping of Live Fish (Crayfish) Order 1996, a series of licences are needed for working with White-clawed and non-native crayfish. These are:

- A licence to handle crayfish (therefore survey work) in England
- A licence for the keeping of crayfish in England and Wales with an exemption for Signal crayfish (England).
- People in the post-code areas listed with crayfish present prior to 1996 do not need to apply for consent for crayfish already established. It does not, however, allow any new stocking of non-native crayfish into waterbodies. Consent for trapping of non-native crayfish for control or consumption is most likely to be granted in Thames and Anglian regions in the areas with "go area" postcodes.
- Harvesting of crayfish is prohibited in much of England and in any part of Scotland and Wales.

Effects on development works:

The relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) will need to be consulted about development which could impact on a watercourse or wetland known to support white clawed crayfish. Conservation licences for the capture and translocation of crayfish can be issued if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population. The licence will only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of the works.

Wild Mammals (Protection Act) 1996

All wild mammals are protected against intentional acts of cruelty under the above legislation. This makes it an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

To avoid possible contravention, due care and attention should be taken when carrying out works (for example operations near burrows or nests) with the potential to affect any wild mammal in this way, regardless of whether they are legally protected through other conservation legislation or not.

Legislation afforded to Plants

With certain exceptions, all wild plants are protected under the WCA. This makes it an offence for an 'unauthorised' person to intentionally (or recklessly in Scotland) uproot wild plants. An authorised person can be the owner of the land on which the action is taken, or anybody authorised by them.

Certain rare species of plant, for example some species of orchid, are also fully protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). This prohibits any person from:

- Intentionally (or recklessly in Scotland) picking, uprooting or destruction of any wild Schedule 8 species (or seed or spore attached to any such wild plant in Scotland only)
- Selling, offering or exposing for sale, or possessing or transporting for the purpose of sale, any wild live or dead Schedule 8 plant species or part thereof
- In addition to the UK legislation outlined above, several plant species are fully protected under Schedule 5 of The Conservation of Habitats and Species Regulations 2010. These are species of European importance. Regulation 45 makes it an offence to:
 - Deliberately pick, collect, cut, uproot or destroy a wild Schedule 5 species
 - Be in possession of, or control, transport, sell or exchange, or offer for sale or exchange any wild live or dead Schedule 5 species or anything derived from such a plant.

Effects on development works:

An EPSM licence will be required from the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) for works which are likely to affect species of planted listed on Schedule 5 of the Conservation of Habitats and Species Regulations 2010. The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

Invasive Species

Part II of Schedule 9 of the WCA lists non-native invasive plant species for which it is a criminal offence in England and Wales to plant or cause to grow in the wild due to their impact on native wildlife. Species included (but not limited to):

- Japanese knotweed *Fallopia japonica*
- Giant hogweed *Heracleum mantegazzianum*
- Himalayan balsam *Impatiens glandulifera*

Effects on development works:

It is not an offence for plants listed in Part II of Schedule 9 of the WCA 1981 to be present on the development site, however, it is an offence to cause them to spread. Therefore, if any of the species are present on site and construction activities may result in further spread (e.g. earthworks, vehicle movements) then it will be necessary to design and implement appropriate mitigation prior to construction commencing.

Injurious weeds

Under the Weeds Act 1959 any landowner or occupier may be required prevent the spread of certain 'injurious weeds' including (but not limited to):

- Spear thistle *Cirsium vulgare*
- Creeping thistle *Cirsium arvense*
- Curled dock *Rumex crispus*
- Broad-leaved dock *Rumex obtusifolius*
- Common ragwort *Senecio jacobaea*

Effects on development works:

It is a criminal offence to fail to comply with a notice requiring such action to be taken. The Ragwort Control Act 2003 establishes a ragwort control code of practice as common ragwort is poisonous to horses and other livestock. This code provides best practice guidelines and is not legally binding.

The Natural Environment and Rural Communities Act 2006 and the Biodiversity Duty

Section 40 of the Natural Environment and Rural Communities (NERC) Act, 2006, requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'.

Section 41 of the Act (Section 42 in Wales) requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity.' This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

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Paragraph 6.4.3 of the document refers to Biodiversity and Ecological Networks and states:

The planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement. Addressing the consequences of climate change should be a central part of any measures to conserve biodiversity and the resilience of ecosystems. Information contained in The State of Natural Resources Report (SoNaRR) (published by Natural Resources Wales and Area Statements should be taken into account. Development plan strategies, policies and individual development proposals must consider the need to:

- support the conservation of biodiversity, in particular the conservation of wildlife and habitats;
- Ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats;
- Ensure statutorily designated sites are properly protected and managed;
- Safeguard protected species; and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil; and
- Secure enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks.

Biodiversity and Resilience of Ecosystems Duty (Section 6 Duty)

6.4.5 Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. Planning authorities must also take account of and promote 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); and
- e) The adaptability of ecosystems.

6.4.6 In fulfilling this duty, planning authorities must have regard to:

- a) The list of habitats of principal importance for Wales, published under Section 7 of the Environment (Wales) Act 2016;
- b) The State of Natural Resources Report (SoNaRR), published by NRW; and
- c) Any Area Statement that covers all or part of the area in which the authority exercises its functions.

6.4.7 Planning Authorities should also refer to up to date ecological survey information (where appropriate).

6.4.8 A proactive approach towards facilitating the delivery of biodiversity and resilience outcomes should be taken by all those participating in the planning process. In particular, planning authorities should demonstrate that they have sought to fulfil the duties and requirements of Section 6 of the Environment Act by taking all reasonable steps to maintain and enhance biodiversity in the exercise of their functions.

6.4.9 The broad framework for implementing the duty and building resilience through the planning system includes addressing:

- Diversity: to ensure mechanisms are in place to minimise further loss and that circumstances allow for species' populations to expand and recolonise their natural range (former range) or adapt to future change. This means development should provide a net benefit for biodiversity, and at the very least, with no significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity;
- Extent: to ensure mechanisms allow for the maintenance of existing assets and networks and promote the restoration of damaged, modified or potential habitat and the creation of new habitat. This means that planning choices should incorporate measures which seek the creation and restoration of green networks and linkages between habitats and maintaining and enhancing other green infrastructure features and networks;
- Condition: Ecosystems need to be in a healthy condition to function effectively, to deliver a range of important ecosystem services. Planning decisions should not compromise the condition of ecosystems. By taking an integrated approach to development, for example, which considers both direct and wider impacts and benefits it should be possible to make a positive contribution. Planning for the long term management of retained habitats is key to maintaining condition through for example, the use of planning obligations;
- Connectivity: to take opportunities to develop functional habitat and ecological networks within and between ecosystems and across landscapes, building on existing connectivity and quality and encouraging habitat creation, restoration and appropriate management. The opportunities could include enlarging habitat areas, developing buffers around designated sites or other biodiversity assets or corridors, including transport and river corridors, and the creation of 'stepping stones' which will strengthen the ability of habitats and ecological networks to adapt to change, including climate change; and
- Adaptability to change: primarily in the form of climate change, for both species (diversity) and ecosystems requires action to protect the extent, condition and connectivity of habitats, features and ecological networks. Development plans, planning proposals and applications which build on protecting designated sites and securing and enhancing green infrastructure will be key ways of addressing the attributes of ecosystems resilience identified in the Environment Act as well as facilitating social and economic resilience aspirations of the Well-being of Future Generations Act.

Environment (Wales) Act 2016 and the Biodiversity Duty

The Environment (Wales) Act introduces a new biodiversity duty, which highlights biodiversity as an essential component of ecosystem resilience. This new duty replaces the biodiversity duty in the Natural Environment and Rural Communities Act 2006 (referred to as the NERC Act). Part 1 of the Act deals with Sustainable management of natural resources including Biodiversity and Resilience of Ecosystems Duty. The Environment Act enhances the current NERC Act duty to require all public authorities, when carrying out their functions in Wales, to 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”. As under the NERC Act the new duty will apply to a range of public authorities such as the Welsh Ministers, local authorities, public bodies and statutory undertakers. 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.