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PRELIMINARY ECOLOGICAL APPRAISAL

THE RED COW, HIGH STREET, DONINGTON, LINCOLNSHIRE. PE11 4YF

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0.0 Executive Summary

0.1 Rationale

Greenwillows Associates Ltd was commissioned to conduct a preliminary ecological appraisal of a group of buildings and parcel of land at The Red Cow, High Street, Donington, Lincolnshire. PE11 4YF (NGR: TF 209357).The aim of the ecological appraisal was to provide *inter alia,* a scoping assessment of the likely impacts a proposed scheme might have upon notable and/or protected species and habitats and where such features might be affected to identify the need for any follow up detailed/specialist surveys and/or mitigation to ameliorate the potential impacts.

The construction proposals relate to the refurbishment of an existing derelict coach house and stables into a series of apartments. Some areas will be demolished but the majority of the original framework of the buildings will be retained.

0.2 Essential Evidence and Conclusions

Nesting birds

There are opportunities for nesting birds throughout the buildings within the site as most areas are open and accessible by birds. Evidence of previous nesting birds included remnant nests characteristic of small birds such as wren and mud nests within the eaves of the stable block characteristic of swallows. A large number of sparrows were also seen to be present within the ivy cladding on the external stable area, suggesting that birds nest in this vegetation during the nesting season.

If nests are disturbed during incubation and rearing phases then mortality of chicks could occur. Outside of the nesting season there will be a minor negative impact for a low number of birds due to loss of potential nesting habitat.

Bats

The buildings within the site offer varying levels of suitability for roosting bats (see Table One for a breakdown of all buildings present), all potential noted refers to suitability for summer roosting bats excluding the cellar of Structure 1 which has some moderate potential to support hibernating bats. The areas of the site most suitable to support roosting bats were assessed as having moderate potential- no areas within the site were assessed as having high potential.

If bats are present at the time of demolition/renovation then there is a risk of causing injury/death to individuals and destroying a roost.

0.3 Recommendations

Best Practice

Any works close to trees should be undertaken in accordance with the British Standard BS 5837: 2012 and National Joint Utilities Group Guidelines (NJUG 4).

Site Specific

Nesting birds

It is recommended that the operational set-up should ideally avoid the bird-breeding season (late February to August inclusive) to avoid damage to nesting species. If this is not practicable then a nesting bird survey should be undertaken by an experienced ecologist prior to site clearance commencement to identify whether active nests are present. If any are found, they should be clearly marked and avoided until after the young have fledged and left the nest.

It is recommended that the new site plans include a provision of alternative nesting habitats in the form of nest boxes (see Appendix Four) and that ivy vegetation should be retained as much as possible. The loss of habitat for nesting swallows cannot be mitigated for by the provision of bird boxes as they require open structures to build their nests within- however as the area of suitable habitat to be lost is relatively small this is assessed as being a minor adverse impact.

Bats

A static detector should be placed within the cellar/cold room area noted to have moderate potential to support hibernating bats. This should be in place for two months during the hibernation season to assess if there is any bat activity in this area during this time.

Static detectors should also be placed in the areas that were inaccessible during the survey including two loft voids within Structure 1, the loft void of Structure 4, and in the ground floor area of Stable 1. These should be supplemented by a minimum of one dusk emergence survey and one dawn re-entry survey to be undertaken between the months of May-August (all surveys to be spread out during these months), in accordance with BCT's Good Practice Guidelines (Collins, 2016).

Any further recommendations will depend on the outcome of these surveys.

1.0 Introduction and Terms of Reference

1.1This report was commissioned to provide *inter alia*:

- A scoping assessment of the likely impacts the proposed scheme might have upon notable and/or protected species and habitats and where such features might be affected to identify the need for any follow up detailed/specialist surveys.

- Recommendations to avoid potential adverse impacts upon notable and/or protected species and habitats identified as potential receptors within the construction footprint or the relevant zones of influence associated with each receptor.

- An informative document for use by the Local Planning Authority as part of the planning process.

1.2 Based on the JNCC (2010) guidelines an Extended Phase 1 Habitat Survey was undertaken by means of a walkover of the site and its immediate environs, including the licensable impact zone relative to the individual species.

1.3 The survey was based on plans provided by the client and aerial photographs.

1.4 This report outlines the methodology employed to undertake the survey, results obtained and a discussion of the implications arising there from.

2.0 Site Location

The site is situated at The Red Cow, High Street, Donington, Lincolnshire. PE11 4YF (NGR: TF 209357).

3.0 Legislation and Policy

3.1 Statutory Legislation

The Conservation of Habitats and Species Regulations 2010, or the 'Habitat Regulations 2010', transposes European Directives into English and Welsh legislation. Under these regulations, wild animals of a European Protected Species and their breeding sites or resting places are protected. It is an offence to deliberately capture, injure or kill any such wild animal and in the case of great crested newts, deliberately take or destroy their eggs. It is also an offence to deliberately damage or destroy a breeding site or resting place of any such wild animal.

Wild animals of a European Protected Species are also protected from disturbance. Disturbance of such wild animals includes in particular any disturbance which is likely:

(a) To impair their ability -

- *to survive, to breed or reproduce, or to rear or nurture their young; or*
- *in the case of animals of a hibernating or migratory species, to hibernate or migrate; or*

(b) To affect significantly the local distribution or abundance of the species to which they belong.

The Wildlife and Countryside Act 1981 (as amended) adds further protection to wildlife in England and Wales under Part 1. It is unlawful to intentionally kill, injure or take any wild bird or take, damage or destroy the nest of any wild bird whilst the nest is in use or being built. If the bird is included on the Schedule 1 list, it is additionally an offence to intentionally disturb its nest during the breeding season.

Certain species of animal are protected under the Wildlife and Countryside Act 1981 (as amended) by being included in Schedule 5 in respect of certain offences under Section 9. Such offences include:

9(1) Intentional killing, injuring or taking of a Schedule 5 animal;

9(4a) Damage to, destruction of, obstruction of access to any structure or place used by a Schedule 5 animal for shelter or protection;

9(4b) Disturbance of a Schedule 5 animal occupying such a structure or place.

Badgers are primarily protected by The Protection of Badgers Act 1992, under which it is a criminal offence to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so and to intentionally or recklessly interfere with a sett.

Under the Hedgerow Regulations 1997 it is an offence to remove most hedgerows without permission from the Local Planning Authority. Permission for the removal of hedgerows may be refused if the Local Planning Authority determines any hedgerow to be 'Important' under criteria listed in Part II of Schedule 1 of the Regulations.

3.2 Planning Policy

The National Planning Policy Framework relating to biodiversity (NPPF) is both guidance for local planning authorities on the content of their Local Plans and material consideration in determining planning applications. The NPPF has replaced much existing planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. However, the government circular 06/05: 'Biodiversity and Geological Conservation - Statutory Obligations and their Impact within the Planning System', which accompanied PPS9 remains valid.

The NPPF places much emphasis on sustainable development and the need for the planning system to perform a number of roles including 'improving biodiversity' by protection of designated sites, priority habitats and priority species, ancient woodland and veteran trees.

The NPPF places more emphasis on ecological networks and their creation and states that the planning system should:

- Avoid, mitigate and compensate for significant harm to biodiversity and protect Sites of Special Scientific Interest and irreplaceable habitats such as ancient woodland.

- Provide a net gain for biodiversity wherever possible and contribute to the Government's commitment to halt the loss of biodiversity.

3.3 Notable Species and Habitats

3.3.1 The UK Biodiversity Action Plan (UK BAP) was drafted for 'Priority' species and habitats in which specific conservation targets were set and are regularly reviewed. UK BAP features do not receive any legal protection *per se* but have biodiversity value within a national context. The UK BAP also serves as a framework for local biodiversity conservation efforts. UK BAP priority species and habitats were those that were identified as being the most threatened and requiring conservation action under the UK BAP. The original lists of UK BAP priority species and habitats were created between 1995 and 1999, and were subsequently updated in 2007, following a 2-year review of UK BAP processes and priorities, which included a review of the UK priority species and habitats lists. As a result of new drivers and requirements, the 'UK Post-2010 Biodiversity Framework', published in July 2012, has now succeeded the UK BAP. The UK BAP lists of priority species and habitats remain, however, important and valuable reference sources. Notably, they have been used to help draw up statutory lists of priorities in England and BAP species and habitats are still referred to at a local level (JNCC 2013).

3.3.2 The Natural Environment and Rural Communities (NERC) Act 2006: Section 41 of The Natural Environment and Rural Communities (NERC) Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act.

3.3.3 The Section 41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

4.0 Methodology

4.1 Desktop Study

A search of the Multi-Agency Geographic Information for the Countryside website was undertaken with regards to the presence of statutory nature conservation sites. A high level screening review of the National Biodiversity Network website was undertaken for an indication of the potential likely presence of protected species within 2km of the survey site. A data search was also undertaken of records held by Greater Lincolnshire Nature Partnership within 2km of the target site of all designated sites (statutory and non-statutory) and protected species covered by the following legislation: Wildlife & Countryside Act 1981 Schedules 1,5 & 8; Protection of Badgers Act 1992; The Conservation of Habitats & Species Regulations 2010 Schedules 2,4&5; Habitats Directive Annexes 2,4&5; Birds Directive Annex 1; UKBAP species (both local and national); NERC Act 2006 Section 41 species; Nationally Notable, Scarce & Rare species.

4.2 Field Surveys

Extended Phase 1 Habitat Survey

A walkover of the site was undertaken on 13th January 2016 by Emma Parnwell and Claire Parnwell based on the JNCC (2010) Phase 1 Habitat Survey Guidelines.

The Phase 1 Survey was extended to include a search for signs of protected, principal importance and biodiversity priority action plan species and an assessment of the habitats present for their likelihood to support such species (see Annex One). Target notes (TN) are shown on a habitat map in Appendix Two.

A building inspection bat survey (including an examination of the internal structures, roof spaces and external spaces of all the buildings on site) was also undertaken on 13th January 2016. The survey was carried out to assess the current usage of the building by bats and to advise on the impact on bats and legal obligations prior to building work being carried out.

The building bat inspection was carried out by Emma Parnwell, a level two licensed bat surveyor, and Claire Parnwell, a trained bat worker. The building survey involved a thorough internal and external search of all suitable cavities, holes and crevices, all suitable areas and floors were inspected for the following signs:

- Bat droppings;
- Stains around roosting places and entrance points;
- Urine marks;
- Prey remains;
- Areas devoid of cobwebs;
- Live or dead bats;
- Suitable cracks and crevices for bats to enter.

Equipment used for the building survey included various sized torches, extending mirror, endoscope, close-focusing binoculars and ladders.

4.3 Constraints and Survey Limitations

Due to health and safety concerns regarding the stability of some areas of the derelict buildings, it was not possible to fully access all areas of the site for a close inspection. These limitations are explained in more detail in Table One, and will be addressed by the proposed mitigation. Additionally, the survey was undertaken during the winter months which can limit botanical identification as it is outside of the main plant growing season. However, what remains of vegetative growth is generally sufficient to allow an experienced surveyor to make a general assessment about the habitat composition and quality of a site and identify the potential for any notable or protected species. Similarly, some fauna is less active/dormant at this time of the year; again this constraint can be addressed by an experienced surveyor identifying potential from the habitat composition of the site and neighbouring landscape, and the identification of any field signs present.

5.0 Results

5.1 Background Data

5.1.1 *Statutory and Non-Statutory Nature Conservation Sites*

There are no designated sites within the zone of influence that will be impacted by the proposed works.

5.1.2 *Notable Species (Protected Species, Species of Principal Importance and Priority Biodiversity Action Plan Species).*

There are 33 records of bats within 2km of the target site (with 23 records of bats recorded within 1km of the target site). These are either recorded as Chiroptera, brown long-eared bat (*Plectous auritus*), common pipistrelle (*Pipistrellus pipistrellus*) or soprano pipistrelle (*Pipistrellus pygmaeus*) - the oldest record dates from 1953 and the most recent is from 2013.

There are 2 records of barn owl (*Tyto alba*) within 2km of the site.

Other protected species were recorded within a 2km of radius of the site but these were not felt to be relevant to the site in question taking into account the habitat within the site and the location of the records.

There were no records, in the databases consulted, of protected species presence within, or immediately adjacent to, the target site. However absence of records does not necessarily mean absence of species.

5.2 Habitats

The majority of the site consists of a complex of buildings in various states of dereliction. These are surrounded by hard standing with some young tree lines.

5.2.1 *Vegetation*

5.2.1.1 Ephemeral Weeds/Ivy

In the courtyard area between Structures 3 and 4 (see Table One for structure references) is an area of hard standing with scattered ephemeral weeds present including nettles, buddleia, ivy and cleavers.

There is a large amount of ivy cladding on the external wall at the southern end of Structure 5 (TN6).

5.2.1.2 Trees

Along the southern boundary of the car park area is a line of semi-mature trees consisting of lime, sycamore and ash. There is some thin-stemmed ivy growth on these trees. Along the eastern boundary is a line of young ash trees.

There is one leylandii tree located within the courtyard area.

5.2.1.3 Ruderal Vegetation

In the northern area of the site are two small triangles of ruderal vegetation consisting predominately of nettle, ivy, cocks foot and bramble.

5.2.2 *Miscellaneous*

5.2.2.1 Hard Standing

The court yard area between the structures, the car park area in the northern area of the site, and the access track all consist of hard standing.

5.2.2.2 Rubbish/Brash Pile

Within the courtyard area is a large pile of bramble brash and rubbish that has been collected from a recent clearance of the outside areas of the development site.

5.2.3 *Buildings*

See Table One below for a detailed description of all buildings within the target site.

5.2.4 *Neighbouring Habitat*

5.3 Protected Species

5.3.1 *Birds*

There are opportunities for nesting birds throughout the buildings within the site as most areas are open and accessible by birds. Evidence of previous nesting birds included remnant nests characteristic of small birds such as wren (TN4) and mud nests within the eaves of the stable block characteristic of swallows (TN5). A large number of sparrows was also seen to be present within the ivy cladding the stable area, suggesting that birds nest in this vegetation during the nesting season (TN6).

5.3.2 *Bats*

5.3.2.1 Buildings

Table One: Results of Building Inspection

Building	Description (general description of structures with more detail given in areas that potentially had more bat roost suitability)	Comments	Bat Roost Potential H = high, M = moderate, L = low, N = negligible
Structure 1 Main Building General Description	A large 150 year old building originally used as a coach house and later as a pub. In general disrepair and derelict condition, broken windows etc. Walls are brick with modern plaster rendering on the front of the building. There are multiple pitched roofs with a mix of slate and clay pan tiles. Multiple chimneys of varying sizes. Remaining tiles are generally in good condition with some occasional small gaps. Where the roof is intact tiles appear to be in fairly good condition and still flush to the pitched roof, however due to the height of the building some external features may not have been visible from the ground inspection. The roof space is large and complex with multiple divided loft voids with separate hatches. Due to derelict conditions many areas were inaccessible due to Health and Safety concerns – e.g. unstable floor, missing or unstable walls etc.	No evidence of bats was found within the building. However roosting bat presence cannot be ruled out due to lack of access into some areas of the building- including the loft voids.	**Overall potential: M**
Cellar/Basement	Underground - entrance from dining room – The underside of the upper steps overhead are boarded over with a white chipboard with numerous holes - contains holes and cavities between steps and chipboard. Previously used as cold room. Cellar is generally damp. Broken steps leading up outside which is open and exposed to elements. Crack in brickwork and hole with cavity space in ceiling.	3 bat droppings on bottom step and 1 dropping found in cold room near crack in brickwork. (TN2).	**M (hibernation)**

Ground Floor	Multiple rooms that are fully enclosed- previously bar area, kitchen, toilets etc. Chimney (C4) in west side bar area and boarded up chimney in dining area. One roof void above kitchen area- roof is fully open to elements due to numerous missing tiles.		**N**
1st Floor	Multiple enclosed rooms- previously bedrooms etc. Chimney's (C1, C2 and C3) in 3 of the bedrooms. Partially collapsed, unable to access and inspect fully for bats due to health and safety concerns. C3 was smaller than the other chimneys and had a dead pigeon in hearth area. Open loft hatch in bathroom- not accessible due to health and safety concerns. Cracks in mortar in store room and bathroom on other side of the same wall. Unable to access to perform detailed inspection due to health and safety concerns.	No evidence of bats found- loft area not fully accessible and some low potential in cracks in mortar and chimney.	**L**
2nd (top floor)	Loft voids above bedrooms. – Very small open loft hatch (H1) and hole (H2) in ceiling above most eastern end bedroom. No glass in window of bedroom. Examination of loft from ladder as hatch too small to fully access – bitumen felt lined, close butted joints. Hole in wall (H3) leading to large loft void. Unable to access due to health and safety concerns. Appeared to be heavily cobwebbed.	No evidence of bat activity but unable to access inside loft fully.	**M** **L - M**
Structure 2 Ballroom/Dance Hall General Description	Adjacent structure containing large hall previously used as a ballroom with a few other rooms, such as toilets, office rooms etc. Basement present below dancehall (actually at ground level).	General lack of suitable roosting features and one bat dropping found in basement (see below).	**Overall potential: N-L**

Basement/Cellar	Divided into 2 sections. 1 part only accessible through a hole in the external wall. No hibernation potential due to exposure to elements. The larger part is accessible through the most southern stable. This is more enclosed than the other part, there are some holes in the ceiling plaster which create holes between ballroom and this space.	1 bat dropping – no other evidence found: likely result of exploratory bat (TN3).	**N** **L**
Ground Floor	The ground floor toilets are within a very derelict structure. Half of the roof is completely missing. The remaining pan tiles are heavily waterlogged and broken. A small open hatch (H4) was accessed over the toilet area. Very small void with a wall of cobwebs just inside the hatch. **A small remnant birds' nest in doorframe (characteristic of wren).**	Overall there is a general lack of roosting features, with no evidence found.	**N**
First Floor	Stairs lead up into the main part of this structure – the dance hall/ballroom. It is in generally good condition, apart from a broken window. There is a crack in the plaster above doorway creating a crevice.	Overall there is a general lack of roosting features, no evidence found, although one crevice above door with very low potential.	**N-L**
Structure 3 Standalone bar/lounge General Description	Structure 3 is a severely fire damaged standalone building located in the courtyard area. External inspection only due to health and safety concerns. The roof is missing, with a few pan tiles remaining. The building is open, damp and very derelict. Some ivy growth internally.	Overall there is a general lack of roosting features, with no evidence found.	**Overall potential: N**
Structure 4 Outbuilding General Description	Small brick structure with a small roof void. Pan tiles, open door.	General lack of roosting features- some low potential under pan tiles.	**Overall potential: N-L**
Structure 5 Stables General Description	This structure consists of a row of seven separate areas previously used as stables or storage areas. Brick walls, with clay pan tile roof- some of which are loose. The external walls and roof of the stables at the southern end are ivy clad- **large number of birds heard to be sheltering within the ivy (likely sparrows).**	General lack of roosting features- some low potential in Stable 1 and under pan tiles.	**Overall potential: L**

Ground Floor Stable 1	Large room with brick walls, lathe and plaster ceiling. An open window and door on western side and some holes in the roof on eastern side. Relatively draughty. Close butted joints on rafters. Some crevices on struts for fire escape where the beams insert onto the brickwork. Floor is covered with leaves and debris so evidence of bats would be hard to see. **Evidence of multiple remnant swallows' nest in rafters.** There is also a small separate brick structure previously used for wood storage within this stable.	Some potential for roosting bats in crevices in brickwork and on struts for fire escape. No evidence of bats found.	**L**
Stable 2	Small fully bricked, domed structure.	No evidence found and lack of roosting features.	**N**
Stable 3	Medium sized, with chipboard ceiling.		
Stable 4	Medium sized, with lathe and plaster with straw ceiling.		
Stable 5	Medium sized, open and exposed. Lack of roosting features.		
Stable 6	Medium sized, roof open and ceiling mostly collapsed.		
Stable 7	Medium sized, no ceiling, holes in roof and no under felting of roof. Ivy growth inside.		
First Floor	Only able to access area around the stairs when on upper level of stables due to unsafe floor. Open windows on western side and some holes in roof on eastern side. Lathe and plaster ceiling. Draughty.	No evidence found and lack of roosting features.	**N**

5.3.2.2 Trees

There are no trees within, or adjacent to, the target site noted to have potential to support roosting bats.

5.3.2.3 General Habitat

There is limited foraging/commuting habitat within the site as currently there is little vegetation within the site and it is surrounded by buildings and the High Street.

5.3.3 *Badgers*

There is no suitable habitat for foraging/commuting badgers/sett creation within the zone of influence.

5.3.4 *Great Crested Newts*

There are no suitable water bodies within the zone of influence to support great crested newts.

5.3.5 *Reptiles*

There is no suitable habitat to support this species group within the zone of influence.

5.3.6 *Water Voles*

There is no suitable habitat to support this species within the zone of influence.

5.3.7 *Barn Owl*

The open buildings within the site do offer potential for nesting barn owls, however no evidence of this species was noted at the time of surveying.

6.0 Impact Assessment

The assessment of the impacts on valued ecological resources within the Zone of Influence (ZoI) of the Scheme has been based on the Institute of Ecology and Environmental Management (IEEM) guidelines. This process includes:

- Identifying those ecological features likely to be affected;
- Evaluating them to identify the important ones (i.e. those which, if their level of value reduced, national or local policies (or in some cases legislation) would be triggered); and
- Characterising the nature of the individual and combined impacts on each important feature, to determine their longevity, reversibility and consequences for the feature in terms of ecological structure and function.

6.1 Identifying the Zone of Influence (ZoI)

For most species the potential ecological impacts of the proposal are confined to the construction area and the immediately adjacent land. For great crested newts any breeding colonies within 250 metres of the construction activities could also be potentially affected.

6.2 Evaluation

6.2.1 *Valuing Ecological Features and Resources*

The IEEM Guidelines acknowledge that ecological evaluation is a complex and subjective process but provides key considerations to take into account when applying professional judgement to assign values to ecological features and resources. These include consideration of geographic frame of reference; legal protection, site

designations and features; biodiversity value; large populations or important assemblages of species; potential value, secondary or supporting value; social/community value and economic value.

Focusing on assessments of biodiversity value, there are various characteristics that can be used to identify ecological resources or features that are likely to be important in terms of biodiversity. These include:

- Rare or uncommon species in the local, national or international context;
- Endemic or locally distinct sub-populations of a species;
- Species on the edge of their distribution;
- Notably large populations of animals or concentration of animals considered uncommon or threatened in a wider context;
- Species-rich assemblages of plants or animals;
- Ecosystems and their component parts which provide the habitats required by the above species, populations and/or assemblages;
- Plant communities (and associated animals) considered typical of valued natural/semi-natural vegetation types;
- Habitat diversity, connectivity and/or synergistic associations.

This assessment also measures the contribution to nature conservation interest from non-statutory sites of nature conservation interest and the presence of habitats and species which although not specially protected are considered to be of local, regional or national conservation importance.

This latter category includes identification of flora and fauna that are listed as Species of Principal Importance under the Natural Environmental and Rural Communities Act 2006 (NERC), priorities under the UK Biodiversity Action Plan (UK BAP) and Local Biodiversity Action Plans (LBAP) and Red Data Book Species.

In this report all ecological resources or features are assigned to a value relating to their legal status and/or any other ecological interest within the immediate ZoI only.

Table Two: Valuation of Species and Habitats

Level of Importance	Examples
International importance	Special Areas of Conservation; Special Protection Areas; Ramsar sites; European Protected Species.
National importance	Sites of Special Scientific Interest (SSSI); National BAP Priority Species/Habitats; Species listed within Wildlife and Countryside Act 1981.
Regional/County importance	Local Nature Reserves; County Wildlife Sites (CWS); Ancient woodlands; Areas of priority Biodiversity Action Plan (BAP) habitat. Species of Principal Importance (NERC).*
Local (parish) importance	Undesignated sites of some local biodiversity and earth heritage interest.
Negligible importance	Would usually be applied to areas of built development, active mineral extraction, or intensive agricultural land.

*S/H/PI NERC list also include some species/habitats protected under European and/or domestic legislation and therefore may be valued at a higher level.

6.2.2 Prediction and Evaluation of Effects

This assessment has considered both immediate on site impacts as well as those which may occur in adjacent areas of ecological value. Resultant effects can be permanent or temporary, direct or indirect, and cumulative.

6.2.3 Significance of Potential Impacts

The significance of an adverse effect (or a beneficial result) is determined by the magnitude of the impact and the value and sensitivity of the nature conservation resources affected. There is no definitive method for assessing the significance of adverse impacts on nature conservation receptors/features. Nevertheless, a high significance would generally be ascribed to large impacts on receptors/features of high nature conservation value and low significance would generally be ascribed to small impacts on receptors/features of low nature conservation value. The criteria used for assessing the significance of adverse and beneficial impacts are set out below in Table Three. These significance criteria are used for guidance, and professional judgement is required in their application to take account of the particular circumstances of a project.

The following factors are considered in determining whether ecological impacts are significant:

- Extent;
- Magnitude;
- Duration;
- Reversibility;
- Timing;
- Cumulative effects.

Table Three: Significance Criteria

Significance Category	Criteria
Substantial Adverse	Loss of, permanent damage to, or adverse effect on, integrity of any part of a site of international or national importance; Loss of a substantial part or key feature of a site of county importance; Loss of favourable conservation status (FCS) of a legally protected species; Loss of or damage to a population of nationally rare or scarce species.
Moderate Adverse	Temporary disturbance to a site of international or national importance, but no permanent damage; Loss of, or permanent damage to, any part of a site of county importance; Loss of a key feature of local importance; A substantial reduction in the numbers of legally protected species such that there is no loss of FCS but the population is significantly more vulnerable; Reduction in the amount of habitat available for a nationally rare or scarce species, or species that is notable at a regional or county level.
Minor Adverse	Temporary disturbance to a site of county value, but no permanent damage; Loss of, or permanent damage to, a feature with some ecological value in a local context but that has no nature conservation designation; A minor impact on legally protected species but no significant habitat loss or reduction in FCS; A minor impact on populations of nationally rare or scarce species or species that is notable at a regional or county level.
Negligible	No impacts on sites of international, national or county importance; Temporary disturbance or damage to a small part of a feature of local importance; Loss of or damage to land of negligible nature conservation value; No reduction in the population of legally protected, nationally rare, nationally scarce or notable (regional/county level) species on the site or its immediate vicinity.
Neutral	No impacts either adverse or beneficial.

Minor Beneficial	A small but clear and measurable gain in general wildlife interest, e.g. small-scale new habitats of wildlife value created where none existed before, or where the new habitats exceed in area the habitats lost.
Moderate Beneficial	Larger scale new habitats (e.g. net gains over 1ha in area) created leading to significant measurable gains in relation to the objectives of Biodiversity Action Plans.
Substantial Beneficial	Major gains in new habitats (net gains of at least 10ha) of high value for biodiversity being those habitats, or habitats supporting viable species populations, of national or international importance cited in Annexes I and II of the Habitats Directive or Annex I of the Birds Directive.

Following the characterisation of effects, an assessment of the ecological significance of an effect is made. The Guidelines promote a transparent approach in which a beneficial or adverse effect is determined to be significant or not, in ecological terms, in relation to the integrity of the defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, which relates to the level at which it has been valued. The decision about whether an effect is significant or not, is independent of the value of the ecological feature; the value of any feature that will be significantly affected is then used to determine the implications, in terms of legislation, policy and/or development control.

The Guidelines advise that it is important to consider the likelihood of a predicted impact, along with the degree of confidence in the assessment of the effect on ecological structure and function. The decision on confidence levels is based on professional judgement; the scale of confidence levels used for this report is as follows:

- Certain/near-certain: probability estimated at 95% chance or higher;
- Probable: probability estimated between near-certain and 50:50;
- Unlikely: probability less than 50:50 but above 5%; and
- Extremely unlikely: probability estimated at less than 5%.

The concepts of ‘ecological integrity’ and ‘conservation status’ should also be considered when evaluating a feature of ecological interest. The Guidelines refer to ‘integrity’, ‘the coherence of the ecological structure and function, across a site’s whole area, that enables it to sustain that habitat, complex of habitats and/or the levels of populations of species for which it was classified’. The term ‘conservation status’ relates to the viability, rarity and condition of habitats and species. It is defined in the Guidelines to ensure that it can be ‘applied to sites, habitats or species within any defined geographical area. If an effect is found not be significant at the highest geographical level at which the resource or feature has been valued, it may be significant at a lower geographical level’.

The Guidelines also state that: ‘Significant effects on features of ecological importance should be mitigated (or compensated for) in accordance with guidance derived from policies applied at the scale relevant to the value of the feature or resource’ and that: ‘Any significant effects remaining after mitigation (the residual effects), together with an assessment of the likelihood of success in the mitigation, are the factors to be considered against legislation, policy and development control in determining the application.

6.2.4 Potential Impacts and Proposed Mitigation

Based on the results outlined in section five, Table Four provides a summary of the species and habitats that are known to be present or potentially likely to be significantly affected by the proposed construction. Table Five summarises the likely ecological impacts on these potential receptors (if present) and the recommended mitigation to minimise the likely impacts. Species not likely to be significantly affected are not included in this in depth evaluation but are referred to in the general summary in Table Six.

Table Four

Potential Receptor
Nesting birds
Bats

Table Five: Potential Impacts and Proposed Mitigation

Habitat/Species	Nesting birds
Factors on which its integrity or conservation status depends	There are a variety of bird species that utilise hedgerows and trees for nesting and as a food resource.
Ecological Value Policy and legal framework	Assemblage valued at County Level. All are protected under the Wildlife and Countryside Act 1981 from killing and injuring and damage/destruction to their active nests and eggs.
Proposed Activity	The construction proposals relate to the refurbishment of an existing derelict coach house and stables into a series of apartments. Some areas will be demolished but the majority of the original framework of the buildings will be retained.
Biophysical change	Renovation/demolition of buildings, potential removal of some ivy from external walls.
Relevance to receptor in terms of ecosystem structure and function	There are opportunities for nesting birds throughout the buildings within the site as most areas are open and accessible by birds. Evidence of previous nesting birds included remnant nests characteristic of small birds such as wren and mud nests within the eaves of the stable block characteristic of swallows. A large number of sparrows was also seen to be present within the ivy cladding the stable area, suggesting that birds nest in this vegetation during the nesting season.
Characterisation of unmitigated impact on the feature	If nests are disturbed during incubation and rearing phases then mortality of chicks could occur. Outside of the nesting season there will be a minor negative impact for a low number of birds due to loss of potential nesting habitat.
Duration	For site clearance and post-construction.
Reversibility	Any damage to active nests would be permanent and should be avoided. Loss of habitat can be mitigated for.
Ecologically significant: At what scale?	Minor adverse at the local scale.
Impact on integrity or conservation status	Minor adverse.
Confidence in this assessment Rationale	Probable. There are opportunities for nesting birds throughout the site. There is a high risk of impacting on nesting viability if any clearance of vegetation or demolition of buildings is undertaken during the nesting season.
Mitigation, Compensation and Enhancement.	It is recommended that the operational set-up should ideally avoid the bird-breeding season (late February to August inclusive) to avoid damage to nesting species. If this is not practicable then a nesting

	bird survey should be undertaken by an experienced ecologist prior to site clearance commencement to identify whether active nests are present. If any are found they should be clearly marked and avoided until after the young have fledged and left the nest. It is recommended that the new site plans include a provision of alternative nesting habitats in the form of nest boxes (see Appendix Four) and that ivy vegetation should be retained as much as possible. The loss of habitat for nesting swallows cannot be mitigated for by the provision of bird boxes as they require open structures to build their nests within- however as the area of suitable habitat to be lost is relatively small this is assessed as being a minor adverse impact.
Residual Impact	With bird box enhancements the residual impact is assessed as negligible- minor adverse.

Habitat/Species	**Bats**
Factors on which its integrity or conservation status depends	Bats are nocturnal, insectivorous species requiring roost sites such as hollows and cracks in trees and buildings to shelter, hibernate and breed in. They also require suitable habitat to feed in and often use linear features such as hedgerows within the landscape to navigate and commute to and from roost to feeding sites as well as using these features as a source of insects in their own right. The species has declined significantly nationally in recent decades due to loss of roost sites and feeding habitat loss/degradation.
Ecological Value **Policy and legal framework**	Valued at international level. Bats are Listed under Schedule 5 of the Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2010 it is an offence to *inter alia:* 1) intentionally or recklessly, damage, destroy or obstruct access to any structure or place which bats use for shelter or protection; 2) disturb bats while they are using such a place.
Proposed Activity	The construction proposals relate to the refurbishment of an existing derelict coach house and stables into a series of apartments. Some areas will be demolished but the majority of the original framework of the buildings will be retained.
Biophysical change	Renovation/demolition of buildings.
Relevance to receptor in terms of ecosystem structure and function	The buildings throughout the site offer varying levels of suitability for roosting bats- all potential noted refers to suitability for summer roosting bats excluding the cellar of Structure 1 which has some moderate potential to support hibernating bats.
Characterisation of unmitigated impact on the feature	If bats are present at the time of demolition/renovation then there is a risk of causing injury/death to individuals and destroying a roost.
Duration	For site clearance and post-construction.
Reversibility	Any loss of roost would be irreversible. Lighting impacts could be reversed.
Ecologically significant: At what scale?	Any loss of roost would be major adverse at the local scale. Any impacts from lighting would be minor adverse at the local scale.
Impact on integrity or conservation status	Unable to determine at this stage.
Confidence in this assessment **Rationale**	The relevant assessment of each structure is based on evidence of bat activity, suitability of habitat and any constraints of access due to unsafe conditions. The mitigation outlined below will supplement this

	assessment and provide a higher confidence level as to whether roosting bats are utilising the target site.
Mitigation, Compensation and Enhancement.	A static detector should be placed within the cellar/cold room area noted to have moderate potential to support hibernating bats. This should be in place for two months during the hibernation season to assess if there is any bat activity in this area during this time. Static detectors should also be placed in the areas that were inaccessible during the survey including two loft voids within Structure 1, the loft void of Structure 4, and in the ground floor area of Stable 1. These should be supplemented by a minimum of one dusk emergence survey and one dawn re-entry survey to be undertaken between the months of May-August (all surveys to be spread out during these months), in accordance with BCT's Good Practice Guidelines (Collins, 2016).
Residual Impact	Unable to determine without further survey work.

7.0 Conclusions and Recommendations

Table Five

Potential Receptor	Conclusions	Recommendations
Nesting Birds	There are opportunities for nesting birds throughout the buildings within the site as most areas are open and accessible by birds. Evidence of previous nesting birds included remnant nests characteristic of small birds such as wren and mud nests within the eaves of the stable block characteristic of swallows. A large number of sparrows was also seen to be present within the ivy cladding the stable area, suggesting that birds nest in this vegetation during the nesting season. If nests are disturbed during incubation and rearing phases then mortality of chicks could occur. Outside of the nesting season there will be a minor negative impact for a low number of birds due to loss of potential nesting habitat.	It is recommended that the operational set-up should ideally avoid the bird-breeding season (late February to August inclusive) to avoid damage to nesting species. If this is not practicable then a nesting bird survey should be undertaken by an experienced ecologist prior to site clearance commencement to identify whether active nests are present. If any are found they should be clearly marked and avoided until after the young have fledged and left the nest. It is recommended that the new site plans include a provision of alternative nesting habitats in the form of nest boxes (see Appendix Four) and that ivy vegetation should be retained as much as possible. The loss of habitat for nesting swallows cannot be mitigated for by the provision of bird boxes as they require open structures to build their nests within- however as the area of suitable habitat to be lost is relatively small this is assessed as being a minor adverse impact.
Bats	The buildings throughout the site offer varying levels of suitability for roosting bats- all potential noted refers to suitability for summer roosting	A static detector should be placed within the cellar/cold room area noted to have moderate potential to support hibernating bats. This should be in place for two months

	bats excluding the cellar of Structure 1 which has some moderate potential to support hibernating bats. The areas of the site most suitable to support roosting bats were assessed as having moderate potential- no areas within the site were assessed as having high potential. If bats are present at the time of demolition/renovation then there is a risk of causing injury/death to individuals and destroying a roost.	during the hibernation season to assess if there is any bat activity in this area during this time. Static detectors should also be placed in the areas that were inaccessible during the survey including two loft voids within Structure 1, the loft void of Structure 4, and in the ground floor area of Stable 1. These should be supplemented by a minimum of one dusk emergence survey and one dawn re-entry survey to be undertaken between the months of May-August (all surveys to be spread out during these months). Any further recommendations will depend on the outcome of these surveys.

8.0 References

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9.0 Photographs

Structure 1

Structure 2

Structure 5

Structure 4

Structure 1

Structure 1- Basement

Structure 1- Cold room

Structure 3

Structure 1- loft void

Top floor of Structure 5

Structure 1- crack in wall on first floor

Nest in Structure 3

Hard standing access track

Tree lined hard standing car park

10.0 Appendices

Appendix One- **Site Location**
Appendix Two- **Habitat Map with Target Notes**
Appendix Three - **Plant Species Referred to in the Report (English and Latin Names)**
Appendix Four- **Example of Bird Mitigation/Enhancements**
Annex One- **Standard Survey Methodologies**

APPENDIX ONE

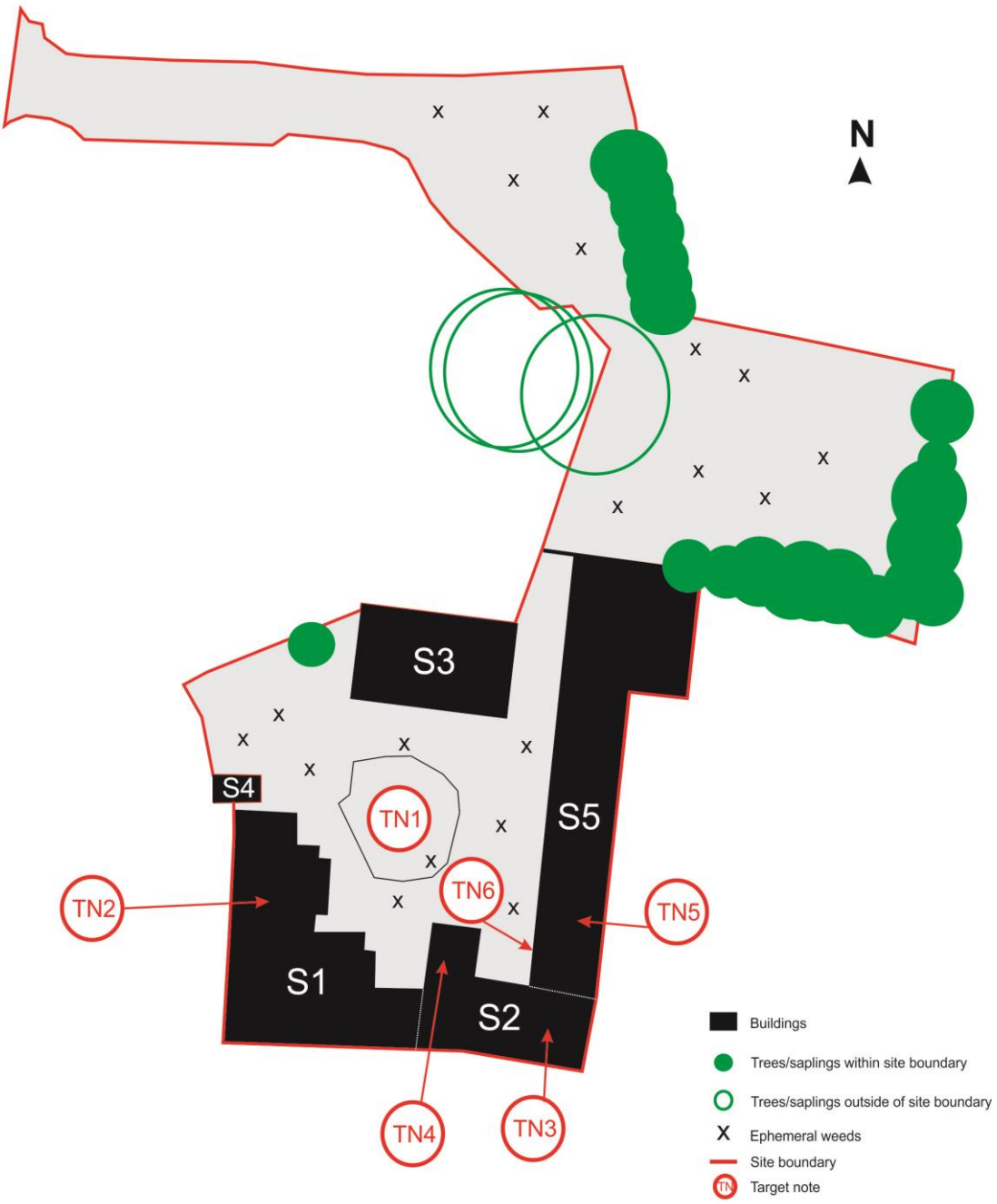
Site Location

Appendix One. Site Location

APPENDIX TWO

Habitat Map with Target Notes

Appendix Two. Habitat map with target notes



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Identification of target notes/ numbers on habitat map	
Target Note	**Feature**
TN1	Rubbish pile
TN2	Small number of bat droppings in cellar/cold room
TN3	One bat dropping in wood storage
TN4	Remnant nest (likely wren)
TN5	Remnant nests (likely swallows)

APPENDIX THREE

Plant species referred to in the report

Plant species referred to in the report (English and Latin Names)
Ash *Fraxinus excelsior*
Buddleia *Buddleia davidii*
Cleavers *Galium aparine*
Ivy *Hedera helix*
Lime *Tilia x europaea*
Nettles *Urtica dioica*
Sycamore *Acer pseudoplatanus*

APPENDIX FOUR

Example of Bird Mitigation

Example of Schwegler 1B Nest Box two with 26 mm holes and two with 32mm holes to cater for a range of species should be provided and installed on posts at a height of 2 metres

ANNEX ONE

Standard Survey Methodologies

A site walkover is undertaken to identify potential habitats suitable for protected species and/or evidence of field signs indicating presence of protected species and invasive plants.

Species Specific Methodologies

Great Crested Newts: A habitat suitability assessment for newts is undertaken taking due note of the presence of water bodies within 250 metres of the site (based on English Nature (2001) now Natural England) guidelines and potentially suitable terrestrial resting and shelter habitat.

At certain times of the year and/or in some years but not others ponds may be seasonally dry but these are not necessarily ruled out as ephemeral ponds can be important 'stepping stones' from one pond to another and/or refuges from the ravages of fish populations that can build up in permanent ponds.

Ponds are assessed using a combination of professional judgment and applying the nationally accepted Habitat Suitability Index (HSI) for Great Crested Newts based on Oldham *et al 2001* which uses nationally accepted formulae based on a number of factors which are assigned a score ranging from 0 to 1 with a score of <0.5 assessed as poor, 0.5 to 0.59 below average, 0.6 to 0.69 average, 0.7 to 0.79 good and >0.8 excellent.

If appropriate, follow-up pond surveys are undertaken in the spring to cover all ponds within 250 metres (or further where professional judgment dictates) of the construction footprint to determine presence/absence of this species. Night-torch surveys, egg searching, netting and funnel trapping are the main methods employed where practicable

Bats: A habitat suitability assessment for bats is undertaken by identifying buildings and trees likely to be affected by the proposed construction works.

The tree assessments involve looking for the following signs:

- Holes
- Fissures
- Broken Limbs
- Loose Bark
- Urine Staining
- Fur Rubbing
- Dense Ivy

A scoring system is applied to the buildings and trees using the following criteria.

- **Low/Negligible probability of bat interest**. Buildings in this category fall into two main types: Generally well maintained without cracks and crevices, no gaps between bargeboard or soffit and wall or without an attic space. Or those which contain some or all of the above features, but are both draughty and thick in cobwebs or contain strong odours such as solvents, diesel etc.

It must be borne in mind that a building from this latter group can become suitable for bats due to refurbishment. This often happens to houses once the attic space has been cleaned and under-felted prior to timber treatment.

No licence is required for development to a building classified as Low probability of bat interest. Trees with low bat interest are usually young trees without any deadwood or holes. Most conifers fall into this category as they are usually planted as a crop and are then felled prior to becoming old, although once maturity is attained as in a landscape tree, suitable bat roosts may develop.

- **Medium probability of bat interest.** The buildings in this category contain many sites suitable for roosting bats although no obvious signs were recorded during the survey. In exposed conditions on large buildings the signs of bat usage such as droppings and urine marks can be obliterated by heavy rain.

Occasionally a light scattering of droppings will be recorded in an attic or a semi-derelict building, which is considered by the surveyor unsuitable for use as a bat roost. The medium probability of bat interest category can be used based on the surveyor's experience.

Whilst no licence is required for development to a building classified as Medium probability of bat interest, it is often best practice to conduct sensitive roof stripping or architectural salvaging to minimise any possible disturbance.

Trees in this category will have holes, cracks and crevices and lose bark suitable for roosting bats but no obvious roost signs such as staining and droppings at entrances.

- **High probability of bat interest.** This group includes buildings with known roosts or signs of bat occupancy such as droppings and staining at a roost entrance. The description of high probability buildings will also contain an indication as to the time of the year when it will be occupied by bats i.e. Summer – nursery roost, Winter – hibernation.

A licence is normally required for development to a building classified as High probability of bat interest.

Trees within this category will contain all the obvious roost features such as holes, cracks and crevices and loose bark and will also contain staining and droppings at the roost entrance or have been identified as a roost via a visual sighting of an existing bat.

If appropriate, follow-up surveys are undertaken incorporating detailed inspections of the buildings/trees by a licensed bat worker and where necessary bat activity surveys are also undertaken to determine presence/absence of this group of species.

Reptiles: A habitat suitability assessment for reptiles is undertaken looking for, *inter alia,* areas of rough scrub, tussocky/rank grassland, areas of structural diversity offering short open areas of grassland and bare soil for basking with taller vegetation and habitat edges offering shelter and rapid escape routes, natural refugia such as brash piles and rubble heaps.

Where appropriate, follow-up surveys are undertaken utilizing artificial refugia to determine presence/absence of this species.

Badgers: Field signs are searched for including setts, runs, prints, dung pits, hairs and feeding signs.

Otters: Field signs are searched for including holts, prints, spraints, haul out points and feeding signs.

Water Voles: A habitat suitability assessment for water voles is undertaken within riparian habitat assessment factors including, *inter alia,* water levels and seasonal longevity of water table, seasonal flash floods, bank profiles and substrates, vegetation for cover and suitable food sources, over shading, and evidence of the presence of mink Where appropriate, follow-up surveys are undertaken where field signs are searched for including burrows, prints, runs, droppings, latrines and feeding signs.

White-Clawed Native Crayfish: A habitat suitability assessment for crayfish is undertaken within riparian habitat assessment factors including, *inter alia,* water levels and quality and seasonal longevity of water table, water flow, underlying geology, bank and watercourse substrates, suitable submerged refugia and known presence of signal crayfish. Where appropriate, follow-up surveys are undertaken to search for presence of this species by stone

turning in the stream bed, netting and searching for burrows in the stream banks. Humane trapping may also be employed.

Harvest Mice: A habitat suitability assessment for harvest mice is undertaken within rough grassland and tall ruderal vegetation. Harvest mice build breeding nests in dense vegetation by weaving a nest out of leaves which will be at the top of a tussock of grass or around half way up the stem of cereals. To search for these nests surveyors walk transects of the target habitat checking within tussocks of grass and on stems. All areas of suitable vegetation are checked.

Notable Flora and Invasive Weeds: A habitat suitability assessment for notable flora (rare and protected) is undertaken and species are recorded. Evidence of the presence of invasive weeds included within Schedule 9 of the Wildlife and Countryside Act 1981 as amended is searched for.