



**MOOR END COTTAGES, SILKSTONE
COMMON.**

OS REF: SE 29832 03924

PRELIMINARY ECOLOGICAL APPRAISAL.

Ref No: 221167.

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1. INTRODUCTION.

1.1. There are plans to change the use of a field off of Moor End Lane, Silkstone Common to include a bike track, stables and pond. The plans have been appended to this report.

1.2. Whitcher Wildlife Ltd has been commissioned to carry out a Preliminary Ecological Appraisal of the site to establish whether there are any issues that may affect the proposed works.

1.3. The initial site survey was carried out on 6th December 2022 and this report outlines the findings of these surveys and makes appropriate recommendations.

1.4. Appendices I to V of this report provide additional information on specific species and are designed to assist the reader in understanding the contents of this report.

2. SURVEY METHODOLOGY.

2.1. Prior to visiting the site, the survey area was cross referenced to maps and aerial photographs to give a general idea of the habitats and potential issues within the area and to identify potential access and walking routes.

2.2. The survey area was walked where access was agreed, and public rights of way were used where no access was agreed. All habitats within and immediately around the survey area were documented and the dominant species within that habitat listed in line with the JNCC Handbook for Phase 1 Habitat surveys.

2.3. The survey area and immediate surrounding area was thoroughly searched for evidence of badger (*Meles meles*) activity by looking for the following signs in line with Harris S, Cresswell P and Jefferies D (1989). *Surveying Badgers*. Mammal Society: -

- * Badger setts.
- * Badger latrines or dung pits.
- * Badger snuffle holes and evidence of foraging.
- * Badger paths.
- * Badger prints in areas of soft mud.
- * Badger hairs caught on fencing.

2.4. The survey area was searched for watercourses and where found all watercourses within the survey area and for approximately 100m in each direction were thoroughly searched for evidence of water vole (*Arvicola amphibius*) activity by looking for the following signs, in line with Dean M, Strachen R, Gow D and Andres R (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. Eds Fiona Mathews and Paul Chanin. The mammal Society, London: - (2011). *Water Vole Handbook: Third Edition*: -

- * Water vole burrows.
- * Water vole faeces and latrines.
- * Water vole feeding stations.
- * Water vole runs.
- * Water vole prints in areas of soft mud.
- * Water vole lawns.
- * Predator field signs.

2.5. The survey area was searched for watercourses and where found all watercourses within the survey area and for approximately 50m in each direction were thoroughly searched for evidence of otter (*Lutra lutra*) activity by looking for the following signs in line with the P Chanin (2003). *Monitoring the Otter and Conserving Natura 2000 Rivers: Monitoring Series No10 Guidelines*: -

- * Otter prints in soft mud.
- * Otter spraints.
- * Otter Holts.

2.6. The survey area was searched for watercourses and waterbodies. Where found, and where safe to enter the water, all were thoroughly searched for the presence of crayfish, for approximately 50m in each direction of the site, by searching under rocks and logs. Where stated, crayfish traps were also deployed into the watercourse. All survey work was carried out in accordance with the *Conserving Natural 2000 Rivers Monitoring Series No 1, Protocol for Monitoring the White Clawed Crayfish*.

2.7. The survey area was searched for trees and structures and where found these were checked for potential bat roosting sites in line with Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)* by looking for the following signs: -

- * Holes, cracks or crevices.
- * Bat Droppings.

2.8. The land immediately adjacent to the survey area was assessed for bat roosting potential and bat foraging potential. Connective routes and flight lines were also assessed whilst on site and using maps of the area.

2.9. The area within 500m of the survey site was cross referenced to maps to highlight all ponds close to the site. Where possible, all ponds identified were accessed using agreed access or public rights of way to assess the potential for great crested newts (*Triturus cristatus*) to be present.

2.10. The survey area was assessed for the potential for reptiles and suitable reptile habitats. Where applicable the area was also searched for the presence of reptiles.

2.11. Where appropriate, the habitat within and surrounding the survey area was searched for species such as hazel, oak, honeysuckle, bramble and other species which may provide potential habitat for hazel dormice (*Muscardinus avellanarius*). Field signs such as feeding remains and nests were also searched for where possible,

in line with P Bright, P Morris and T Mitchell-Jones *The Dormouse Conservation Handbook 2nd Edition*.

2.12. Where appropriate, the area within and surrounding the survey area was assessed for its potential to house habitat for red squirrels. Field signs of red squirrels were searched for at least every 50m, looking for any dreys, feeding signs or sightings of red squirrels.

2.13. The survey area was searched for all non-native invasive plant species as listed on Schedule 9 of the Wildlife and Countryside Act 1981. The location of all plants identified were recorded and listed within the survey report along with appropriate recommendations to avoid causing the plants to spread in the wild. All species were searched for, but the main species generally found under this category are Japanese knotweed, Giant hogweed, Himalayan balsam, Cotoneaster, Rhododendron and Japanese Rose.

2.14. All surveys were carried out in line with the Chartered Institute of Ecological and Environmental Management (CIEEM) survey standards and advice.

2.15. The initial site survey was carried out by Sam White BSc ACIEEM. Sam has had experience in a professional capacity as an Ecologist focusing primarily on survey work for protected species and Phase 1 Habitat surveys. Sam has a BSc in Environmental Conservation from Sheffield Hallam University and Graduated in 2015. Sam joined Whitcher Wildlife Ltd in May 2018 as an Ecological Consultant. Sam holds a survey licence for Great Crested Newts (*Triturus cristatus*) and a Level 1 Class Licence for Bats. Sam is an Associate Member of the Chartered Institute of Ecology and Environmental Management.

3. SURVEY RESULTS.

3.1. Data Search Results.

3.1.1. A desktop data search for existing records of protected species or designated sites within 2km of the survey area was submitted to Sheffield Biological Records Centre, South Yorkshire Bat Group and South Yorkshire Badger Group.

3.1.2. The survey area is not within 2km of any statutory designated sites. There are locally designated sites within the wider area, with the closest being Silkstone Fall Wood located 1.5km north of the survey area.

3.1.3. The data search found the survey area is within 150m of Moor End Woods, an ancient woodland.

3.1.4. Sheffield Biological Records Centre hold abundant records of protected or notable species within 2km of the survey area. The notable records comprise:

- Records of badgers throughout the area – the closest located approximately 800m from the survey area.
- Records of bats throughout the surrounding area, though these were largely from activity surveys, with no roosts within 1km of the survey area.
- Abundant records of bird species within 2km of the survey area. The closest of which are tawny owls within Moor End Wood as well as a wren within 100m of the site.

3.1.5. South Yorkshire Bat Group hold abundant records of bats and bat roosts within 2km of the survey area. The closest roost record is from 2009 of over thirty pipistrelle sp. emerging from the verge of a building, the record is located approximately 400m northwest of the survey area.

3.1.6. South Yorkshire Badger Group hold records of badgers within 2km of the survey area, including a main sett within 800m of the survey area.

3.1.7. A full copy of the data search results can be provided on request.

3.2. The Survey Area.

3.2.1. The survey area comprises land off Moor End Lane, Silkstone Common. The aerial photograph below shows the survey area highlighted in red.



3.2.2. The survey area itself comprises a grassland field with woodland along the northern edge, where House Carr Dike forms the boundary of the site.



3.2.3. As a constraint to the survey, during the site visit works had already begun, with large areas being bare ground. The site will be mapped and assessed based on the prior state of the habitats, with condition assessments based on what is still visible, the only habitat to have been significantly affected by the works is the grassland present.

3.2.4. This survey was undertaken at a sub-optimal time of year for surveying grassland and therefore, some species, such as spring annuals, will not be present during this survey but may be present on the site.

3.2.5. The surrounding area is largely arable land with woodland pockets and Silkstone Common to the north.

3.3. Description of Habitats.

3.3.1. Appendix V of this report contains an annotated map marked up with the varying habitats present on the site. The habitats within the survey area are: -

- Semi-improved Grassland.
- Semi-natural Broadleaf Woodland.
- Line of Trees.
- Running Water.
- Wall.
- Fence.

3.3.2. **Semi-Improved Grassland:** The majority of the vegetation comprises a grassland field. The areas of grassland that remain are patchy with gaps in the sward. Some of the species present include perennial ryegrass (*Lolium perenne*), cocksfoot (*Dactylis glomerata*), dandelion (*Taraxacum officinale*), ribwort plantain (*Plantago lanceolata*), meadow grass (*Poa sp.*), common bent (*Agrostis capillaris*) herb Robert (*Geranium robertianum*), false oat grass (*Arrhenatherum elatius*), curled dock (*Rumex crispus*) common vetch (*Vicia sativa*), spear thistle (*Cirsium arvense*), speedwell sp. (*Veronica sp.*), greater plantain (*Plantago major*), scentless mayweed (*Tripleurospermum inodorum*), common nettle (*Urtica dioica*), sow thistle (*Sonchus sp.*) and creeping buttercup (*Ranunculus repens*). The grassland is assessed as neutral grassland due to the higher herb cover and presence of neutral indicators such as cocksfoot and false oat grass. The below photograph shows the habitat within the survey area.



3.3.2.1. The below table shows the condition assessment for the habitat. It is possible that a survey done at a more optimal time of year would improve on the condition of this habitat, which is currently moderate.

Condition Assessment Criteria	Condition Achieved (Y/N)
1 – Matches specific grassland type	Y
2 – Sward height	Y
3 – Bare ground	N
4 – Bracken and scrub cover	Y
5 – Non-native species	Y
6 – Species per m2	N
Condition Assessment Result	Condition Assessment Score
Acid Grassland Types:	
Passes 5 of 5 criteria	Good (3)
Passes 3 or 4 of 5 criteria	Moderate (2)
Passes 0, 1 or 2 of 5 criteria	Poor (1)
Non-acid Grassland Types:	
Passes 5 of 6 criteria, including essential criterion 1 and 6.	Good (3)
Passes 3 or 4 of 6 criteria, including essential criterion 1.	Moderate (2)
Passes 0, 1, 2 criteria of 6 criteria; OR Passes 3 or 4 criteria excluding criterion 1 and 6	Poor (1)

3.3.2.2. As mentioned previously in this report, large areas of the grassland have been affected by works on the site, leading to areas of bare ground and standing water.

These areas will be mapped as grassland on the annotated map of the survey area. An example is shown below.



3.3.3. **Semi-natural Broadleaf Woodland:** The northern boundary of the site along House Carr Dike comprises broadleaf woodland. The tree species vary in size and age with some veteran trees present. Some of the tree species present include oak (*Quercus sp.*), sycamore (*Acer pseudoplatanus*) and beech (*Fagus sylvatica*). The understory and other species present include holly (*Ilex aquifolium*), ivy (*Hedera helix*), tarpots (*Rhytisma acerinum*), elder (*Sambucus nigra*) and dogs mercury (*Mercurialis perennis*), which is an ancient woodland indicator, likely present due to the connectivity of the site to Moor End Wood.



3.3.3.1. The condition assessment table for the woodland is below, the woodland is thus classified as having moderate condition.

Attributes and functional groupings	Score per indicator
1 – Age distribution of trees ¹	2
2 – Wild, domestic and feral herbivore damage	2
3 – Invasive plant species ³	3
4 – Number of native tree species	2
5 – Cover of native tree and shrub species	3
6 – Open space within woodland ⁴	3
7 – Woodland regeneration ⁵	1
8 – Tree health	2
9 – Vegetation and ground flora	3
10 – Woodland vertical structure ⁶	2
11 – Veteran trees ⁷	3
12 – Amount of deadwood	1
13 – Woodland disturbance ⁸	2
Total:	29
Condition Assessment Result	Condition Assessment Score
Total score >32 (33 to 39)	Good (3)
Total score 26 to 32	Moderate (2)
Total score <26 (13 to 25)	Poor (1)

3.3.4. **Line of Trees:** There are rows of trees forming the boundary of the site along the western and southern boundaries of the site. These comprise the same species as within the woodland as well as some planted leylandii (*Cupressus x leylandii*) saplings.



3.3.4.1. The condition assessment table for the line of trees is below, this habitat is thus classified as having moderate condition.

Condition Assessment Criteria	Condition Achieved (Y/N)
1 – Native species	Y
2 – Tree canopy	Y
3 – Mature/veteran trees	Y
4 – Adjacent vegetation	N
5 – Tree health	Y
Condition Assessment Result	Condition Assessment Score
Passes 5 of 5 criteria	Good (3)
Passes 3 or 4 of 5 criteria	Moderate (2)
Passes 0, 1 or 2 of 5 criteria	Poor (1)

3.3.5. **Running Water:** House Carr Dike flows from west to east along the northern boundary of the survey area. The watercourse is approximately 1m wide and shallow with earth banks. The banks of the watercourse are largely unvegetated, but this is likely to be because of the time of year.



3.3.6. **Wall:** There is a stone wall forming the boundary of the site above House Carr Dike.



3.3.7. **Fence:** The majority of the boundary of the survey area is formed by a post and wire fence.



3.4. Description of Fauna.

3.4.1. A single entrance outlying badger sett was found within the survey area at approximately SE 29820 03954 (T1) located along the northern boundary of the grassland. The badger sett shows no signs of recent use at the time of this survey but should be assumed as active until shown otherwise.



3.4.2. House Carr Dike borders the survey area and has been assessed for otter, water vole and white clawed crayfish.

3.4.2.1. The watercourse is shallow and is unlikely to be used by otter. No otter holts or field signs were found within the survey area.

3.4.2.2. No water vole burrows, or field signs were found within the survey area. The watercourse lacks the grassy vegetated banks that the species prefers. There are no records of water vole within 2km of the survey area,

3.4.2.3. There are no records of white clawed crayfish within 2km of the survey area. The works will have no direct impact on white clawed crayfish habitat.

3.4.3. There is a stone culvert forming the bridge between the survey area and adjacent buildings. The works will not directly affect the culvert but will involve excavation within 30m of the culvert which may cause disturbance through noise and vibration. The culvert appears to have a stone barrel with gaps clearly present in the stonework, although there was no access internally with the culvert being a confined space.



3.4.3.1. The culvert is not likely to flood frequently but may do so very occasionally with heavy rainfall. This makes it suitable for summer roosting bats but unlikely to be used by hibernating bats.

3.4.3.2. Given the likelihood of good potential features in the stonework internally and the optimal location in woodland with good connectivity to the surrounding landscape, the culvert is assessed as providing moderate potential for roosting bats. The culvert has not been assessed as high potential as it is unlikely to support a roost of high conservation status given the possibility of flooding.

3.4.4. There are multiple trees within the survey area with potential features for roosting bats including most of the veteran trees within the site. T2 on the annotated survey map shows two sycamore that have clear PRFs (Potential Roost Features). These trees are retained by the development.



3.4.5. The survey area is assessed as providing high suitability for foraging and commuting bats due to the being well connected to potential roost locations, woodland and the watercourse present. This habitat will not be fragmented by the proposed development.

3.4.6. The site survey, review of aerial photography and Ordnance Survey maps found no ponds within 500m of the survey area prior to the development of the site. As works have commenced, a pond is present with the site, although as it is recently installed, great crested newts will not be present in the pond. Therefore, great crested newts are assessed as absent from the survey area.

3.4.6. The vegetation within the survey area provides suitable habitat for nesting birds during the nesting bird season, which extends from March to September each year.

3.4.7. The survey area as a grassland is unlikely to be used by reptile species, with a lack of refugia and optimal basking habitat. The survey area, even before disturbance by machinery shows no evidence to have had the varied sward preferred by reptile species. In addition there are no records of reptiles within 2km of the survey area.

3.4.8. The survey area lies outside of the known UK distribution for hazel dormice and there are no records of the species within 2km of the survey area.

3.4.9. The survey area is outside of the known UK distribution of red squirrel and there are no recent records of the species within 2km of the site.

3.4.10. No non-native, invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 found within the survey area. However, this survey was undertaken at a time when Himalayan balsam and many other invasive species have died back.

4. EVALUATION OF FINDINGS.

4.1. The survey area is not within or adjacent to any designated sites with the closest site being over 1km from the survey area. Therefore, the development will have no impact on such sites.

4.2. The proposed work as well as works that have already occurred will cause the partial loss of grassland habitat. The development plans include generous planting with the potential to improve both the ecological functionality of the site and provide 10% biodiversity net gain.

4.3. Below is the baseline biodiversity calculation for the survey area using Biodiversity Metric 3.1. This has been done under the assumption of what was on the site prior to the commencement of any work and only includes the habitats to be impacted, not the watercourse which forms the boundary of the site.

Habitat Type	Extent (ha)	Distinctiveness	Condition Assessment	Biodiversity units
Other Neutral Grassland	0.7065	Medium	Moderate	6.22
Other Woodland, Broadleaved	0.1334	Medium	Moderate	1.17
Total	0.8399			7.39

Habitat Type	Extent (km)	Distinctiveness	Condition Assessment	Biodiversity units
Line of Trees	0.091	Low	Moderate	0.40
Total	0.091			0.40

4.4. A single badger sett lies within the survey area, until shown to be otherwise, this is assessed as an outlying badger sett with low or no recent activity, possibly due to the time of year. Until proved to be inactive, the sett is therefore protected under the Protection of Badgers Act 1992. Therefore, works within 30m of this sett will have an impact on badgers if present.

4.5. House Carr Dike borders the survey area and was assessed for water vole, otter and white clawed crayfish. No otter holts, water vole burrows or field signs for either species were found within the survey area, therefore, the works will not have an impact on these species. The works will not impact the bed of the river and will therefore, not impact on white clawed crayfish.

4.6. There is a culvert directly adjacent to the survey area that is assessed as providing moderate potential for roosting bats. As the works are within 30m of this culvert, there is the potential for disturbance to roosting bats within the culvert.

4.7. Despite the presence of trees with potential roost features, the works will retain these trees and therefore, with precautions in place, will have no impact on roosting bats within trees.

4.8. The survey area provides high potential for foraging and commuting bats. This potential is largely provided by the watercourse and woodland, which will be retained and will not be fragmented by the works, which will have no impact on foraging and commuting bats providing a sensitive lighting plan is in place.

4.9. The site survey, review of aerial photography and Ordnance Survey maps found no ponds within 500m of the survey area. Therefore, great crested newts are assessed as absent from the survey area and the proposed works will have no impact on the species.

4.10. The vegetation within the survey area is assessed as suitable for nesting birds during the nesting bird season, which extends from March to September each year. Therefore, any works within this period may have an impact on nesting birds if present.

4.11. The survey area offers very little potential for reptile species with an absence of basking habitat and refugia. In addition, there are no recent records of reptiles within 2km of the site. Therefore, the proposed development will have no impact on reptile species if precautions are in place throughout the works.

4.12. The survey area is outside of the known UK distribution for hazel dormice and there are no records of the species within 2km of the site. Therefore, the proposed works will have no impact on hazel dormice.

4.13. The survey area is outside of the known UK distribution for red squirrels and there are no records of the species within 2km of the site. Therefore, there will be no impact on red squirrels by the proposed works.

4.14. There were no non-native, invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 present within the site during this survey. However, some species die back over winter, in particular Himalayan balsam that

may be present on the banks of the watercourse where this plant is most likely to be present. Works will not occur within 5m of the watercourse and therefore will have no impact on the spread of such species.

5. RECOMMENDATIONS.

5.1. This Preliminary Ecological Appraisal report is designed to advise the client of the initial survey results so that they may be considered within the site development plan.

5.2. Once all surveys have been completed and the development plans have been finalised, the report must be converted into an Ecological Impact Assessment (EcIA) where details of further survey results, mitigation and biological enhancements are included, to arrive at an assessment of the residual impact of the proposed development. This format needs to include a final Biodiversity Net Gain calculation and will be suitable to submit to the Local Authority.

5.3. It is recommended that a detailed planting scheme is prepared for the site utilising native species. That planting scheme along with species lists and areas will be used to calculate the Biodiversity Net Gain for the site. Net gain can be more easily achieved by the use of higher value habitats such as scrub or a species rich lawn mix.

5.4. It is recommended that all works involving heavy machinery within 30m of the culvert or badger sett cease immediately, given potential disturbance to fauna in these locations. Both badgers and bat species are legally protected from such disturbance.

5.5. Prior to further works involving heavy machinery within 30m of the culvert or badger sett, plans should be disclosed for what works are left to do within 30m of the culvert that involve the use or tracking of heavy machinery.

5.6. If required, two bat surveys of the culvert, one dusk and one dawn, should be undertaken in the active bat season (May to August). If these two surveys do not show bats are present, there will be no requirement for further surveys. If bats are present, a further survey will be required along with a mitigation strategy to submit for planning and a Natural England EPS Licence will be required.

5.7. Depending on the remaining works to be undertaken a disturbance licence may need be in place to permit further works within 30m of the badger sett. Such a licence will limit the time period works can be taken place, with no works likely to be permitted between November and March. In addition, it is recommended natural screening, such as planting around the sett is used to prevent a long-term impact.

5.8. It is recommended that all additional lighting faces directly downwards and away from surrounding woodland and trees.

5.9. If any work commences between March and September, this should be immediately preceded by a thorough nesting bird survey carried out by a suitably experienced person. Any nests identified must remain undisturbed until the young have fledged from the nest.

5.10. It is recommended that during the bat surveys, which will be undertaken during the spring and summer, the survey area is resurveyed to confirm the species within the grassland and the absence of invasive, non-native species listed on Schedule 9 of the Wildlife and Countryside Act 1981.

5.11. It is recommended integrated bat boxes and bird boxes are included in the final designs of the stable building. This is in line with the National Planning Policy Framework (NPPF) to enhance the biodiversity of the site.

Prepared by:	
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Checked by:	
Ruth Georgiou BSc MCIEEM	Date: 21 st December 2022

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Appendix I. BADGER INFORMATION.

Ecology

Badgers are territorial animals who live in social groups called 'clans'. The territory of these clans can vary in size from 0.2 km² to 1.5 km² with anywhere between two and twenty Badgers present. In areas where two clans meet territorial boundaries become well-defined, marked by a series of dung pits called latrines. In areas with relatively low Badger populations there will be less competition for territory and the number of territorial markings will be low or even non-existent.

Badgers use paths around their territory repeatedly, following a scent trail from previous use; thus, Badger paths become well worn. These paths are important to the Badgers and obstruction to these paths will interfere with the Badger's movement around their territory.

Badger setts are any structure or place which displays signs of current or seasonal use by a Badger. Within a Badger clan territory there can be several Badger setts which are categorised in the following ways:

- **Main Sett.** *There will normally be one main sett in a territory. This will generally be the largest sett in the territory, typically with five or more entrances, will be permanently occupied throughout the year and used as the breeding sett.*
- **Outlying Sett.** *These are the smallest setts with generally only one or two entrances. They are intermittently occupied and there can be any number in a territory.*
- **Annex Sett.** *A sett of intermediate size, located close to the main sett and connected by well-defined paths. These are occupied for prolonged periods and may be used as a second breeding sett if there are two breeding sows in the clan.*
- **Subsidiary Sett.** *A sett of intermediate size, similar to an annex sett but located at some distance from the main sett and not connected to the main sett by defined paths.*

Badgers can mate at any time of year but delayed implantation controls the time of birth. Most cubs are born between January and March but they can be born at any

time between December and June. An average of two to three Badger cubs are born to each sow and will initially be totally dependent on their mother. Cubs do not appear above ground until during April or May when they are 8 – 10 weeks old and are not fully weaned until at least June of each year.

Badgers are omnivorous but their preferred food source is worms and insects. Worms are most abundant in well-grazed pastureland while mixed woodland is a good source of insects and grubs. Badgers have a soft and supple nose with which they snuffle into the ground to find insects. When they do this, they leave distinct round holes known as snuffle holes or grubblings. Badgers easily find worms on the surface of well-grazed pastureland and often leave no visible indications of this foraging.

Surveys

Walkover surveys can be conducted to identify the presence of Badgers within an area. This will identify the presence of any setts, dung pits, paths or foraging activity.

Bait marking techniques can be used to survey Badger territories. This involves feeding Badgers at each sett pellets of different colours over a period of at least two weeks. The colour of pellet found in dung pits and territorial latrines shows what areas each clan of Badgers is occupying.

Legislation

Badgers are protected under Schedule 6 of the Wildlife and Countryside Act (1981) and the Protection of Badgers Act (1992).

This makes it an offence to take, kill or injure a Badger, cruelly ill-treat a badger, use Badger tongs or firearms in the killing or taking (or attempt) of a Badger. It is also an offence to damage, destroy, obstruct access to, or any entrance of, a Badger sett, to cause a dog to enter a Badger sett or disturb a Badger while it is occupying a sett.

Appendix II. BAT INFORMATION.

Ecology

There are currently 18 species of bat residing in Britain, 17 of which of which are known to breed here. They are extremely difficult to identify in the hand and even more so in flight.

All appear to be diminishing in numbers, probably due to habitat change and shortage of food, caused by pesticides, as insects are their sole diet.

As their diet consists solely of insects, bats hibernate during the winter when their food source is at its most scarce. They will spend the winter in hollow trees, caves, mines and the roofs of buildings.

Certain species, particularly the pipistrelle (the commonest and most widespread British bat) can quickly adapt to man-made structures and will readily use these to roost and to rear their young.

Surveys

During walkover surveys, bat roosts can be identified by looking for:

- Suitable holes, cracks and crevices within any building, tree or other structure.
- Bat droppings along walls, window cills, or on the ground.
- Prey remains, such as insect wings.

Further investigations can be made using endoscopes, by carrying out aerial inspections of trees or by conducting bat activity surveys during dusk and dawn over summer months.

Legislation

Bats are protected under Appendix II and III of the Bern Convention (1982), Schedule 5 and 6 of the Wildlife and Countryside Act (1981), Annex IV of the Habitats Directive (some species under Annex II), Annex II of the Conservation of Habitats and Species Regulations (2010) and EUROBATS agreement. Numerous species are

also listed under section 41 of the Natural Environment and Rural Communities Act (2006) making them species of principal importance.

All bats and their roosts are therefore protected in the UK. This makes it an offence to kill, injure or take any bat, to interfere with any place used for shelter or protection, or to intentionally disturb any animal occupying such a place.

The UK has designated maternity and hibernacula areas as Special Areas of Conservation (SAC's) under the Habitats Directive. Implementation of the UK Biodiversity Action Plan also includes action for a number of bat species and the habitats which support them.

Where development proposals are likely to affect a bat roost site, a licence is required from Natural England.

Appendix III. NESTING BIRD INFORMATION.

Ecology

The nesting season will vary according to the weather each year but generally commences in March, peaks during May and June and continues until September. It is also worth remembering that some birds nest in trees and scrub, but others are ground nesting or prefer man-made structures or buildings.

Surveys

Nesting bird surveys search for potential nest sites in vegetation, buildings etc. Potential nesting sites are observed over a suitable period for bird movements or calling male birds that would indicate the presence of a nest. The presence of a nest can be identified from the field signs without the necessity to see the nest itself, thereby avoiding any disturbance of the nests. The best way to avoid this issue is to plan for vegetation clearance to be carried out outside the bird-nesting season.

Legislation

Nesting birds are protected under The Wildlife and Countryside Act 1981.

Part 1. -(1) Of the Act states that: - If any person intentionally: - kills, injures or takes any wild bird; takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or takes or destroys an egg of any wild bird, he shall be guilty of an offence.

Part 1. -(5) of the Act states that: - If any person intentionally: - disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on, or near a nest containing eggs or young; or disturbs young of such a bird, he shall be guilty of an offence and liable to a special penalty.

The Countryside and Rights of Way Act 2000 amends the above by inserting after “intentionally” the words “or recklessly”

Appendix IV. REPTILE INFORMATION.

Ecology

There are five main species of reptile that reside in the UK; Common or Viviparous Lizard (*Lacerta vivipara*); Sand Lizard (*Lacerta agilis*); Slow Worm (*Anguis fragilis*); Grass Snake (*Natrix natrix*) and Adder (*Vipera berus*). The Adder is the only native species that is venomous although this is rarely harmful to humans.

Reptiles occupy a wide range of habitats including woodland, marshes, heathland, moors, sand dunes, hedgerows and bogs. Sand Lizards are confined to moorland and coastal sand dunes where they lay their eggs in the warm sand. The range of the Sand Lizard in the UK is therefore very limited. Slow Worms can be found in a wide variety of habitats throughout Britain and is the most likely reptile to be found in urban and suburban environments.

Maintaining the right body temperature is vital to reptiles' survival. In the morning, they find a warm basking site to heat up their bodies, then later they may move back into the shade because they do not sweat and have to be careful not to overheat. During hot summers, Adders will try to move to damper, cooler sites.

Over winter reptiles will hibernate in burrows or under logs where they are protected from the cold and predators, emerging from February onwards as the weather warms up.

Reptiles generally begin to mate April to May with young born in late July to September. The Common Lizard gives birth to live young, hence the term viviparous, meaning live bearing.

Surveys

Reptile surveys involve the searching of refuge such as logs and stones for any animal sheltering below. Artificial refuge may be laid out on site for the purpose of reptile surveys.

Legislation

Reptiles are protected under Appendix II (sand lizards) and Appendix III (common lizard, slow worms, smooth snake, grass snake and adders) of the BERN Convention (1982), partially protected under Schedule 5 of the Wildlife and Countryside Act (1981), Annex IV of the Habitats Directive and are all listed under section 41 of the Natural Environment and Communities Act (2006) making them a species of principal importance.

This makes it an offence to disturb any reptile while it is occupying a structure or place it uses for shelter or protection or to obstruct access to such a place.

Appendix V. INVASIVE PLANT SPECIES INFORMATION.

Ecology

The Government has acknowledged the problems that can be caused by non-native invasive species. In 2008 the Government launched “The Invasive Non-Native Species Framework Strategy for Great Britain”. The strategy provides a framework for a more co-ordinated approach to invasive species management. It seeks to create a stronger sense of shared responsibility across government, key organisations, land managers and the public.

The Non-Native Species Secretariat has been established to oversee the implementation of the strategy. Details of the secretariat including risk assessments and action plans for some species are available at www.nonnativespecies.org.

In general, there are four basic methods of controlling weeds: mechanical, chemical, natural and environmental.

- ***Mechanical control*** includes cultivation, hoeing, pulling, cutting, raking, dredging or other methods to uproot or cut weeds.
Where this method is used all plant material must be considered “controlled waste” and must be disposed of properly.
- ***Chemical control*** uses approved herbicides.
- ***Natural control*** uses pests and diseases of the target weed to weaken it and prevent it from becoming a nuisance.
- ***Environmental control*** works by altering the environment to make it less suitable for weed growth, for example by increasing or decreasing water velocity.

Surveys

A site will be searched for invasive plant species growing on site, from mature plants to new shoots. A site will also be searched for dead stems indicating that plants that may have seasonally died back are present.

Legislation

Invasive species listed under Schedule 9 are prohibited from release into the wild. Schedule 9, Section 14(2) prohibits ‘planting’ or ‘causing to grow’ in the wild of any plant listed in Part 2 of Schedule 9.

The following is a list of all the species of plant listed under Schedule 9 of The Wildlife and Countryside Act 1981.

Common Name	Scientific Name	England & Wales	Scotland
Alexanders, Perfoliate	<i>Smyrniium perfoliatum</i>	✓	
Algae, Red	<i>Grateloupia luxurians</i>	✓	
Archangel, Variegated Yellow	<i>Lamiastrum galeobdolon</i> subsp. <i>Argentatum</i>	✓	
Azalea, Yellow	<i>Rhododendron luteum</i>	✓	
Balsam, Himalayan	<i>Impatiens glandulifera</i>	✓	
Cotoneaster	<i>Cotoneaster horizontalis</i>	✓	
Cotoneaster, Entire Leaved	<i>Cotoneaster integrifolius</i>	✓	
Cotoneaster, Himalayan	<i>Cotoneaster simonsii</i>	✓	
Cotoneaster, Hollyberry	<i>Cotoneaster bullatus</i>	✓	
Cotoneaster, Small Leaved	<i>Cotoneaster microphyllus</i>	✓	
Creeper, False Virginia	<i>Parthenocissus inserta</i>	✓	
Creeper, Virginia	<i>Parthenocissus quinquefolia</i>	✓	
Dewplant, Purple	<i>Disphyma crassifolium</i>	✓	
False-acacia	<i>Robinia pseudoacacia</i>		✓
Fanwort	<i>Cabomba caroliniana</i>	✓	✓
Fern, Water	<i>Azolla filiculoides</i>	✓	✓
Fig, Hottentot	<i>Carpobrotus edulis</i>	✓	✓
Garlic, Three-Cornered	<i>Allium triquetrum</i>	✓	
Hogweed, Giant	<i>Heracleum mantegazzianum</i>	✓	✓
Hyacinth, water	<i>Eichhornia crassipes</i>	✓	✓
Kelp, Giant	<i>Macrocystis angustifolia</i>	✓	✓
Kelp, Giant	<i>Macrocystis integrifolia</i>	✓	✓
Kelp, Giant	<i>Macrocystis laevis</i>	✓	✓
Kelp, Giant	<i>Macrocystis pyrifera</i>	✓	✓
Kelp, Japanese	<i>Laminaria japonica</i>	✓	✓

Knotweed, Giant	<i>Fallopia sachalinensis</i>	✓	
Knotweed, Hybrid	<i>Fallopia japonica</i> x <i>Fallopia sachalinensis</i>	✓	
Knotweed, Japanese	<i>Fallopia japonica</i>	✓	
Knotweed, Japanese	<i>Polygonum cuspidatum</i>		✓
Leek, Few-flowered	<i>Allium paradoxum</i>	✓	✓
Lettuce, water	<i>Pistia stratiotes</i>	✓	✓
Montbretia	<i>Crocasmia</i> x <i>crocosmiiflora</i>	✓	
Parrot's-feather	<i>Myriophyllum aquaticum</i>	✓	
Pennywort, Floating	<i>Hydrocotyle ranunculoides</i>	✓	
Potato, Duck	<i>Sagittaria latifolia</i>	✓	
Primrose, Floating Water	<i>Ludwigia peploides</i>	✓	
Primrose, Water	<i>Ludwigia grandiflora</i>	✓	
Rhododendron	<i>Rhododendron ponticum</i>	✓	
Rhubarb, Giant	<i>Gunnera tinctorial</i>	✓	
Rose, Japanese	<i>Rosa rugosa</i>	✓	
Salvinia, Giant	<i>Salvinia molesta</i>	✓	✓
Seafingers, Green	<i>Codium fragile</i>	✓	
Seafingers, Green	<i>Codium fragile tomentosoides</i>		✓
Seaweed, Californian Red	<i>Pikea californica</i>	✓	✓
Seaweed, Hooked Asparagus	<i>Asparagopsis armata</i>	✓	✓
Seaweed, Japanese	<i>Sargassum muticum</i>	✓	✓
Seaweeds, Laver (except native species)	<i>Porphyra</i> sp. except - <i>P. amethystea</i> <i>P. leucosticta</i> <i>P. linearis</i> <i>P. miniata</i> <i>P. purpurea</i> <i>P. umbilicalis</i>	✓	✓
Shallon	<i>Gaultheria shallon</i>		✓
Stonecrop, Australian swamp	<i>Crassula helmsii</i>	✓	✓
Wakame	<i>Undaria pinnatifida</i>	✓	✓
Waterweed, Curly	<i>Lagarosiphon major</i>	✓	✓
Waterweeds	All species of the genus <i>Elodea</i>	✓	

Appendix VI. ANNOTATED MAP OF THE SURVEY AREA.



Appendix VI. TARGET NOTES.

T1 – Location of outlying badger sett.

T2 – Location of two sycamores with potential features for roosting bats.

T3 – Location of culvert with moderate bat roost potential.

Appendix VIII. CONDITION ASSESSMENT TABLES.

Woodland Assessment Criteria

Condition Assessment Criteria				
Indicator:		Good (3 points)	Moderate (2 points)	Poor (1 point)
1	Age distribution of trees¹	Three age classes present	Two age classes present	One age class present
2	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland ²	Evidence of significant browsing pressure is present in 40% or less of whole woodland	Evidence of significant browsing pressure is present in 40% or more of whole woodland
3	Invasive plant species³	No invasive species present in woodland	Rhododendron or laurel not present, other invasive species < 10% cover	Rhododendron or laurel present, or other invasive species > 10% cover
4	Number of native tree species	Five or more native tree or shrub species found across woodland parcel	Three to four native tree or shrub species found across woodland parcel	None to two native tree or shrub species across woodland parcel
5	Cover of native tree and shrub species	> 80% of canopy trees and >80% of understory shrubs are native	50-80% of canopy trees and 50-80% of understory shrubs are native	< 50% of canopy trees and <50% of understory shrubs are native
6	Open space within woodland⁴	10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply	21- 40% of woodland has areas of temporary open space	More than 40% of woodland has areas of temporary open space
7	Woodland regeneration⁵	All three classes present in woodland; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland	No classes or coppice regrowth present in woodland
8	Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback	11% to 25% mortality and/or crown dieback or low risk pest or disease present	Greater than 25% tree mortality and or any high risk pest or disease present
9	Vegetation and ground flora	Ancient woodland flora indicators present	Recognisable NVC plant community present	No recognisable NVC community
10	Woodland vertical structure⁶	Three or more storeys across all survey plots or a complex woodland	Two storeys across all survey plots	One or less storey across all survey plots
11	Veteran trees⁷	Two or more veteran trees per	One veteran tree per hectare	No veteran trees present in

		hectare		woodland
12	Amount of deadwood	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps
13	Woodland disturbance ⁸	No nutrient enrichment or damaged ground evident	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground

Grassland (medium, high & very high distinctiveness) Assessment Criteria

Condition Assessment Criteria	
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.
4	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition ¹ and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.
Additional Group (non-acid types only)	
6	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).

Line of Trees Assessment Criteria

Condition Assessment Criteria	
1	More than 70% of trees are native species.
2	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.
3	Includes one or more mature ¹ or veteran ² tree.
4	There is an undisturbed naturally vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other anthropogenic operations.
5	At least 95% of the trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.

Appendix IX. PROPOSED DEVELOPMENT PLANS.

