Barnsley West – Barugh Green Road Roundabout

Ecological Appraisal



For Strata Sterling Barnsley West Ltd

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Contents

Executive Summary **1**
Glossary **3**
1.0 Introduction **4**
1.1 Background 4
1.2 Site Location 4
1.3 Development Proposals 4
1.4 Purpose of the Report 4
2.0 Methodology **5**
2.1 Desk Study 5
2.2 Field Survey 5
2.3 Limitations 7
3.0 Baseline Conditions **9**
3.1 Designated Sites 9
3.2 Habitats 10
3.3 Protected & Notable Species 10
3.4 Importance of Ecological Features 14
4.0 Relevant Planning Policy & Legislation **16**
4.1 Revised National Planning Policy Framework 16
4.2 Biodiversity 2020: A strategy for England's Wildlife & Ecosystem Services 17
4.3 Local Biodiversity Action Plan 17
4.4 Local Plan 18
4.5 Legislation 19
5.0 Discussion **20**
5.1 Designated Sites 20
5.2 Habitats 20
5.3 Protected & Notable Species 21
6.0 Summary **25**
6.1 Designated Sites 25
6.2 Habitats 25
6.3 Protected & Notable Species 25
7.0 References **27**

Figure 1 – Site Location Plan
Figure 2 – Phase 1 Habitat Plan
Figure 3 – Waterbodies within 500m of Site

Appendix A – Report Conditions
Appendix B – Proposed Site Layout
Appendix C – Key Legislation

Executive Summary

Contents	Summary
Site Location	The 'site' is located in Barugh Green, Barnsley at the intersection of Barugh Green Road (A635) and Cannon Way (central Ordnance Survey National Grid Reference SE 31533 07952).
Proposals	The proposed works comprise construction of a four-exit roundabout. The roundabout will support current traffic movement along Barugh Green Road and Cannon Way, and provide a new spur road which could facilitate future development of land to the south of the site.
Existing Site Information	The site is partly located within a larger site, known as Barnsley West, which has been subject to extensive ecological surveys since 2013. The findings from the ecological surveys of the larger have been used, in part, to inform this report.
Scope of this Survey(s)	To review, 'ground-truth' and summarise existing ecological baseline reports to identify habitats types. To assess the dominant vegetation and the potential for the site to support any protected / notable species.
Results	• One Natura 2000 site and three LWS were present within 10km and 2km of the site, respectively. • The site comprised improved grassland, arable and hardstanding, with hedgerows (not 'Important') and dry ditches. • The site offers suitability to support bats, badger, breeding / foraging birds and common invertebrates.
Recommendations	**Habitats** • Hedgerows should be retained or replaced, ideally with native species of local provenance and in greater length than the lost hedgerow. • To retain connectivity, wildlife tunnels could be installed under the proposed road / roundabout and areas with no artificial lighting or wildlife sensitive lighting could be provided across the road ways. **GCN** • GCN are considered unlikely to be present; however, pre-cautionary working measures are recommended prior to and during construction works. **Bats** • To retain connectivity across the site for bats, hedgerows should be retained where possible, or replaced, and areas of no artificial lighting or wildlife friendly lighting should be created around the roundabout. **Badger** • A pre-commencement badger check of the no less than three months prior to commencement of the proposed works. • As a precautionary measure, open pipe ends should be capped and open excavations covered or a means of escape for badger and other mammals should be provided. **Birds** • Loss of suitable nesting habitats (i.e. hedgerows, trees, arable and improved grassland) should be minimised. • It is recommended that site clearance and any vegetation clearance is undertaken outside of the main breeding bird season (typically March – September, inclusive); or otherwise preceded by a nest check by a suitably experienced ecologist.

	• Hawk kites / bird scarers could be used to discourage ground nesting birds on site. • Lost hedgerow habitat could be replaced around the periphery of the site / roundabout footpath. **Hedgehog** • Any lost commuting habitat should be replaced in greater quantity and wildlife tunnels could be installed. • Any lost suitable refuge / foraging habitat should be replaced. **Potential Enhancements** • The site could be enhanced for bats, birds and invertebrates by adopting wildlife beneficial planting into the scheme and / or including invertebrate boxes.

Glossary

ACIEEM	Associate Member of Chartered Institute of Ecology & Environmental Management
Badger Act	Protection of Badgers Act 1992
BCT	Bat Conservation Trust
BSI	British Standard Institute
BTO	British Trust for Ornithology
CEnv	Chartered Environmentalist
CIEEM	Chartered Institute of Ecology & Environmental Management
CRoW Act	Countryside and Rights of Way Act 2000
DEFRA	Department for the Environment, Food and Rural Affairs
EcIA	Ecological Impact Assessment
EPSL	European Protected Species Licence
GCN	Great Crested Newt
Habitat Regulations	Conservation of Habitats and Species Regulations 2017 (as amended)
HAP	Habitat Action Plan
Hedgerow Regulations	Hedgerow Regulations 1997
HPI	Habitat(s) of Principal Importance
JNCC	Join Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LWS	Local Wildlife Site
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
Natura 2000 site	A European site designated for its nature conservation value
NERC Act	Natural Environment and Rural Communities Act 2006
NPPF	National Planning Policy Framework
PEA	Preliminary Ecological Appraisal
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Species Action Plan
SPA	Special Protection Area
SPI	Species of Principal Importance
SSSI	Site(s) of Special Scientific Interest
W&CA	Wildlife & Countryside Act 1981 (as amended)

1.0 Introduction

1.1 Background

WYG was commissioned by Strata Sterling Barnsley West Ltd on 4th October 2019 to produce an Ecological Appraisal relevant to the site known as Barnsley West – Barugh Green Road Roundabout.

This report has been prepared by WYG Project Ecologist Jonathan Siberry ACIEEM. Jonathan has over three years' experience of ecological consultancy and is experienced in undertaking Ecological Appraisals. This report should be read with reference to the report conditions provided in Appendix A.

1.2 Site Location

The 'site' is located in Barugh Green, Barnsley at the intersection of Barugh Green Road (A635) and Cannon Way (Figure 1). The Central Ordnance Survey National Grid Reference for the site is SE 31533 07952 and it comprises areas of hardstanding (A-road and footpaths), improved grassland, hedgerows and scattered trees / scrub.

1.3 Development Proposals

The proposed works comprise construction of a four-exit roundabout. The roundabout will support current traffic movement along Barugh Green Road and Cannon Way, and provide a new spur road which could facilitate future development of land to the south of the site (Appendix B).

1.4 Purpose of the Report

The purpose of this report is to:

- Review, 'ground-truth' and summarise survey data from existing ecological baseline reports.
- Assess the potential ecological receptors present on site, identify any constraints they pose to the proposed development and (if possible) any recommendations for any avoidance, mitigation or enhancement measures that are needed (as appropriate).

Note that scientific names are provided at the first mention of each species and common names (where appropriate) are then used throughout the rest of the report for ease of reading.

A summary of the key legislation is also provided in Appendix C.

2.0 Methodology

2.1 Desk Study

2.1.1 Existing Site Information

The following ecology reports have been reviewed to inform this assessment:

- Wildscapes (2013) *Land South of Barugh Green Road (Site Ref UB4A); Ecological Assessment Summary*. Issued May 2013.
- AECOM (2017) *Barnsley West Preliminary Ecological Appraisal*. Issued June 2017.
- WYG (2018a) *Barnsley West Badger and Hedgerow Survey.* Issued in draft June 2018.
- WYG (2018b) *Barnsley West Great Crested Newt eDNA Survey*. Issued in draft August 2018.
- WYG (2018c) *Barnsley West Bat Survey Report.* Issued in draft December 2018.
- WYG (2019) *Barnsley West Breeding Bird Survey Report.* Issued in draft February 2019.

In addition to the respective field surveys, each of the reports detailed above included a desk study and third-party data from the local ecological records centre (Barnsley Biological Records Centre) and local species recording groups (e.g. bats and badger). For the purposes of this assessment, only recent records (i.e. within last 10 years) have been considered.

2.1.2 Online Resources

A search for relevant information was also made in November 2019, on the following websites:

- MAGIC www.magic.gov.uk - DEFRA's interactive, web-based database for statutory designations within 10km of site, use of Ordnance Survey (OS) maps to identify waterbodies within 500m and information on any EPSL applications that have been granted in the local area; and
- Google Earth – to review aerial imagery for waterbodies within 500m of the site.

2.2 Field Survey

The following methodologies have been used to identify the ecological receptors present on or near the site, which are relevant to the proposed development.

2.2.1 Habitats

A 'ground-truthing' walkover survey of the site was undertaken on 15th October 2019 by WYG Project Ecologist Jonathan Siberry ACIEEM. The aim of this walkover was to confirm the habitats and dominant plant species (using nomenclature according to Stace, 2019) present on site, with reference to the *Handbook for Phase 1 habitat survey* (JNCC, 2010) and *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017).

2.2.2 Protected & Notable Species

The site was inspected for evidence of, and its potential to support, protected or notable species (with reference to the *Handbook for Phase 1 habitat survey* (JNCC, 2010) and *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017)), especially those listed under the Schedule 2 of the Habitat Regulations, Schedule 5 of the W&CA, the CRoW Act, those given extra protection under the NERC Act, and species included in the Barnsley LBAP.

Great Crested Newt

The site was appraised for its suitability to support GCN. The assessment was based on Guidance outlined in the *Herpetofauna Workers' Manual* (Gent & Gibson, 2003) and the *Great Crested Newt Conservation Handbook* (Langton, Becket & Foster, 2001).

Reptiles

The site was appraised for its suitability to support reptiles. The assessment was based on guidance outlined in the *Herpetofauna Workers' Manual* (Gent & Gibson, 2003).

Bats

Roosting Bats – Trees

Any suitable trees on site were assessed from the ground for their suitability to support breeding, resting and hibernating bats using survey methods based on the BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016) – hereafter referred to as the 'BCT Guidelines'. The following system has therefore been used to categorise the bat roost suitability of any features found:

Table 1: Categories of Bat Roost Suitability (BCT Guidelines)

Suitability	Typical Roosting Features
Negligible	Negligible habitat feature on site likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

Foraging / commuting Bats

The BCT Guidelines use the following criteria to categorise the potential value of habitats and features for use by foraging and commuting bats and these have been used to characterise the value of this site:

Table 2: Categories of Habitat Suitability (BCT Guidelines)

Suitability	Typical Foraging & Commuting Features
Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.

Suitability	Typical Foraging & Commuting Features
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

Badgers

The site and a 30m buffer, where accessible, was surveyed for evidence of badger setts or other badger activity such as paths, latrines or signs of foraging. Methodologies used and any setts recorded were classified according to published criteria (Harris, Cresswell & Jefferies, 1989).

Other Species

The site was also appraised for its suitability to support other protected or notable fauna including mammals, amphibians, birds and invertebrates with regard to the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017) and *BS42020:2013 Biodiversity – Code of Practice for Planning and Development* (BSI, 2013). Evidence of any current or historical presence of such species was recorded.

2.2.3 Invasive Species

The site was searched for evidence of invasive plant species, such as Japanese knotweed *Reynoutria japonica* (formerly *Fallopia japonica*), Indian (Himalayan) balsam *Impatiens glandulifera*, giant hogweed *Heracleum mantegazzianum*, wall cotoneaster *Cotoneaster horizontalis* and rhododendron *Rhododendron ponticum × Rhododendron maximum.* A full list of all invasive plant species is provided in Appendix C.

2.3 Limitations

The optimal period to undertake an extended Phase 1 habitat survey is April - September, inclusive. Although the 'ground-truthing' walkover was undertaken in October 2019 (outside of the optimal survey window), the original Preliminary Ecological Appraisal (AECOM, 2017) was undertaken during the optimal survey period (June 2017) and it was possible to identify the habitat types on site during the 'ground-truthing' walkover, based upon the dominant species present.

Due to the image quality of available aerial imagery, the identification of smaller waterbodies is difficult, with small waterbodies having a similar appearance to small areas of bare ground and shadows on aerials. For the purposes of this assessment, areas which meet these criteria have been discussed as potential waterbodies. In addition, it should be noted that dense foliage can obscure aerial imagery of areas which could include waterbodies / ponds.

To determine presence or likely absence of protected species usually requires multiple visits at suitable times of the year. As a result, this survey focuses on assessing the potential of the site to

support species of note, which are considered to be of principal importance for the conservation of biodiversity with reference to those given protection under UK or European wildlife legislation. This report cannot therefore be considered a comprehensive assessment of the ecological interest of the site. However, it does provide an assessment of the ecological interest present on the day the site was visited and highlights areas where further survey work may be recommended.

The details of this report will remain valid for a period of **18 months** from the date of the 'ground-truthing' walkover, after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the red line boundary or development proposals which this report was based on.

3.0 Baseline Conditions

3.1 Designated Sites

There are no statutory designated sites within 2km of the site. Although, three Local Wildlife Sites (LWS) are present with 2km of the site (Table 3).

The nearest Natura 2000 site is the Denby Grange Colliery Ponds SAC, located 8.2km north-west of the site. This site is designated for its consistently high counts of GCN in 'recent years'.

Table 3: Designated Sites Within 2km

Designation	Site Name	Distance & Direction	Summary of features
LWS	Redbrook Pastures	830m south-east	This site comprises two fields, hedgerows and areas of scrub, both dominated by a neutral sward; although, the southern-most field contains elements of acidic grassland. Bluebell *Hyacinthoides non-scripta* and wood millet *Millium effusum*, both South Yorkshire indicators of ancient woodland, are present.
LWS	Hugset Wood	1.2km south-west	This site comprises predominantly coniferous plantation with distinct areas of broadleaved semi-natural woodland. Replanted ancient woodland and ancient and semi-natural woodlands form the main classifications of the site. Corsican pine *Pinus nigra ssp*. Dominates the plantation areas, while Sycamore *Acer pseudoplatanus* dominates the majority of the broadleaved areas.
LWS	Barnsley Canal at Wilthorpe	1.3 km north-east	This site comprises a stretch of the disused Barnsley Canal and adjacent farmland. The River Dearne is to the north of the site and a railway line is situated just south. An old section of the river forms part of the northern site boundary.

The site falls within an Impact Risk Zone and such, Natural England should be consulted for any of the following developments:

- Infrastructure — Airports, helipads and other aviation proposals.
- Air Pollution — Livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t.
- Combustion — General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.

3.2 Habitats

The following habitat descriptions should be read with reference to Figure 2. As the report has been based on the results of a number of different reports and the results of a ground-truthing survey, Target Notes have not been included in the descriptions below.

3.2.1 Improved Grassland

Improved grassland is the dominant habitat on site which is closely grazed by cattle and horses, on a rotational basis. Grass species present include crested dog's-tail *Cynosurus cristatus*, perennial ryegrass *Lolium perenne*, creeping bent *Agrostis stolonifera*, Timothy *Phleum pratense*, annual meadow-grass *Poa annua*, cock's-foot *Dactylis glomerata*, ribwort plantain *Plantago lanceolata*, white clover *Trifolium repens*, red clover *Trifoilum pratense*, common mouse-ear *Cerastium fontanum*, yarrow *Achillea millefolium*, creeping buttercup *Ranunculus repens*, cats-ear *Hypochaeris radicata*, selfheal *Prunella vulgaris*, common sorrel *Rumex acetosa*, broad-leaved dock *Rumex obtusifolius* and occasional ragwort *Senecio jacobaea*.

3.2.2 Hedgerows with Trees

Two intact hedgerows and a single defunct hedgerow, all with trees, are present on site. They are species-poor and were dominated by hawthorn *Crataegus monogyna* with other species such as elder *Sambucus nigra* and dog-rose *Rosa canina* also present. Trees species within the hedgerows included ash *Fraxinus excelsior*, field maple *Acer campestre* and pedunculate oak *Quercus robur*.

A hedgerow survey of the hedgerows on site, with reference to the *Hedgerow Regulations 1997*, identified that the hedgerows do not qualify as 'Important' hedgerows (WYG, 2018a).

3.2.3 Arable

A small area of the site comprises arable farmland and has been used for cereal crops and silage.

3.2.4 Dry Ditch

A dry ditch is present within each of the intact hedgerows on site. The ditch in the southern-most hedgerow appeared to be damp, indicating that the ditch may facilitate movement of water during periods of heavy rain. As there was no evidence of the ditch within the northern-most hedgerow having been recently wet, it is considered likely that the ditch is typically dry throughout most of the year.

3.2.5 Hardstanding

Barugh Green Road (A635), Cannon Way and associated footpaths are located in the north of the site and are primarily comprised of asphalt.

3.3 Protected & Notable Species

3.3.1 Great Crested Newt

Records (i.e. within last 10 years) of GCN are known within 2km of the site, with closest records returned from Low Barugh (750m north) and near the disused Barnsley Canal (1.25km north-west). A search of MAGIC identified two granted EPSLs for GCN, on a single site located 760m north of the site. These EPSLs allow for the damage and destruction of a GCN resting place(s). The site is not connected to habitats associated with these GCN records or EPSLs but rather separated from these

habitats by residential and industrial areas and associated roads/infrastructure, considered to form an effective barrier to the movement of GCN .

There are no waterbodies present on site. A search of OS maps identified no open waterbodies within 500m of the site, although aerial imagery indicated the presence of two garden ponds and one potential garden pond within 500m of the site (Figure 3).

Pond 1 (approx. 100 square metres) is located approx. 30m from the proposed works area. It appears to be an ornamental pond, with hard-engineered edges (e.g. steep concrete / stone edges) and water features. As such, the presence of fish within the pond is considered to be likely.

The second apparent pond (Pond 2) appears smaller in size (approx. six square metres) and is located 200m south-west of the site. It also appears to be ornamental, with 'hard-engineered' surfaces surrounding the pond. The presence of fish here is also considered to be likely.

The 'potential pond' (Pond 3), located 225m south-west of the site, is more difficult to identify as a garden pond from the aerial imagery due its small size (i.e. approx. one square metre). It appears to be surrounded by amenity grassland and hardstanding, with some shrubs. The garden is bounded by hedgerows (on the north and eastern boundaries) and a fence (on the southern boundary).

In addition, although located greater than 500m from site, an eDNA survey was undertaken on a waterbody located 760m south-east of the site (WYG, 2018b), which is considered to be likely more suitable for GCN than the garden ponds (previous Habitat Suitability Index assessment of this pond suggested Average suitability for GCN), and returned a negative result, indicating a likely absence of GCN.

When considering the habitats present on site, although hedgerows can support movement of GCN when in their terrestrial phase, improved grassland is considered to be sub-optimal (in part due to its low sward height) and hardstanding is considered to offer no suitability for GCN.

GCN are discussed further in Section 5.3.

3.3.2 Reptiles

No records of reptiles are known from within 2km of the site.

The majority of habitats present on site are considered to be sub-optimal for reptiles. Hedgerows could facilitate reptile movement, should they be present, between areas of suitable habitat and residential housing and the garden centre (located to the east and the west of the site, respectively) could have compost heaps which offer suitability for reptiles such as grass snake *Natrix helvetica*, these areas are considered to be relatively isolated from other suitable habitat. Habitats immediately south of the site comprise improved grassland and arable areas, which are considered to be sub-optimal for reptiles. In addition, habitats immediately north of the site are considered to be unsuitable for reptiles and the industrial areas (and associated roadways) would likely restrict any movement of reptiles.

Reptiles are considered unlikely to be present on site and as such, are not considered further within this report.

3.3.3 Bats

Twenty-three records of bats are known with 2km of the site. These records included the following species; common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Leisler's bat *Nyctalus leisleri*, noctule *Nyctalus noctula* and, Daubenton's bat *Myotis daubentonii* and unknown *Myotis* bats. The nearest known record was for a grounded Leisler's bat, 500m north-west of site. No records of bat roosts were returned within 2km of site. A search of MAGIC identified no records of granted EPSL for bats within 2km of the site.

During bat activity surveys (WYG, 2018c) the following was identified:

- A remote static detector deployed adjacent to the site (within the southern-most hedgerow) in April 2018 identified 85 common pipistrelle passes, two pipistrelle species *Pipistrellus sp.* passes, two noctule passes and two Myotis species *Myotis sp.* passes.
- Monthly transect surveys (undertaken between Apr – September, inclusive) identified two common pipistrelle passes in April and one common pipistrelle pass in May, June and September.

The site is considered to support some movement of commuting and foraging bats, primarily that of common pipistrelle with low numbers of other bats species (e.g. noctule and *Myotis sp.*). The hedgerows with trees on site are considered to offer the greatest suitability for foraging / commuting bats, although the improved grassland could also support some foraging activity, particular when actively grazed (i.e. animal dung attracting invertebrates).

The trees on / directly adjacent to site are considered to offer 'Negligible' bat roost suitability, with reference to the best practice survey guidelines (Collins, 2016).

Recommendations for bats are made in Section 5.3.

3.3.4 Badger

Three recent records of badger are known with 2km of the site. The closest known record is 1.2km from site, although separated from the site by the M1 motorway which is considered to be a barrier to dispersal.

The improved grassland and arable field could support foraging badgers, while hedgerows and field boundaries can often be the site of badger sett creation. However, no evidence of badger has been recorded on site during previous surveys (Wildscapes, 2013; AECOM, 2017 & WYG, 2018a) or during the 'ground-truthing' walkover (October, 2019).

Pre-cautionary measures for badger are provided within Section 5.3.

3.3.5 Otter & Water Vole

No recent records of otter or water vole are known within 2km of the site. Similarly, a search of MAGIC identified no granted EPSL for otter within 2km of the site.

The dry ditches on site considered to be typically dry throughout most of the year or to only facilitate water movement during periods of heavy rain. In addition, the drains are not connected to any other watercourses. As such, there is considered to be no suitable otter or water vole habitat on site.

Otter and water vole are considered unlikely to be present on site and as such, are not considered further.

3.3.6 Birds

Known records of bird species within 2km of site include a total of 51 protected / notable species. A full species list is provided in Table 4.

Table 4: Protected / notable bird species recorded within 2km of site

Scientific Name	Common Name	Scientific Name	Common Name
Acanthis cabaret	Lesser redpoll	*Motacilla cinerea*	Grey wagtail
Alauda arvensis	Skylark	*Motacilla flava*	Yellow wagtail
Alcedo atthis	Kingfisher	*Muscicapa striata*	Spotted flycatcher
Anas crecca	Teal	*Pandion haliaetus*	Osprey
Anas strepera	Gadwall	*Parus montanus*	Willow tit
Anser albifrons	White-fronted goose	*Passer domesticus*	House sparrow
Anser brachyrhynchus	Pink-footed goose	*Passer montanus*	Tree sparrow
Anthus pratensis	Meadow pipit	*Perdix perdix*	Grey partridge
Carduelis carduelis	Goldfinch	*Phalacrocorax carbo*	Cormorant
Charadrius dubius	Little-ringed plover	*Phylloscopus trochilus*	Willow warbler
Columba oenas	Stock dove	*Pluvialis apricaria*	Golden plover
Delichon urbicum	House martin	*Poecile palustris*	Marsh tit
Emberiza citrinella	Yellowhammer	*Punella modularis*	Dunnock
Emberiza schoeniclus	Reed bunting	*Pyrrhula pyrrhula*	Bullfinch
Falco columbarius	Merlin	*Saxicola torquata*	Stonechat
Falco peregrinus	Peregrine	*Scolopax rusticola*	Woodcock
Falco subbuteo	Hobby	*Sturnus vulgaris*	Starling
Falco subbuteo	Honey buzzard	*Tringa glareola*	Wood sandpiper
Falco tinnunculus	Kestrel	*Tringa ochropus*	Green sandpiper
Fringilla montifringilla	Brambling	*Tringa totanus*	Redshank
Gallinago gallinago	Snipe	*Turdus iliacus*	Redwing
Haematopus ostralegus	Oystercatcher	*Turdus philomelos*	Song thrush
Larus canus	Little gull	*Turdus pilaris*	Fieldfare
Linaria cannabina	Linnet	*Turdus viscivorus*	Mistle thrush
Locustella naevia	Grasshopper warbler	*Vanellus vanellus*	Lapwing
Lymnocryptes minimus	Jack snipe		

Notable bird species recorded on, and directly adjacent to, site during breeding bird surveys (WYG, 2019) included house sparrow *Passer domesticus*, starling *Sturnus vulgaris*, lapwing *Vanellus vanellus* and dunnock *Prunella modularis*.

The hedgerows and trees on site are considered to provide suitable nesting habitat for bird species such as house sparrow and dunnock. In addition, the improved grassland and arable field could support ground nesting birds such as skylark *Alauda arvensis* and lapwing. Foraging resources available to birds on site include berries and seeds from hedgerow, tree and grassland species, as well as arable crops such as wheat. Common invertebrates also form a source of food for birds on site.

Recommendations for birds are made in Section 5.3.

3.3.7 Invertebrates

Records of the following invertebrates are known with 2km of site; small heath butterfly *Coenonympha pamphilus*, dingy skipper butterfly *Erynnis tages*, wall butterfly *Lasiommata megera* and white letter hairstreak butterfly *Satyrium w-album*.

The habitats on site are common and widespread and lack any significant botanical diversity. Where botanical diversity is greatest on site (i.e. improved grassland), heavy grazing maintains a short sward length. As such, it is considered unlikely that habitats on site would support any protected / notable invertebrate species. Although, common species are likely to be present.

The site is considered unlikely to support any protected / notable invertebrate species. As such, dedicated invertebrate surveys are not considered necessary; however, **recommendations for habitat enhancements are provided in Section 5.3.**

3.3.8 Non-native Invasive Species

No records of non-native invasive species were detailed within the previous desk study of the site. However, a stand of Japanese knotweed was recorded approx. 200m north of the site.

No non-native invasive species were recorded on site and; therefore, it is considered unlikely that the works would impact any non-native invasive species.

3.3.9 Hedgehog

No records of hedgehog *Erinaceus europaeus* were detailed within the previous desk study of the site.

Grassland on site offers suitable foraging habitat for hedgehog, whilst the hedgerows could provide suitable commuting corridors and some areas suitable for refuge. Other suitable habitat is present in the surrounding area, although Barugh Green Road (A635) does present a hazard / restriction to hedgehog to / from the north movement.

Recommendations for hedgehog are made in Section 5.3.

3.4 Importance of Ecological Features

In line with the CIEEM PEA Guidelines, and based on the above baseline information, the considered importance of each ecological feature recorded within the study area is included in Table 5 below, with reference to the Methodology as defined in Section 4 of the CIEEM EcIA Guidelines (2018).

For the purposes of this assessment, 'Local' is defined as the area encompassing the village of Barugh Green.

Table 5: Importance of Ecological Features

Feature	Importance	Rationale
Denby Grange Colliery SAC	International	A designated Natura 2000 site for its GCN population

Feature	Importance	Rationale
Redbrook Pastures, Hugset Wood and Barnsley Canal at Wilthorpe LWS	Local	Designated as Local Wildlife Sites for their biodiversity value
Hedgerows with trees	Local	Provides connective feature across the site.
Improved grassland, arable, dry ditch & hardstanding	Negligible	Common habitats, widespread in the local area.
Bats	Local	Hedgerows on site provide suitable commuting routes. Foraging habitat also available on site. No suitability on site for roosting bats. LBAP species.
Badger	Negligible	Suitable habitat present on site; however, no evidence of badger recorded. Considered likely absent.
Birds	Negligible	Suitable nesting (including ground nesting) and foraging habitat on site, but unlikely to support significant numbers of notable species. Similar habitat is available in the wider area.
Invertebrates	Negligible	Site considered unlikely to support protected / notable species; although common species likely present.
GCN, reptiles, otter & water vole	Negligible	Sub-optimal habitat / no suitable habitat present on site. Considered likely absent.
Either: International (incl. European) / National / Regional / County / Local / Negligible **Or:** Unknown (i.e. further surveys/information needed)		

The potential for the proposals to have adverse or beneficial impacts on these features, along with the need for any mitigation or enhancement measures are discussed in detail below.

4.0 Relevant Planning Policy & Legislation

4.1 Revised National Planning Policy Framework

A revised NPPF was issued on 19th February 2019 (Ministry of Housing Communities and Local Government, 2019) and currently supplements government Circular *06/2005, Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System* (Office of the Deputy Prime Minister, 2005).

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. Paragraph 170 of the NPPF also states that:

`*Planning policies and decisions should contribute to and enhance the natural environment by:*

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)
b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland
c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate
d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures
e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Paragraph 174 then goes on to confirmed that:

When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

Regarding EcIA's and HRA's – any sites identified, or required, as compensatory measures for adverse effects on any Natura 2000/habitats site should also be given the same level as protection as the pSPA's and cSAC's themselves. In addition, when an application is being determined, Paragraph 177 clarifies that:

"*The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.*"

Paragraph 180 is also relevant as;

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:…

c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

4.2 Biodiversity 2020: A strategy for England's Wildlife & Ecosystem Services

Biodiversity 2020 (DEFRA, 2011) replaces the previous UK Biodiversity Action Plan and sets national targets to be achieved. The intent of Biodiversity 2020, however, is much broader than the protection and enhancement of less common species, and is meant to embrace the wider countryside as a whole.

The priority species and habitats considered under Biodiversity 2020 are the Species of Principal Importance (SPI) & Habitats of Principal Importance (HPI) detailed under NERC Act (see Appendix C for further details).

4.3 Local Biodiversity Action Plan

Local Biodiversity Action Plans (LBAPs) identify habitat and species conservation priorities at a local level (typically County by County) and are usually drawn up by a consortium of local Government organisations and conservation charities. Although they are no-longer managed at a national level many are still reviewed and updated at a local level.

The Barnsley LBAP is the relevant document for this site and it contains the following Habitat & Species Action Plans:

Table 6: LBAP SAPs

Species Action Plans	
Hedgehog *Erinaceus europaeus*	Skylark
Bats	Tree Sparrow
Water Vole	Twite *Linaria flavirostris*
Otter	Great Crested Newt
Grey Partridge	Salmon *Salmo salar*
Bittern *Botaurus stellaris*	Bullhead *Cottus gobio*
Kestrel	White-clawed Crayfish *Austropotamobius pallipes*
Little Ringed Plover *Charadrius dubius*	Glow Worm *Lampyris noctiluca*
Lapwing	Dingy Skipper
Barn Owl *Tyto alba*	Bluebell

Table 7: LBAP HAPs

Habitats Action Plans	
Upland Oakwood	Lowland Heathland
Lowland Mixed Deciduous Woodland	Upland Heathland
Wet Woodland	Blanket Bog
Wood Pasture and Parkland	Purple Moor Grass and Rush Pasture
Hedgerows	Reedbeds
Arable Field Margins	Ponds
Floodplain Grazing Marsh	Rivers
Lowland Meadows	Open Mosaic Habitats on Previously Developed Land
Lowland Dry Acidic Grassland	

It should be noted that the existence of a SAP or HAP does not always infer an elevated level importance for those features. These plans may be designed to encourage an increase in these habitats/species, rather than to protect a county-scarce feature (for example).

4.4 Local Plan

The Barnsley Local Plan was formally adopted on 3rd January 2019 and sets out the key elements of Barnsley's planning framework up to the year 2033. The relevant policies from the Local Plan are detailed below:

Policy BIO1 Biodiversity and Geodiversity

Development will be expected to conserve and enhance the biodiversity and geological features of the borough by:

- *Protecting and improving habitats, species, sites of ecological value and sites of geological value with particular regard to designated wildlife and geological sites of international, national and local significance, ancient woodland and species and habitats of principal importance identified via Section 41 of the Natural Environment & Rural Communities Act 2006 (for list of the species and habitats of principal importance) and in the Barnsley Biodiversity Action Plan.*
- *Maximising biodiversity and geodiversity opportunities in and around new developments.*
- *Conserving and enhancing the form, local character and distinctiveness of the boroughs natural assets such as the river corridors of the Don, the Dearne and Dove as natural floodplains and important strategic wildlife corridors.*
- *Proposals will be expected to have followed the national mitigation hierarchy (avoid, mitigate, compensate) which is used to evaluate the impacts of a development on biodiversity interest.*
- *Protecting ancient and veteran trees where identified.*
- *Encouraging provision of biodiversity enhancements.*

Development which may harm a biodiversity or geological feature or habitat, including ancient woodland and aged or veteran trees found outside ancient woodland, will not be permitted unless effective mitigation and/or compensatory measures can be ensured.

Development which adversely effects a European Site will not be permitted unless there is no alternative option and there are imperative reasons of overriding public interest.

4.5 Legislation

Full details of the UK legislation and offences which are relevant to the ecological receptors identified are included in Appendix C. However, based on the findings of our assessment, it is considered that the proposals will need to consider the following legal provisions:

- Disturbance of nesting wild birds
- Disturbance of badger and / or a badger sett(s)

5.0 Discussion

5.1 Designated Sites

Natura 2000 Sites

Denby Grange Colliery SAC is the closest Natura 2000 site, located 8.2km north-west of the site. The site is not connected to the SAC by any terrestrial or aquatic habitat which could facilitate movement of GCN (the primary designation criteria of the site). In addition, the scale of the proposed works are relatively small and localised, and the creation of the proposed roundabout is considered unlikely to result in any increased traffic flows at this time (and therefore, unlikely to result in any additional air pollution). As such, it is considered unlikely that the proposed works will negatively impact upon the SAC.

Local Wildlife Sites

Three LWS (Redbrook Pastures, Hugset Wood & Barnsley Canal at Wilthorpe) are present within 2km of the site. The proposed works are non-residential and as such, there will not be any increased footfall in these LWS as a result of the proposed works. In addition, the creation of the proposed roundabout is considered unlikely to result in any increased traffic flows (and therefore, unlikely to result in any additional air pollution). As such, the proposed works are considered unlikely to impact upon any of the three LWS.

Impact Risk Zone

The proposed works do not fall within the criteria detailed within the Impact Risk Zone (as detailed within Section 3.1). As such, consultation with Natural England is not considered necessary.

5.2 Habitats

5.2.1 Hedgerows with Trees

The proposed works will result in loss of approx. 130m of species-poor hedgerow (100m intact & 30m of defunct hedgerow). It is considered that retention of these hedgerows is not feasible without significant relocation of the proposed roundabout, which would still require some loss of hedgerow.

The hedgerows to be lost are not considered to be 'Important' hedgerows, but hedgerows are listed as a HPI (DEFRA, 2011) and are afforded a HAP under the Barnsley LBAP. As such, the following mitigation is recommended:

- Where hedgerows cannot be retained, these should be replaced in greater quantity and quality than the existing hedgerows on site. New hedgerows could be planted along the periphery of the proposed 1m grass verge. Planting of hedgerows along these areas could allow for an increase in hedgerow length on site:
- Where new hedgerows are planted, these should comprise native species of local provenance. Ideally, multiple species should be used to increase species diversity and the use of species which bear berries and / or provide a good yield of nectar would further benefit other species (e.g. birds and invertebrates); and

5.2.2 To compensate for the loss of connectivity provided by the hedgerows, it is recommended that provision of wildlife tunnels under the proposed road / roundabout (e.g. ACO Climate Tunnel) and areas across road ways with no

artificial lighting or wildlife sensitive lighting are made (see Section 5.3.1 - Great Crested Newt

Two garden ponds and one potential garden pond located within private residential gardens are present within 500m of the site. The ponds are not being directly affected by the works and will be retained, however, some suitable amphibian habitat (mainly hedgerow) within 500m of the ponds will be removed to allow for the creation of the roundabout and spur road.

It is considered unlikely that GCN will be present within these ponds or on the site due to the apparent nature of the ponds being ornamental, set within hardstanding and / or amenity grassland, and isolated from any known populations of GCN and the suboptimal agricultural nature of the majority of habitats the site. The Office of the Deputy Prime Minister Circular 06 (2005) states that due to the potential associated costs and delays to development, *"developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development"*.

In this case, as the presence of GCN is considered to be unlikely and the proposed development is not considered likely to affect GCN, further surveys are not considered to be required. However, as a pre-cautionary measure, the following sensitive working measures are recommended:

- Any potential refugia (e.g. dead vegetation / brash piles) present on site should be cleared outside of the GCN hibernation period (i.e. avoid October – February, inclusive);
- Prior to removal of any vegetated areas, a fingertip should be conducted by a suitably experienced ecologist. Any tall vegetation (e.g. hedgerows, tall grass etc) should be cleared using hand tools (e.g. strimmer / chainsaw), until such a height that the area can be confidently search by the ecologist for GCN.
- Any cut vegetation should be removed from the site, so as not to create new areas of suitable refugia;
- An ecologist should be consulted regarding excavations, the storage of materials and water management on the site, so as to avoid the potential creation of habitats suitable for use by GCN; and,
- In the unlikely event that a GCN is found, all works on site should cease and advice sought from the ecologist. An application for a European Protected Species Mitigation Licence may be required, should GCN be identified on the site.
- Bats for further information).

5.3 Protected & Notable Species

5.3.1 Great Crested Newt

Two garden ponds and one potential garden pond located within private residential gardens are present within 500m of the site. The ponds are not being directly affected by the works and will be retained, however, some suitable amphibian habitat (mainly hedgerow) within 500m of the ponds will be removed to allow for the creation of the roundabout and spur road.

It is considered unlikely that GCN will be present within these ponds or on the site due to the apparent nature of the ponds being ornamental, set within hardstanding and / or amenity grassland, and isolated from any known populations of GCN and the suboptimal agricultural nature of the majority of habitats the site. The Office of the Deputy Prime Minister Circular 06 (2005) states that due to the potential associated costs and delays to development, *"developers should not be required*

to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development".

In this case, as the presence of GCN is considered to be unlikely and the proposed development is not considered likely to affect GCN, further surveys are not considered to be required. However, as a pre-cautionary measure, the following sensitive working measures are recommended:

- Any potential refugia (e.g. dead vegetation / brash piles) present on site should be cleared outside of the GCN hibernation period (i.e. avoid October – February, inclusive);
- Prior to removal of any vegetated areas, a fingertip should be conducted by a suitably experienced ecologist. Any tall vegetation (e.g. hedgerows, tall grass etc) should be cleared using hand tools (e.g. strimmer / chainsaw), until such a height that the area can be confidently search by the ecologist for GCN.
- Any cut vegetation should be removed from the site, so as not to create new areas of suitable refugia;
- An ecologist should be consulted regarding excavations, the storage of materials and water management on the site, so as to avoid the potential creation of habitats suitable for use by GCN; and,
- In the unlikely event that a GCN is found, all works on site should cease and advice sought from the ecologist. An application for a European Protected Species Mitigation Licence may be required, should GCN be identified on the site.

5.3.2 Bats

The proposed works will result in severance of two potential commuting routes for bats; the two intact hedgerows on site. The majority of bat passes recorded on site during previous surveys (WYG, 2018c) were attributed to common pipistrelle, with some also attributed to noctule, unknown pipistrelle species and *Myotis* species also recorded.

Common pipistrelle are generally more light tolerant than other species such as noctule and *Myotis* species. As such, should artificial lighting be added as part of the proposed works (either during construction and / or during operation), then common pipistrelle could continue to commute through the site, although the number of individuals using the site could be impacted. Noctule bats are generally high-flying and would therefore be unlikely to be significantly impacted by the proposed works. *Myotis* species, although recorded in very small numbers, could be impacted by the loss of commuting routes and introduction of artificial lighting on site.

As such, it is recommended that the following mitigation measures are adopted to reduce negative impacts upon potential bat commuting routes:

- Where possible, hedgerow habitat should be retained;
- Any lost hedgerow should be replaced on site, in such a way as to promote landscape connectivity;
- Where possible, areas of no artificial lighting should be created around the roundabout, which will allow common pipistrelle and less tolerant bat species to continue to commute across / around the site; however,
- Where artificial lighting is required (e.g. due to traffic requirements), this lighting should ideally be sympathetic and wildlife friendly, with reference to the recommended guidance - Bats and artificial lighting in the UK (ILP, 2018).

5.3.3 Badger

Although no evidence of badger has been recorded during previous surveys (Wildscapes, 2013; AECOM, 2017 & WYG, 2018a) or during the 'ground truthing' walkover, badgers are highly mobile and suitable habitat is present on site.

As such, it is recommended that a pre-commencement badger check is undertaken of the site, no less than three months prior to commencement of the proposed works. In the event that a badger sett(s) is found, additional mitigation works and a mitigation licence application to Natural England may be required.

In addition, although it is considered unlikely that badger will use the site, following the precautionary principal it is recommended that measures to avoid harm to badger during construction are adopted. In order to avoid harm or injury to this species during construction works the following precautionary measures are recommended at the end of each day: capping of open pipe ends; and, covering of open excavations or provision of a means of escape for badger and other mammals.

5.3.4 Birds

As habitats on site could support nesting birds (including ground nesting birds such as skylark and lapwing), loss of suitable habitats (i.e. hedgerows, trees, arable and improved grassland) should be minimised. It is recommended that site clearance and any vegetation clearance is undertaken outside of the main breeding bird season (typically March – September, inclusive). However, where loss of vegetation or site clearance is required during the main breeding bird season, it is recommended that these works are preceded by a nest check undertaken by a suitably experienced ecologist, at least 48hrs prior to works. Should any active nests be identified, these would need to remain *in situ* until the chicks have fledged. In addition, a 'no-works' buffer (typically 5m) would need to be adopted around any active nest.

Where works are likely to be required during the breeding bird season (i.e. March – September, inclusive), hawk kites / bird scarers (or similar) could be used to reduce the likelihood of ground nesting birds presenting a constraint upon the proposed works schedule. An ecologist should be consulted to provided further advice.

With regards to habitat loss, the replacement of hedgerows (as detailed in Section 5.2.1) would benefit nesting passerines in the long-term. Although habitats on site could support ground nesting birds, the area of suitable habitat on site is limited in size (in comparison to the abundance of similar habitat in the area) and no ground nesting birds have been previously recorded breeding on site. As such, habitat mitigation is not considered necessary for ground nesting birds.

5.3.5 Hedgehog

To compensate for loss of commuting habitat (i.e. hedgerows), any lost hedgerows should be replaced in greater quantity and wildlife tunnels could be installed under the proposed road / roundabout (see Section 5.2.1 for further details).

To compensate for lost refuge areas, new refuges (e.g. use of cut timber from the site) could be created in areas adjacent to the roundabout (e.g. between the roundabout footpath and existing residential buildings to the east). In addition, inclusion of grassland areas would mitigate for lost foraging habitat.

5.3.6 Potential Enhancements

Bats

To enhance the site for bats, planting of wildflower areas in place of amenity grassland areas could encourage invertebrate species and create a foraging resource for bats.

Birds

The site could be enhanced for bird species by adopting one or more of the below enhancements:

- The inclusion of berry-yielding species within hedgerows (or any other proposed planting) which could benefit a variety of foraging bird species;
- The planting of wildflower areas in place of amenity grassland areas, to encourage invertebrate species and create a foraging resource for birds; and
- Provision of shrubs of wildlife value (and ideally of local provenance) could create new nesting and foraging habitat for birds.

Invertebrates

The site is considered likely to support common invertebrates and as such, the site could be enhanced for these invertebrates. Firstly, wildflower areas could be used in place of amenity grassland areas to boost floral diversity and create a food resource for invertebrates. Secondly, invertebrate refuge areas (e.g. use of cut timber from the site) / boxes could be created / installed in areas adjacent to the roundabout (e.g. between the roundabout footpath and existing residential buildings to the east).

6.0 Summary

6.1 Designated Sites

- No adverse impacts upon any designated sites are considered likely as a result of the proposed development.

6.2 Habitats

- The habitats on site are common and widespread in the local area.
- The hedgerows on site are not 'Important' hedgerows but are listed as a HPI (DEFRA, 2011) and are afforded a HAP under the Barnsley LBAP. As such, hedgerows should be retained or replaced, ideally with species of local provenance and in greater length than lost hedgerow.
- To retain connectivity, wildlife tunnels (e.g. for hedgehog) could be installed under the proposed road / roundabout (e.g. ACO Climate Tunnel) and areas with no artificial lighting or wildlife sensitive lighting could be provided across the road ways.

6.3 Protected & Notable Species

GCN

- GCN are considered likely absent from the site; however, pre-cautionary working measures are recommended prior to and during construction works.

Bats

- To retain connectivity across the site for bats, hedgerows should be retained or replaced and areas of no artificial lighting or sympathetic / wildlife friendly lighting should be created around the roundabout.

Badger

- No evidence of badgers have been recorded on site but suitable habitat is present on site but badgers are highly mobile. A pre-commencement badger check of the site is recommended, no less than three months prior to commencement of the proposed works.
- In addition, as a precautionary measure, open pipe ends should be capped and open excavations covered or a means of escape for badger and other mammals should be provided.

Birds

- The site could support tree / shrub and ground nesting birds.
- Loss of suitable habitats (i.e. hedgerows, trees, arable and improved grassland) should be minimised.
- It is recommended that site clearance and any vegetation clearance is undertaken outside of the main breeding bird season (typically March – September, inclusive); or otherwise preceded by a nest check by a suitably experienced ecologist.
- Hawk kites / bird scarers (or similar) could be used to reduce the likelihood of ground nesting birds presenting a constraint upon the timing of the proposed works.
- Lost hedgerow habitat could be replaced around the periphery of the site / roundabout footpath.

Hedgehog

- Any lost commuting habitat should be replaced in greater quantity and wildlife tunnels could be installed under the proposed road / roundabout.
- Any lost suitable refuge / foraging habitat should be replaced.

Potential Enhancements

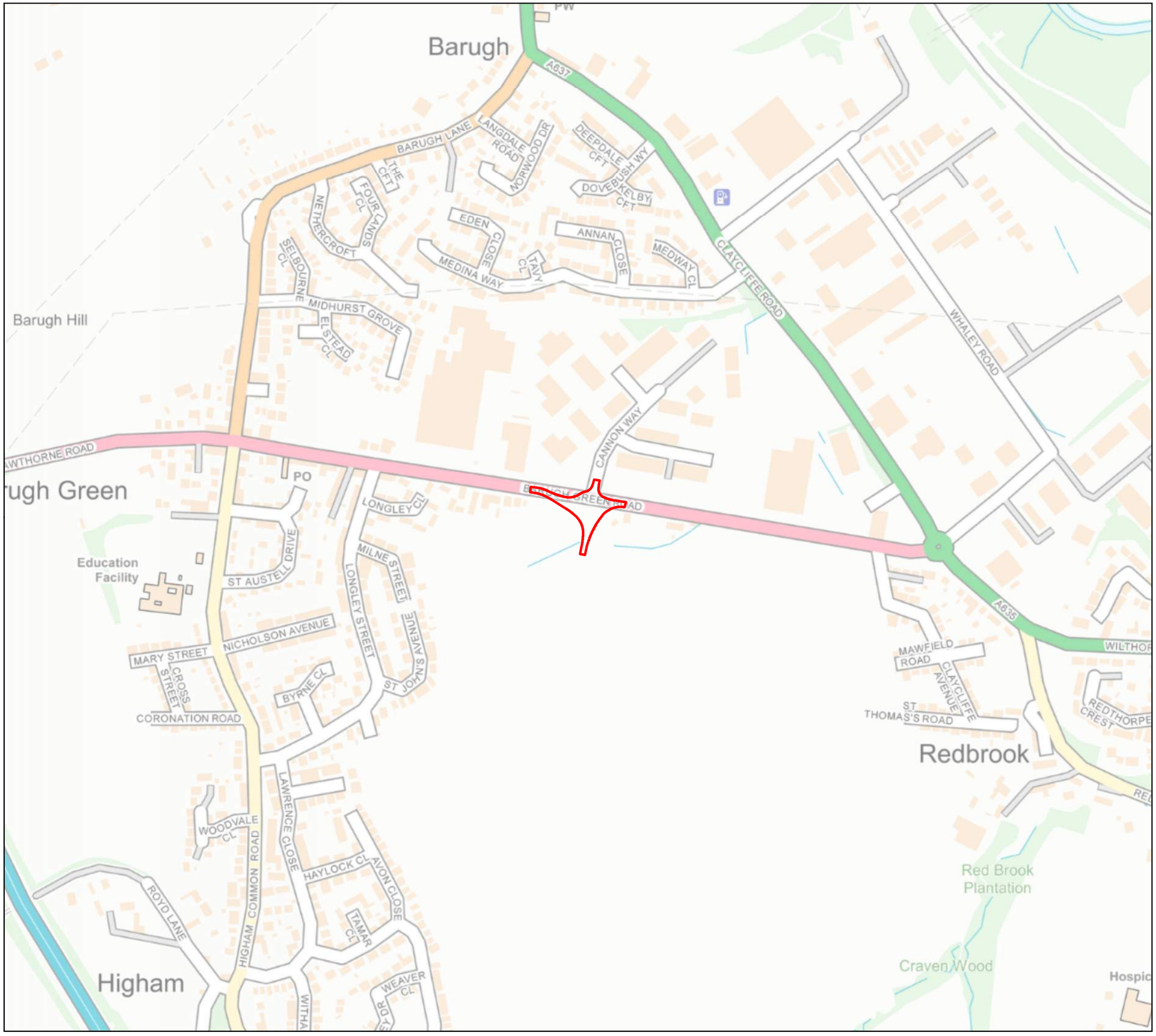
- The site could be enhanced for bats, birds and invertebrates by adopting wildlife beneficial planting into the scheme and / or including invertebrate boxes.

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- WYG (2018c) Barnsley West Bat Survey Report. Issued in draft December 2018.
- WYG (2019) Barnsley West Breeding Bird Survey Report. Issued in draft February 2019.

Please note that the legislation which is relevant to this report is not included in the list above, but details are included in Appendix C below.

Figure 1 – Site Location Plan
Figure 2 – Phase 1 Habitat Plan
Figure 3 – Waterbodies within 500m of Site



Rev	Date	Notes
A	08/11/19	Initial map production

Legend

Site boundary

0 50 100 200 Metres

Site Location Plan

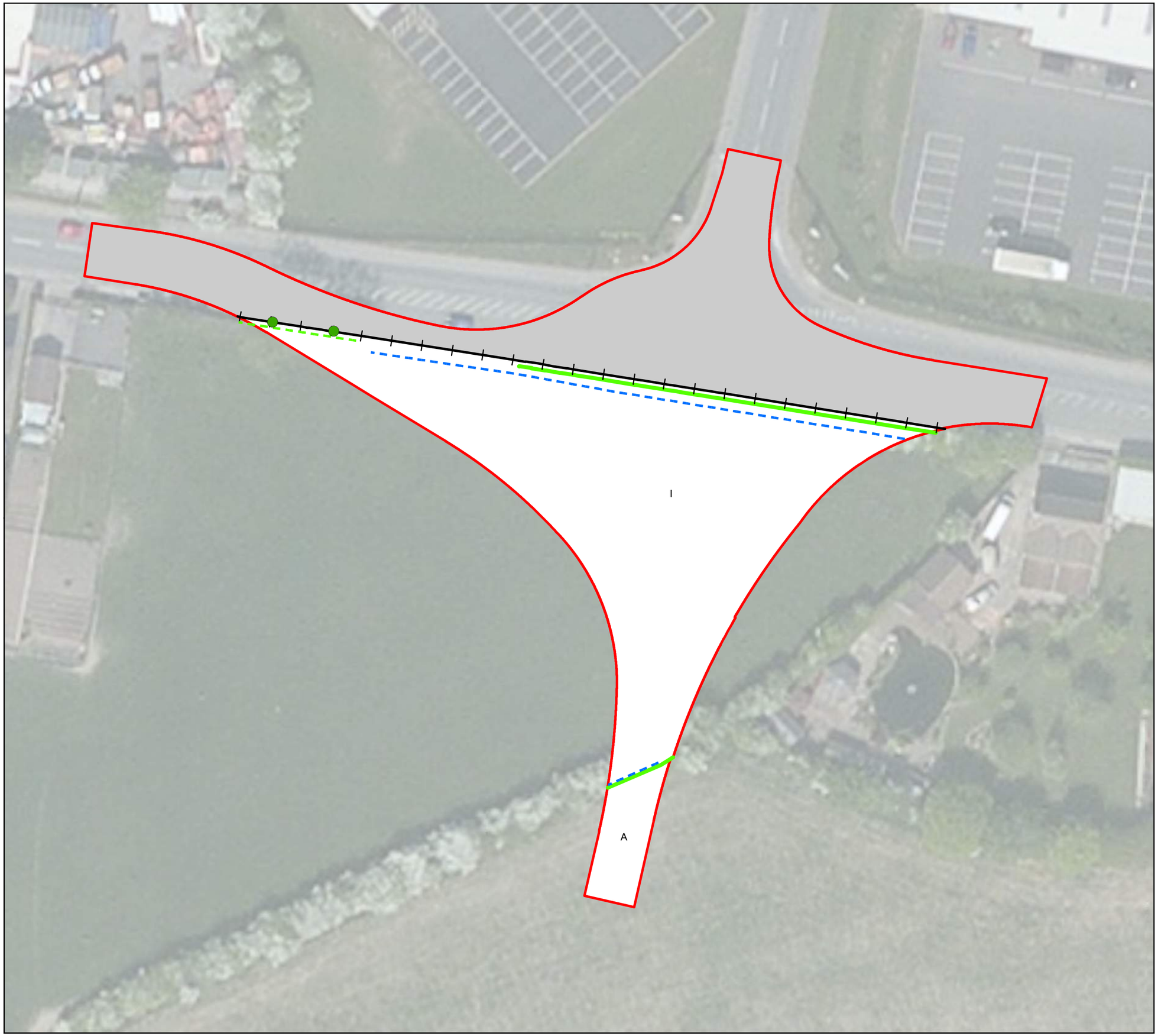
Barnsley West
Barugh Green Road Roundabout
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:5,000	A107940-1	Figure 1	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	08/11/2019	Jonathan Siberry

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Rev	Date	Notes
A	22/11/19	Initial map production

Legend

- Site boundary
- I — Improved grassland
- A — Arable
- Hardstanding
- Intact hedge - native species-poor
- Defunct hedge - native species-poor
- Fence
- Dry ditch
- Scattered tree

0 5 10 20 Metres

N

Phase 1 Habitat Plan

Barnsley West
Barugh Green Road Roundabout
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:500	A107940-1	Figure 2	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	22/11/2019	Jonathan Siberry

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Rev	Date	Notes
A	22/11/19	Initial map production

Legend

- Site boundary
- Site boundary 500m buffer
- Garden pond
- Potential garden pond

0 50 100 200 Metres

Waterbodies within 500m of Site

Barnsley West
Barugh Green Road Roundabout
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:4,500	A107940-1	Figure 3	A

Drawn by:	Drawn date:	Approved by:
Jonathan Siberry	22/11/2019	Barry Clarkson

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Appendix A – Report Conditions

This Report has been prepared using reasonable skill and care for the sole benefit of [Strata Sterling Barnsley West Ltd] ("the Client") for the proposed uses stated in the report by [WYG Environment Planning Transport Limited] ("WYG"). WYG exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

No liability is accepted or warranty given for; unconfirmed data, third party documents and information supplied to WYG or for the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report. WYG does not purport to provide specialist legal, tax or accounting advice.

The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The "shelf life" of the Report will be determined by a number of factors including; its original purpose, the Client's instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.

Appendix B – Proposed Site Layout

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DO NOT SCALE

NOTES

GENERAL NOTES

a. THE TOPOGRAPHICAL SURVEY IS BASED ON INFORMATION PRODUCED BY HAYCOCK & TODD, JOB NO. S7970, FILE NAME S7970-3D-BARNSLEY WEST.DWG. THE INFORMATION USED IN PREPARATION OF THIS AND ALL OTHER FORE INFRASTRUCTURE DESIGNS AND DRAWINGS IS NOT WARRANTED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL SURVEY INFORMATION PROVIDED AND REPORT ANY ANOMALIES TO FORE INFRASTRUCTURE.

DESIGN NOTES

1. ALL DESIGN AND WORKS TO COMPLY WITH CURRENT VERSION OF THE FOLLOWING DOCUMENTS:
   - DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB);
   - SPECIFICATION FOR HIGHWAY WORKS (SHW);
   - MANUAL FOR STREETS (MFS); AND
   - BARNSLEY METROPOLITAN BOROUGH COUNCIL (BMBC) DESIGN GUIDE AND SPECIFICATION.
2. FOOTPATH GRADIENT AT TACTILE PAVING TO BE A MAXIMUM OF 1:12.
3. EXISTING FENCES, VERGES/SHUBBERY, FOOTWAY, AND OTHER PHYSICAL FEATURES TO BE REMOVED WITHIN THE AREA OF WORKS.
4. ALL KERBS TO BE HB2, EXCEPT DROPPED KERBS AT PEDESTRIAN CROSSING.
5. ALL IRONWORK WITHIN EXTENT OF WORKS TO BE LOWERED / RAISED AS REQUIRED.
6. ALL PROPOSED ROAD MARKINGS TO BE IN ACCORDANCE WITH THE FOLLOWING:
   - TRAFFIC SIGNS REGULATIONS AND GENERAL DIRECTIONS (TSRGD);AND
   - TRAFFIC SIGNS MANUALS CHAPTER 5 - ROAD MARKINGS.
7. BARUGH GREEN RD DESIGN SPEED: 30mph
   CANNON WAY DESIGN SPEED: 30mph
   PROPOSED ROAD LINK DESIGN SPEED: 30mph
8. EARTHWORKS SLOPES TO BE MAXIMUM 1:3.

KEY

- CARRIAGEWAY
- FOOTWAY
- BLOCK PAVING
- GRASS VERGE

EXISTING COMMERCIAL DEVELOPMENT

EXISTING COMMERCIAL DEVELOPMENT

CANNON WAY

BARUGH GREEN ROAD

EXTENT OF HIGHWAY WORKS

PROPOSED FOOTWAY 2.0m WIDE

PROPOSED UNCONTROLLED PEDESTRIAN CROSSING

EXISTING RESIDENTIAL BUILDINGS

BARUGH GREEN RD ROUNDABOUT

PROPOSED FOOTWAY 2.0m WIDE

PROPOSED UNCONTROLLED PEDESTRIAN CROSSING

PROPOSED FOOT/CYCLEWAY 3.0m WIDE

PROPOSED GRASS VERGE 2.0m WIDE

PROPOSED MAINTENANCE STRIP 1.5m WIDE

PROPOSED FOOT/CYCLEWAY WAY 3.0m WIDE

PROPOSED GRASS VERGE 2.0m WIDE

PROPOSED UNCONTROLLED PEDESTRIAN CROSSING

PROPOSED FOOT/CYCLEWAY 3.0m WIDE

PROPOSED GRASS VERGE 2.0m WIDE

PROPOSED FOOTWAY 2.0m WIDE

EXTENT OF HIGHWAY WORKS

BARUGH GREEN ROAD

EXISTING RESIDENTIAL BUILDINGS

EXTENT OF HIGHWAY WORKS

PROPOSED ROAD LINK

NOTE:
PROPOSED LINK ROAD SUBJECT TO FUTURE PLANNING APPLICATION

REV	DESCRIPTION	DATE	BY

Client:
STRATA HOMES

Project
BARNSLEY WEST
BARUGH GREEN ROAD ROUNDABOUT

Drawing Title
GENERAL ARRANGEMENT

PRELIMINARY

Fore Consulting Limited
2nd Floor, Queens House
34 Wellington Street
Leeds
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Drawn by	Checked by	Issue Date	Scale	Format
ML	PI	02.04.2019	1:250	A0

Job Number	Drawing Number	Revision
9014	A1-100-P-001	-

File name: I:\9014\DRA\1\9014-I1-100-P001 GENERAL ARRANGEMENT.dwg Plot date: Wednesday, April 3, 2019 11:06:43

Appendix C – Key Legislation

Bern Convention

The *Convention on the Conservation of European Wildlife and Natural Habitats* (the *Bern Convention*) was adopted in Bern, Switzerland in 1979, and was ratified in 1982. Its aims are to protect wild plants and animals and their habitats listed in Appendices 1 and 2 of the Convention, and regulate the exploitation of species listed in Appendix 3. The regulation imposes legal obligations on participating countries to protect over 500 plant species and more than 1000 animals.

To meet its obligations imposed by the Convention, the European Community adopted the *EC Birds Directive* (1979) and the *EC Habitats Directive* (1992 – see below). Since the Lisbon Treaty, in force since 1st December 2009, European legislation has been adopted by the European Union.

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals or 'Bonn Convention' was adopted in Bonn, Germany in 1979 and came into force in 1985. Participating states agree to work together to preserve migratory species and their habitats by providing strict protection to species listed in Appendix I of the Convention. It also establishes agreements for the conservation and management of migratory species listed in Appendix II.

In the UK, the requirements of the convention are implemented via the Wildlife & Countryside Act 1981 (as amended), Wildlife (Northern Ireland) Order 1985 (as amended), Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 and the Countryside and Rights of Way Act 2000 (CRoW).

Habitats Directive

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Fora, or the 'Habitats Directive', is a European Union directive adopted in 1992 in response to the Bern Convention. Its aims are to protect approximately 220 habitats and 1,000 species listed in its several Annexes.

In the UK, the Habitats Directive is transposed into national law via the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales, and via the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland.

Birds Directive

The EC Directive on the Conservation of Wild Birds (791409/EEC) or 'Birds Directive' was introduced to achieve favourable conservation status of all wild bird species across their distribution range. In this context, the most important provision is the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex 1 of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance.

Conservation of Habitats and Species Regulations 2017 (as amended)

Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I or II of the Habitats Directive respectively) to the European Commission. These sites, if ratified by the European Commission, are then designated as Special Protection Areas (SPAs) within six years. Public bodies must also help preserve, maintain and re-establish habitats for wild birds.

The 2018 amendments mainly related to the impact of the *People Over Wind* decision and some implications arising for neighbourhood plan development and a range of other planning tools including Local Development Orders and Permission in Principle – see here for full details:

https://www.legislation.gov.uk/uksi/2018/1307/note/made

The Regulations make it an offence to deliberately capture, kill, disturb or trade in the animals listed in Schedule 2, or pick, uproot, destroy, or trade in the plants listed in Schedule 5 - see below:

Schedule 2 – European Protected Species of Animals	**Schedule 5 – European Protected Species of Plants**
Horseshoe bats *Rhinolophidae* - all species	Shore dock *Rumex rupestris*
Common bats *Vespertilionidae* - all species	Killarney fern *Trichomanes speciosum*
Large Blue Butterfly *Maculinea arion*	Early gentian *Gentianella anglica*
Wild cat *Felis sylvestris*	Lady's-slipper *Cypripedium calceolus*
Dolphins, porpoises and whales *Cetacea* – all sp.	Creeping marsh-wort *Apium repens*
Dormouse *Muscardinus avellanarius*	Slender naiad *Najas flexilis*
Pool frog *Rana lessonae*	Fen orchid *Liparis loeselii*
Sand lizard *Lacerta agilis*	Floating-leaved water plantain *Luronium natans*
Fisher's estuarine moth *Gortyna borelii lunata*	Yellow marsh saxifrage *Saxifraga hirculus*
Great crested newt *Triturus cristatus*	
Otter *Lutra lutra*	
Lesser whirlpool ram's-horn snail *Anisus vorticulus*	
Smooth snake *Coronella austriaca*	
Sturgeon *Acipenser sturio*	
Natterjack toad *Epidalea calamita*	
Marine turtles *Caretta caretta, Chelonia mydas, Lepidochelys kempii, Eretmochelys imbricata, Dermochelys coriacea*	

Wildlife & Countryside Act 1981 (as amended)

This is the principal mechanism for the legislative protection of wildlife in the UK. This legislation is the chief means by which the 'Bern Convention' and the Birds Directive are implemented in the UK. Since it was first introduced, the Act has been amended several times.

The Act makes it an offence to (with exception to species listed in Schedule 2) intentionally:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use; or
- take or destroy an egg of any wild bird.

Or to intentionally do the following to a wild bird listed in Schedule 1:

- disturbs any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturbs dependent young of such a bird.

In addition, the Act makes it an offence (subject to exceptions) to:

- intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5;
- interfere with places used for shelter or protection, or intentionally disturbing animals occupying such places; and
- The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Finally, the Act also makes it an offence (subject to exceptions) to:

- intentionally pick, uproot or destroy any wild plant listed in Schedule 8, or any seed or spore attached to any such wild plant;
- unless an authorised person, intentionally uproot any wild plant not included in Schedule 8; or
- sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Following all amendments to the Act, Schedule 5 'Animals which are Protected' contains a total of 154 species of animal, including several mammals, reptiles, amphibians, fish and invertebrates. Schedule 8 'Plants which are Protected' of the Act, contains 185 species, including higher plants, bryophytes and fungi and lichens. A comprehensive and up-to-date list of these species can be obtained from the JNCC website.

Part 14 of the Act makes unlawful to plant or otherwise cause to grow in the wild any plant which is listed in Part II of Schedule 9.

It is recommended that plant material of these species is disposed of as bio-hazardous waste, and these plants should not be used in planting schemes.

Schedule 1 - Birds which are protected by special penalties			
Avocet	*Recurvirostra avosetta*	Osprey	*Pandion haliaetus*
Bee-eater	*Merops apiaster*	Owl, Barn	*Tyto alba*
Bittern	*Botaurus stellaris*	Owl, Snowy	*Nyctea scandiaca*
Bittern, Little	*Ixobrychus minutus*	Peregrine	*Falco peregrinus*
Bluethroat	*Luscinia svecica*	Petrel, Leach's	*Oceanodroma leucorhoa*
Brambling	*Fringilla montifringilla*	Phalarope, Red-necked	*Phalaropus lobatus*
Bunting, Cirl	*Emberiza cirlus*	Plover, Kentish	*Charadrius alexandrinus*
Bunting, Lapland	*Calcarius lapponicus*	Plover, Little Ringed	*Charadrius dubius*
Bunting, Snow	*Plectrophenax nivalis*	Quail, Common	*Coturnix coturnix*
Buzzard, Honey	*Pernis apivorus*	Redstart, Black	*Phoenicurus ochruros*
Capercaillie	*Tetrao urogallus*	Redwing	*Turdus iliacus*
Chough	*Pyrrhocorax pyrrhocorax*	Rosefinch, Scarlet	*Carpodacus erythrinus*
Corncrake	*Crex crex*	Ruff	*Philomachus pugnax*
Crake, Spotted	*Porzana porzana*	Sandpiper, Green	*Tringa ochropus*
Crossbills (all species)	*Loxia*	Sandpiper, Purple	*Calidris maritima*
Curlew, Stone	*Burhinus oedicnemus*	Sandpiper, Wood	*Tringa glareola*
Divers (all species)	*Gavia*	Scaup	*Aythya marila*
Dotterel	*Charadrius morinellus*	Scoter, Common	*Melanitta nigra*
Duck, Long-tailed	*Clangula hyemalis*	Scoter, Velvet	*Melanitta fusca*
Eagle, Golden	*Aquila chrysaetos*	Serin	*Serinus serinus*
Eagle, White-tailed	*Haliaetus albicilla*	Shorelark	*Eremophila alpestris*
Falcon, Gyr	*Falco rusticolus*	Shrike, Red-backed	*Lanius collurio*
Fieldfare	*Turdus pilaris*	Spoonbill	*Platalea leucorodia*
Firecrest	*Regulus ignicapillus*	Stilt, Black-winged	*Himantopus himantopus*
Garganey	*Anas querquedula*	Stint, Temminck's	*Calidris temminckii*

Godwit, Black-tailed	*Limosa limosa*	Swan, Bewick's	*Cygnus bewickii*
Goshawk	*Accipiter gentilis*	Swan, Whooper	*Cygnus cygnus*
Grebe, Black-necked	*Podiceps nigricollis*	Tern, Black	*Chlidonias niger*
Grebe, Slavonian	*Podiceps auritus*	Tern, Little	*Sterna albifrons*
Greenshank	*Tringa nebularia*	Tern, Roseate	*Sterna dougallii*
Gull, Little	*Larus minutus*	Tit, Bearded	*Panurus biarmicus*
Gull, Mediterranean	*Larus melanocephalus*	Tit, Crested	*Parus cristatus*
Harriers (all species)	*Circus*	Tree-creeper, Short-toed	*Certhia brachydactyla*
Heron, Purple	*Ardea purpurea*	Warbler, Cetti's	*Cettia cetti*
Hobby	*Falco subbuteo*	Warbler, Dartford	*Sylvia undata*
Hoopoe	*Upupa epops*	Warbler, Marsh	*Acrocephalus palustris*
Kingfisher	*Alcedo atthis*	Warbler, Savi's	*Locustella luscinioides*
Kite, Red	*Milvus milvus*	Whimbrel	*Numenius phaeopus*
Merlin	*Falco columbarius*	Woodlark	*Lullula arborea*
Oriole, Golden	*Oriolus oriolus*	Wryneck	*Jynx torquilla*
Animal (Vertebrate) Species Listed in Schedule 5 (full legal protection at all times)			
Horseshoe Bats (all species)	*Rhinolophidae*	Newt – Great Crested	*Triturus cristatus*
Typical Bats (all species)	*Vespertilionidae*	Snake – Smooth	*Coronella austriaca*
Dolphin – Bottle-nosed	*Tursiops truncatus (tursio)*	Toad, Natterjack	*Epidalea calamita*
Dolphin – Common	*Delphinus delphis*	Turtles – All Species	*Cheloniidae & Dermochelyidae*
Dormouse – Hazel	*Muscardinus avellanarius*	Basking Shark	*Cetorhinus maximus*
Pine Marten	*Martes martes*	Burbot	*Lota lota*
Porpoise – Harbour	*Phocaena phocaena*	Goby – Giant	*Gobius cobitis*
Otter – Eurasian	*Lutra lutra*	Goby – Couch's	*Gobius couchii*
Squirrel – Red	*Sciurus vulgaris*	Seahorse – Short-snouted[1]	*Hippocampus hippocampus*
Walrus	*Odobenus rosmarus*	Seahorse – Spiny	*Hippocampus guttulatus*
Water Vole	*Arvicola amphibia*	Sturgeon	*Acipenser sturio*
Whales – All Species	*Cetacea*	Vendace	*Coregonus albula*
Wildcat	*Felis sylvestris*	Whitefish	*Coregonus lavaretus*
Lizard – Sand	*Lacerta agilis*		
Animal (Vertebrate) Species Protected under Section 9 (1) part: Killing and Injuring & Section 9 (5) Sale			
Adder	*Vipera berus*	Slow-worm	*Anguis fragilis*
Lizard – Viviparous	*Zootoca vivipara*	Snake – Grass	*Natrix helvetica (natrix)*
Animals (Vertebrate) Species Protected under Section 9 (5) Sale only			
Frog – common	*Rana temporaria*	Newt – Smooth	*Lissotriton vulgaris*
Newt – Palmate	*Lissotriton helvetica*	Toad – Common	*Bufo bufo*
Animals (Vertebrate) Species Protected under Section 9 (1) (4)(a): Killing, Injuring &Taking and Damage / Destruction of place of shelter / protection only			
Allis Shad	*Alosa alosa*	Shark – Angel	*Squatina squatina*
Twaite Shad	*Alosa fallax*		
Butterflies & Moths – Full Protection under Schedule 5[2] at all times			
High brown fritillary	*Argynnis adippe*	Fisher's Estuarine Moth	*Gortyna borelii*
Large Blue	*Maculinea arion*	Barberry Carpet	*Pareulype berberata*

[1] Both sea horse species are protected in England only.

[2] Viper's Bugloss Moth *Hadena irregularis* was removed from Schedule 5 in 1996 as it is believed to be extinct.

Heath Fritillary	*Mellicta athalea*	Black-veined Moth	*Siona lineata*
Marsh Fritillary	*Eurodryas aurinia*	Sussex Emerald	*Thalera fimbrialis*
Swallowtail	*Papilio machaon britannicus*	Essex Emerald	*Thetidia smaragdaris*
Large Copper	*Lycaena dispar*	Fiery Clearwing	*Bembecia chrysidiformis*
Reddish-buff Moth	*Acosmetia caliginosa*	New-Forest Burnet	*Zygaena viciae*
Butterflies – Protected under Section 9 (5) Sale Only			
Purple Emperor	*Apatura iris*	Adonis Blue	*Lysandra bellargus*
Northern Brown Argus	*Aricia artaxerxes*	Chalkhill Blue	*Lysandra coridon*
Pearl-bordered Fritillary	*Boloria euphrosyne*	Glanville Fritillary	*Melitaea cinxia*
Chequered Skipper	*Carterocephalus palaemon*	Large Tortoiseshell	*Nymphalis polychloros*
Large Heath	*Coenonympha tullia*	Silver-studded Blue	*Plebejus argus*
Small Blue	*Cupido minimus*	Black Hairstreak	*Strymonidia pruni*
Mountain Ringlet	*Erebia epiphron*	White-letter Hairstreak	*Strymonidia w-album*
Duke of Burgundy	*Hamearis lucina*	Brown Hairstreak	*Thecla betulae*
Silver-spotted Skipper	*Hesperia comma*	Lulworth Skipper	*Thymelicus acteon*
Wood White	*Leptidea sinapis*		
Other Invertebrates – Full Protection under Schedule 5 at all times			
Rainbow Leaf-beetle	*Chrysolina cerealis*	Tadpole Shrimp	*Triops cancriformis*
Spangled Diving-beetle	*Graphopterus zonatus*	Trembling Sea-mat	*Victorella pavida*
Lesser Silver Water-beetle	*Hydrochara caraboides*	De Folin's Lagoon Snail	*Caecum armoricum*
Moccas Beetle	*Hypebaeus flavipes*	Sandbowl Snail	*Catinella arenaria*
Violet Click-beetle	*Limoniscus violaceus*	Freshwater Pearl Mussel	*Margaritifera margaritifera*
Bembridge Beetle	*Parcymus aeneus*	Glutinous Snail	*Myxas glutinosa*
New Forest Cicada	*Cicadetta montana*	Lagoon Snail	*Paludinella littorina*
Wart-Biter	*Decticus verrucivorus*	Lagoon Sea Slug	*Tenellia adspersa*
Mole-Cricket	*Gryllotalpa gryllotalpa*	Northern Hatchet-shell	*Thyasira gouldi*
Field-Cricket	*Gryllus campestris*	Tentacled Lagoon-worm	*Alkmaria romijni*
Norfolk Hawker Dragonfly	*Aeshna isosceles*	Lagoon Sand-worm	*Armandia cirrhosa*
Southern Damselfly	*Coenagrion mercuriale*	Medicinal Leech	*Hirudo medicinalis*
Fen Raft Spider	*Dolomedes fimbriatus*	Marine Hydroid	*Clavopsella navis*
Ladybird Spider	*Eresus niger (cinaberinus)*	Ivell's Sea Anemone	*Edwardsia ivelli*
Fairy Shrimp	*Chirocephalus diaphanus*	Starlet Sea Anemone	*Nematosella vectensis*
Lagoon Sand Shrimp	*Gammarus insensibilis*	Atlantic Stream (White-clawed) Crayfish	*Austropotamobius pallipes*
Other Invertebrates Protected under Section 9 (1) Possession & 9 (2) (5) Sale only			
Stag Beetle	*Lucanus cervus*	Roman Snail[3]	*Helix pomatia*
Fan Mussel	*Atrina fragilis*	Pink Sea-fan	*Eunicella verrucosa*
Other Invertebrates Protected under Section 9 (4) (a) Damage / Destruction of Place of Shelter / Protection only			
Mire Pill Beetle	*Curimopsis nigrita*		
Vascular Plant Species - Full Protection under Schedule 8 at all times (previous Scientific name in brackets)			
Adder's-tongue Least	*Ophioglossum lusitanicum*	Lily – Snowdon	*Gagea serotina (Lloydia serotina)*
Alison- Small	*Alyssum alyssoides*	Marsh-mallow – Rough	*Malva setigera (Althaea hirsuta)*

[3] England only

Broomrape – Bedstraw	*Orobanche caryophyllacea*	Milk-parsley – Cambridge	*Selinum carvifolia*
Broomrape – Oxtongue	*Orobanche picridis*	Mudwort – Welsh	*Limosella aquatica*
Broomrape – Thistle	*Orobanche reticulata*[4]	Naiad – Holly-leaved	*Najas marina*
Cabbage – Lundy	*Coincya wrightii (Rhynchosinapis wrightii)*	Orache – Stalked	*Atriplex pedunculata (Halimione pedunculata)*
Calamint – Wood	*Clinopodium menthifolium (Calamintha sylvatica)*	Orchid – Early Spider	*Ophrys sphegodes*
Catchfly – Alpine	*Silene suecica (Lychnis alpina)*	Orchid – Ghost	*Epipogium aphyllum*
Centaury – Slender	*Centaurium tenuiflorum*	Orchid – Lapland Marsh	*Dactylorhiza lapponica*
Cinquefoil – Rock	*Potentilla rupestris*	Orchid – Late Spider	*Ophrys fuciflora*
Clary – Meadow	*Salvia pratensis*	Orchid – Lizard	*Himantoglossum hircinum*
Club-rush – Triangular	*Schoenoplectus triqueter (Scirpus triqueter)*	Orchid – Military	*Orchis militaris*
Colt's-foot – Purple	*Homogyne alpina*	Orchid – Monkey	*Orchis simia*
Cotoneaster – Wild	*Cotoneaster cambricus (C. integerrimus)*	Pear – Plymouth	*Pyrus cordata*
Cotton-grass – Slender	*Eriophorum gracile*	Pennycress – Perfoliate	*Microthlaspi perfoliatum (Thlaspi perfoliatum)*
Cow-wheat – Field	*Melampyrum arvense*	Pennyroyal	*Mentha pulegium*
Crocus – Sand	*Romulus columnae*	Pigmyweed	*Crassula aquatica*
Cudweed – Broad-leaved	*Filago pyramidata*	Pine - Ground	*Ajuga chamaepitys*
Cudweed – Jersey	*Gnaphalium luteoalbum*	Pink – Cheddar	*Dianthus gratianopolitanus*
Cudweed – Red-tipped	*Filago lutescens*	Pink – Childing	*Petrorhagia nanteuilii*
Cut-grass	*Leersia oryzoides*	Ragwort – Fen	*Jacobaea paludosa (Senecio paludosa)*
Deptford Pink	*Dianthus armeria*	Ramping-fumitory – Martin's	*Fumaria reuteri (F. martinii)*
Diapensia	*Diapensia lapponica*	Rampion – Spiked	*Phyteuma spicata*
Eryngo – Field	*Eryngium campestre*	Restharrow – Small	*Ononis reclinata*
Fern – Dickie's-bladder	*Cystopteris dickieana*	Rock-cress – Alpine	*Arabis alpina*
Fleabane – Alpine	*Erigeron borealis*	Rock-cress – Bristol	*Arabis scabra*
Fleabane – Small	*Pulicaria vulgaris*	Sandwort – Norwegian	*Arenaria norvegica*[5]
Galingale – Brown	*Cyperus fuscus*	Sandwort – Teesdale	*Minuartia stricta*
Gentian – Alpine	*Gentiana nivalis*	Saxifrage – Drooping	*Saxifraga cernua*
Gentian - Dune	*Gentianella amarella subsp. occidentalis (Gentianella uliginosa)*	Saxifrage – Tufted	*Saxifraga cespitosa*
Gentian – Fringed	*Gentianopsis ciliata (Gentianella ciliata)*	Solomon's-seal – Whorled	*Polygonatum verticillatum*
Gentian - Spring	*Gentiana verna*	Sow-thistle – Alpine	*Cicerbita alpina*
Germander – Cut-leaved	*Teucrium botrys*	Spearwort – Adder's-tongue	*Ranunculus ophioglossifolius*
Germander – Water	*Teucrium scordium*	Speedwell – Fingered	*Veronica triphyllos*
Gladiolus – Wild	*Gladiolus illyricus*	Speedwell – Spiked	*Veronica spicata*[6]
Goosefoot – Stinking	*Chenopodium vulvaria*	Spike-rush – Dwarf	*Eleocharis parvula*

[4] The Weeds Act 1959 does not apply to thistles *Cirsium* & *Carduus* species supporting this broomrape.

[5] All subspecies occurring in the UK

[6] Both subspecies: *spicata* & *hybrida*

Grass-poly	*Lythrum hyssopifolia*	South-stack Fleawort	*Tephroseris integrifolia ssp. maritima*
Hare's-ear – Sickle-leaved	*Bupleurum falcatum*	Star-of-Bethlehem – Early	*Gagea bohemica*
Hare's-ear – Small	*Bupleurum baldense*	Starfruit	*Damasonium alisma*
Hawk's-beard – Stinking	*Crepis foetida*	Strapwort	*Corrigiola littoralis*
Hawkweed – Northroe	*Hieracium northroense*	Violet – Fen	*Viola persicifolia*
Hawkweed – Shetland	*Hieracium zetlandicum*	Viper's-grass	*Scorzonera humilis*
Hawkweed – Weak-leaved	*Hieracium attenuatifolium*	Water-plantain – Ribbon-leaved	*Alisma gramineum*
Heath – Blue	*Phyllodoce caerulea*	Wood-sedge – Starved	*Carex depauperata*
Helleborine – Red	*Cephalanthera rubra*	Woodsia – Alpine	*Woodsia alpina*
Horsetail – Branched	*Equisetum ramosissimum*	Woodsia – Oblong	*Woodsia ilvensis*
Hound's-tongue – Green	*Cynoglossum germanicum*	Wormwood – Field	*Artemisia campestris*
Knawel – Perennial	*Scleranthus perennis*[7]	Woundwort - Downy	*Stachys germanica*
Knot-grass – Sea	*Polygonum maritimum*	Woundwort – Limestone	*Stachys alpina*
Leek – Round-headed	*Allium sphaerocephalon*	Yellow-rattle – Greater	*Rhinanthus angustifolius*
Lettuce – Least	*Lactuca saligna*		
Vascular Plant Species – Partial Protection under Section 13 (2) Protection from commercial exploitation and sale			
Bluebell	*Hyacinthoides non-scripta*		
Bryophytes – Full Protection under Schedule 8 at all times			
Anamodon – Long-leaved	*Anomodon langifolius*	Flamingo Moss	*Desmatodon cernuus*
Blackwort	*Southbya nigrella*	Frostwort	*Gymnomitrion apiculatum*
Crystalwort – Lizard	*Riccia bifurca*	Glaucous Beard Moss	*Barbula glauca*
Earwort – Marsh	*Jamesoniella undulifolia*	Green Shield Moss	*Buxbaumia viridis*
Feathermoss – Polar	*Hygrohypnum polare*	Hair Silk Moss	*Plagiothecium piliferum*
Flapwort – Norfolk	*Leiocolea rutheana*	Knothole Moss	*Zygodon forsteri*
Grimmia – Blunt-leaved	*Grimmia unicolor*	Large Yellow Feather Moss	*Scorpidium turgescens*
Petalwort	*Petalophyllum ralfsii*	Millimetre Moss	*Micromitrium tenerum*
Lindenberg's Leafy-Liverwort	*Adelanthus lindenbergianus*	Multi-fruited River Moss	*Cryphaea lamyana*
Feather-moss Slender Green	*Drepanocladus vernicosus*	Nowell's Limestone Moss	*Zygodon gracilis*
Alpine Copper-Moss	*Mielichoferia meilicoferia*	Rigid Apple Moss	*Bartramia stricta*
Baltic Bog-Moss	*Sphagnum balticum*	Round-leaved feather Moss	*Rhynchostegium rotundifolium*
Blue Dew-Moss	*Saelania glaucescens*	Schleicher's Thread Moss	*Bryum schleicheri*
Blunt-leaved bristle-Moss	*Orthotrichum obtusifolium*	Triangular Pygmy Moss	*Acaulon triquetrum*
Bright-Green Cave-Moss	*Cyclodictyon laetevirens*	Turpswort	*Geocalyx graveolens*
Cordate Beard Moss	*Barbula cordata*	Vaucher's Feather Moss	*Hypnum vaucheri*
Cornish Path Moss	*Ditrichum cornubicum*	Western Rustwort	*Marsupella profunda*
Derbyshire Feather Moss	*Thamnobryum angustifolium*		

[7] Includes both subspecies: *perennis* & *prostratus*

Stoneworts – Full Protection under Schedule 8 at all times			
Bearded Stonewort	*Chara canescens*	Foxtail Stonewort	*Lamprothamnium papullosum*
Lichens – Full Protection under Schedule 8 at all times			
New Forest Beech Lichen	*Enterographa elaborata*	Forked Hair Lichen	*Bryoria furcellata*
Snow Caloplaca	*Caloplaca nivalis*	Golden Hair Lichen	*Teloschistes flavicans*
Tree Catapyrenium	*Catapyrenium psoromoides*	Orange-fruited Elm Lichen	*Caloplaca luteoalba*
Laurer's Catillaria	*Catillaria laurei*	River Jelly Lichen	*Collema dichotomum*
Convoluted Cladonia	*Cladonia convoluta*	Starry Breck Lichen	*Buellia asterella*
Upright Mountain Cladonia	*Cladonia stricta*	Caledonia Pannaria	*Pannaria ignobilis*
Goblin Lights	*Catolechia wahlenbergii*	New Forest Parmelia	*Parmelia minarum*
Elm Gyalecta	*Gyalecta ulmi*	Oil Stain Parmentaria	*Parmentaria chilensis*
Tarn Lecanora	*Lecanora archariana*	Southern Grey Physcia	*Physcia tribacioides*
Copper Lecidea	*Lecidea inops*	Ragged Pseudo-cyphellaria	*Pseudocyphellaria lacerata*
Arctic Kidney Lichen	*Nephroma arcticum*	Rusty Alpine Psora	*Psora rubiformis*
Ciliate Strap Lichen	*Heterodermia leucomelos*	Rock Nail	*Calicium corynellum*
Coralloid Rosette Lichen	*Heterodermia propagulifera*	Serpentine Selanopsora	*Selanopsora liparina*
Ear-lobed Dog Lichen	*Peltigera lepidophora*	Sulphur Tresses	*Alectoria ochroleuca*
Lichens – Partial Protection under Section 13 (2) Commercial Exploitation and Sale Only			
Tree Lungwort	*Lobaria pulmonaria*		
Fungi – Full Protection under Schedule 8 at all times			
Royal Bolete	*Boletus regius*	Oak Polypore	*Buglossosporus pulvinus*
Hedgehog Fungus	*Hericium erinaceum*	Sandy Stilt Ball	*Battaria phalloides*
Invasive plant species listed in Schedule 9			
Australian swamp stonecrop or New Zealand pygmyweed	*Crassula helmsii*	Japanese rose	*Rosa rugosa*
Californian red seaweed	*Pikea californica*	Japanese seaweed	*Sargassum muticum*
Curly waterweed	*Lagarosiphon major*	Laver seaweeds (except native species)	*Porphyra* spp
Duck potato	*Sagittaria latifolia*	Parrot's-feather	*Myriophyllum aquaticum*
Entire-leaved cotoneaster	*Cotoneaster integrifolius*	Perfoliate alexanders	*Smyrnium perfoliatum*
False Virginia creeper	*Parthenocissus inserta*	Pontic rhododendron	*Rhododendron ponticum*
Fanwort or Carolina water-shield	*Cabomba caroliniana*	Purple dewplant	*Disphyma crassifolium*
Few-flowered garlic	*Allium paradoxum*	Red algae	*Grateloupia luxurians*
Floating pennywort	*Hydrocotyle ranunculoides*	Rhododendron	*Rhododendron ponticum* × *Rhododendron maximum*
Floating water primrose	*Ludwigia peploides*	Small-leaved cotoneaster	*Cotoneaster microphyllus*
Giant hogweed	*Heracleum mantegazzianum*	Three-cornered garlic	*Allium triquetrum*
Giant kelp	*Macrocystis* spp.	Variegated yellow archangel	*Lamiastrum galeobdolon* subsp. *argentatum*
Giant knotweed	*Fallopia sachalinensis*	Virginia creeper	*Parthenocissus quinquefolia*
Giant rhubarb	*Gunnera tinctoria*	Wakame	*Undaria pinnatifida*
Giant salvinia	*Salvinia molesta*	Wall cotoneaster	*Cotoneaster horizontalis*
Green seafingers	*Codium fragile*	Water fern	*Azolla filiculoides*

Himalayan cotoneaster	*Cotoneaster simonsii*	Water hyacinth	*Eichhornia crassipes*
Hollyberry cotoneaster	*Cotoneaster bullatus*	Water lettuce	*Pistia stratiotes*
Hooked asparagus seaweed	*Asparagopsis armata*	Water primrose	*Ludwigia grandiflora*
Hottentot fig	*Carpobrotus edulis*	Water primrose	*Ludwigia uruguayensis*
Hybrid knotweed	*Fallopia japonica* × *Fallopia sachalinensis*	Waterweeds	*Elodea* spp.
Indian (Himalayan) balsam	*Impatiens glandulifera*	Yellow azalea	*Rhododendron luteum*
Japanese knotweed	*Reynoutria japonica*		

Protection of Badgers Act 1992

The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to: wilfully kill, injure, take or attempt to kill, injure or take a badger; dig for a badger; interfere with a badger sett by, damaging a sett or any part thereof, destroying a sett, obstructing access to a sett, causing a dog to enter a sett or disturbing a badger while occupying a sett.

The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger"

Natural Environment and Rural Communities Act 2006

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of Habitats and Species which are of Principal Importance for the conservation of biodiversity in England. The S41 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 (NERC) Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 Habitats of Principal Importance and 1,150 Species of Principal Importance.

Hedgerow Regulations 1997

The Hedgerow Regulations were made under Section 97 of the Environment Act 1995 and came into force in 1997. They introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.

Birds of Conservation Concern

This is a review of the status of all birds occurring regularly in the United Kingdom. It is regularly updated and is prepared by leading bird conservation organisations, including the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).

The latest report was produced in 2015 (Eaton *et al*, 2015) and identified 67 red list species, 96 amber species, and 81 green species. The criteria are complex, but generally:

- **Red list** species are those that have shown a decline of the breeding population, non-breeding population or breeding range of more than 50% in the last 25 years.
- **Amber list** species are those that have shown a decline of the breeding population, non-breeding population or breeding range of between 25% and 50% in the last 25 years. Species that have a UK breeding population of less than 300 or a non-breeding population of less than 900 individuals are also included, together with those whose 50% of the population is localised in 10 sites or fewer and those whose 20% of the European population is found in the UK.
- **Green list** species are all regularly occurring species that do not qualify under any of the red or amber criteria are green listed

Global IUCN Red List

The International Union for Conservation of Nature (IUCN) Threatened Species was devised to provide a list of those species that are most at risk of becoming extinct globally. It provides taxonomic, conservation status and distribution information about threatened taxa around the globe.

The system catalogues threatened species into groups of varying levels of threat, which are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CE), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), Not Evaluated (NE). Criteria for designation into each of the categories is complex, and consider several principles.

Local Biodiversity Action Plan (LBAP)

Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

Some LBAP's may also include Habitat Action Plans (HAP) and/or Species Action Plans (SAP), which are used to guide and inform the local decision making process.

Wild Mammals (Protection) Act 1996

This Act offers protects a form of protection to all wild species of mammals, irrespective of other legislation, and focussed on animal welfare, rather than conservation.

Unless covered by one of the exceptions, a person is guilty of an offence if he mutilates, kicks, beats, nails or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering.

It's application is typically restricted to preventing deliberate harm to wildlife (in general) during construction works etc.

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