Land Adjacent to Bowrie Fauld, Smithy Banks, Holmrook

ECOLOGICAL APPRAISAL

784-B030698

Mrs Nutsford

February 2022

Prepared on Behalf of Tetra Tech Group Limited.

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Document control

Document:	**Ecological Appraisal**
Project:	Land Adjacent to Bowrie Fauld, Smithy Banks, Holmrook
Client:	Mrs Nutsford
Job Number:	784-B030698
File Origin:	\\lds-dc-vm-101\Data\Projects\784-B030698 Bowrie Fauld, Holmrook

Revision:	**1**	**Status:**	**FINAL**
Date:	09/11/2021		
Prepared by: **Jake Matthews** Consultant Ecologist Qualifying CIEEM **Elizebeth Wilcox** Assistant Ecologist Qualifying CIEEM	**Checked by** **Phil Preston** Principal Ecologist MCIEEM		**Approved By:** **Candice Howe MCIEEM** Principal Ecologist
Description of revision: 1			

Revision:	**2**	**Status:**	**FINAL**
Date:	25/02/2022		
Prepared by: **Katrina Caine** Consultant Ecologist		**Approved By:** **Candice Howe MCIEEM** Principal Ecologist	
Description of revision: Amended proposals description			

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EXECUTIVE SUMMARY

Contents	Summary
Site Location	The site is located on Smithy Banks, Holmrook, located at Ordnance Survey National Grid Reference SD 07551 99500. The site is surrounded by agricultural and grassland fields, with residential dwellings to the east and west.
Proposals	The plans comprise residential development with associated access and hard and soft landscaping.
Existing Site Information	A PEA & Hedge Survey was conducted by OpenSpace in June 2018.
Scope of this Survey(s)	The scope of this survey was to update the 2018 ecological assessment (OpenSpace, 2018); desk study; recording broad habitat types in accordance with the Handbook for Phase 1 habitat survey; searching for evidence of notable and protected species; and to record the potential for habitats recorded to support notable and protected species.
Results	**Designated sites** Drigg Holme SSSI is 0.3 km south, Hallsenna Moor SSSI is 1 km north-west and Drigg Coast SAC and SSSI is 1.2 km south-west from site. There are also five County Wildlife Sites and two Sites of Invertebrate Significance within 2 km of the site. **Habitats** The site comprises improved grassland, intact species-poor hedgerows and intact species rich hedgerow. **Protected and notable species** The site has habitat suitability for amphibians, reptiles, bats (foraging and commuting), breeding birds and red squirrel. Invasive montbretia was recorded onsite.
Recommendations	• A precautionary approach should be taken on site in order to avoid any potential risk of injury to individual GCN, other amphibians and reptile species that may be present within the works footprint. Any hedgerow / vegetation removal should be carried out under an approved Method Statement that will include Reasonable Avoidance Measures with regard to the above species. If GCN are discovered, the works must cease immediately, and advice sought from an ECoW / GCN licenced ecologist. • A pre-works badger survey of the proposed works area for badger is recommended a minimum of three months prior to works. • Any works affecting potential bird nesting habitat (i.e. any vegetation clearance) should avoid the nesting period (March to September inclusive) or be immediately preceded (within 48 hours) with a nesting bird check by a suitably qualified ecologist.

	• The hedgerows must be protected during construction in line with BS 5837:2021 by maintaining a 1m buffer from the base of the hedgerow. • A sensitive lighting scheme should be designed and implemented to protect important features for bats and other nocturnal wildlife. • It is advised that an Invasive Species Method Statement is produced by a specialist contractor and implemented to control and eradicate the montbretia present within Hedgerow 2. • It is recommended that enhancement measures are included in the final development such as landscaping with native species and inclusion of bat and bird boxes.

GLOSSARY

BCT	Bat Conservation Trust
BoCC	Bird(s) of Conservation Concern
BSI	British Standard Institute
BTO	British Trust for Ornithology
CBDC	Cumbria Biodiversity Record Centre
CBEB	Cumbria Biodiversity Evidence Base
CIEEM	Chartered Institute of Ecology & Environmental Management
CRoW Act	Countryside and Rights of Way Act 2000
CSZ	Core Sustenance Zones
CWS	County Wildlife Site
DEFRA	Department for the Environment, Food and Rural Affairs
EPS	European Protected Species
EPSML	European Protected Species Mitigation Licence
GCN	Great Crested Newt
Habitats Regulations	Conservation of Habitats and Species Regulations 2017 (as amended)
HAP	Habitat Action Plan
Hedgerow Regulations	The Hedgerow Regulations 1997
HPI	Habitat(s) of Principal Importance
HSI	Habitat Suitability Index
HRA	Habitats Regulations Assessment
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LNR	Local Nature Reserve
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
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
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
SIS	Site of Invertebrate Significance
SPA	Special Protection Area
SPI	Species of Principal Importance
SSSI	Site(s) of Special Scientific Interest
TN	Target Note
W&CA	Wildlife & Countryside Act 1981 (as amended)

1.0 INTRODUCTION

1.1 BACKGROUND

Tetra Tech was commissioned by Mrs Nutsford in September 2021 to undertake an Ecological Appraisal of the site known as Land Adjacent to Bowrie Fauld, Smithy Banks, Holmrook (hereafter referred to as 'the site').

This report has been prepared by Tetra Tech Consultant Ecologist Jake Matthews MSc Qualifying CIEEM and Tetra Tech Assistant Ecologist Elizebeth Wilcox Qualifying CIEEM. The conditions pertinent to it are provided in Appendix A.

1.2 SITE LOCATION

The 'site' is located at land adjacent to Bowrie Fauld, Smithy Banks, Holmrook in Cumbria and is centred at Ordnance Survey National Grid Reference SD 07551 99500 and covers an area of approximately 1.41 ha – see Figure 1.

The site comprises an agricultural field surrounded by further agricultural and grassland fields, with existing residential dwellings to the east by Smithy Banks. Further residential dwellings are located to the west.

1.3 DEVELOPMENT PROPOSALS

To inform the planning proposal for residential development on site (see Appendix B for the proposed site layout). The proposed development is a renewal of outline planning permission Ref:4/18/2297/0O1 granted in in 2018.

1.4 PURPOSE OF THE REPORT

The purpose of this report is to complete:

- A desk study to obtain existing information on statutory and non-statutory sites of nature conservation interest and relevant records of protected/notable species within the site and its zone of influence (2 km);
- An extended Phase 1 habitat survey, involving a walkover of the site to record habitat types and dominant vegetation, including any invasive species, and a reconnaissance survey for evidence of protected fauna or habitats capable of supporting such species; and
- An assessment of the potential ecological receptors present on site, identify any constraints they pose to proposed works and (where required) any recommendations for any further surveys, 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 Previous Reports

A Preliminary Ecological Appraisal (PEA) & Hedge Survey was conducted by OpenSpace in June 2018 (OpenSpace, 2018). This report was reviewed as part of the assessment.

2.1.2 Local Ecological Records Centre

Information was requested from the Cumbria Biodiversity Data Centre (CBDC) for information on any nature conservation designations and protected or notable species records within 2 km of the site.

The data search covered:

- Statutory designated sites for nature conservation, namely Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites, SSSIs, National Nature Reserves (NNRs) and Local Nature Reserves (LNRs);
- Non-statutory designated sites for nature conservation, namely Local Wildlife Sites (LWS);
- Legally protected species, such as great crested newts (GCN) *Triturus cristatus,* badger *Meles meles* and bats;
- Notable habitats and species, such as those listed as Habitats or Species of Principal Importance (HPIs or SPIs); and,
- Priority habitats or species within the Cumbria Local Biodiversity Action Plan (LBAP).

The data search did not cover:

- Tree Preservation Orders (TPOs); or
- Conservation Areas designated for their special architectural and historic interest.

Note that relevant extracts from the desk study are provided in Appendix C, as appropriate.

2.1.3 Online Resources

A search for relevant information within the site and surrounding 2 km was made on MAGIC www.magic.gov.uk - DEFRA's interactive, web-based database. This included searches for statutory designations and information on any European Protected Species Mitigation Licenses (EPSL) applications that have been granted in the local area since 2015.

2.2 FIELD SURVEYS

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

An extended Phase 1 habitat survey and Hedgerow Regulations Assessment was undertaken on the site on 14th September 2021 by Tetra Tech Assistant Ecologist Elizebeth Wilcox. The weather conditions were 18ºC, 6/8 oktas, 0 wind on the Beaufort Scale and no precipitation.

The vegetation and broad habitat types within the site were noted during the survey in accordance with the categories specified in the Handbook for Phase 1 habitat survey, a technique for environmental audit (JNCC, 2010). Dominant plant species were recorded for each habitat present using nomenclature according to Stace (2019). The site was also appraised for its suitability to support notable flora, with regard to the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017).

Hedgerow Regulations Assessment

Hedgerows were assessed to see if they would qualify as 'Important' under the Hedgerow Regulations 1997 by recording hedgerow features present such as the diversity of woody species present, the ground flora and associated features (e.g. banks and ditches). All four hedgerows on site were assessed separately (Appendix F). Access was available to all hedges, except for a small section of H3, which could not be accessed due to the present of cattle (see 2.3 Limitations).

Lengths of hedges were measured in GIS. Hedges were surveyed from one side only, taking care to see as much on both sides of the hedge as possible. The sections of each hedge surveyed for woody species depended on the overall length of the hedge, following the standard Hedgerow Regulations criteria (Appendix C). Each 30 m length was measured by pacing and all woody species listed in Schedule 3 of the Regulations (see Appendix B) were counted (note common non-native hedgerow species such as sycamore *Acer pseudoplatanus* not listed on Schedule 3 were not included).

2.2.2 Protected & Notable Species

The site was inspected for evidence of, and its potential to support, protected or notable species, especially those listed under the Schedule 2 of the Habitat Regulations, Schedule 5 of the W&CA, the Countryside Rights of Way (CRoW) Act 2000, those given extra protection under the NERC Act, and species included in the Cumbria 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).

All waterbodies (three ponds and 1 ditch) within 500m from the site boundary were subject to a Habitat Suitability Index (HSI) assessment. The HSI approach provides an objective method for assessing the suitability of a waterbody as habitat for GCN (Oldham et al., 2000; Herpetological Conservation Trust, 2008). The system provides an index between 0 and 1, with 0 indicating unsuitable habitat and 1 optimal habitat. Ten suitability indices are used to calculate the index score, each representing a factor considered to affect GCN.

Table 1: HSI score categorisations

HSI Score	Pond Suitability
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Bats

Roosting Bats – Buildings / Structures / Trees

No buildings or trees were located on the site. Therefore, a Preliminary Roost Assessment based on the BCT *Bat Surveys for Professional Ecologists*: Good Practice Guidelines (Collins, 2016) – hereafter referred to as the 'BCT Guidelines' was not required.

Foraging/commuting Bats

The BCT Guidelines use the criteria in Table 2 below 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 1: 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.
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.

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).

Badger

The site 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: Surveying badgers. An occasional publication of the mammal society (Harris, Cresswell & Jefferies, 1989).

Other Species

The site was also appraised for its suitability to support other protected or notable fauna including mammals such as red squirrels, 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.

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*. 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. The survey was completed in September which is inside the optimal survey window. As such this is not considered to be a limitation to the accurate assessment of the habitats and the dominant species of the respective vegetation types were visible and identifiable. Full access was available to all waterbodies within 500m of the site boundary.

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.

Approximately 20m of the northern hedgerow (H3) could not be surveyed in detail due to the presence of livestock (cows) immediately adjacent to the hedgerow, which posed a health and safety concern to the surveyor. This is not considered a constraint to the survey, as this section of hedgerow was viewed through binoculars and the species composition and form of the hedgerow was not considered to be different from the pre-ceding section.

The details of this report will remain valid for a period of 18 months from the 14th September 2021, 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 PREVIOUS REPORTS

The PEA & Hedge Survey report (OpenSpace, 2018) concluded that the site was considered of low value to protected species with primary ecological considerations for nesting birds and foraging bats.

The PEA identified the following ecological constraints on the site:

- Designated sites were located within 2 km of the site.
- Habitats within the site comprised species-poor improved grassland and boundary hedgerows. The grassland onsite was of overall low botanical value
- Hedgerows were considered 'not important' under the Hedgerow Regulations; hedgerows were considered as Priority Habitats under Section 41 (S41) of the NERC Act 2006. Removal of a small length of the hedge as part of the development was considered low impact and mitigation and protection measures were detailed.
- Habitats suitable for invertebrates, bats, birds, badger *Meles meles*, red squirrel *Sciurus vulgaris* (commuting purposes only), hedgehogs *Erinaceus europaeus*, and brown hare *Lepus europaeus* were identified on the site.
- Mitigation recommendations for the site included the following:
    - Precautionary Working Methods (PWM) and Reasonable Avoidance Measures (RAM) were recommended for fauna and included timing of works, methods, good practice and habitat enhancements.
    - The provision of bird boxes aimed at house sparrow *Passer domesticus*, swallow *Hirundo rustica* and swift *Apus apus*.
    - The provision of bird feeders.
    - The provision of bat boxes incorporated into the buildings' design.
    - Provision of wildlife areas, buffer strips, and corridors and refugia that may benefit hedgehogs and invertebrates.
    - The provision of native planting scheme, including native bulb planting and woodland species; the creation of additional native hedgerows.
    - The provision of holes / gap in fences to allow movement of hedgehogs across the site.
    - Mitigation measures were provided for Hedgerow 1 (H1). Other hedgerows were to be retained in the proposed development. Protection measures to protect the roost systems was recommended.

3.2 DESIGNATED SITES

The following designated sites of ecological importance have been identified within 2 km of the site.

Table 2: Designated Sites Within 2 km

Designation	Site Name	Distance & Direction	Summary of features
SSSI	Drigg Holme	360m south	Drigg Holme comprises a suite of neutral and acidic grasslands with a rich and varied hay

Designation	Site Name	Distance & Direction	Summary of features
			meadow flora. In terms of species diversity, the grasslands are the second richest series known in West Cumbria with records for 150 different flowering plants.
County Wildlife Site (CWS)	River Irt Grassland	500m east	No further details provided.
CWS and ancient woodland	Fishgarth Wood	700m south-east	A CWS that comprises ancient woodland.
CWS (and ancient woodland)	Cookson Wood	750m north-east	A CWS that comprises ancient woodland.
CWS (and ancient woodland)	Holmrook Hall Wood	90 m north-east	A CWS that comprises ancient woodland.
SSSI, NNR and Sites of Invertebrate Significance (SIS)	Hallsenna Moor	1 km north-west	The SSSI comprises one of the few lowland heath and peatland complexes (and the largest) remaining in the county. A wide range of habitats have developed on the peat, forming a mosaic of wet and dry heath, nutrient poor fen, basin mire and woodland.
SSSI SAC and SIS	Drigg Coast	1.2 km south-west	The SAC is designated for the following habitats: • Estuaries, • Atlantic decalcified fixed dunes, • Dunes with *Salix repens* spp. *argentea*.
CWS	Bogholes Wood	1.2 km north-east	No further details provided.

The site is situated roughly 340m east of the Lake District National Park.

In addition to the above designations, the site is situated within the impact risk zone of Drigg Holme SSSI (detailed in Table 3). However, the development as it stands does not require consultation with Natural England (NE) as the development is under the threshold of 50 residential units and is not outside of an existing settlement area, therefore does not fall into a category of likely risk.

3.3 HABITATS

No priority habitats were identified on site. The closest HPI is approximately 85m north from site and comprises traditional orchard HPI. Deciduous woodland HPI is located 160m south-west of the site. However, there is no connectivity with the habitats on site.

Several parcels of ancient woodland were located within 2 km of the site. Some of these comprised areas of designated sites (as detailed in Table 3). The closest ancient woodland was at Dogkennel Wood located 460m northeast of the site.

In addition, A MAGIC search identified the site to be located within the National Habitat Network Network Expansion Zone as detailed in 'National Habitat Network Maps' (Edwards *et al.*, 2020). Network Expansion Zones comprise:

> *"Land beyond the Network Enhancement Zones with potential for expanding, linking/joining networks across the landscape i.e. conditions such as soils are potentially suitable for habitat creation for the specific habitat in addition to Enhancement Zone 1. Action in this zone to improve connections between existing habitat networks can be targeted here."*

The following habitats have been identified through our assessment, with detailed Target Notes (TN) included in Appendix E and locations shown on Figure 2.

3.3.1 Improved Grassland

The bulk of the site comprised cattle grazed fields of improved grassland (TN1 and see Photographs 1 and 2). The grassland was heavily managed and grazed to a short sward. Grasses comprised abundant perennial rye grass *Lolium perenne*, frequent Yorkshire-fog *Holcus lanatus*, and other less frequent species (see TN1 for species list).

Overall, this habitat was in a similar condition to that surveyed by OpenSpace (2018).

3.3.2 Hedgerow Assessment

The boundaries of the site were made up of four hedgerows to the north, northeast, east and south (see Photographs 3 – 8, Figure 2):

- Hedgerows H1 - species-poor and 'not important' under the Hedgerow Regulations
- H2 - species-poor and 'not important' under the Hedgerow Regulations
- H3 - species-rich and 'not important' under the Hedgerow Regulations
- H4 non-native and 'not important' under the Hedgerow Regulations

Under the Hedgerow Regulations 1997 a hedgerow may classify as important if:

a) It has existed for 30 years or more;

b) It satisfies at least one of the criteria listed in Part II of the Schedule.

All the hedgerows assessed satisfied criteria a) as the boundaries are visible on the Cumberland LXXXII NW map published in 1900 (available online at National Library of Scotland).

Under Part II of the Schedule, a hedgerow may classify as important under Archaeology and history criteria 5:

'The hedgerow is recorded in a document …as an integral part of a field system pre-dating the inclosure Acts'.

No maps of suitable scale prior to 1900 were available online, therefore it could not be confirmed if the hedgerows onsite were present prior to the Inclosure Act.

The hedgerows are summarised in Table 4 - Refer to Appendix F for the detailed breakdown of the Hedgerow Assessment criteria.

Table 4: Summary of Hedgerow Assessment

Hedgerow Ref	Description	Photographs
H1	H1 (TN2) comprised a species-poor shrubby, untrimmed hedgerow reaching approximately 2.75m tall and	**Photograph 1 – H1 southern boundary (inside field boundary)**

Hedgerow Ref	Description	Photographs
	approximately 3m wide. Signs of management over 2 – 10 years were present, which corresponded to the previous report (OpenSpace, 2018). H1 hedgerow was present on the southern and eastern boundaries (Figure 2), with a gate located in the south-eastern corner of the field. Within the section on the southern boundary, three woody species were identified comprising dominant hawthorn *Crataegus monogyna* and rare ash *Fraxinus excelsior* and bramble *Rubus fruticosus* agg. Ground flora reached approximately 20cm tall and included frequent field horsetail *Equisetum arvense,* red fescue *Festuca rubra*, creeping soft-grass *Holcus mollis*, common nettle *Urtica dioica*, and red clover *Trifolium pratense*; and occasional herb Robert *Geranium robertianum*, dandelion *Taraxacum* agg., bush vetch *Vicia sepium*, and perennial rye-grass. On the eastern boundary, two native woody species were identified, comprising dominant hazel *Corylus avellana*, and rare dog rose Rosa canina agg. and bramble. The ground flora comprised dominant common nettles, indicating nutrient enrichment. Other species included dominant false-oat grass *Arrhenatherum elatius*, frequent bramble, and occasional dock Rumex sp., creeping bent, soft rush *Juncus effusus*, compact rush *Juncus conglomeratus*, wood sage *Teucrium scorodonia*, gorse *Ulex europaeus*, dog rose, and rosebay willowherb *Chamaenerion angustifolium*. **As such, H1 is assessed as 'not important' under the Hedgerow Regulations.**	 **Photograph 2 – H1 Southern boundary (roadside)**  **Photograph 3 – H1 eastern boundary** 

Hedgerow Ref	Description	Photographs
H2	H2 comprised a shrubby and untrimmed hedgerow considered more species rich than H1. It was approximately 2.5m high and 2m wide. The hedgerow was located on top of a 1-2m high north-facing bank. H2 was comprised of abundant blackthorn with occasional hawthorn and elder *Sambucus nigra*. Ground flora comprised abundant false-oat grass, frequent common nettle, bramble, occasional docks, bracken *Pteridium aquilinum*, and perennial ryegrass. **As such, H2 is assessed as 'not important' under the Hedgerow Regulations.**	**Photograph 4 – H2 facing east** 
H3	H3 comprised a shrubby and untrimmed hedgerow considered more species rich than H1 and H2. It was approximately 2.5m high and 2m wide. H3 was assessed as being managed within the last 2 years. Six woody species were identified, comprising abundant hawthorn, occasional blackthorn, and rare holly *Ilex aquifolium*, willow *Salix* sp., dog rose, elder and ash. Ground flora comprised abundant false-oat grass, frequent common nettle, bramble, occasional docks, bracken *Pteridium aquilinum*, and perennial ryegrass. All six of these woody species are listed under Schedule 3 of the Hedgerow Regulations 1997, Although, 6 species in total were identified along the whole length of the hedgerow, no more than 4 species were present within a 30m section. In addition, the hedgerow had only one of the associated features (<10% gaps) listed in paragraphs 7(4) and 7(5) of Part II of the hedgerow regulations (Appendix F). **Therefore, H3 is considered species-rich due to the presence of 6 woody species but is not considered as 'important' under the Hedgerow Regulations.**	**Photograph 5 – H3 northern boundary** 

Hedgerow Ref	Description	Photographs
H4	H4 comprised a species-poor shrubby hedgerow that was categorised as between intensively trimmed. H2 was approximately 2m tall and 1.5m wide. H4 was assessed to have been recently managed (i.e. within the last 2 years). H4 was on the eastern boundary of the site and parts of the hedgerow are managed by homes on Smithy Banks. Two garden woody species predominantly occurred; Redclaws *Escallonia rubra* and California privet *Ligustrum ovalifolium* and together comprised approximately 40m of the hedgerow. The ground flora comprised dominant common nettles, indicating nutrient enrichment. Other species included dominant false-oat grass *Arrhenatherum elatius*, frequent bramble, and occasional dock *Rumex* sp., creeping bent, soft rush *Juncus effusus*, compact rush *Juncus conglomeratus,* wood sage *Teucrium scorodonia*, gorse *Ulex europaeus*, dog rose, and rosebay willowherb *Chamaenerion angustifolium*. **As such, H4 is assessed as 'not important' under the Hedgerow Regulations.**	**Photograph 6 – H4 eastern boundary** 

The hedgerows appeared to be historically managed; however, there were no signs at recent management / cutting at the time of the survey. Overall hedgerows located on the site were made up of similar species, though were found to be in less managed condition relative to the previous report (OpenSpace, 2018).

3.4 PROTECTED & NOTABLE SPECIES

3.4.1 Great Crested Newt

The data search returned a total of three records of GCN within 2 km of the site. The most recent record was dated 1996. The closest record was located approximately 2 km west of the site.

In addition, a MAGIC search found one granted EPSL for GCN within 2 km of the site (2015-13414-EPS-MIT). This was located approximately 1.5 km south-west of the site. A MAGIC search also found a total of 19 GCN class licence returns with GCN presence confirmed dated between 2015 – 2017. The closest of these was located approximately 1.7 km north-east of the site.

The previous report scoped out GCN from the assessment due to there being no potential breeding ponds within 500m (OpenSpace, 2018). The updated desk study based on the examination of Ordinance Survey maps and aerial imagery identified a total of three ponds (labelled P1 - 3) and one ditch (labelled D1) located within 500m of the site boundary (see Figure 3 for locations).

HSI Assessment

P1 and D1 were dry during the survey and therefore have been scoped out of further assessment.

P2 and P3 were subject to a HSI assessment and were assessed as having 'good' suitability for GCN (refer to Appendix G for further details).

The CBDC data search returned no records for GCN from ponds P2 and P3. All GCN records for the area are historic (1996 or earlier) and present at Drigg Coast located 1.9 km west of the site. Ponds P2 and P3 are situated approx. 350m west from the site with the B5344 road and residential areas considered to act as a potential barrier to dispersal through to the site.

There is no suitable aquatic habitat onsite and therefore no breeding potential for GCN.

The terrestrial habitats onsite comprised improved grassland and hedgerows. The grassland was tussocky and grazed by cows. It is anticipated that the site is likely to have heavily compacted soil with no refugia / hibernation features and any GCN using the grassland habitat (if present on site) would have been vulnerable to trampling. The hedgerows provide suitable terrestrial habitat for GCN and potential connectivity to the wider landscape.

Given that the main grassland habitat on site is of sub-optimal suitability to GCN and lack of recent records for this species within the site proximity, it is considered unlikely that the site and survey area provide significant terrestrial habitat to local GCN populations. However, since the potential breeding ponds exist within 500m from the proposed scheme location, the opportunistic presence of GCN within the suitable habitats present within the survey area cannot be completely discounted.

Therefore, GCN may be a potential ecological constraint for the proposed road remedial works – see Section 5.3

3.4.2 Other Amphibians

The data search returned 42 records for the following amphibians:

- 19 records of natterjack toad *Epidalea calamita*
- 7 records of common toad *Bufo bufo*
- 9 records of common frog *Rana temporaria*
- 4 records of Smooth newt *Lissotriton vulgaris*
- 3 records of palmate newt *Lissotriton helveticus*

The site is considered unsuitable for natterjack toad as the bare ground habitats that natterjack toad require are not present.

The site supports suitable terrestrial habitat for common amphibians such as common frog and common toad.

3.4.3 Bats

The data search returned a total of 11 records of bats within 2 km of the site including the following species:

- Common pipistrelle *Pipistrellus pipistrellus*
- *Pipistrellus* sp.
- Noctule *Nyctalus noctula*
- Natterer's *Myotis nattereri*

- Whiskered / Brandt's *Myotis mystacinus / Myotis brandtii*
- Unidentified bats

Two of these represented bat roosts relating to unidentified bats. The closest located approximately 400m east of the site, in 1996.

A MAGIC search returned no records of granted EPSML within 2 km of the site.

Roosting Bats

There are no buildings / structures or trees on site therefore the site has negligible suitability for roosting bats.

Commuting / Foraging Bats

The hedgerow habitats provide valuable commuting and foraging habitat for bats. It is anticipated that this habitat is of higher foraging value than that of the previous survey (OpenSpace, 2018) due to the hedgerows having less management relative to 2018. The hedgerows are largely intact and connect to suitable foraging habitat to the north and east of the site. The improved grassland is anticipated to provide foraging value for bats. The presence of grazing animals is likely to provide an abundance of flying invertebrates on which bats can feed.

The habitats on site, including the hedgerows are considered to have at least low habitat value for foraging and commuting bats and the development plans for the site show the majority of the these will be retained, with exception of a small volume of the southern hedgerow.

3.4.4 Reptiles

The desk study returned 17 records the following reptile species within a 2 km radius from site: slow worm *Anguis fragilis*, common lizard *Zootoca vivipara* and adder *Vipera berus*.

The grassland is considered unsuitable for foraging reptiles as it is grazed, is largely uniform in height and structure and is unlikely to support significant invertebrate populations, as a food resource for reptiles. Overall, the site lacks the habitat mosaics favoured by reptiles but the hedgerows on site may offer suitable foraging and commuting habitat for reptiles and connectivity to the wider area.

Reptiles are considered unlikely to be a potential ecological constraint for the proposed development; however, individual animals may opportunistically use the site boundary / hedgerows – see Section 5.3

3.4.5 Badger

The desk study returned 18 records for badgers within 2 km radius from site. The closest records were within woodland and marshy grassland habitats 0.5km south-east from the site and included a record of a sett from 2016.

No badger setts or signs of badgers were recorded within survey area and the adjacent land (up to 50m from the site boundary – wherever accessible).

The habitats on site were of suitability for badger setts; hedgerows on site offer good sett building and foraging habitat. The improved grassland and adjacent gardens offer potential foraging habitat for badgers. Residential properties around the site are unlikely to inhibit badger presence.

Badgers may pose a constraint to proposed development – see section 5.3

3.4.6 Birds

The desk study returned 3396 records of 128 bird species within 2 km of the site (including 85 records for 11 sensitive species – as defined by CBDC).

These included 149 records for 19 legally protected bird species listed under Schedule 1 of the W&CA, 766 records for 30 Birds of Conservation Concern (BoCC) Red List species, 845 records for 49 bird BOCC Amber List species and 418 records for 16 NERC Act bird species.

The habitats within the survey area including hedgerow are considered to be suitable for nesting birds.

Breeding birds may pose a constraint to proposed development – see Section 5.3.

3.4.7 Red Squirrel

The desk study returned 30 records for red squirrel within 2 km radius from site; the closest record for this species was recorded in 2009 and was located approximately 0.1 km south from site. However, the location name for the record was given as 'Ravenglass' which is over 2 km from the site.

No signs of red squirrel dreys were observed within the hedgerows present along the site boundaries and there were no trees present on site. The hedgerows offer suitability for foraging and commuting red squirrel and are connected to other suitable habitat in the wider environment but are unlikely to be utilised for drey building.

Red squirrel are not considered a constraint to the proposed development and are not discussed further within this report.

3.4.8 Invertebrates

The desk study returned 136 records of 41 notable invertebrate species in the 2 km search radius. These include twenty-seven insect species listed under the NERC Act (SPI) such as garden tiger *Arctia caja* and buff ermine *Spilosoma lutea*.

The hedgerows within the survey area will support invertebrate populations but are unlikely to be of importance to scarce, rare and notable species of invertebrates, as the site lacks a diversity of niches for invertebrates to exploit. Hedgerows are also considered to be common and ubiquitous within the wider area; therefore, the loss of a small volume of the southern hedgerow as proposed under the current development is unlikely to adversely affect populations of invertebrate populations on a landscape scale.

Invertebrates are therefore not considered to be a constraint to the proposed development and they are not discussed further within this report.

3.4.9 Invasive and Non-native Species

Montbretia *Crocosmia* x *crocosmiiflora* was identified, located to the east of the site (TN6, Figure 2). Montbretia is listed under Schedule 9 of the W&CA as an invasive non-native species.

3.4.10 Other Species

CBDC returned three records for West European hedgehog *Erinaceus europaeus* within 2 km radius of the site. The hedgerows on site offers connectivity between the gardens and wider landscape and has the potential to support foraging, hibernating and commuting hedgehog.

Hedgehog may pose a constraint to proposed works on site – see section 5.3.

3.5 IMPORTANCE OF ECOLOGICAL FEATURES

In line with the CIEEM PEA Guidelines, and based on the above baseline information, the importance of each ecological feature recorded within the study area is given in Table 5 below. The categories used are those which are defined in Section 4 of the CIEEM EcIA Guidelines (2018 v1.1):

Table 5: Importance of Ecological Features

Feature	Importance	Rationale
Drigg Holme SSSI	National	Statutory designated site on a national level
River Irt Grassland CWS; Fishgarth Wood CWS; Cookson Wood CWS; Bogholes Wood CWS.	County	Non-statutory designated site
Hallsenna Moor SSSI, NNR and SIS	National	Statutory designated site on a national level
Drigg Coast SAC and SSSI	International	Statutory designated site on an European level and a national level
Hedgerows H1 – 2	Local	Species-poor hedgerows considered 'not important' under Hedgerow Regulations. However, considered priority habitat and of value to local wildlife.
Hedgerow H3	County	Species-rich hedgerow which may be considered 'important' under Hedgerow Regulations, also considered priority habitat and of value to local wildlife.
Commuting and foraging bats	Local	Valuable commuting and foraging habitat for bats located within the site.
Roosting bats	Negligible	No buildings, structures or trees suitable for roosting bats.
Nesting birds	Unknown / Local	Habitats suitable for nesting birds located within the site.
Invasive flora	Local	Schedule 9 (W&CA) listed species identified on the site (Montbretia).
Great Crested Newt	Unknown / Local	Water bodies providing potential breeding within 500 m radius and records for GCN within 2 km of the site boundary. Suitable terrestrial habitats such as plantation woodland, dense scrub and grassland are present.
Reptiles	Unknown / Negligible	The site provides sub-optimal habitat for reptiles and it is unlikely to be of significance to local reptile populations. Induvial animals may use the site for foraging or commuting.
Red Squirrel	Negligible	Hedgerows along site boundaries provide sub-optimal habitat for this species. No squirrel dreys were observed within the site and hedgerows highly unlikely to be used by breeding red squirrel.
Badger	Negligible	Unlikely to be present on site.
Other notable species	Unknown	The site is considered to provide suitability for hedgehog and common toad

Feature	Importance	Rationale
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 20th July 2021 (Ministry of Housing Communities and Local Government, 2021) 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 174 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.

The conservation and enhancement of wildlife is also specifically reference re: development within the National Parks or the Broads.

Paragraph 180 then goes on to confirm 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 182 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 185 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 SPI & 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 Cumbria Biodiversity Action Plan (CBAP) was launched in 2001; SAPs were drawn up for 21 species and HAPs were drawn up for 19 habitats. Following the UKBAP review in 2007, the CBAP was reviewed in 2009 and it was decided to include all habitats and species which are listed as HPI and SPI under the NERC Act 2006. A list of all 268 SPI which occur in Cumbria is provided at:

https://www.cumbriawildlifetrust.org.uk/sites/default/files/cumbria%20bap%20species%20updated%20list%202009%20web.pdf

The original action plans for Cumbria were further reviewed as part of the Cumbria Biodiversity Evidence Base (CBEB) and detailed statements have been prepared for 11 species/species groups (Table 6) and 21 habitats (Table 7). For the purposes of this report, the species and habitats listed in the following tables are considered to represent the current CBAP:

Table 6:LBAP SAPs

Species Action Plans	
Bats, *Chiroptera*	Red squirrel, *Sciurus vulgaris*
Great crested newt, *Triturus cristatus*	Reptiles
Natterjack toad, *Epidalea calamita*	-

Table 7: LBAP HAPs

Habitats Action Plans	
Hedgerows	Lakes, Ponds and Tarns
Traditional Orchards	Semi-Natural Woodland

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 site lies within Copeland Borough. Chapter 7 of the adopted Local Plan for Copeland (LPC) (2013 – 2028) *Environmental Protection and Enhancement* incorporates one policy covering Biodiversity and Geodiversity (Copeland Borough Council, 2013).

Policy ENV3 – Biodiversity and Geodiversity

The Council will contribute to the implementation of the UK and Cumbria Biodiversity Action Plan within the plan area by seeking to:

- *A. Improve the condition of internationally, nationally and locally designated sites*
- *B. Ensure that development incorporates measures to protect and enhance any biodiversity interest*
- *C. Enhance, extend and restore priority habitats and look for opportunities to create new habitat*
- *D. Protect and strengthen populations of priority or other protected species*
- *E. Boost the biodiversity value of existing wildlife corridors and create new corridors, and stepping stones that connect them, to develop a functional Ecological Network*
- F. *Restrict access and usage where appropriate and necessary in order to conserve an area's biodiversity value*

Policy DM25 *supports this policy, setting out the detailed approach towards managing development proposals that are likely to have an effect on nature conservation sites, habitats and protected species.*

The core strategy policies are supported by Development Mitigation Polices, one of which relates to '*Nature Conservation, Habitat and Species Protection'*:

Policy DM25 – Protecting Nature Conservation Sites, Habitats and Species

A All development proposals should:

- *i) Protect the biodiversity value of land and buildings*
- *ii) Minimise fragmentation of habitats*
- *iii) Maximise opportunities for conservation, restoration, enhancement and connection of natural habitats and creation of habitats for species listed in UK and Cumbria Biodiversity Action Plans. Special consideration should also be given to those European habitats that lie outside the boundaries of European designated sites*

B Development proposals that would cause a direct or indirect adverse effect on locally recognised sites of biodiversity and geodiversity importance, including County Wildlife Sites, Local Nature Reserves and Regionally Important Geological/Geomorphological Sites or protected species will not be permitted unless:

i) The benefits of the development clearly outweigh the impacts on the features of the site and the wider network of natural habitats, and;

ii) Prevention, mitigation and/or compensation measures are provided. An appropriate long-term management plan will be sought and arrangements to provide adequate funding will be made in accordance with a formal planning agreement or obligation

C Where compensatory habitat is created, it should be of equal or greater size than the area lost as a result of the development

D Development proposals where the principal objective is to conserve or enhance biodiversity or geodiversity interests will be supported in principle

E Where there is evidence to suspect the presence of protected species any planning application should be accompanied by a survey assessing their presence and, if present, the proposal must be sensitive to, and make provision for, their needs

F All development proposals must take into account any likely significant effects on the internationally important sites both within the Borough and within a 20km radius of the Borough boundary as well as those that are hydrologically linked to the development plan area

4.5 LEGISLATION

Full details of the UK legislation and offences which are relevant to the ecological receptors identified are included in Appendix B. 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 nesting Schedule 1 bird species or their dependant young
- Disturbance of GCN
- Disturbance of foraging and commuting bats
- Disturbance of reptiles
- Disturbance of red squirrels
- Disturbance of badgers
- Cause of permit the spread of an invasive species into the wild

5.0 DISCUSSION

5.1 DESIGNATED SITES

5.1.1 Natura 2000 Sites

The nearest Natura 2000 site is Drigg Coast SAC located 1.2 km south-west of the site. The proposed residential development is relatively small in scale and there is no functional connectivity between the proposed development site and Drigg Coast SAC site. Therefore, any impacts on Natura 2000 sites are considered highly unlikely. No further assessment required.

5.1.2 Sites of Special Scientific Interest

The nearest SSSI site is Drigg Holme SSSI located 360m south from site. The proposed residential development is relatively small in scale and although it falls within the IRZ for Drigg Holme SSSI, it does not fall under a category of likely risk to the qualifying features. No further assessment required.

5.1.3 Local Wildlife Sites

The closest CWS - River Irt Grassland is located 0.5 km east of the site. The proposed residential development is relatively small in scale and will not impact any local wildlife sites (CWS or Sites of Invertebrate Significance (SIS)). No further assessment required.

5.2 HABITATS

5.2.1 Hedgerows

H1 and H2 are assessed as 'not important' under the habitat regulations. H3 comprised six woody species as listed on Schedule 3 of the Hedgerow Regulations; however, the associated features present did not meet the criteria for assessment as an important hedgerow under Schedule 4. The local planning authority can be contacted for information on the historic status of the hedges. If a hedge pre-dates the enclosures act this would qualify as 'important' in the context of the Hedgerow Regulations and would require consent from the local planning authority for any removal.

Furthermore, all hedgerows within the site were made up of >80% native species. They are therefore considered HPI.

It is anticipated that the proposed development will retain the majority of the hedgerows within the site, with a small volume (approximately 25m) of the southern hedgerow (H1) required for removal for access purposes only. Retained hedgerows should be provided an appropriate buffer of 1m to protect the root impact zone from construction works in line with the British Standard BS 5837 (The British Standard Institution, 2012)

Any hedgerow that is lost should be compensated for by additional planting with similar native species. The Planting Plan for the site prepared by Eden Environment Ltd indicates that there will be 125m of native hedgerow planted along the eastern site boundary (see Appendix H). The proposed species will include hazel, hawthorn, holly, blackthorn, dog rose, elder and guelder rose.

5.3 PROTECTED & NOTABLE SPECIES

5.3.1 Great Crested Newt

The hedgerows within the survey area provide suitable terrestrial habitat for GCN with some potential refugia features (tree roots). The improved grassland is likely to be a sub-optimal habitat for this species. There were no ponds on site, with the nearest being 350m west from the proposed development site.

Due to the sub-optimal suitability of the main habitat on site (improved grassland), lack of recent records within the wider area, distance from the potential breeding ponds and sub-optimal connectivity between the site and the ponds, it is not considered necessary to undertake further surveys. A Rapid Risk Assessment has been completed below that determines the likelihood of works committing an offence under relevant legislation.

NE Rapid Risk Assessment

NE have developed a 'rapid risk assessment' tool which can be used to determine the requirement for an EPS development licence under Regulation 53(2)(e) (Natural England, 2020). The rapid risk assessment tool takes into account five different factors to assess the overall likelihood of an offence occurring which are as follows:

- The effect on a GCN breeding waterbody (i.e. whether any breeding ponds will be damaged or destroyed by the works),
- The area of land lost (including habitat not suitable for GCN) within 100m of a known GCN breeding waterbody,
- The area of land lost (including habitat not suitable for GCN) between 100 m – 250 m of a known GCN breeding waterbody,
- The area of land lost (including habitat not suitable for GCN) >250 m of a known GCN breeding waterbody,
- The effect on individual GCN (i.e. level of disturbance, likelihood of obstructing dispersal, likelihood of killing or injuring GCN).

This tool has been applied to the current recommended remedial works and the output result was as follows:

Table 3 NE Rapid Risk Assessment Score

Component	**Likely effect** **(select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)**	**Notional offence probability score**
Great crested newt breeding pond(s)	No effect	0
Land within 100 m of any breeding pond(s)	No effect	0
Land 100-250 m from any breeding pond(s)	No effect	0
Land >250 m from any breeding pond(s)	1 - 5 ha lost or damaged	0.04
Individual great crested newts	Minor disturbance of newts	0.5
	Maximum:	0.5
Rapid risk assessment result:	**AMBER: OFFENCE LIKELY**	

The rapid risk assessment operates on a Red, Amber, Green basis, whereby Amber means: **"Amber: offence likely"** indicates that the proposed activities are of such a type, scale and location that an offence is likely. In this case, the best option is to redesign the development / scheme (location, layout, methods, duration or timing).

In order to reduce the likelihood of causing an offence, it is recommended that Reasonable Avoidance Measures (RAMs) are applied to the site and the proposed remedial works. These RAMs would include amending the methods, duration and timing of the works (described below). It is considered

that with RAMs in place the, the rapid risk assessment tool could be re-run and produce the following output:

Table 4: NE Rapid Risk Assessment Score with RAMs in place

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100 m of any breeding pond(s)	No effect	0
Land 100-250 m from any breeding pond(s)	No effect	0
Land >250 m from any breeding pond(s)	1 - 5 ha lost or damaged	0
Individual great crested newts	No effect	0
	Maximum:	0.01
Rapid risk assessment result:	**GREEN: OFFENCE HIGHLY UNLIKELY**	

"Green: offence highly unlikely" indicates that the development activities are of such a type, scale and location that it is highly unlikely any offence would be committed should the scheme proceed. Therefore, no licence would be required.

NE Rapid Risk Assessment

As a precaution, it is recommended that works are carried out under RAMs, which are described in Table 10 and it is recommended that a Method Statement is prepared to fully detail these measures.

Table 5 Suggestions for Reasonable Avoidance Measures for works potentially affected GCN

Project element	Suggestions for avoidance measures
Timing & duration	(a) Restricting works to hedgerows to outside the winter period (newts may use the tree roots to hibernate in during the winter period of November to February, whereas during the spring and summer months newts will be within breeding ponds). (b) Keep duration of works to the hedgerows as short as possible. (c) During the day, only undertake the works that might affect newts above ground. (d) Vegetation clearance which does not disturb the roots (i.e. clearance which cuts hedgerow above roots level) may be undertaken during the winter months – hedgerows cut to stumps, understorey and ground flora cut to a minimum height of 30 cm above the ground).
Construction methods and special precautions	(a) An ECoW to deliver a Toolbox Talk to all site personnel prior to the works beginning. (b) An ECoW to undertake checks and hand searching where possible prior to works taking place. (c) An ECoW to be on site to supervise works on site (vegetation clearance) which have the potential to disturb newts if present.

Suitable RAMs vary depending upon the site and the nature of the work. Due to the sub-optimal habitat present throughout majority of the site (agricultural improved grassland) as well distance and suboptimal connectivity between the site and the potential breeding ponds, together with the adoption of the RAMs outlined in Table 10, it is considered that the need for surveys and a licence (if there are GCN breeding in the ponds to the west of the site) can be avoided.

Note: where a GCN is discovered during works being completed under RAMs, the works must cease immediately and advice sought from a GCN licenced ecologist.

5.3.2 Bats

All bats and their roosts receive full protection both under The Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to:

- Intentionally kill, injure or take a bat;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a bat; or
- Disturb a bat while it is occupying a structure or place which it uses for that purpose.

In addition, the provisions of the NERC require local authorities to have due regard to protected species when determining planning applications, including all UK bat species. Bats are listed in the Cumbria LBAP.

The site has suitability for foraging and commuting bats; however, given its small size and availability of suitable habitats in the wider landscape, it is unlikely to be more than of **moderate significance** for local bat populations. The loss of improved grassland and small section of the hedgerow on site is unlikely to impact of the Core Sustenance Zones (CSZ) of the local populations.

A CSZ refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost.[1]

It is recommended that the hedgerows are protected from external light spill which may disrupt foraging and/or commuting bats through implementation of a wildlife-friendly lighting scheme for both the construction and operational phases of the development.

The design should avoid light spill onto hedgerows and other suitable habitats adjacent to the site so these are maintained as dark corridors. An example of how this may be achieved is through the use of surface down lighters using LED lamps mounted within the under croft or soffit of new builds, low level light bollards or surface / recessed bulkhead LED lights fitted along public walkways and the use of columns with asymmetric optics and shields to reduce light spill. It is recommended that that the lighting scheme is developed with reference to the Institute of Lighting Professionals (ILP) Guidance Note 08/8 *Bats and artificial lighting in the UK* (ILP, 2018).

5.3.3 Reptiles

All species of native reptiles are protected under the Wildlife and Countryside Act 1981 (as amended).

Due to the potential habitat suitability of hedgerows on site for reptiles, a precautionary approach should be taken with regards to works on site in order to avoid any potential risk of injury to individual reptile species that may be present within the development footprint.

[1] https://www.bats.org.uk/our-work/landscapes-for-bats/core-sustenance-zones

It is recommended that any vegetation clearance / soil stripping should be carried out under the supervision of an Ecological Clerk of Works (ECoW):

- The ECoW then undertakes a fingertip search of hedgerows and checks of any potential refuges before section of hedgerow is removed and the site is made unsuitable for reptiles in order prevent re-colonisation.
- Any potential refugia features on site (hedgerow roots, larger stones) should be subject to destructive search by ECoW prior to any ground disturbance.

A section on reptiles should be included with the GCN RAMs document.

5.3.4 Badger

Badgers are protected and so are the setts (burrows) they live in. Under the Protection of Badgers Act 1992, in England and Wales it is an offence to:

- Wilfully kill, injure or take a badger (or attempt to do so);
- Cruelly ill-treat a badger;
- Dig for a badger;
- Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it;
- Cause a dog to enter a badger sett;
- Disturb a badger when it is occupying a sett.

No signs of badger or badger setts were observed within the survey area and immediate surroundings during the walkover survey. However, badger are highly mobile and can rapidly colonise new areas. It should be noted that there are numerous records for badgers within 2 km from site.

As a precaution, it is recommended that a pre-works badger survey of the proposed remedial works area for badger is undertaken a minimum of three months prior to works.

If a badger sett is found during works, an application for a licence to disturb or destroy the sett may be required to be completed and approved by NE, to avoid contravention of legislation.

5.3.5 Birds

All wild birds, their nests and eggs are protected by the Wildlife and Countryside Act 1981 (as amended).

It is recommended that any works affecting potential bird nesting habitat (i.e. any vegetation clearance or hedgerow removal) should be carried out outside the main bird breeding season (i.e. considered to be March to September, inclusive).

If this is not possible, potential nesting habitat should be checked for nests by a suitably qualified and experienced ecologist immediately prior to its removal. Once complete, a 48-hour window will allow for the area to be made unsuitable for nesting in the area checked. If these works in the checked area are not completed within 48-hours, a further inspection will be required.

If a nesting bird is identified, the ecologist will advise on suitable working methods and exclusion zones to restrict works and/or vehicular access in the area until the chicks have fledged or the nest becomes otherwise inactive. Measures will depend on the nature of the works in that area as well as any bird species identified to be nesting.

5.3.6 Invasive species

Montbretia is listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended); these species have been identified on site. This makes it an offence to plant these species in the wild, knowingly allow it to spread, or otherwise cause it to grow.

It is advised that an Invasive Species Method Statement is produced by a specialist contractor and implemented to control and eradicate these species on site. The stands of invasive species should be marked out and all contractors aware of its location. Species specific approaches should be taken, and an aftercare period should also be detailed.

5.3.7 Other species

The site has potential for hedgehog to be present. Before clearance works commence, any areas covered by dense vegetation should be disturbed/ searched by hand (or by the contractor walking over and disturbing the ground cover) to alert any animal and allow it to naturally disperse. If fencing is used, it should include gaps at ground level (13 x 13cm) or clearance beneath to allow hedgehog dispersal throughout the site.

5.4 ENHANCEMENTS

Opportunities should be sought where possible for nature conservation enhancement of the site in line with current policy guidance (NPPF, 2021), Biodiversity Net Gain principals and the Copeland Borough Council Local Plan 2013-2028 Policy DM25.

The following enhancement measures are recommended for the proposed development. These measures include previous recommendations suggested by OpenSpace in their Ecological Assessment report (OpenSpace, 2018) and are design to complement the Planting Plan for the site prepared by Eden Environment Ltd (see Appendix H).

- Hedgerow and tree planting to increase connectivity across the site.
- Planting of new areas of soft landscaping with insect-attracting, native species of local provenance, wherever possible, to enhance the site's ecology. This approach should apply to any tree/shrub species planted, as well as ground flora/grass mixes sown and will create valuable habitats for invertebrates. Planting woody species that produce fruits and berries, and nectar-producing herbaceous plants that flower at different times of the year would have the greatest benefit for local wildlife.
- Incorporation of integrated bat boxes (such as: https://www.nhbs.com/1fr-schwegler-bat-tube or similar product) within new buildings (at a ratio of one box, per house) to provide enhanced bat roosting provision across the development.
- Incorporation of bird integrated nesting opportunities (such as: https://www.nhbs.com/woodstone-build-in-open-nest-box or similar within new buildings (at a ratio of one box, per house) to provide enhanced bird nesting provision across the development.

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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.

FIGURES

Site Location Plan

Land Adjacent to Bowrie Fauld, Holmrook

Mrs T. Nutsford

Legend

Site boundary

Notes:

Drawn by: SB

Checked by: EW

Office: Southampton

Figure No. 1

Revision No. A

0 70 140 210 Meters

Scale 1:5,000 @A3

10 September 2021

NGR: 307556E 499501N

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Botleigh Grange
Office Campus
Hedge End
Southampton
Hampshire, SO30 2AF

Phase 1 Habitat Plan

Land Adjacent to Bowrie Fauld, Holmrook

Mrs T. Nutsford

Legend

- Site boundary
- I — Improved grassland
- Intact hedge - native species-rich
- Intact hedge - native species-poor
- Intact hedge - non - native)
- Target note

Notes:

Drawn by: SB
Checked by: EW
Office: Southampton

Figure No. 2
Revision No. A

0 10 20 30 Meters
Scale 1:1,000 @A3

13 October 2021
NGR: 307556E 499501N

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Hampshire, SO30 2AF

Waterbodies Within 500m

Land Adjacent to Bowrie Fauld, Holmrook

Mrs T. Nutsford

Legend

- *Site boundary*
- *250m Site buffer*
- *500m Site buffer*
- *Waterbodies*

Notes:

Drawn by: MS
Checked by: EW
Office: Southampton

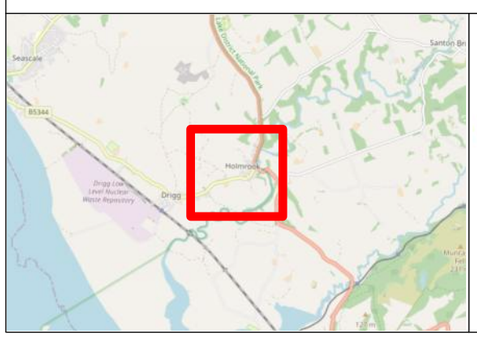
Figure No. 3
Revision No. A

0 70 140 210 Meters

Scale 1:5,000 @A3

08 November 2021

NGR: 307556E 499501N



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APPENDIX A – REPORT CONDITIONS

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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. Tetra Tech accept no liability for issues with performance arising from such factors.

APPENDIX B – PROPOSED SITE LAYOUT (SKETCH I_10)

Key

- Land owned by the applicant
- Site boundary
- Approximate line of of existing overhead cables
- Proposed line for re-routing section of overhead cables
- Approximate line of existing underground gas mains
- Existing buildings
- Proposed road within site
- Proposed dwellings
- Proposed trees
- Proposed hedgerows

revision	date	notes
R 00	27.11.2017	original drawing

drawing number 10

drawing name Sketch I

project Proposed housing at Holmrook

client Mr Nutsford

Eden Environment Ltd
www.edenenvironment.com

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 Flora, 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 Ministers, 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[2]	*Hippocampus hippocampus*
Walrus	*Odobenus rosmarus*	Seahorse – Spiny	*Hippocampus guttulatus*
Water Vole	*Arvicola amphibius*	Sturgeon	*Acipenser sturio*
Whales – All Species	*Cetacea*	Vendace	*Coregonus albula*

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

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[3] at all times			
High brown fritillary	*Argynnis adippe*	Fisher's Estuarine Moth	*Gortyna borelii*
Large Blue	*Maculinea arion*	Barberry Carpet	*Pareulype berberata*
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[4]	*Helix pomatia*

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

[4] England only

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)*
Broomrape – Bedstraw	*Orobanche caryophyllacea*	Milk-parsley – Cambridge	*Selinum carvifolia*
Broomrape – Oxtongue	*Orobanche picridis*	Mudwort – Welsh	*Limosella aquatica*
Broomrape – Thistle	*Orobanche reticulata*[5]	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*[6]
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*

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

[6] All subspecies occurring in the UK

Gladiolus – Wild	*Gladiolus illyricus*	Speedwell – Spiked	*Veronica spicata*[7]
Goosefoot – Stinking	*Chenopodium vulvaria*	Spike-rush – Dwarf	*Eleocharis parvula*
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*[8]	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*		
Stoneworts – Full Protection under Schedule 8 at all times			
Bearded Stonewort	*Chara canescens*	Foxtail Stonewort	*Lamprothamnium papullosum*

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

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

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			
Alexanders, Perfoliate	*Smyrnium perfoliatum*	Kelp, Japanese	*Laminaria japonica*
Algae, Red	*Grateloupia luxurians*	Knotweed, Giant	*Reynoutria (Fallopia) sachalinensis*
Archangel, Variegated Yellow	*Lamiastrum galeobdolon subsp. argentatum*	Knotweed, Hybrid	*Reynoutria (Fallopia) japonica x sachalinensis*
Azalea, Yellow	*Rhododendron luteum*	Knotweed, Japanese	*Reynoutria (Fallopia) japonica*
Balsam, Himalayan	*Impatiens glandulifera*	Leek, Few-flowered	*Allium paradoxum*
Cotoneaster, Wall	*Cotoneaster horizontalis*	Lettuce, water	*Pistia stratiotes*
Cotoneaster, Entire-leaved	*Cotoneaster integrifolius*	Montbretia	*Crocosmia x crocosmiiflora*
Cotoneaster, Himalayan	*Cotoneaster simonsii*	Parrot's Feather	*Myriophyllum aquaticum*
Cotoneaster, Hollyberry	*Cotoneaster bullatus*	Pennywort, Floating	*Hydrocotyle ranunculoides*
Cotoneaster, Small-leaved	*Cotoneaster microphyllus*	Potato, Duck	*Sagittaria latifolia*
Creeper, False Virginia	*Parthenocissus inserta*	Primrose, Floating Water	*Ludwigia peploides*
Creeper, Virginia	*Parthenocissus quinquefolia*	Primrose, Water	*Ludwigia grandiflora*
Dewplant, Purple	*Disphyma crassifolium*	Primrose, Water	*Ludwigia uruguayensis*
False-acacia	*Robinia pseudoacacia*	Rhododendron	*Rhododendron ponticum* and hybrid *R. ponticum x R. maximum*
Fanwort/Carolina Water-Shield	*Cabomba caroliniana*	Rhubarb, Giant	*Gunnera tinctoria*
Fern, Water	*Azolla filiculoides*	Rose, Japanese	*Rosa rugosa*
Fig, Hottentot	*Carpobrotus edulis*	Salvinia, Giant	*Salvinia molesta*
Garlic, Three-cornered	*Allium triquetrum*	Seafingers, Green	*Codium fragile*
Hogweed, Giant	*Heracleum mantegazzianum*	Seaweed, Californian Red	*Pikea californica*

Hyacinth, Water	*Eichhornia crassipes*	Seaweed, Hooked Asparagus	*Asparagopsis armata*
Kelp, Giant species	*Macrocystis angustifolia, M. integrifolia, M. laevis, M. pyrifera*	Seaweed, Japanese	*Sargassum muticum*
Seaweeds, Laver	*Porphyra spp* except except native species, P. *amethystea, P. leucosticte, P. linearis, P. miniate, P. purpurea, P. umbilicalis*	Wakame	*Undaria pinnatifida*
Shallon	*Gaultheria shallon*	Waterweed, Curly	*Lagarosiphon major*
Stonecrop, Australian Swamp/New Zealand Pygmyweed	*Crassula helmsii*	Waterweeds	All species of the genus *Elodea*

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.

It is up to the local planning authority to decide whether circumstances justify the removal of an Important hedgerow. However, there is a strong presumption that important hedgerows will be protected (Defra, 1997).

The full document is available at:
http://www.legislation.gov.uk/uksi/1997/1160/contents/made

Criteria for determining "Important" hedgerows

For the purpose of section 97 (hedgerows) of the Environment Act 1995 and the Hedgerow Regulations 1997; a hedgerow is "Important" if it, or the hedgerow of which it is a stretch:

- Has existed for 30 years or more; and
- Satisfies at least one of the criteria listed in Part II of Schedule 1.

Archaeology & History (Paragraphs 1 - 5)

The Regulations provide the following 'archaeology and history' criteria of which one is to be fulfilled for a Hedgerow to be classified as "Important":

- **Paragraph 1:** The hedgerow marks the boundary, or part of the boundary, of at least one historic parish or township; and for this purpose "historic" means existing before 1850;
- **Paragraph 2:** The hedgerow incorporates an archaeological feature which is – (a) included in the schedule of monuments compiled by the Secretary of State under section 1 (schedule of monuments) of the Ancient Monuments and Archaeological Areas Act 1979; or (b) recorded at the relevant date in a Sites and Monuments Record.
- **Paragraph 3:** The hedgerow- (a)is situated wholly or partly within an archaeological site included or recorded as mentioned in paragraph 2 or on land adjacent to and associated with such a site; and (b)is associated with any monument or feature on that site.
- **Paragraph 4:** The hedgerow- (a)marks the boundary of a pre-1600 AD estate or manor recorded at the relevant date in a Sites and Monuments Record or in a document held at that date at a Record Office; or (b)is visibly related to any building or other features of such an estate or manor; and
- **Paragraph 5:** The hedgerow- (a)is also recorded in a document held at the relevant date at a Record Office as an integral part of a field system pre-dating the Inclosure Acts; or (b) is part of, or visibly related to, any building or other feature associated with such a system, and that system- (I) is substantially complete; or (ii) is of a pattern which is recorded in a document prepared before the relevant date by a local planning authority, within the meaning of the 1990 Act, for the purposes of development control within the authority's area, as a key landscape characteristic.

The full details of the criteria listed in Part II of Schedule 1 are included in Appendix C.

Wildlife and Landscape (Paragraphs 6 - 8)

The Regulations provide the following 'wildlife and landscape' criteria of which one is to be fulfilled for a Hedgerow to be classified as "Important":

Paragraph 6: The hedgerow:

(a) Contains species:

(i) Listed in Part I (protection at all times) of Schedule 1 (birds which are protected by special penalties), Schedule 5 (animals which are protected) or Schedule 8 (plants which are protected) to the WCA 1981; Or

(ii) Categorised as a declining breeder (category 3) in 'Red Data Birds in Britain' ; or

(iii) Categorised as 'endangered', 'extinct', 'rare' or 'vulnerable' in a document mentioned either in The British Red Data Books.

Paragraph 7 (part) *Note that the woody species totals have reduced by one for Cumbrian hedgerows, as per paragraph 7(2) of Schedule 1 to the Hedgerow Regulations: The hedgerow includes :

(a) At least 6 woody species listed in Schedule 3 to the Regulations (within a 30m section); or

(b) At least 5 woody species (within a 30m section), and has associated with it at least 3 of the features specified in sub paragraph (4); or

(c) At least 5 woody species (within a 30m section), including either a black poplar-tree *Populus nigra* spp *betulifolia,* a large-leaved lime *Tilia platyphyllos*, a small-leaved lime *Tilia cordata*, or a wild service tree *Sorbus torminalis*;

(d) At least 4 woody species, and has associated with it at least 4 of the features specified in sub-paragraph (4).

Features listed in sub paragraph 4 are:

- A bank or wall which supports the hedgerow along at least one half of its length;
- Gaps which in aggregate do not exceed 10% of the length of the hedgerow;
- Where the length of the hedgerow does not exceed 50 metres, at least one standard tree;
- Where the length of the hedgerow exceeds 50 metres but does not but does not exceed 100 metres, at least 2 standard trees;
- Where the length of the hedgerow exceeds 100 metres, such number of standard trees (within any part of its length) as would when averaged over its total length amount to at least one for each 50 metres;
- At least 3 woodland species within one metre, in any direction of the outermost edges of the hedgerow;
- A ditch along at least one half of the hedgerow;
- Connections scoring 4 points or more* in accordance with sub paragraph 5 (5); and
- A parallel hedge within 15 metres of the hedgerow.

*A connection with another hedgerow scores one point and a connection with a pond or woodland in which the majority of trees are broad-leaved scores 2 points; and a hedgerow is connected with something not only if it meets it but also if it has a point within 10 metres of it and would meet it if the line of the hedgerow continued.

Paragraph 8 (part): The hedgerow

(a) Is adjacent to a bridleway or footpath, a road used as a public path or a byway open to all traffic; and

(b) Includes at least 4 woody species and has associated with it at least 2 of the features listed below.

The associated features are as sub paragraph 4 (listed above), with the exception of the following:

- Connections scoring 4 points or more* in accordance with sub paragraph 5 (5); and
- A parallel hedge within 15 metres 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.

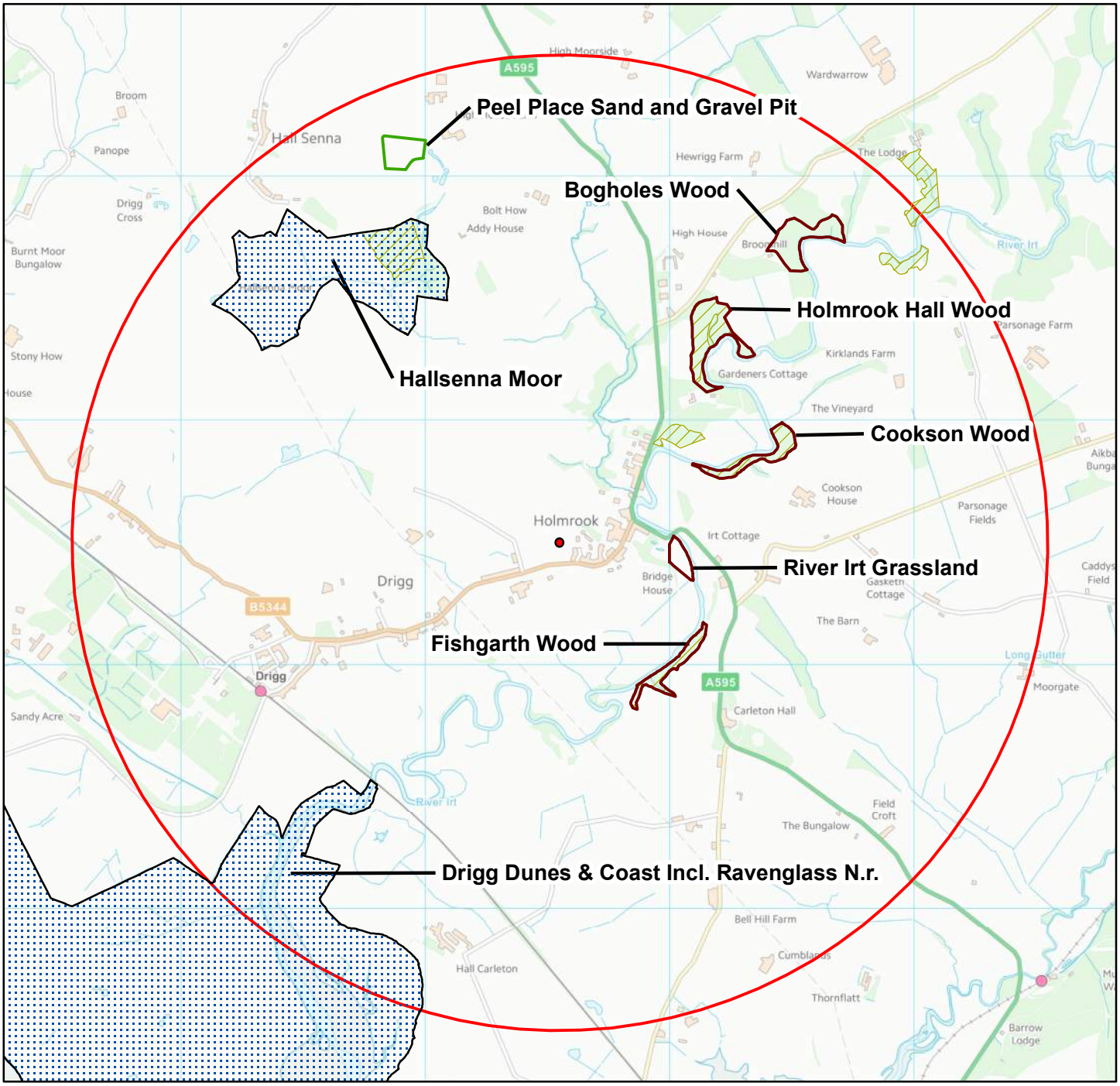
APPENDIX D – RELEVANT DESK STUDY DATA

Cumbria Biodiversity Data Centre (CBDC): Non-Statutory Sites Search

For: Elizebeth Wilcox at Tetra Tech

Centroid: SD 07550 99497
Site Name: Bowrie Fauld, Holmrook - B030698
Buffer: 2km
Search Date: 13/09/2021

N.B. Sites are displayed only if they exist within the search area



Key

- County Wildlife Sites
- Local Geological Sites
- Site of Invertebrate Significance
- Ancient Woodland

0 250 500 1,000 m

N

Any queries in the first instance contact:
Dr Moustafa Eweda
Biological Data Officer
Cumbria Biodiversity Data Centre (CBDC)

T. 01228 618770
E. dataofficer@cbdc.org.uk

APPENDIX E – TARGET NOTES

Species present at TN1 – TN6 arranged per decreasing frequency (DAFOR) value. DAFOR values: Dominant (D), Abundant (A), Frequent (F), Occasional (O), Rare (R).

Target Note	Description	Photograph
TN1	SD 07550 99491 Improved agricultural grassland Perennial rye-grass *Lolium perenne* A Yorkshire-fog *Holcus lanatus* F Creeping buttercup *Ranunculus repens* F Creeping bent *Agrostis stolonifera* O Red Clover *Trifolium pratense* O Common nettle *Urtica dioica* O	
TN2	SD 07546 99418 Hedgerow 1 (H1) Woody species Hawthorn *Crataegus monogyna* D Ash *Fraxinus excelsior* R Bramble *Rubus fruticosus* agg. R Ground flora Field horsetail *Equisetum arvense* F Red fescue *Festuca rubra* F Creeping soft-grass *Holcus mollis* F Common nettle *Urtica dioica* F Herb Robert *Geranium robertianum* O False oat-grass *Arrhenatherum elatius* O Perennial rye-grass *Lolium perenne* O Dandelion *Taraxacum* agg. O Bush vetch *Vicia sepium* O Red Clover *Trifolium pratense* R	
TN3	SD 07603 99499 Hedgerow 2 (H2) Woody species Blackthorn *Prunus spinosa* A Hawthorn *Crataegus monogyna* O Bramble *Rubus fruticosus* agg. O Elder *Sambucus nigra* O Ground flora False oat-grass *Arrhenatherum elatius* A Bramble *Rubus fruticosus* agg. F	

	Common nettle *Urtica dioica* F Perennial rye-grass *Lolium perenne* O Bracken *Pteridium aquilinum* O Broad-leaved Dock *Rumex obtusifolius* O Creeping thistle *Cirsium arvense* R	
TN4	SD 07567 99562 Hedgerow 3 (H3) Woody species Blackthorn *Prunus spinosa* A Hawthorn *Crataegus monogyna* O Holly *Ilex aquifolium* R Dog-rose *Rosa canina* agg. R Goat willow *Salix caprea* R Elder *Sambucus nigra* R Ground flora False oat-grass *Arrhenatherum elatius* A Bramble *Rubus fruticosus* agg. F Common nettle *Urtica dioica* F Perennial rye-grass *Lolium perenne* O Bracken *Pteridium aquilinum* O Docks *Rumex sp.* O Red campion *Silene dioica* R	
TN5	SD 07603 99499 Hedgerow 4 (H4) Woody species Redclaws *Escallonia rubra* A California privet *Ligustrum ovalifolium* A Ground flora False oat-grass *Arrhenatherum elatius* D Creeping bent *Agrostis stolonifera* O Soft rush *Juncus effusus* O Docks *Rumex sp.* O Common nettle *Urtica dioica* F Rosebay willowherb *Chamaenerion angustifolium* R Broad buckler-fern *Dryopteris dilatata* R Compact rush *Juncus conglomeratus* R Wood sage *Teucrium scorodonia* R	

TN6	SD 07595 99458 Montbretia *Crocosmia* x *crocosmiiflora* present within H4	

APPENDIX F – HEDGEROW ASSESSMENT FURTHER DETAIL

Table F1: Hedgerow characteristics

Hedgerow ID	Woody species as listed on Sch 3 Hedgerow Regulations 1997	Number of connections	Adjacent land use/habitat	Associated features
H1 (TN2)	Hawthorn *Crataegus monogyna,* *Ash Fraxinus excelsior.*	2	Grazing pasture, road verge	<10% gaps, bank.
H2 (TN3)	Blackthorn *Prunus spinosa,* Hawthorn *Crataegus monogyna,* Elder *Sambucus nigra*	2	Grazing pasture	<10% gaps, bank.
H3 (TN4)	Blackthorn *Prunus spinosa,* Hawthorn *Crataegus monogyna,* Elder *Sambucus nigra,* Holly *Ilex aquifolium,* Willow *Salix* sp. Dog rose *Rosa* sp.	2	Grazing pasture	<10% gaps
H4 (TN5)	None (comprised of non-native species)	2	Grazing pasture, gardens	<10% gaps

Table F2: Woody canopy species and associated features

Assessment criteria	H1 Section 1	H1 section 2	H2 Section 1	H2 Section 2	H3 Section 1	H3 Section 2
Number of Woody Species in Canopy*	2	2	3	3	3	4
Bank or wall present?	Yes	Yes	Yes	Yes	No	No
<10% gaps?	Yes	Yes	Yes	Yes	Yes	Yes
1 Standard Tree per 50m?	No	No	No	No	No	No
At Least 3 Species of Woodland Plant?	No	No	No	No	No	No
Ditch?	No	No	No	No	No	No
Connections Scoring 4 Points (in accordance with paragraph 7(5) of part II of the regulations)**	No	No	No	No	No	No
Parallel Hedgerow Within 15m	No	No	No	No	No	No
Is the hedgerow assessed as Important based on the ecological criteria defined by the Hedgerows Regulations (1997)?	No		No		No	

*Excluding sycamore as this species is not included in Schedule 3 of the Hedgerows Regulations.
** A connection with another hedgerow scores one point and a connection with a pond or a woodland in which the majority of trees are broad-leaved scores two points.

APPENDIX G – HSI ASSESSMENT

Pond name:	P1

P1 was dry at the time of the survey. As such, no HSI assessment could be conducted.
SD 07972 99442

Assessment:	Dry – Scoped out of Assessment

Pond name:	P2

Flooded channel, well vegetated but with some areas of open water. Shallow up to 20cm deep, with a silty substrate. The following species were present: water horsetail *Equisetum fluviatile*, bulrush

Pond name:	P2	
Typha latifolia, pendulous sedge *Carex pendula,* mint M*entha* sp, soft rush *Juncus effusus* and sharp-flowered rush *Juncus acutiflorus*. SD 07957 99461		
Parameter	Condition	Score
SI1 Location	A	1
SI2 Area	100m^2	0.2
SI3 Permeance	Never dries	0.9
SI4 Water quality	Good	1
SI5 Shade	0%	1
SI6 Waterfowl	Absent	1
SI7 Fish	Absent	1
SI8 Pond count	2	0.55
SI9 Terrestrial habitat	Good	1
SI10 Macrophytes	80%	1
Total score:	**0.79**	
Assessment:	**Good**	

Pond name:	P3

Irregular-shaped pond, surrounded by trees including willow, elder, birch and sycamore. Varied in depth c.20cm in shallow areas and up to 50cm at its deepest, with a silty substrate. The following

Pond name:	P3	
emergent species were present: duckweed *Lemna* sp., mint *Mentha* sp., rush Juncus sp., white water-lily *Nymphaea alba* and Giant rhubarb *Gunnera tinctoria.* SD 07943 99496		
Parameter	Condition	Score
SI1 Location	A	1
SI2 Area	50m^2	0.1
SI3 Permeance	Never dries	0.9
SI4 Water quality	Good	1
SI5 Shade	50%	1
SI6 Waterfowl	Absent	1
SI7 Fish	Absent	1
SI8 Pond count	2	0.55
SI9 Terrestrial habitat	Good	1
SI10 Macrophytes	50%	0.8
Total score:	**0.72**	
Assessment:	**Good**	

Pond name:	D1

Recently dug channel SD 07973 99435

Pond name:	D1
Assessment:	Dry – Scoped out of Assessment

APPENDIX H – PLANTING PLAN AND PLANTING SCHEDULE

0 10.0 50.0

Scale ~ 1:1,000 at page size. Do not scale off this drawing.

1 Quercus petraea

1 Prunus padus

3 Sorbus aucuparia

1 Quercus petraea

1Betula pendula

2 Acer pseudoplatanus

2 Quercus petraea

1 Acer pseudoplatanus

2 Prunus avium

160 m² Woodland edge

120 m² Woodland block

All tree positions along eastern boundary to be micro-sited on site, to ensure good screening for properties to the east. Positions shown here are indicative only.

1 Prunus padus

1 Amelanchier lamarckii

1 Prunus padus

1 Sorbus aucuparia

1 Amelanchier lamarckii

1 Betula pendula

125 linear metres native hedgerow

1 Malus sylvestris

300 m² Woodland block

1 Sorbus aucparia

1 Prunus padus

All planting along line of re-aligned overhead cable to be in accordance with stand off requirements - positions shown here are indicative only.

1 Prunus avium

1 Quercus petraea

1 Amelanchier lamarckii

22.8m

22.6m

SMITHY

SMITHY

Key

- Existing buildings
- Existing trees
- Existing hedgerows
- Proposed individual trees
- Proposed woodland blocks or woodland edge
- Proposed hedgerow
- Proposed line of re-routed overhead cable (indicative)

revision	date	notes
R 00	27.04.2018	original drawing

drawing number

11

drawing name

Planting plan for site boundaries

project

Proposed housing at Holmrook

client

Mr Nutsford

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PLANT SPECIFICATION AND SCHEDULES

Note: see final page of this document for reference, revision number, document number and date of issue.

Trees

Latin name (common name)	Form	Age	Girth (cm)	Height (cm)	Root or pot size(L)	% of mix	Planting density	No
Acer pseudoplatanus (Sycamore)	Standard	2X	8-10	250-300	BR	-	as shown	3
Amelanchier lamarckii (Snowy Mespilus)	Feathered	2X	-	200-250	BR	-	as shown	3
Betula pendula (Birch)	Feathered	2X	-	200-250	BR	-	as shown	2
Malus sylvestris (Common Wild Crabapple)	Standard	2X	8-10	250-300	BR	-	as shown	1
Prunus avium (Wild Cherry)	Feathered	2X	-	150 – 175	BR	-	as shown	3
Prunus padus (Bird cherry)	Select Standard	2X	10-12	300-350	BR	-	as shown	4
Quercus petraea (Sessile Oak)	Standard	2X	8-10	250-300	BR	-	as shown	5
Sorbus aucuparia (Rowan)	Select St'd	2X	10 – 12	300 – 350	BR	-	as shown	5

Woodland mix 420 m^2

Plant in random groups of 3 to 5

Latin name (common name)	Form	Age	Girth (cm)	Height (cm)	Root or pot size(L)	% of mix	Planting density	No
Acer pseudoplatanus (Sycamore)	Transplant Cell grown	1+1	-	40-60	CGP	15	0.5 / m^2	30
Alnus glutinosa (Common Alder)	Transplant Cell grown	1+1	-	40-60	CGP	10	0.5 / m^2	20
Prunus avium (Wild Cherry)	Transplant Cell grown	1+1	-	40-60	CGP	15	0.5 / m^2	30
Corylus avellana (Common Hazel)	Transplant Cell grown	1U1	-	40-60	CGP	10	0.5 / m^2	20
Quercus petraea (Sessile Oak)	Transplant Cell grown	1U1	-	40-60	CGP	20	0.5 / m^2	40
Salix caprea (Goat willow)	Transplant Cell grown	1+1	-	40-60	CGP	10	0.5 / m^2	20
Sorbus aucuparia (Rowan)	Transplant Cell grown	1+1	-	40-60	CGP	20	0.5 / m^2	40

Woodland edge mix 160 m^2

Plant in random groups of 3 to 5

Latin name (common name)	Form	Age	Girth (cm)	Height (cm)	Root or pot size(L)	% of mix	Planting density	No
Corylus avellana (Goat willow)	Transplant Cell grown	1+1	-	40-60	CGP	20	0.5 / m^2	15
Ilex aquifolium (Holly)	Pot grown	-	-	40-60	2L	20	0.5 / m^2	15
Lonicera periclymenum (Honeysuckle)	Pot grown	-	-	20-30	2L	20	0.5 / m^2	15
Prunus spinosa (Blackthorn)	Transplant Cell grown	1+1	-	40-60	CGP	20	0.5 / m^2	15
Viburnum opulus (Guelder rose)	Transplant Cell grown	1+1	-	40-60	CGP	20	0.5 / m^2	15

Native field hedgerow 125 linear metres

All hedgerow plants to be planted in double staggered row, plant in random groups of 7-15

Latin name (common name)	Form	Age	Girth (cm)	Height (cm)	Root or pot size(L)	% of mix	Planting density	No
Corylus avellana (hazel)	Transplant	1U1	-	60-80	BR	10	5 / lin m	60
Crataegus monogyna (hawthorn)	Transplant	1+1	-	40-60	BR	45	5 / lin m	280
Ilex aquifolium (holly)	-	-	-	40-60	2L	15	5 / lin m	95
Lonicera periclymenum	-	-	-	20-30	2L	5	5 / lin m	30
Prunus spinosa (blackthorn)	Branched, 2 breaks	1+1	-	40-60	BR	10	5 / lin m	60
Rosa canina (dog rose)	Transplant	1+1	-	40-60	BR	5	5 / lin m	30
Sambucus nigra (common elder)	Transplant	1U1	-	60-80	BR	5	5 / lin m	30
Vibrunum opulus (guelder rose)	Transplant	1+1	-	40-60	BR	5	5 / lin m	30

Proposed maintenance regime for first 5 years

Year 1 establishment (planting year)

- Carry out planting between November and March
- Plant trees in prepared pits backfilled with topsoil, fertiliser and soil conditioner, in accordance with manufacturer's recommendations
- Protect shrubs with shelters and stakes
- Support and protect trees with double stakes
- Protect hedgerows from cattle with stock proof fence

Years 1 – 5, each year (maintenance)

- Keep grass short around bases of trees with mowing, herbicides and / or mulch mats, as appropriate
- Inspect tree ties, stakes and shelters / guards; loosen and remove as necessary with all being removed by year 5.
- Prune and lay hedgerows as necessary once a year to develop dense, evenly shaped hedgerow
- Replace any trees or shrubs which are dead or failing to thrive in the winter of each year
- Water trees, hedgerows, hedges and shrubs if drought conditions occur.
- Inspect and maintain stock proof fencing

revision	date	notes
00	29.04.2018	original

drawing number **12**

drawing name **Plant specification & schedule**

Project **Proposed housing at Holmrook**

Client **Mr Nutsford**

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