Rob and Dena Frith trading as ***RDF*** Ecology
5 Stamford Road
Woodlaithes
Rotherham
South Yorkshire
S66 3YY
Tel: 01709 531 868
Enquiries: sales@rdfecology.co.uk
Web: www.rdfecology.co.uk

Waters Mill, Penistone

Preliminary Ecological Appraisal

Prepared for Mulgrave Developments Ltd

September 2023

	Staff Member	Position
Extended Phase I Habitat Survey	Rob Frith BSc (Hons) MRSB	Principal Ecologist
Report prepared by	Rob Frith BSc (Hons) MRSB	Principal Ecologist
Approved by:	Dena Frith	Senior Ecologist
Notes:	**This report contains sensitive information concerning protected species and caution should be exercised when copying and distributing to third parties.**	

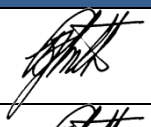
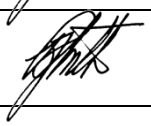
Report Status	Authorised for Release	Date	Position
Final Draft	Rob Frith 	21 July 2023	Principal Ecologist
Final	Rob Frith 	2 September 2023	Principal Ecologist

TABLE OF CONTENTS

LIST OF TABLES

LIST OF PHOTOGRAPHS

EXECUTIVE SUMMARY

Mulgrave Developments Ltd is seeking planning permission for a small residential development comprising 17 dwellings and associated access at land off Watermill Gardens, Penistone.

RDF Ecology were appointed to undertake a desktop study, extended phase I habitat and protected species walkover survey, to prepare a preliminary ecological appraisal report and provide advice on ecological habitat creation and complete the current Biodiversity Net Gain metric (version 4.0) calculations for the development.

Assessment Summary

Survey Item	Conclusions
Designated Sites	**No** impacts upon designated sites are predicted and **no** further survey and assessment work are recommended.
Habitats	The habitats within the site have no intrinsic botanical value and the loss of the area of improved agricultural grassland, ruderal and ephemeral vegetation would have negligible ecological effects Off-site habitat creation measures a proposed and indicate that overall the development delivers the net gains as set out below Habitats 11.45% Hedgerows 100.00% **No** further survey or assessment work is recommended with regard to the sites botanical value.
Bats—Buildings and Structures	There are no buildings within the site. N**o** impacts upon roosting bats in buildings are predicted and **no** further survey or assessment work is recommended
Bats—Trees and Habitats	There are no large trees with potential roost features to be removed or directly affected by the proposed development and no commuting routes would be disrupted. **No** significant impacts upon commuting or feeding bats or upon bats roosting in trees are predicted and **no** further survey and assessment work is recommended
Badger	**No** evidence of badger activity was recorded and **no** impacts upon badgers are predicted and **no** further survey or assessment work is recommended.
Otter	The site **does not** contain any habitats of potential value to otters, **no** evidence of otter activity was recorded during the field survey. **No** impacts upon otters are predicted and **no** further survey or assessment work for otters is recommended
Water Vole	The site **does not** contain any habitats of potential value to water vole, **no** evidence of water vole activity was recorded during the field survey. **No** impacts upon water vole are predicted and **no** further survey or assessment work for water vole is recommended
Breeding Birds	**No** significant impacts upon nesting birds are predicted and **no** further ornithological survey work is recommended
Amphibians	N**o** impacts upon amphibians are predicted and **no** further survey work is recommended
Reptiles	**No** significant impacts upon reptiles are predicted and **no** further survey work is recommended
Recommendations	
Breeding Birds	That removal of trees, shrubs and surface vegetation should be completed outside of the bird breeding season (March to September inclusive). Where this is not possible a suitably qualified and experienced ecologist should complete a survey of the site immediately prior to completion of the proposed works to search for nesting birds and to advise on exclusion zones or timing of works if nesting birds are recorded

1. INTRODUCTION

1.1. Project Background

1.1.1. Mulgrave Developments Ltd is seeking planning permission for a small residential development comprising 17 dwellings and associated access at land off Watermill Gardens, Penistone (hereafter referred to as 'the site') whose location and extent is shown in Figure 1.

1.2. Planning Background

1.2.1. The site is allocated for new housing in the Barnsley Local Plan (site reference HS70).

1.3. Ecological Background

1.3.1. There have been no previous ecological surveys of the site.

1.3.2. However, planning permission was granted (Ref 2015/1637) for the "Demolition of existing buildings and erection of 11no. detached dwellinghouses, access, landscaping, drainage and associated works". This application related to the area immediately south of the Site and within allocation HS70.

1.3.3. A preliminary Ecological Appraisal report (Brooks Ecological 2015a) was submitted with the planning application and recommended further bats surveys for the old Mill building adjacent to Barnsley Road. These surveys were completed in August and September of 2015 (Brooks Ecological 2015b and 2015c). The surveys did not identify ant bat roosts within the buildings surveyed. The did however record a single common pipistrelle *(pipistrellus pipistrellus)* commuting along the River don to the south of the site and other common pipistrelle bat activity which suggested the possible presence of a small common pipistrelle bat roost in the farm buildings north east of the permitted development.

1.4. Project Brief and Objectives

1.4.1. ***RDF*** Ecology were appointed to undertake a desktop study, extended phase I habitat and protected species walkover survey, to prepare a preliminary ecological appraisal report and provide advice on ecological habitat creation and complete the current Biodiversity Net Gain metric (version 4.0) calculations for the development.

1.4.2. The objectives of the commission were to:

- To complete a desk-top study to review any existing information regarding protected or notable species and designated sites within a 2 kilometre (km) radius of the site, extended to 10 km for International and European

conservation sites including Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites;

- To undertake an extended phase 1 habitat and protected species walkover survey to describe and map the habitats on the site and to identify the presence or potential presence of any protected or notable species;
- To identify and assess potential ecological constraints to the proposed development;
- To prepare a preliminary ecological appraisal report
- To provide recommendations for further ecological surveys where necessary; and,
- Recommend appropriate mitigation measures to enable compliance with wildlife legislation, offset potential negative ecological effects and enhance biodiversity where possible.
- To complete the Biodiversity Net Gain Metric (version 4.0) for the development.

1.4.3. This report describes the findings of the desktop study and field survey work, considers the potential impacts arising from the proposed development and proposes appropriate mitigation measures.

2. THE DEVELOPMENT PROPOSALS

2.1. The proposals considered by this preliminary ecological appraisal are for the erection of 17 dwellings and associated access at land off Watermill Gardens, Penistone.

2.2. To compensate for on site habitat losses, some off-site habitat enhancements are proposed for an area of the adjacent improved grassland.

3. SURVEY METHODS

3.1. Desktop Study

3.1.1. A desk study was carried out in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Preliminary Ecological Appraisal' (2017). Records of any protected or notable species, habitats and designated nature conservation sites within a 2km radius of the site were obtained and reviewed. This radius was extended to 10km for International and European conservation sites including Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites.

3.1.2. The following organisations were contacted for protected sites and species data:

- Barnsley Biological Records Centre (BBRC)

3.1.3. Additional information on sites and species of nature conservation interest was obtained from:

- Multi Agency Geographic Information for the Countryside (MAGIC) website;
- Natural England web site and online SSSI database;

3.2. Field Survey

3.2.1. The extended phase I habitat study area covered the whole site and extended 50m beyond the site boundary where access was possible.

3.2.1. Extended Phase I Habitat Survey

3.2.1.1. An extended phase 1 habitat survey of the site was completed on 4 May 2023 All habitats within the site were surveyed.

3.2.1.2. Habitats present on the site were classified and mapped according to the Joint Nature Conservation Committee (JNCC) Phase 1 Habitat survey methodology (JNCC, 2010).

3.2.1.3. A phase 1 habitat survey provides sufficient information on the composition of the vegetation present to enable it to be characterised and assessed.

3.2.1.4. Fauna and flora present at the time of survey were recorded and the site was assessed for its potential to support notable and/or protected species that could be impacted by development following CIEEM guidance (CIEEM, 2017 and 2018).

3.2.1.5. Target notes were prepared for any features of ecological interest and their locations noted in Figure 3. Plant species were recorded following the nomenclature in Stace (1997) and lists of species are included in Appendix 1.

3.3. Protected Species

3.3.1. Badger Survey

3.3.1.1. Areas of suitable habitat on site and within 50m of the site boundary (where accessible) were searched for evidence of badger with reference to the methodology defined in Harris et al. (1991). The following field signs were recorded, if encountered, during the protected species walkover survey:

- Setts;
- Latrines;
- Prints and paths or trackways;
- Hairs caught on rough wood or fencing; and
- Other evidence including snuffle holes, feeding remains and scratching posts.

3.3.1.2. Where setts were recorded, their status and level of activity was noted. Sett status is broadly categorised as follows:

- Main: generally the largest sett within a badger clan's territory, with a relatively large number of sett entrances with well-worn pathways between them, and conspicuous spoil mounds. This type of sett will be occupied throughout the year and used for breeding;
- Annexe: normally found within 150m of the main sett comprising many entrances, this type of sett may not be occupied throughout the year, and can be used for breeding if there is more than one breeding sow within the clan;
- Subsidiary: similar to an annexe sett, but typically located further from the main sett. This type of sett will not be occupied throughout the year and lacks the well-worn paths associated with main and annexe setts; and
- Outlier: consisting of one or two entrances, this type of sett will be found furthest from the main sett and will only be used sporadically throughout the year.

3.3.1.3. The suitability of the existing habitats on site, as badger breeding and foraging habitat, was assessed.

3.3.2. Otter Survey

3.3.2.1. Areas of suitable habitat on site and within 50m of the site boundary (where accessible) were searched for evidence of otter (*Lutra lutra)*. The following field signs were recorded, if encountered, during the protected species walkover survey:

- Sightings of Otters
- Otter Holts
- Otter footprints
- Otter spraints
- Otter slides

3.3.2.2. The suitability of the existing habitats on site, as otter breeding and foraging habitat, was assessed.

3.3.3. Water Vole Survey

3.3.3.1. Areas of suitable habitat on site and within 50m of the site boundary (where accessible) were searched for evidence of water vole *(Arvicola amphibius)*. The following field signs were recorded, if encountered, during the protected species walkover survey:

- Sightings of Water Voles
- Water Vole tunnel entrances
- Water Vole “lawns”
- Water Vole feeding stations
- Water Vole latrines
- Waterside paths
- Runs in vegetation
- Water Vole footprints
- Sounds of Water Voles 'plopping' into the water

3.3.3.2. The suitability of the existing habitats on site, as water vole breeding and foraging habitat, was assessed.

3.3.4. Bat Surveys

3.3.4.1. Whilst completing the extended phase I habitat survey a preliminary bat roost assessment was undertaken in accordance with best practice guidelines (Collins 2016 and Hundt, 2012).

Tree Assessment

3.3.4.2. There are no trees within the site boundary, however or immediately adjacent to the site were assessed for their potential to support roosting bats in accordance with best practice guidelines (Collins 2016 and Hundt, 2012).

3.3.4.3. The trees were examined from the ground using binoculars and a high-powered torch where appropriate to look for any potential roost features (PRF's) such as natural holes, woodpecker holes, cracks/splits in major limbs, loose bark, thick stemmed ivy growth, hollows/cavities and within dense epicormic growths.

3.3.4.4. The trees were classified according to the criteria detailed in Table 1 below, based upon the visible PRF's identified during the ground levels survey. For extensive areas of woodland, where all trees could not be fully checked the woodland as a whole, was assessed for its potential for roosting bats based upon the overall age and character of the trees present.

Table 1—Criteria for bat roost potential assessment of trees (based on Collins 2016 and Hundt, 2012)

Tree Category	Description
Confirmed	Tree with features confirmed to be used by roosting bats either by historic records (verified appropriately), or evidence recorded during survey.
High	Tree with many suitable PRF's capable of supporting larger roosts. The tree is located within habitat that is connected to wider landscape by strong linear features that may be used by commuting bats e.g. river valley, streams and hedgerows.
Moderate	Tree with definite bat roost potential but with fewer larger PRF's or several PRF's with the potential to be used by individual/small numbers of bats. Surrounding area includes good quality foraging habitat for bats e.g. broadleaved woodland, tree-lined watercourses and grazed parkland; or tree with highly suitable features though its context is less optimal.
Low	Tree with less PRF's capable of supporting only individual/small numbers of bats within a suboptimal location; tree in suitable habitat and of a size and age that elevated surveys are considered likely to result in cracks or crevices being found; or tree with definite bat roost potential which is isolated and within low quality foraging habitat meaning that the presence of a roost is considered less likely.
Negligible	Tree with no visible PRF's, or very few or minor features in an isolated/unsuitable location such that the presence of a roost is considered highly improbable e.g. isolated from suitable foraging or commuting habitats.

Buildings Assessment

3.3.4.5. There are no buildings within the site boundary.

Habitat Assessment

3.3.4.6. Habitat within and adjacent to the site boundary was assessed for its suitability for commuting and feeding bats in accordance with current guidance (Table 4.1 in Collins, 2016) with habitats categorised as having negligible, low, moderate or high suitability for commuting and feeding bats and are summarised in Table 2 below:

Table 2— Criteria for habitat suitability assessments (based on interpretation of Collins 2016 and Hundt, 2012)

Habitat Suitability	Description
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, stream, 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.
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.
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 setting) or a patch of scrub.
Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats.

3.3.5. Wild Birds

3.3.5.1. Habitat within and adjacent to the site boundary was assessed for its suitability for nesting birds. Bird species seen or heard during the survey were recorded.

3.3.6. Amphibian Survey

Habitat Suitability Index Assessment

3.3.6.1. All accessible water bodies within 500m of the site, which are not separated from the site by significant barriers to amphibian movement, were assessed for their suitability as aquatic habitat for great crested newts (*Triturus cristatus*) (GCN) using the criteria in the HSI assessment method developed by Oldham et al (2000) and modified further by the Amphibian and Reptile Groups of the United Kingdom (ARG 2010).

3.3.7. Reptile Survey

3.3.7.1. Any casual observations of reptiles within the site were recorded and the habitats within the site were assessed for their potential value for reptiles.

3.4. Limitation of Field Survey

3.4.1. The extended phase 1 habitat survey was undertaken on 4 May 2023 within the period generally considered to be the optimal vegetation survey period (i.e. April to September).

3.4.2. Given the timings of the survey and the nature of the modified habitats recorded on site it is considered that no limitations are present in the assessment of the site for protected/notable species and habitats. However, an extended phase 1 habitat survey does not comprise a full botanical assessment of all species present within a site; therefore species lists are indicative only.

3.4.3. The baseline conditions described in this report are accurate at the time at which the survey was undertaken. Should a considerable time pass (e.g. more than 2 years) and/or conditions/land-use on the site change prior to the commencement of works, it is recommended that an up-date survey is undertaken.

4. DESKTOP STUDY RESULTS

4.1. Introduction

4.1.1. The desk study results are summarised below and include a review of data provided by Barnsley Biological Records Centre.

4.1.2. Data older than 10 years is considered to be less important than more recent data due to the length of time that has elapsed since being collected (and the chance that they are no longer valid for a current assessment) and these have therefore been excluded from the protected species summary unless the historical records are the sole record for that particular species.

4.2. Designated Sites

4.2.1. Nature Conservation designations within 2km of the site are shown in Figure 2.

4.2.1. Statutory Designated Sites

4.2.1.1. The site is not covered by any statutory nature conservation designations and there are no sites covered by statutory nature conservation designations within 2km of the site boundary.

4.2.1.2. The closest site covered by a statutory nature conservation designation is Pye Flatts Meadows Site of Special Scientific Interest (SSSI) located approximately 3km north east of the site boundary

4.2.1.3. In addition there are 2 sites covered by European nature conservation designations within 10km of the site boundary and these are summarised in Table 3 below.

Table 3—Statutory Designations within 2km and 10km of the site

Site Name	Designation	Distance from Site at Nearest Point
Statutory Designations within 2km		
None		
European Designations within 10km		
South Pennine Moors	SSSI, SAC	5.5km SW
Peak District Moors (South Pennine Moors Phase 1)	SSSI, SPA	5.5km SW
Key SAC = Special Area of Conservation SPA = Special Protection Area	SSSI = Site of Special Scientific Interest	

4.2.1.4. Annex I habitats that are a primary reason for selection of the south Pennine moors SAC include, European dry heaths, Blanket bogs and Old sessile oak woods with *Ilex* and *Blechnum* whilst the Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site include

Northern Atlantic wet heaths with Erica tetralix and Transition mires and quaking bogs.

4.2.1.5. Peak District Moors (South Pennine Moors Phase 1) qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the Breeding Season

Table 4— Qualifying Criteria under Article 4.1

Species	Qualifying Interest
Golden Plover *(Pluvialis apricaria)*	752 pairs representing at least 3.3% of the breeding population in Great Britain (Count as at 1990)
Merlin *(Falco columbarius)*	77 pairs representing at least 5.9% of the breeding population in Great Britain
Peregrine *(Falco peregrinus)*	16 pairs representing at least 1.4% of the breeding population in Great Britain
Short-eared Owl *(Asio flammeus)*	25 pairs representing at least 2.5% of the breeding population in Great Britain

4.2.1.6. This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species.

During the Breeding Season

Table 5— Qualifying Criteria under Article 4.2

Species	Qualifying Interest
Dunlin *(Calidris alpina schinzii)*	140 pairs representing at least 1.3% of the breeding Baltic/UK/Ireland population

4.2.2. Non-Statutory Designated Sites

4.2.2.1. Local Wildlife Sites (LWS) are identified as the most important areas for biodiversity outside statutory designated sites within Barnsley Borough. They are selected and designated for their locally important, distinctive, and threatened habitats and species. This is in order to protect them from inappropriate development and promote the conservation of their biodiversity. Ther are currently 62 Local Wildlife Sites designated in Barnsley Borough.

4.2.2.2. The closest identified LWS is Scout Dyke Reservoir LWS located approximately 1.1km north west of the site boundary.

4.3. Protected Species

Awaiting data from BBRC

5. SURVEY RESULTS

5.1. Introduction

5.1.1. The results of the extended phase 1 habitat and protected species walkover surveys are presented below. Figure 3 illustrates the location and extent of all habitat types recorded on site. A list of species recorded on the site is included in Appendix 1.

5.2. Habitat Descriptions

5.2.1. The following phase 1 habitat types (JNCC codes in parenthesis) were recorded on site during the field survey:

Table 6—Phase 1 Habitats on Site

Habitat	Area (ha)
Improved Grassland (B4)	0.59
Ruderal Vegetation (C3.1)	0.04
Bare Ground and Ephemeral Vegetation (J1.3/J4)	0.12
Total site Area	0.75

5.2.1. Improved Grassland (B4)

5.2.1.1. The majority of the site comprises improved grassland **(TN1)** used for hay and livestock grazing with a grass dominated sward containing perennial rye-grass *(Lolium perenne)*, crested dog's-tail *(Cynosurus cristatus)*, common bent *(Agrostis capillaris)*, red fescue *(Festuca rubra)*, Yorkshire fog *(Holcus lanatus)* and cock's-foot *(Dactylis glomerata)* with false oat grass *(Arrhenatherum elatius)* more frequent around the margins of the site.

Photograph 1—Improved grassland

5.2.1.2. Broad-leaved species were present typically at low abundance and included yarrow *(Achillea millefolium)*, common mouse-ear *(Cerastium fontanum)*, smooth hawk's-beard *(Crepis capillaris)*, cat's-ear *(Hypochaeris radicata)*, ribwort plantain *(Plantago lanceolata)*, creeping buttercup *(Ranunculus repens)*, common sorrel *(Rumex acetosa)*, broad-leaved dock *(Rumex*

obtusifolius), dandelion *(Taraxacum officinale agg.)* and white clover *(Trifolium repens)*.

5.2.2. Ruderal Vegetation (C3.1)

5.2.2.1. At the entrance to the site are a number of soil mounds with stored stone and building materials **(TN2)**. The soil banks contain coarse ruderal vegetation with false oat-grass, cock's-foot, common couch *(Elytrigia repens)* along with common nettle *(Urtica dioica)*, mugwort *(Artemisia vulgaris)*, cleavers *(Galium aparine)*, broad-leaved dock, creeping thistle *(Cirsium arvense)* and occasional rosebay willowherb *(Chamerion angustifolium)*.

Photograph 2 and 3—Ruderal Vegetation on spoil mounds

5.2.3. Bare Ground and Ephemeral Vegetation (J1.3/J4)

5.2.3.1. At the site entrance **(TN3)** is an area of bare ground supporting some sparse vegetation with yarrow, thale cress *(Arabidopsis thaliana)*, daisy *(Bellis perennis)*, wavy bitter-cress *(Cardamine flexuosa)*, common mouse-ear, annual meadow-grass *(Poa annua)*, procumbent pearlwort *(Sagina procumbens)*, dandelion and white clover. Much less frequently encountered species included creeping bent *(Agrostis stolonifera)*, sticky mouse-ear *(Cerastium glomeratum)*, Canadian fleabane *(Conyza canadensis)*, bird's-foot-trefoil *(Lotus corniculatus)* and thyme-leaved speedwell *(Veronica serpyllifolia).*

Photograph 4—Bare ground at site entrance

5.2.3.2. In the south west corner of the site **(TN4)** is another area of revegetating bare ground with some ruderal vegetation and species here included broad-leaved dock, creeping thistle, mugwort, false oat-grass, cock's-foot and Yorkshire fog along with some common mouse-ear, white clover, dandelion, common sorrel and wavy bittercress and a single cowslip *(Primula veris)*.

5.3. Protected Species

5.3.1. Bats

Trees

5.3.1.1. The site does not contain any large trees with potential value to roosting bats.

5.3.1.2. Trees around the margins of the site were examined and no significant PRF's identified and all trees were considered to be of negligible value for roosting bats.

Buildings

5.3.1.3. The site does not contain any buildings or other structures of potential value to roosting bats.

5.3.1.4. A small pipistrelle (Pipistrellus pipistrellus) bat roost is reported from the farm buildings 120m east of the site boundary (pers. comm.).

Habitats

5.3.1.5. The site lies on the northern boundary of Penistone Village adjacent to the grounds of Penistone Grammar School. To the north are the fishing ponds of Nether Mill Fishery with associated areas of grassland and woodland. The wooded outfall from Scout dyke reservoir connects the fishery with Scout dyke Reservoir. To the east of the fisher are fields of improved grassland and large new housing development on Housing Allocation site HS75.

5.3.1.6. To the east of Penistone Grammar School are areas of arable agricultural land with some improved grassland and gappy agricultural hedgerows.

5.3.1.7. South of the site are areas of grassland that link to Watermeadows Park with grassland and wooded areas and the large Penistone Railway viaduct.

5.3.2. Badgers

5.3.2.1. No badger setts were recorded within or immediately adjacent to site.

5.3.2.2. No evidence of badger foraging activity was recorded during the field survey.

5.3.3. Otters

5.3.3.1. The site does not contain any habitats of potential value to otter *(Lutra lutra)*, no evidence of otter activity was recorded during the field survey.

5.3.4. Water Vole

5.3.4.1. The site does not contain any habitats of potential value to water vole *(Arvicola amphibius)*, no evidence of water vole activity was recorded during the field survey.

5.3.5. Wild Birds

5.3.5.1. A single skylark *(Alauda arvensis)* was recorded singing over the grassland to the east of the site boundary. A male blackbird *(Turdus merula)* was recorded from the mature trees with the grounds of Penistone Grammar School to the north of the site along with a singing robin *(Erithacus rubecula)*, wren *(Troglodytes troglodytes)* and chiffchaff *(Phylloscopus collybita)*.

5.3.6. Amphibians

5.3.6.1. The site does not contain any ponds suitable for breeding amphibians including great crested newts *(Triturus cristatus)* and no amphibians were recorded during the field survey.

5.3.6.2. There are two large ponds to the north and east of the site and these are part of the Nether Mill Fishery and being heavily stocked with fish are unlikely to be of value to breeding great crested newt. However they may provide breeding habitat for other common amphibian species

5.3.6.3. Examination of OS maps and satellite imagery indicates that there are no other ponds located within 500m of the site boundary that are connected to the site by areas of suitable terrestrial habitat

5.3.7. Reptiles

5.3.7.1. The improved grassland within the site is of limited value to reptiles.

6. PLANNING POLICY CONTEXT

6.1. National Planning Policy

6.1.1. The National Planning Policy Framework (NPPF 2019) (last updated in July 2021) sets out the Government's planning policies for England and how these are expected to be applied. The NPPF sets out the Government's national principles and policies for England on the protection of biodiversity and geological conservation through the planning system.

6.1.2. At the heart of the NPPF is a clear *"presumption in favour of sustainable development"* (Para 11).

6.1.3. The UK's Sustainable Development Strategy "Securing the Future" sets out 5 guiding principles of sustainable development:

- living within the planet's environmental limits;
- ensuring a strong, healthy and just society;
- achieving a sustainable economy;
- promoting good governance; and
- using sound science responsibly.

6.1.4. Section 15 (paragraph 174) of the NPPF sets out how the planning system should contribute to sustainable development by conserving and enhancing the natural environment through:

- protecting and enhancing valued landscapes, geological conservation interests and soils;
- recognising the intrinsic character and beauty of the countryside and the wider benefits from natural capital and ecosystem services;
- maintaining the character of the undeveloped coast:
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and
- remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

6.1.5. Paragraph 179 refers to protecting and enhancing biodiversity and geodiversity, stating that plans should:

- Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

6.1.6. Paragraph 180 states that when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

- if significant harm 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;
- proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have 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;
- development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;
- opportunities to incorporate biodiversity in and around developments should be encouraged;
- and, planning permission should be refused 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.
- Paragraph 181 outlines that the following wildlife sites should be given the same protection as European sites:
  - » potential Special Protection Areas and possible Special Areas of Conservation;

» listed or proposed Ramsar sites; and

» sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

6.1.7. Additionally paragraph 182 notes 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."*

6.1.8. Annex 1 of the NPPF sets out the detail of implementation.

6.1.9. *ODPM Circular 06/2005* (Government Circular: Biodiversity and Geological Conservation—Statutory Obligations and their Impact within the Planning System) continues to provide administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It complements and supports the expression of national planning guidance set out in NPPF.

6.2. Barnsley Local Plan Policies

6.2.1. The site forms part of a parcel of land allocated for housing under Site HS70 referred to as 'Land north of Barnsley Road'

6.2.2. The Development Plan for Barnsley currently comprises the Barnsley Local Plan (the 'Local Plan'), adopted in January 2019, and its associated Policies Map.

6.2.3. Local Plan Policies relevant to this assessment include the following:

Policy GL1 – Green Infrastructure

We will protect, maintain, enhance and create an integrated network of connected and multi-functional Green Infrastructure assets that:

- *Provides attractive environments where people want to live, work, learn, play, visit and invest;*
- *Meets the environmental, social and economic needs of communities across the borough and the wider City Regions; Enhances the quality of life for present and future residents and visitors;*
- *Helps to meet the challenge of climate change; Enhances biodiversity and landscape character;*
- *Improves opportunities for recreation and tourism; Respects local distinctiveness and historical and cultural heritage;*
- *Maximises potential economic and social benefits; and*
- *Secures and improves linkages between green and blue spaces;*

At a strategic level Barnsley's Green Infrastructure network includes the following corridors which are shown on the Green Infrastructure Diagram:

- *River Dearne Valley Corridor.*
- *River Dove Valley Corridor.*
- *River Don Valley Corridor.*
- *Dearne Valley Green Heart Corridor.*
- *Historic Landscape Corridor.*

The network of Green Infrastructure will be secured by protecting open space, creating new open spaces as part of new development, and by using developer contributions to create and improve Green Infrastructure.

We have produced a Green Infrastructure Strategy for Barnsley which is informed by the Leeds City Region and South Yorkshire Green Infrastructure Strategies.

Policy BIO1 Biodiversity and Geodiversity

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

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

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

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

6.3. Barnsley Local Plan - Supplementary Planning Document – Biodiversity ang Biodiversity

6.3.1. This Supplementary Planning Document offers guidance to anyone seeking to develop land which may have, or is in proximity to a site that has, value for biodiversity and/or geological conservation and was adopted in May 2019.

7. EVALUATION AND RECOMMENDATIONS

7.1. Overall Approach to Assessment

7.1.1. The overall approach to assessment adopted by the study team is based upon the guidelines for Guidelines for Ecological Impact Assessment in the UK and Ireland—Terrestrial, Freshwater, Marine and Coastal published by the Chartered Institute of Ecological and Environmental (CIEEM 2018) and can be summarised as below:

1. To identify the likely zone of influence (study area) arising from the whole lifespan of the project;
2. To identify and value the features of nature conservation interest within the ecological study area in a systematic way by establishing levels of interest for ecological features measured against definable criteria and is used to select the species, communities, habitats or sites that require further detailed examination during the process of ecological impact assessment.
3. To identify the biophysical changes attributable to the project that are likely to affect valued ecological features and resources;
4. To assess whether these biophysical changes are likely to give rise to a significant ecological impact, defined as an impact on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area, including cumulative and in-combination impacts;
5. To consider appropriate refinement of the project to avoid or reduce identified negative impacts and incorporate mitigation measures and/or compensation measures for any residual significant negative impacts and ecological enhancement measures to improve the wider environment;
6. To undertake an assessment of the ecological impacts of the refined project and definition of the significance of these impacts, including cumulative and in-combination impacts;
7. To provide advice on the consequences for decision making of the significant ecological impacts, based on the value of the resource, feature or function; and

8. Where appropriate to make recommendations for monitoring the implementation and success of mitigation and compensation measures and ecological outcomes, including feedback in relation to predicted outcomes.

7.2. Determining Value

7.2.1. The CIEEM guidelines advocates an approach to the valuation of ecological features using a geographical framework (full details in Appendix 2) based upon the following:

- International;
- National; (i.e. England/Northern Ireland/Scotland/Wales)
- Regional;
- County/Metropolitan
- District/Unitary Authority/City or Borough
- Local/Parish
- Within zone of influence only

7.2.2. The thorough evaluation of the ecological importance of the features of a site is essential in order to assess the significance of the ecological effects of the development proposals.

7.2.3. The evaluation criteria are given in detail in Appendix 2. Their aim is to consider the habitats, communities and species present on site in relation to the following:

1. The legislative framework (e.g. the Wildlife and Countryside Act 1981 and the EC Directive on the Conservation of Habitats and Wild Fauna and Flora (92/43/EEC) for the presence of protected species and habitats).
2. Nature conservation designations, including national site designations (Sites of Special Scientific Interest, National Nature Reserves etc), local designations (Sites of Importance for Nature Conservation, Local Nature Reserves, County Wildlife Sites etc).
3. Accepted criteria for species rarity and declining populations, and rarity of habitat types or communities, including species and habitats identified in the British Red Data Books, national biodiversity action plan, and species and habitats identified in regional or local biodiversity action plans where available.
4. Accepted criteria for overall site evaluation (including rarity, diversity, naturalness, historical factors and issues relating to landscape ecology).

7.3. Development Impacts

7.3.1. The development as proposed will result in the loss of all habitats within the site boundary including areas of improved grassland, ruderal and bare ground habitats.

7.3.2. To enable a biodiversity net gain to be achieved it is proposed to enhance an area of grassland immediately adjacent to the eastern site boundary by overseeding with local provenance green hay or a suitable hay meadow seed mix and continue to manage the area as a hay meadow with livestock grazing after harvesting and would be subject to a 30 year Biodiversity enhancement and Management Plan.

7.3.3. The BNG metric calculations show the following gains:

Table 7—BNG Metric Headline Results

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.17
	Hedgerow units	0.63
	Watercourse units	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	11.45%
	Hedgerow units	100.00%
	Watercourse units	0.00%
Trading rules satisfied?	Yes ✓	

7.4. Nature Conservation Designations

7.4.1. Statutory Designations

7.4.1.1. The site is not covered by any statutory or non-statutory nature conservation designations.

7.4.1.2. The nearest site covered by a statutory designation is Pye Flatts meadow SSSI located more than 3km from the site boundary

7.4.1.3. There are two sites covered by European or International nature conservation designations within 10km of the site boundary.

7.4.1.4. The qualifying interest for the Peak District Moors (South Pennine Moors Phase 1) include breeding Golden Plover *(Pluvialis apricaria)*, Merlin *(Falco columbarius)*, Peregrine *(Falco peregrinus)* and Short-eared Owl *(Asio flammeus)*.

7.4.1.5. The habitats within the site do not constitute breeding habitat for any of these species. However golden plovers are known known to utilise enclosed pastureland in close proximity to their breeding grounds for foraging and the high densities of golden plover on British moorlands is attributed in part to the proximity of moorland breeding habitat close to enclosed pasture (Byrkjedal & Thompson 1998). Pearce-Higgins and Yalden (2003) found in the south

Pennines that during incubation, off-duty female adults during the day flew from 6.6 to 7.2 km from the nest to feed, whilst at night off-duty male birds commuted from 2.4 to 2.7 km to feed on pasture grasslands.

7.4.1.6. The site has not been identified as functionally linked land with regard to the South Pennines SPA and the adopted Barnsley Local Plan does not require any species assessment for the site in relation to those associated with the South Pennines SPA. The extract below is taken from the Barnsley adopted Local Plan.

Penistone

Site HS70 Land to north of Barnsley Road, Penistone Indicative number of dwellings 32

Part of the site has planning permission for 11 dwellings. The indicative number of dwellings above relates to the remainder of the site.

The development will be expected to:

Respect the setting of the listed complex of buildings at Nether Mill 60m to the West by the use of appropriate site layout, sympathetic design that reflects the setting, scaling, massing, details and materials; and

Avoid locating built development in parts of the site within flood zone 2 and 3.

Archaeological remains are known/expected to be present on this site therefore proposals must be accompanied by an appropriate archaeological assessment (including field evaluation if necessary) that must include the following:

Information identifying the likely location and extent of the remains, and the nature of the remains;

An assessment of the significance of the remains; and

Consideration of how the remains would be affected by the proposed development.

7.4.1.7. In any case the site is too urban to be of potential value for feeding golden plover and its small, enclosed nature further reduces its potential value. Field size has been shown to be an important factor influencing choice of fields by foraging golden plover field size (O'Connell et al. 1996). Whittingham et al, (2000) noted that “casual observations indicated that birds mainly used areas away from field edges (although edges were utilized for feeding particularly when the flock size was greater)”.

7.4.1.4. Given the distance between these sites, the habitats present and its small enclosed urban location **no** impact on the qualifying interest for the Peak

District Moors (South Pennine Moors Phase 1) are predicted and **no** further survey or assessment work is recommended.

7.4.1.4. In consideration of lack of significant off-site impacts and the distance between the site and the South Pennine Moors SAC (5.6km at the closest point) whose qualifying interest features are , European dry heaths, Blanket bogs and Old sessile oak woods with *Ilex* and *Blechnum* **no** impact on the qualifying interest features are predicted and **no** further survey or assessment work is recommended.

7.4.2. Non-Statutory Designations

7.4.2.1. The site is not covered by any non-statutory nature conservation designation

7.5. Habitats

7.5.1. The site contains habitats that are widespread in their distribution and support a limited range of common and widespread species.

7.5.2. No priority habitats identified with the Barnsley Biodiversity Action Plan (2010) are present with the site boundary. The small area of distributed ground at the site entrance is too small to be considered a priority habitat type. The UK BAP Priority Habitat Descriptions (2011) only recognises areas of greater than 0.25ha to qualify as Open Mosaic Habitats on Previously Developed Land.

7.5.3. Thes habitats within the site have no intrinsic botanical value and the loss of the improved grassland and disturbed ground habitats would only be felt within zone of influence of the development and therefore **no** further survey or assessment work is recommended with regard to their existing botanical value.

7.5.4. However in order to achieve an overall BNG a new native species boundary hedgerow will be planted around the area of proposed public open space along the eastern site boundary and an area of adjacent grassland extending to 0.25ha will be enhanced by use of green hay or overseeding with an approved seed mix and managed as a hay meadow to benefit its botanical and wildlife value.

7.6. Protected Species

7.6.1. Bats

7.6.1.1. All UK species of bat are afforded full protection under Section 9 of the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5 of the Act and also receive full protection as European Protected Species under Section 41 of The Conservation of Habitats and Species Regulations 2017 through their inclusion on Schedule 2.

Buildings

7.6.1.2. The site does not contain any buildings of potential value to roosting bats.

7.6.1.3. **No** impacts upon roosting bats in buildings are predicted and **no** further survey and assessment work is recommended.

Trees

7.6.1.4. The site does not contain any trees of potential value to roosting bats

7.6.1.5. **No** impacts upon roosting bats in trees are predicted and **no** further survey and assessment work is recommended.

Habitats

7.6.1.6. The habitats within the site provide some sheltered foraging areas for feeding bats along the wooded boundary with the Penistone Grammar School and this boundary would remain as a potential commuting route for bats.

7.6.1.7. Other local areas of high value to feeding bats include the angling ponds to the north east of the site boundary and the development would not prevent access to these areas.

7.6.1.8. A suitable lighting scheme will be developed in accordance with current best practice to minimise the risk of the development affecting commuting bats. The properties would be served by low level motion activated lighting and the access road would lit to adoptable highway standards as required by the LPA.

7.6.1.9. **No** significant impacts upon commuting or feeding bats are predicted and **no** further survey and assessment work is recommended.

7.6.2. Badgers

7.6.2.1. Badgers are protected under the Protection of Badgers Act 1992.

7.6.2.2. No badger setts were recorded within or immediately adjacent to site and no evidence of badger foraging activity was recorded during the field survey.

7.6.2.3. **No** impacts upon badgers are predicted and **no** further survey or assessment work is recommended

7.6.3. Otters

7.6.3.1. Otters are afforded full protection under Section 9 of the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5 of the Act and also receive full protection as European Protected Species under Section 41 of The Conservation of Habitats and Species Regulations 2017 through their inclusion on Schedule 2.

7.6.3.2. The site **does not** contain any habitats of potential value to otters, **no** evidence of otter activity was recorded during the field survey. **No** impacts upon otter are predicted and **no** further survey or assessment work for otters is recommended.

7.6.4. Water Vole

7.6.4.1. Water vole is afforded full protection under Section 9 of the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5 of the Act.

7.6.4.2. The site **does not** contain any habitats of potential value to water vole, **no** evidence of water vole activity was recorded during the field survey. **No** impacts upon water vole are predicted and **no** further survey or assessment work for water vole is recommended.

7.6.5. Wild Birds

7.6.5.1. With certain exceptions, all wild birds, their eggs, nests and young are protected under the *Wildlife and Countryside Act 1981* (as amended).

7.6.5.2. The main ornithological interest recorded during the survey was form the wooded grounds of Penistone Gramma School. The new hedgerow and grassland enhancement measures will provide improved habitat for nesting birds.

7.6.5.3. In any case, potential impacts upon nesting birds can be prevented during construction by ensuring that vegetation removal is programmed to occur outside of the bird nesting season (March to September inclusive) or where this is not possible under the supervision of a suitably qualified and experienced ecologist as set out in the recommendations below.

7.6.5.4. **No** significant impacts upon nesting birds are predicted and **no** further ornithological survey work is recommended.

7.6.6. Amphibians

7.6.6.1. All UK native amphibians are afforded partial or full protection under Section 9 of the *Wildlife and Countryside Act 1981* (as amended) through their inclusion on Schedule 5 of the Act and Great Crested newts *(Triturus cristatus)* are provided the highest level of protection. Great crested newts (GCN) are fully protected from capture, injury, killing and damage or destruction of their breeding sites or resting places under The Conservation of Habitats and Species (as amended) Regulations 2017.

7.6.6.2. The site does not contain any ponds suitable for breeding amphibians including great crested newts and no amphibians were recorded during the field survey.

7.6.6.3. The angling ponds to the north east of the site boundary are stocked with coarse fish and would be of no potential value to breeding great crested newts, although are likely to be suitable for other common breeding amphibian species.

7.6.6.4. No other ponds linked to the site by semi-natural vegetation were identified and **no** impacts upon amphibians are predicted and **no** further survey work is recommended.

7.6.7. Reptiles

7.6.7.1. All species of native reptiles are protected under the Wildlife and Countryside Act 1981 (as amended). The sand lizard *(Lacerta agilis)* and smooth snake *(Coronella austriaca)* are further protected under Conservation of Habitats and Species (Amendment) Regulations 2017.

7.6.7.2. Potential impacts upon reptiles can be prevented during the works proposed by completing them in accordance with standard mitigation measures and under the guidance of a reasonable avoidance measures method statement which sets out methods of working and timing of works.

7.6.7.3. **No** significant impacts upon reptiles are predicted and **no** further survey work is recommended.

7.7. Recommendations

7.7.1. Breeding Birds

7.7.1.1. Whilst only limited bird activity was recorded from the wooded grounds of Penistone Grammar School and these would not be affected by the proposed development. The grasslands with the site are unlikely to be used by ground nesting birds given the nature of their management and agricultural usage, however given the protection afforded to wild birds and their nests the following precautionary measures are recommended:

- That removal of trees, shrubs and surface vegetation should be completed outside of the bird breeding season (March to August inclusive). Where this is not possible a suitably qualified and experienced ecologist should complete survey of the site immediately prior to completion of the proposed works to search for nesting birds and to advise on exclusion zones or timing of works if nesting birds are recorded.

8. FIGURES

Figure 1—Site Location

Figure 2—Nature Conservation Designations

Figure 3—Phase I Habitats and Proposed off-site BNG Location

Waters Mill Residential Development

KEY

Site Boundary

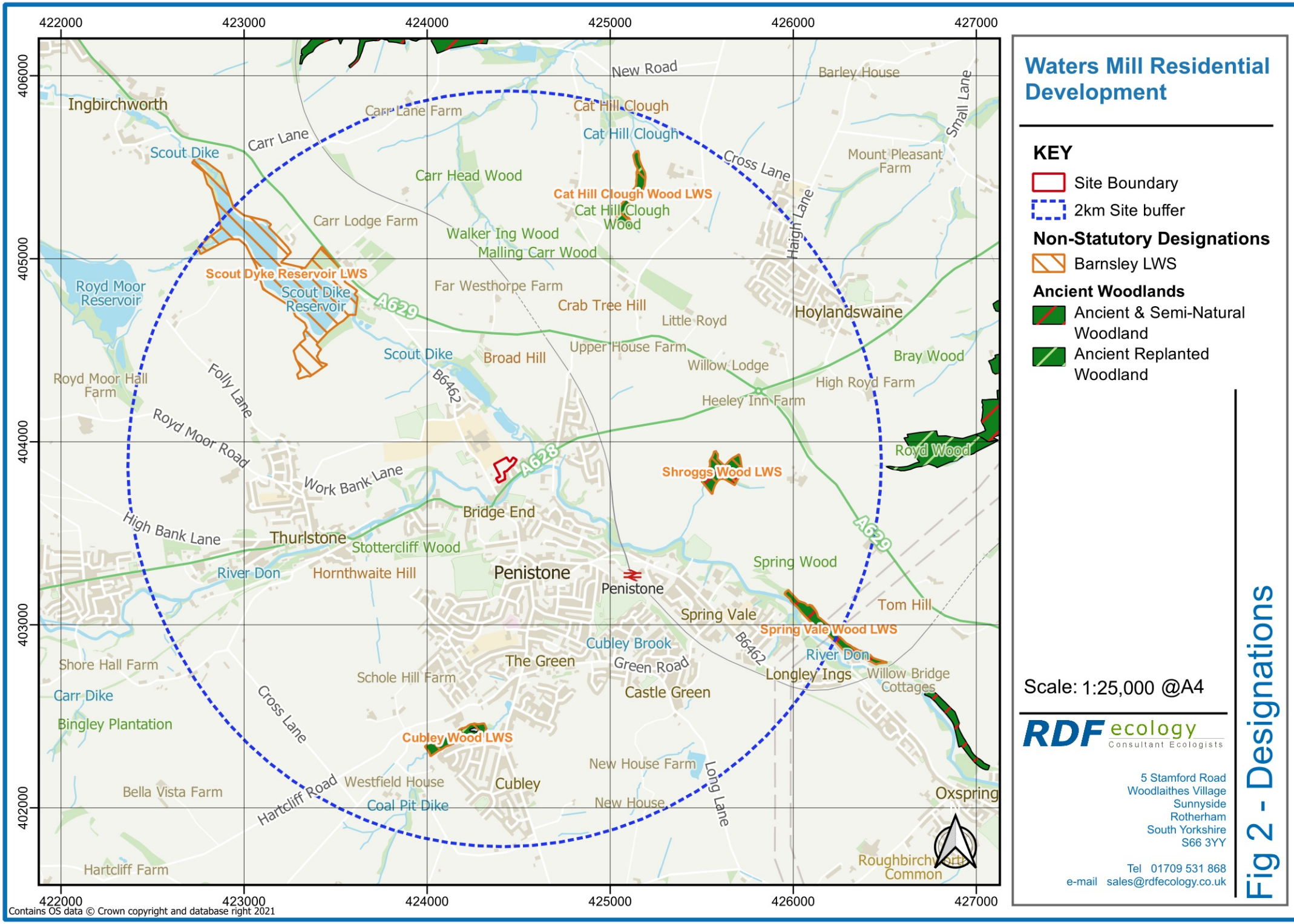
Scale: 1:20,000 @A4

RDF ecology
Consultant Ecologists

5 Stamford Road
Woodlaithes Village
Sunnyside
Rotherham
South Yorkshire
S66 3YY

Tel 01709 531 868
e-mail sales@rdfecology.co.uk

Fig 1 - Site Location



Contains OS data © Crown copyright and database right 2021

Waters Mill Residential Development

KEY

- Site Boundary
- 2km Site buffer

Non-Statutory Designations

- Barnsley LWS

Ancient Woodlands

- Ancient & Semi-Natural Woodland
- Ancient Replanted Woodland

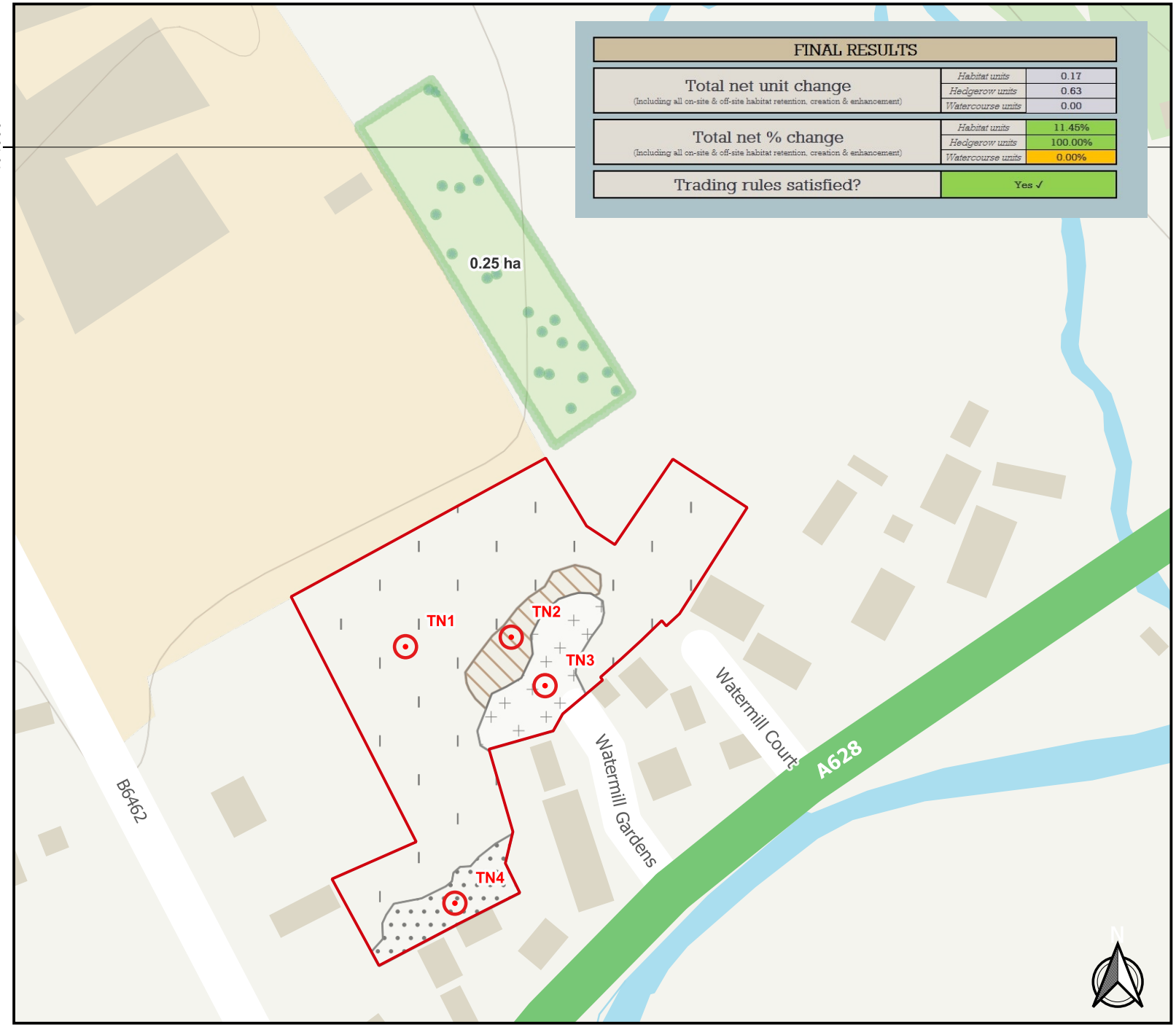
Scale: 1:25,000 @A4

RDF ecology
Consultant Ecologists

5 Stamford Road
Woodlaithes Village
Sunnyside
Rotherham
South Yorkshire
S66 3YY

Tel 01709 531 868
e-mail sales@rdfecology.co.uk

Fig 2 - Designations



Waters Mill Residential Development

KEY

- Site Boundary

Phase 1 Habitats

- Improved grassland
- Tall ruderal vegetation
- Bare ground/ephemeral vegetation
- Bare ground

Off-Site BNG

- Grassland Enhancement (0.25ha)

Scale: 1:1,500 @A4

RDF ecology
Consultant Ecologists

5 Stamford Road
Woodlaithes Village
Sunnyside
Rotherham
South Yorkshire
S66 3YY

Tel 01709 531 868
e-mail sales@rdfecology.co.uk

Fig 3 - Phase 1 Habitats and BNG

9. REFERENCES

9.1. Project References

Barnsley Adopted Local Plan (2019)

Barnsley Local Plan - Supplementary Planning Document – Biodiversity ang Biodiversity (2019)

Barnsley Biodiversity Action Plan (Second Edition) (2010).

Brooks Ecological (2015a) Preliminary Ecological Appraisal Land off Barnsley Road, Penistone

Brooks Ecological (2015b) Bat Emergence Survey Barnsley Road Cottage, Penistone

Brooks Ecological (2015c) Bat Emergence Survey Old Mill, Barnsley Road, Penistone

DPP Planning (2023) - Planning Statement Land Off Watermill Gardens, Penistone

9.2. Technical References

Battersby et al (2005) UK Mammals: Species Status and Population Trends. JNCC.

BCT and Institute of Lighting Engineers (ILE) (2009) Bats and Lighting in the UK (Version 3).

Byrkjedal, I. & Thompson, D.B.A. 1998. Tundra Plovers. The Eurasian, Pacific and American Golden Plovers, and Grey Plover. London: T. & AD Poyser

CIEEM (2018)—Guidelines for Ecological Impact Assessment in the UK and Ireland—Terrestrial, Freshwater, Marine and Coastal. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal (second edition). Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2016) Guidelines for Accessing and using Biodiversity Data. Chartered Institute of Ecology and Environmental Management, Winchester.

Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn).

Department for Communities and Local Government (2012), National Planning Policy Framework. Department for Communities and Local Government, London.

English Nature (2001) Great Crested Newt Mitigation Guidelines. English Nature, Peterborough

HMSO Conservation of Habitats and Species (Amendment) Regulations 2017.

HMSO Wildlife and Countryside Act 1981 (as amended).

HMSO (2006) Natural Environment and Rural Communities Act.

HMSO (2005) Biodiversity and Geological Conservation – Statutory Obligations and Their Impact within the Planning System. Office of the Deputy Prime Minister (ODPM) Circular 06/2005 HMSO, Norwich.

Hundt (2012) Bat Surveys Good Practice Guidelines 2nd Edition, Bat Conservation Trust, London.

Pearce-Higgins, J.W. & Yalden, D.W. 2003. Variation in the use of pasture by breeding European Golden Plovers *Pluvialis apricaria* in relation to prey availability. Ibis 145: 365–381

JNCC (2010) Handbook for Phase 1 Habitat Survey: A technique for environmental audit (reprint). Joint Nature Conservation Committee, Peterborough.

Stace, C. (1997) New Flora of the British Isles 2nd Edition. Cambridge University Press, UK.

10. APPENDICES

10.1. Appendix 1—List of Species

English Name	Scientific Name	Improved Grassland	Ruderal Vegetation	Bare Ground and Ephemeral Vegetation
Yarrow	*Achillea millefolium*	O	O	O
Common Bent	*Agrostis capillaris*	F-LA	O	R
Creeping Bent	*Agrostis stolonifera*			R
Meadow Foxtail	*Alopecurus pratensis*	R-O		
Thale Cress	*Arabidopsis thaliana*			O-LF
False Oat Grass	*Arrhenatherum elatius*	O-LF	F	
Mugwort	*Artemisia vulgaris*		LF	
Daisy	*Bellis perennis*	O		O
Butterfly-bush	*Buddleja davidii*		R	R
Wavy Bitter-cress	*Cardamine flexuosa*	O		O
Common Mouse-ear	*Cerastium fontanum*	O-LF	O	R-O
Sticky Mouse-ear	*Cerastium glomeratum*	R		R
Rosebay Willowherb	*Chamerion angustifolium*		O	
Creeping Thistle	*Cirsium arvense*	O	LF	
Spear Thistle	*Cirsium vulgare*	O	O	
Canadian Fleabane	*Conyza canadensis*			R
Smooth Hawk's-beard	*Crepis capillaris*	O	O	O
Crested Dog`s Tail	*Cynosurus cristatus*	F		
Cock`s Foot	*Dactylis glomerata*	O-LF	F-LA	
Foxglove	*Digitalis purpurea*	R	R	
Wild Teasel	*Dipsacus fullonum*		R	
Common Couch	*Elytrigia repens*	O	O	
Cleavers	*Galium aparine*	O	O	
Cut-leaved Cranesbill	*Geranium dissectum*	R		
Dove's-foot Crane's-bill	*Geranium molle*	R		
Hogweed	*Heracleum sphondylium*		O	
Yorkshire Fog	*Holcus lanatus*	O-LA	F	R
Cat's-ear	*Hypochaeris radicata*	O-LF		R
White Dead Nettle	*Lamium album*		R	
Perennial Ryegrass	*Lolium perenne*	A	O	R
Bird`s-foot-trefoil	*Lotus corniculatus*			R
Field Wood-rush	*Luzula campestris*	R		R
Field Forget-me-not	*Myosotis arvensis*			R
Ribwort Plantain	*Plantago lanceolata*	O-LF	R	
Greater Plantain	*Plantago major*			R
Annual Meadow-grass	*Poa annua*			O-LF
Smooth Meadow-grass	*Poa pratensis*	O-LF	O	

English Name	Scientific Name	Improved Grassland	Ruderal Vegetation	Bare Ground and Ephemeral Vegetation
Cowslip	*Primula veris*			VR
Creeping Buttercup	*Ranunculus repens*	O-LF	O	R
Common Sorrel	*Rumex acetosa*	O-LF	O	R
Curly Dock	*Rumex crispus*	R	O	
Broad-leaved Dock	*Rumex obtusifolius*	O-LF	F	
Procumbent Pearlwort	*Sagina procumbens*			O
Goat Willow	*Salix caprea*		R	
Ragwort	*Senecio jacobaea*	O	O	
Groundsel	*Senecio vulgaris*			O
Common Chickweed	*Stellaria media*	O		O
Dandelion	*Taraxacum officinale agg.*	O-LF	O	O
White Clover	*Trifolium repens*	O-LF	O	O
Common Nettle	*Urtica dioica*	O	O-LA	
Germander Speedwell	*Veronica chamaedrys*	R		
Thyme-leaved Speedwell	*veronica serpyllifolia*			R

Key

D	Dominant	51-100%
A	Abundant	35-50%
F	Frequent	16-30%
O	Occasional	6-15%
R	Rare	1-5%
No entry	Absent	0%
L	Local e.g. LF – Locally Frequent	-
V	Very e.g. VR = Very Rare	-

10.2. Appendix 2—Valuation Criteria

10.2.1. Guidelines for ecological evaluation and the assessment of impacts have been published by Institute of Environmental Assessment (1995) and the Chartered Institute of Ecology and Environmental Management (CIEEM 2018).

10.2.2. The value that is attached to an ecological resource influences:

- whether, as part of screening, potentially affected features or resources are considered sufficiently valuable that there could be a significant effect that would trigger an EIA;
- whether, as part of scoping, ecological features or resources are considered for inclusion in the EcIA—this is influenced by their value in relation to a 'threshold' level of value that should be defined during scoping;
- deciding what mitigation is appropriate and
- considering legal and policy implications.

10.2.1. Legislative Framework

10.2.1.1. Species, communities or habitats receiving legal protection under UK or EC law have high importance on national and international scales.

10.2.1.2. Internationally important sites include Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites. In the UK candidate SACs, potential SPAs and proposed Ramsar sites should be given the same consideration as designated sites in accordance with country specific policies and supporting guidance.

10.2.1.3. Species, communities or habitats requiring protection under EC law are listed on schedules I and II (whose conservation requires the designation of Special Areas of Conservation), IV (species in need of strict protection) and V (species whose exploitation may be subject to management measures) of the EC Directive on the Conservation of Habitats and Wild Fauna and Flora (92/43/EEC). The enabling legislation for the UK is the Conservation (Natural Habitat, &c) Regulations 2017. Species may also be scheduled under Appendix 1 of the Convention on the Conservation of European Wildlife and Natural Heritage 1979 (Bern Convention).

10.2.1.4. Other sites of international importance designated under international obligations include Biosphere Reserves (UNESCO Man and Biosphere Programme), Ramsar Sites (Convention on Wetlands of International Importance especially as Wildfowl Habitat 1971) and Special Protection Areas (EC Wild Birds Directive 79/409).

10.2.1.5. Species with special protection under UK law are listed on the schedules of the Wildlife and Countryside Act 1981 and amendments. The act also gives rise

to statutory site designations i.e. National Nature Reserves, Sites of Special Scientific Interest, Areas of Special Protection for Birds, and orders e.g. Limestone Pavement Orders.

10.2.2. UK Site Designations

10.2.2.1. Sites of national importance include the statutorily designated Sites of Scientific Interest (SSSI) and National Nature Reserves (NNRs).

10.2.2.2. Lower levels of importance attach to locally designated sites such as those non-statutory site designations applied by Local Authorities or Wildlife Trusts e.g. Sites of Importance for Nature Conservation (SINC's or equivalent) or Local Nature Reserves designated under the National Parks and Access to the Countryside Act 1949. Such sites may be considered to be of High Local Importance i.e. important at the county or metropolitan level (CIEEM 2018).

10.2.3. Rarity of Species and Habitats

10.2.3.1. The British Red Data Book for vascular plants (Perring and Farrell 1983) lists 317 species or subspecies as extinct, endangered, vulnerable and rare. Nationally rare species are defined as occurring in 1–15 10km squares of the national grid in Britain, nationally scarce species occurring in 16–100 10km squares. The presence of a breeding population of any nationally rare species is of national importance whereas a breeding population of a nationally scarce species is of regional importance. Assemblages of 2 or more species may increase the importance of a site further.

10.2.3.2. Regional rarities are defined as occurring in 15 or fewer localities or 1km squares in a former Nature Conservancy Council region (NCC 1989).

10.2.3.3. Biodiversity: The UK Steering Group Report contains a "Long List" of key species in the UK that fall into 1 or more of the following categories: threatened endemics or globally threatened; where the UK holds greater than 25% of the world population; where numbers or range have declined by more than 25% in the last 25 years; nationally rare species; and statutorily protected species. Presence of viable populations of such species may be of high importance.

10.2.3.4. County floras and biodiversity action plans, or district action plans may identify species that are rare at the county or district level. Viable populations will therefore have conservation importance in these contexts.

10.2.3.5. Further information on species rarity may be found in Scarce Plants in Britain (Stewart et al 1994) and the Atlas of the British Flora (Perring and Walters 1962) and subsequent revisions.

10.2.3.6. Biodiversity: The UK Steering Group Report has identified a number of key habitats under the following criteria: those for which the UK has international

obligations; rare habitats or those with high rates of decline; functionally critical habitats (marine areas); and habitats that are important for key species. Sites containing good examples of viable areas of any key habitat may be considered nationally important.

10.2.3.7. Importance may be attached to plant community types defined in the National Vegetation Classification (Rodwell 1991 etc) that are also described as rare, declining or with restricted distributions or are identified as being of particular botanical importance (NCC 1989).

10.2.4. Criteria for Overall Site Evaluation

10.2.4.1. The accepted criteria for site evaluation are set out by Ratcliffe (1977) in a Nature Conservation Review and are also explained in Guidelines for the Selection of Biological SSSI's (NCC 1989). The principal criteria are briefly outlined below:

10.2.4.2. **Naturalness.** Truly natural habitats are valued highly but are rare in Britain and most sites are modified and semi-natural at best. Physical habitat modifications vary greatly in their impact, some being beneficial whilst others are harmful. A greater degree of conformity of a particular community or site with semi-natural rather than highly modified vegetation types in the National Vegetation Classification and the absence of species indicating disturbance are likely to lead to attachment of higher importance. However, note that communities that appear to be intermediate between semi-natural NVC types are not necessarily of lesser quality.

Size. The area of a site or habitat judged to be viable varies greatly between different habitat types and with factors such as the condition of the habitat, the shape of the habitat area and surrounding land use. In addition, the territorial requirements of particular species within the site/habitat and habitat management factors may need consideration.

In general, larger sites or areas of habitat tend to be valued more highly because of the greater population sizes and hence more robust populations of the species within them; the potential for increased site or habitat diversity and hence greater species-richness over a larger area; and a reduced importance of edge effects (pollution drift, habitat degradation/change for other reasons at the site edge) if the site is block rather than ribbon shaped. Small sites become increasingly important in areas of little semi-natural habitat.

Rarity. Criteria for rarity of species and habitats are outlined above. The scarcer the habitat or species then the higher the level of importance attached.

Diversity. Diversity tends to be valued positively as it increases. At the phytosociological level, some habitats are more species-rich than others and

so have a higher value, provided that the richness does not involve non-native species. Some plant communities are intrinsically more species-rich than others so comparisons should only be made between the same community type.

The standard of floristic diversity is guided by the floristic tables within the National Vegetation Classification (NVC) (Rodwell 1991 etc). A community having more than 75% of the total plant species list for its type in the NVC would be rated very highly. Diversity of different communities within a vegetation formation (e.g. woodland) may also be rated highly as may structural diversity (e.g. rides, glades and differing age structures or canopy layering in woodland). Habitat diversity across a site may also increase its importance.

Fragility. Fragility is a measure of the intrinsic sensitivity of nearly all natural and semi-natural habitats and species to human impact. It is the fragility of such habitats and species which causes them to be more highly valued than any of the artificial substitutes which replace them through human activity; and the greater their fragility the greater their value. Fragility is therefore clearly related irreplaceability or non-recreatability. Re-creation of habitats that have taken centuries to develop, sometimes with centuries of traditional management, is impossible to the full extent of their former complexity.

Typicalness. Typicalness is an indication of how characteristic the features of a site are compared to its particular ecosystem. It is intended as a guard against designation of those sites with unusual features as being always the most important.

Position in an Ecological/Geographical Unit. This is a landscape ecological criteria designed to identify sites or habitats which may be important to maintaining the viability of a larger group thereof; or which is essential in maintaining the population of a species with a large territory spanning several sites; or is one of a number of sites important to a metapopulation of a species in fragmented landscapes; or may be important in a wildlife corridor or network of habitat patches.

10.2.5. Amenity Value

10.2.5.1. The amenity value of a site in ecological terms is generally seen as its value for the study or quiet enjoyment of wildlife. Sites with high intrinsic appeal and good access are therefore regarded as important in this context. Also important are issues such as site safety, proximity to schools and population centres and site management difficulties. Less emphasis is placed on the criteria outlined in section 9.1.4 in such situations.

10.2.6. Ecological Importance Summary Table

10.2.6.1. The following table has slightly modified from Regini (2000) with reference to CIEEM 2018. Its definitions are adopted in this report. Where species, habitats or sites occur in more than one category, the highest level of importance is applicable. Sites that meet the criteria for a particular designation are afforded the level of importance corresponding to that designation whether or not they are actually designated.

Table 8—Ecological Importance Summary Table

Level of Value	Examples
International	An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, pSAC , Ramsar site, Biogenetic Reserve). A viable area of a habitat type listed in Annex I of the Habitats Directive, or smaller areas of such habitat which are essential to maintain the viability of a larger whole. Any regularly occurring population of an internationally important species, which is threatened or rare in the UK. i.e. it is a UK Red Data Book species or listed as occurring in 15 or fewer 10km squares in the UK (categories 1 and 2 in the UK BAP) or of uncertain conservation status or of global conservation concern in the UK BAP. A regularly occurring, nationally significant population of any internationally important species. Also a regularly occurring and nationally significant number of an internationally important species during a critical phase of its life cycle.
National	A nationally designated site (SSSI, ASSI, NNR, Marine Nature Reserve) or a discrete area, which meets the published selection criteria for national designation (e.g. SSSI selection guidelines). A viable area of a priority habitat identified in the UK BAP, or of smaller areas of such habitat which are essential to maintain the viability of a larger whole. Any regularly occurring population of a nationally important species which is threatened or rare in the region or county (see local BAP). A regularly occurring, regionally or county significant population of any nationally important species. Also a regularly occurring and regionally or county significant number of a nationally important species during a critical phase of its life cycle.
Regional	Viable areas of key habitat identified in the Regional BAP or smaller areas of such habitat which are essential to maintain the viability of a larger whole; Viable areas of key habitat identified as being of Regional value in the appropriate Natural Area profile; Any regularly occurring, locally significant population of a species listed as being nationally scarce which occurs in 16-100 10km squares in the UK or in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation; A regularly occurring, locally significant number of a regionally important species during a critical phase of its life cycle; Sites which exceed the County-level designations but fall short of SSSI selection guidelines, where these occur.
County / Metropolitan	Semi-natural ancient woodland greater than 0.25 ha; County/Metropolitan sites and other sites which meet the published ecological selection criteria for designation, including Local Nature Reserves selected on County / metropolitan; A viable area of habitat identified in County BAP; Any regularly occurring, locally significant population of a species which is listed in a County/Metropolitan “red data book” or BAP on account of its regional rarity or localisation; A regularly occurring, locally significant number of a County/Metropolitan important species during a critical phase of its life cycle.

Level of Value	Examples
District / Borough	Semi-natural ancient woodland smaller than 0.25 ha; Areas of habitat identified in a sub-County (District/Borough) BAP or in the relevant Natural Area profile; Local Nature Reserves selected on District/ Borough criteria Sites/features that are scarce within the District/Borough or which appreciably enrich the District/Borough habitat resource; A diverse and/ or ecologically valuable hedgerow network; A population of a species that is listed in a District/Borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation; A regularly occurring, locally significant number of a District / Borough important species during a critical phase of its life cycle.
Parish / Neighbourhood	Areas of habitat considered to appreciably enrich the habitat resource within the context of the Parish or neighbourhood, e.g. species-rich hedgerows. Local Nature Reserves selected on Parish criteria.
Negligible	Low grade, widespread and common habitats.