Ecological Impact Assessment

Barugh Green

Avant Homes Ltd

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Making Sustainability Happen

Revision Record

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Basis of Report

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Acronyms and Abbreviations

BBRC	Barnsley Biological Records Centre
BER	Bat Earned Recognition
BNG	Biodiversity Net Gain
CIEEM	Chartered Institute of Ecology and Environmental Management
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EPSL	European Protected Species Licence
GCN	Great Crested Newt
GLTA	Ground Level Tree Assessment
HAP	Habitat Action Plan
LAP	Local Area for Play
LWS	Local Wildlife Site
NERC	Natural Environment Research Council
POS	Public Open Space
PRA	Preliminary Roost Appraisal
PRF	Potential Roosting Feature
SAC	Special Area of Conservation
UKHab	UK Habitat Survey

1.0 Introduction

1.1 Background

SLR Consulting Limited (SLR) was instructed by Avant Ltd to prepare an Ecological Impact Assessment (EcIA) of an approximately 4.82 ha Site to the south of Barugh Green Road, Barugh Green, Barnsley, South Yorkshire, S75 1HR (approximate central Ordnance Survey Grid Reference (OSGR): SE 31821 07826), to inform a planning application for a 155-unit residential development with associated landscaping (see Appendix A).

1.2 Site Description

The application site (herein referred to as the 'Site') is comprised of one large field which at the time of survey was being used for cattle grazing. Hedgerows are present on the western and northern boundary and a hedgerow bissects the site east to west. A ditch is present on the northern boundary associated with the hedgerow.

The Site is located to the north-west of the town of Barnsley. Immediately to the north of the Site and north or Barugh Green Road is an industrial estate, while a residential development is present immediately to the east of the Site. Further arable and pastureland is present to the west and the south.

1.3 Details of the Proposed Development and Biodiversity Enhancements

The proposed development (Appendix A) involves the construction of 155 residential units, with associated gardens, driveways and roads. Access will be facilitated from Barugh Green Road to the north of the Site. It is proposed that there will be public open space (POS) in the north of the Site, adjacent Barugh Green Road, and small area of POS in the west of the Site to allow for the construction of a Local Area for Play (LAP).

1.4 Purpose of this report

This report:

- Describes the baseline data collection and assessment methodologies used;
- Summarises the baseline ecological conditions and identified important receptors, where relevant;
- Identifies and describes all potentially significant ecological effects associated with the proposed development upon important receptors (or confirms that no potentially significant effects will occur);
- Sets out the mitigation and compensation measures required to ensure compliance with nature conservation legislation and / or to address any potentially significant ecological effects, where relevant;
- Identifies how mitigation and/ or compensation measures will be delivered, where relevant;
- Provides an assessment of the significance of any residual effects to important receptors, and the legal and policy implications of the proposals; and
- Identifies ecological enhancement measures, where appropriate.

1.5 Evidence of Technical Competence and Experience

This report was written by SLR Consulting Senior Field Ecologist Ellie Tew. Ellie has over two year's relevant experience within ecological consultancy and currently focuses on UKHabitat surveys and ecological walkovers used to inform Ecological Impact Assessments (EcIAs) and Biodiveristy Net Gain (BNG) assessments. She has particular experience working on small to medium sized residential developments and solar farm projects, from conducting the initial walkovers, providing BNG scenarios to inform landscape design and writing up the final ecology reports and BNG assessments to support planning applications. Ellie is also Qualified Member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

This report has been subject to Quality Assurance review as per SLR's policies by Associate Ecologist Tom Redman, who is a full member of CIEEM (MCIEEM). Tom has over seven years' experience within ecological consultancy and regularly undertakes and reviews preliminary ecological appraisals (PEAs) and EcIAs at various project scales. Tom holds Natural England survey licences for great crested newt (Triturus cristatus) (GCN) (class 2), bats (class 4) and barn owl (Tyto alba).

1.6 Relevant Legislation and Policy

Relevant national Legislation and Policy has been provided in Appendix B. Relevant extracts from local Policy have been provided below:

1.6.1 Barnsley Local Plan[1]

Barnsley Council adopted the Barnsley Local Plan in January 2019. The relevant policies have been outlined below.

Policy BIO1: Biodiversity and Geodiversity

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

- Protecting and improving habitats, species, sites of ecological value and sites of geological value with particular regard to designated wildlife and geological sites of international, national and local significance, ancient woodland and species and habitats of principal importance identified via Section 41 of the Natural Environment & Rural Communities (NERC) 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.

[1] Local Plan (barnsley.gov.uk)

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).

1.6.2 Barnsley Biodiversity Action Plan

The Barnsley Biodiversity Action Plan (LBAP)[2] identifies a range of priority habitats and species for which individual action plans have been developed. Priority species include nine bat species; water vole (*Arvicola amphibius*); otter (*Lutra lutra*); great crested newt *(Triturus cristatus*); kestrel (*Falco tinnunculus*), barn owl (*Tyto alba*) and bluebell (*Hyacinthoides non-scripta*).

Habitat Action Plans for woodland, rivers and ponds, arable field margins, hedgerows, snf lowland and upland heathland are also included in the LBAP

[2] Barnsley Biodiversity Action Plan

2.0 Methodology

2.1 Scope

The EcIA relates to the proposed development and covers the assessment of potential impacts upon statutory and non-statutory designated sites and protected and notable habitats and species. The scope of this EcIA, i.e. the collection of baseline data, evaluation of ecological resources and description and assessment of the significance of impacts, follows guidelines set out by CIEEM[3] and references therein.

Ecological surveys have been based upon the relevant guidance for each feature concerned; further details are provided in the following sections.

2.2 Baseline Data Collection

2.2.1 Desk Study

Barnsley Biological Records Centre (BBRC) were commissioned to undertake a search of statutory and non-statutory designated sites for nature conservation and protected / notable species for the Site and land within a 2 km radius of its centre. This data was obtained on the 30th September 2024.

Information on statutory designated sites for nature conservation and geological interest and granted European Protected Species Licences (EPSLs) for the Site and 2 km radius, was also obtained from the MAGIC website managed by Natural England[4].

2.2.2 Field Surveys

2.2.2.1 UK Habitat Survey and Condition Assessments

A UK Habitat Survey (UKHab) and mapping exercise[5] of the Site was carried out by Ellie Tew on 23rd September 2024 to identify the broad habitat types present, in accordance with the UK Habitat Survey (UKHab) v.2 methodology[5].

A Habitat Condition Assessment was also carried out in conjunction with the UKHab survey, through which the quality of habitats would be measured using standardised habitat condition assessment criteria contained within the Defra Statutory Biodiversity Metric[6].

The survey additionally aimed to identify any potential ecological constraints to the proposed development. Habitats and features with potential to support protected and/ or conservation priority fauna, together with any field signs of such species were searched for. This included the following:

- A search for badger (*Meles meles*) setts and field signs within the survey area and 30 m radius (where accessible);

[3] Chartered Institute of Ecology and Environmental Management (CIEEM) (2022) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, September 2018. Version 1.2 – Updated April 2022

[4] Natural England. (2023). Multi-Agency Geographic Information for the Countryside. www.magic.defra.gov.uk

[5] UK Hab Ltd (2023). UK Habitat Classification Version 2.0 (at https://www.ukhab.org).

[6] Defra (2023) Statutory biodiversity metric tools and guides. Available at: https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides

- An assessment of trees within the survey area boundary to ascertain their potential for roosting bats, based on criteria within the fourth edition of the Bat Conservation Trust's Good Practice Guidelines[7] (see Section 2.2.2.2);
- An assessment of the surveys area's potential to support foraging and commuting bats;
- An assessment of the survey area's potential to support breeding birds;
- An assessment of the survey area's potential to support great crested newt (GCN) (*Triturus cristatus*);
- An assessment of the potential of the survey area to support reptiles; and
- An assessment of whether the survey area supports, or has potential to support, priority species or habitats, particularly those which are rare in the UK, West Yorkshire or Barnsley.

Searches were also made for invasive species, including those listed on Schedule 9 of the Wildlife and Countryside Act 1981 and 'The Alien Species (Enforcement and Permitting) Order 2019[8] which includes Japanese knotweed (*Fallopia japonica*), giant hogweed (*Heracleum mantegazzianum*) and Himalayan balsam (*Impatiens glandulifera*).

2.2.2.2 Assessment of the Potential of Trees for Roosting Bats

In compliance with best practice guidelines[6] and as part of the UK Habitat Survey, a Ground Level Tree Assessment (GLTA) of the trees within, and overhanging into, the Site was undertaken. The aim of the survey was to determine the need, or otherwise, for further survey (for example aerial survey or dusk bat detector surveys) and / or mitigation.

The survey comprised a detailed inspection of the exterior of the trees from ground level to search for potential bat access points and features that bats could use for roosting (Potential Roosting Features (PRFs)). Trees were inspected systematically and consistently from all sides (where accessible). Binoculars were used to scan for potential features from the ground. The following table, adapted from current best practice guidelines[6] was used as a guide to assess the potential suitability of PRFs within trees for roosting bats:

Table 2-1: Guidelines for Categorising the Potential Suitability of PRFs within Trees for Bats

Suitability	Description of Potential Roosting Features (PRFs)
No PRFs	No PRFs noted within a tree which could be exhaustively searched from the ground.
PRF-I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.
FAR	Further assessment required.

[7] Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines. Fourth Edition. Bat Conservation Trust, London.

[8] The Invasive Alien Species (Enforcement and Permitting) Order 2019

2.2.3 Limitations

2.2.3.1 Desk Study

Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that protected species not identified during the data search do in fact occur within the vicinity of the Site. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

2.2.3.2 Field Surveys

An ecological study provides only a “snapshot” of the conditions prevailing at the time of survey. Lack of evidence of a particular species does not necessarily preclude them from being present on Site at a later date. Whilst it is considered unlikely that any significant evidence of activity by protected or notable species has been overlooked, due to the nature of the subjects of ecological surveys it is feasible that species that use the Site may not have been recorded by virtue of their seasonality, habit or random chance. It is considered unlikely however, that additional surveys of the Site at this time would materially alter the conclusions of this report.

The habitat survey was undertaken at an optimum time of year, in suitable weather conditions, as such no limitations apply.

2.3 Assessment Methodology

The ecological evaluation and impact assessment approach used in this report is based on Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland (“CIEEM guidelines”)[9].

2.3.1 Important Ecological Features

Ecological features can be important for a variety of reasons and the rationale used to identify them is explained in the text. Importance may relate, for example, to the quality or extent of the Site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to their rate of decline.

2.3.1.1 Determining Importance

In accordance with the CIEEM guidelines only ecological receptors (habitats, species, ecosystems and their functions/ processes), which are considered to be important and potentially affected by the project should be subject to detailed assessment. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable, although these can be included in the assessment in order to demonstrate ecological enhancements, for example.

Ecological features are considered within a defined geographical context. For this project the following geographic frame of reference is used:

- International;
- National (i.e. UK);

[9] Chartered Institute of Ecology and Environmental Management (CIEEM) (2022) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, September 2018. Version 1.2 – Updated April 2022

- Regional (i.e. Yorkshire);
- County (i.e. South Yorkshire); and
- Local (i.e. 2 km).

For designated sites, importance should reflect the geographical context of the designation. For example, a Site of Special Scientific Interest would normally be considered nationally important.

In accordance with CIEEM guidelines the value of habitats has been measured against published selection criteria where available. Examples of relevant criteria include Annex 1 of the Habitats Directive, descriptions of priority habitats[10], e.g. those included in Section 41 of NERC Act 2006, Local Wildlife Site (LWS) Criteria, and Habitat Action Plans (HAPs) contained within the Local Biodiversity Action Plan (LBAP)[11].

In assigning a level of value to a species (or species group), it is necessary to consider its distribution and status. Reference has therefore been made to published lists and criteria where available. Examples of relevant lists and criteria include: species of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive), UK priority species, e.g. Section 41 species and Birds of Conservation Concern[12] and species listed under the LBAP[2].

For the purposes of this assessment ecological features of Local importance or greater and/ or subject to legal protection have been subject to detailed assessment. Effects on other ecological features are considered unlikely to be significant in legal or policy terms.

2.3.2 Impact Assessment

The impact assessment process involves the following steps:

1. Identifying and characterising impacts;
2. Incorporating measures to avoid and mitigate (reduce) these impacts;
3. Assessing the significance of any residual effects after mitigation;
4. Identifying appropriate compensation measures to offset significant residual effects (if required); and
5. Identifying opportunities for ecological enhancement.

Both direct and indirect impacts are considered. Direct ecological impacts are changes that are directly attributable to a defined action, e.g. the physical loss of habitat occupied by a species during the construction process. Indirect ecological impacts are attributable to an action which affects ecological resources through effects on an intermediary ecosystem, process or feature, e.g. the creation of roads which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of marshy grassland.

For the purposes of this assessment, in accordance with CIEEM guidelines, a ‘significant effect’ is an effect that either supports or undermines biodiversity conservation objectives for ‘important ecological features or receptors’.

2.3.3 Significant Effects

The concept of ecological significance is addressed in paragraphs 5.24 through to 5.28 of CIEEM guidelines. Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of EcIA, a ‘significant effect’ is an effect

[10] i.e. Priority habitats and species as listed in the UK and devolved administrations, as listed: http://jncc.defra.gov.uk/page-5705

[11] Barnsley Biodiversity Action Plan

[12] Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I. (2021) Birds of Conservation Concern 5: the population status of birds in the UK, Channel Islands and Isle of Man. British Birds, 114.

that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

2.3.4 Avoidance, Mitigation, Compensation and Enhancement

Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied residual effects are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement.

It is important for the EcIA to clearly differentiate between avoidance, mitigation, compensation and enhancement and these terms are defined here as follows:

- Avoidance is used where an impact has been avoided, e.g. through changes in scheme design;
- Mitigation is used to refer to measures to reduce or remedy a specific negative impact in situ;
- Compensation describes measures taken to offset residual effects, i.e. where mitigation in situ is not possible; and
- Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

2.3.5 Biodiversity Net Gain Assessment

The results of the UK Habitat survey and habitat condition assessments were analysed within the Statutory Biodiversity Metric[13] to calculate the biodiversity value of the Site at baseline and predicted value post-construction.

The Biodiversity Metric uses habitat as a proxy for biodiversity and its primary application is to provide planners and developments with a method of establishing how much and what type of habitats should be created or enhanced in order to ensure that the impacts of a development do not result in a net loss of biodiversity, and to provide a 10% net gain. Habitats are assigned the following 'multiplier scores' which affect their value:

- Distinctiveness: A measure of the type, importance and relative rarity of a habitat;
- Condition: A measure of the present, or predicted, condition of a habitat type; and
- Strategic significance: How a habitat/area is regarded within Local Planning Policy.

Results of the Biodiversity Net Gain Assessment are provided in the accompanying BNG Report[14].

[13] DEFRA (2024). The Statutory Biodiversity Metric. The_Statutory_Biodiversity_Metric_-_User_Guide_.pdf (publishing.service.gov.uk)

[14] SLR Consulting. (2025). Biodiversity Net Gain Assessment. Barugh Green, Barnsley. 410.065596.00001..

3.0 Baseline Ecological Conditions

Section 3.0, in part, makes reference to the BBRC data search, a copy of which has been provided as Appendix C.

3.1 Designated Sites

3.1.1 Statutory Designated Sites

The Site and its immediate surroundings do not contain any statutory designated sites, nor are any located within 2 km of the Site. Furthermore, there are no internationally designated sites within 10 km of the proposed development. Therefore, statutory designated sites have been scoped out from further assessment.

3.1.2 Non-statutory Designated Sites

The Site does not contain non-statutory designated areas, however there are four non-statutory designated Local Wildlife Sites (LWS) within 2km, described in Table**Error! Reference source not found.** 3-1 below.

Table 3-1: Non-statutory designated sites

Site Name and Designation	Description	Distance from Site[15]
Redbrook Pastures LWS	Hedgerow site.	350 m to the south
Barnsley Canal at Wilthorpe LWS	Industrial history. Supports populations of great crested newt.	1 km to the northeast
Daking Brook LWS	Running water habitat supporting white-clawed crayfish and bullhead populations.	1.10 km to the north
Hugset Wood LWS	Ancient woodland.	1.15 km to the southwest

Redbrook Pastures is designated for the hedgerow habitat it supports and there are no ecological pathways identified between this LWS and the proposed development Site. The other three non-statutory designations within 2 km of the Site are all over 1 km away and no direct or indirect pathways between the Site and the three LWSs have been identified. None of the LWSs are not on or immediately adjacent to site and there sufficient distance between them to rule out direct pathways. The distances, lack of hydrological connectivity and habitats / species for which the LWS are designated for means there's unlikely to be indirect impacts as a result of proposed development.

Therefore, the identified LWS within a 2 km radius of the Site are unlikely to be affected by the proposals and non-statutory designated sites are scoped out from further assessment.

3.1.3 Priority Habitats

There are several parcels of priority habitat within 2 km of the Site boundary. The closest is a parcel of traditional orchard located 74 m to the west of the Site. This priority habitat is

[15] At closest point, measured 'as the crow flies'.

separated from the Site by a house and garden and further arable fields and therefore direct and indirect impact pathways pathways are considered unlikely.. There are several parcels of deciduous woodland priority habitat present within 2 km of the Site, the closest being 250 m to the south-east of the Site, separated from the Site by residential housing. The nearest parcel of ancient woodland is located 1.27 km to the south-west of the Site and is separated from the Site by residential housing the and M1 motorway. Due the distances between the Site and any parcels of priority habitat and the lack of ecological pathways between them, priority habitat are considered unlikely to be impacted either directly or indirectly by the proposed development, and therefore priority habitat has been scoped out of further assessment.

3.2 Habitats

A summary of the habitats and their extent and condition, within or adjacent to the Site is provided in Table 3-2 below.

Table 3-2: Summary of habitats within Site

Baseline Habitat (UKHab Code(s))	Baseline Condition	Extent
Habitats within Site		
Modified Grassland (g4 101)	Poor	4.75 ha
Holcus-Juncus Neutral Grassland (g3c8 101)	Poor	0.07 ha
Individual Trees	Good	0.02 ha
Linear Habitats within Site		
Other Native Hedgerow (h2a6)	Good	0.16 km
Other Native Hedgerow (h2a6)	Good	0.04 km
Other Native Hedgerow with Trees (h2a6 11 50)	Poor	0.23 km
Other Native Hedgerow (h2a6)	Moderate	0.22 km
Ditch (h2a6 11 50)	Poor	0.225 km
Culvert	Poor	0.005 km

3.2.1 Modified Grassland (cattle grazed) (g4 101)

The majority of the Site is comprised of modified grassland (Plate 3-1), which at the time of survey (September 2024) was being used to graze cattle. The modified grassland appears to have at one point to have been separated into two fields with a hedgerow (H4) bisecting the Site east to west.. However, the hedgerow is now defunct and the entire area is used for grazing. The grassland does shown signs of heavy poaching along field boundaries and around a water trough. The grassland was all heavily grazed by cattle and thus identification of species was difficult. Abundant grass species recorded include perennial ryegrass (*Lolium perenne*) and creeping bent (*Agrostis stolonifera*) with frequent Yorkshire fog (*Holcus lanatus*), meadow grass sp. (*Poa spp.*) and occasional cock's foot (*Dactylis glomerata*). Crested dog's-tail (*Cynosurus cristatus*) was recorded rarely at the southern Site boundary.

Herbaceous species comprise of frequent white clover (*Trifolium repens*), creeping buttercup (*Ranunculus repens*) and broad-leaved dock (*Rumex obtusifolius*), occasional common nettle (*Urtica dioica*), dandelion (*Taraxum sp.*), ribwort plantain (*Plantago lanceolata*), and rare chickweed (*Stellaria media*).

The grassland is considered to be in poor ecological condition as it fails essential condition A, and conditions B, D and E of the low distinctiveness grassland condition assessment.

The modified grassland has not been included for further assessment, as it comprises of common widespread species and is assessed as being of less than local importance.

Plate 3-1: View of the modified grassland taken facing northern boundary of the Site.

3.2.2 *Holcus-Juncus* Neutral Grassland (cattle grazed) (g3c8 101)

A small area of *Holcus-Juncus* neutral grassland (Plate 3-2) is present adjacent to the northern boundary of the Site. The ground is here very wet and heavily poached by cattle. This grassland is dominated by creeping bent, with frequent perennial rye, creeping buttercup, brooklime (*Veronica beccabunga*), hard rush (*Juncus inflexus*) and occasional creeping thistle (*Cirsium arvense*), Yorkshire fog and cock's foot.

The grassland is considered to be in poor ecological condition as it fails conditions B, C, E and F of the medium distinctiveness grassland condition assessment.

This *Holcus-Juncus* neutral grassland is species-poor, small in area, heavily isolated and poor condition and has therefore not been included for further assessment, and is assessed as being of less than local importance.

Plate 3-2: View of the mown *Holcus-Juncus* grassland in the south of the Site. Photograph taken from the south, facing north.

3.2.3 Individual Tree

There is a single individual tree located on the eastern boundary of the Site. The tree is a mature English oak (*Quercus robur*) and is assessed as being in good condition as it passes all six criteria in the condition assessment.

This tree will be retained as part of the proposed development but in the absence of mitigation will be exposed to risks during the construction phase of development, so has been included for further assessment.

Plate 3-3: View of the individual oak tree on the eastern boundary. Photograph taken from the west facing east.

3.2.4 Hedgerows (h2a6)

There are three hedgerows on Site, along the western (H1, Plate 3-4), north-western (H2, Plate 3-5) and running east to west through the middle of the Site (H4, Plate 3-6). All three hedgerows are dominated by hawthorn (*Crataegus monogyna*), with species such as blackthorn (*Prunus spinosa*), dog-rose (*Rosa canina*) and elder (*Sambucus nigra*) present.

Hedgerows H1 and H2 are assessed as being in good condition as they both only fail criteria C2 in the hedgerow condition assessment. Hedgerow H4 is assessed as being in moderate condition as is fails criteria B2, C1, and C2 in the hedgerow condition assessment.

The hedgerows are all assessed as being of local importance due to their ability to support a range of protected and notable species, and to act as general wildlife corridors. Native hedgerow is also a priority habitat type and identified in the LBAP[2]. The hedgerows have therefore been brought forward for further assessment.

Plate 3-4: Hedgerow H1 located on the western boundary of the Site, photograph taken from the north facing south.

Plate 3-5: Hedgerow H2 is located along the north-west boundary of the Site, photograph taken from the east facing south.

Plate 3-6: Hedgerow H4 runs east to west dissecting the Site into two unequal halves although there are large gaps in the hedgerow allow cattle to pass between the two areas. Photograph taken from the west facing east.

3.2.5 Hedgerows (h2a6 11 50)

There is another hedgerow (Plate 3-7) running the length of the northern boundary (H3) which also contains trees and is closely associated with a ditch. Similarly to the other three hedgerows, H3 is dominated by hawthorn, with frequent blackthorn and dog-rose. The hedgerow also contains tree species such as ash (*Fraxinus excelsior*), field maple (*Acer campestre*) and rowan (*Sorbus aucuparia*).

Hedgerow H3 is assessed as being in poor condition as it fails criteria B1, B2, C1, C2, and E1.

This hedgerow is also assessed as being of local importance due to its ability to support a range of protected and notable species, and to act as general wildlife corridors. Native hedgerow is also a priority habitat type and identified in the LBAP[2.]. The hedgerow has therefore been brought forward for further assessment.

Plate 3-7: Hedgerow H3 run along the entire northern boundary of the Site, contain several trees and is closely associated with a ditch. Photograph is taken from the west facing east.

3.2.6 Ditch

A ditch runs the entire length of the northern boundary of the Site (Plate 3-8), closely associated with the northern boundary hedgerow containing trees. The ditch experiences heavy disturbance and poaching from cattle and at the time of survey in September 2024 did not contain water down its entire length.

The ditch is considered to be in poor ecological condition as it only passes criteria C and H of the ditch condition assessment.

The ditch is assessed as being of local importance due to its ability to act as general wildlife corridors. The ditch has therefore been brought forward for further assessment.

Plate 3-8: The northern boundary ditch, taken from the west facing east. The ditch is associated with the northern boundary hedgerow.

3.2.7 Culvert (u1 851)

A culvert (Plate 3-9) is present on the western end of the northern boundary ditch to allow access over the ditch on to Site from Barugh Green Road. The culvert is built of bricks with a pipe running under to allow water flow, although the ditch was dry at the western extent at the time of survey in September 2024.

Plate 3-9: The culvert present in the northern ditch.

3.3 Species

3.3.1 Plants (protected and notable, including Schedule 9 species)

In total, 107 records of flowering plants were returned by the BBRC. Notably, 36 records of English bluebell (*Hyacinthoides non-scripta*) were returned for land within 2km of the Site, the closest being 500m south of the Site, recorded in 2016.

In total, 42 records of invasive species were returned. The most abundant INNS is Himalayan balsam (*Impatiens glandulifera*) with 16 records returned; the closest record was 1.5km west of the Site, from 2020. Japanese knotweed (*Reynoutria japonica*) was recorded 250m east of the Site, in 2014, a total of 14 records were returned. There were also two records of New Zealand pygmyweed (*Crassula helmsii*), the closest was 1.1 km north of Site, recorded in 2020.

No signs of non-native invasive species or Schedule 8 protected plants were recorded during the ecological walkover on the 23rd of September 2024. Furthermore, due to the Site only supporting plant species that are common and widespread, all plants have therefore been excluded from further assessment.

3.3.2 Amphibians

BBRC returned 105 records of GCN within 2 km of the Site. The closest records are over 850 m north of the Site centroid, and the most recent record is from 2019. Eighty-seven of these records come from a pitfall trapping project 880 m north of the Site, from 2016.

There were also 102 records provided for smooth newt (*Lissotriton vulgaris*), 81 records of common toad (*Bufo Bufo*), and 34 records for common frog (*Rana temporaria*).

The Site itself does not contain any ponds or other waterbodies suitable for breeding amphibians. Aerial photography and OS maps identified just one pond within 250 m of the Site, this pond is located 95 m to the west of the Site within a private garden. From examination of historical imagery the pond was established between 2003 and 2008 and is located over 500 m away from any other ponds in the wider landscape. There are significant barriers to GCN dispersal which would prevent colonisation of this garden pond. From aerial imagery the pond appears to be an ornamental pond surrounded by hardstanding with no vegetation apparent and decorative fountain at its centre. It is considered likely that this pond is also stocked with..

A search on the MAGIC application returned records of one great crested newt granted European Protected Species Application or great crested newt class survey licence returns within 2km of the Site on the Magic application, which has been modified several times:

- 2016-19796-EPS-MIT-1, granting the damage and destruction of a resting place between 2016 and 2022;
- 2016-19796-EPS-MIT-3, granting the damage and destruction of a resting place between 2016 and 2022;
- 2016-19796-EPS-MIT-5, granting the damage and destruction of a resting place between 2018 and 2024;
- 2016-19796-EPS-MIT-6, granting the damage and destruction of a resting place between 2019 and 2024.

The Site is highly unlikely to support GCN or other amphibians given the lack of suitable breeding habitat on-Site or within 250m. However, there is one ornamental pond within 250 m of the Site and the Site itself supports suitable terrestrial GCN habitat via hedgerows and sub-optimal habitat in grazed grasslands. Therefore, amphibians, and GCN specifically, have therefore been included for further assessment.

3.3.3 Reptiles

There were no records of reptiles provided by BBRC within 2 km of the Site.

The Site is comprised predominantly of grazed modified grassland and therefore represents low quality habitat for reptiles. Furthermore, there are no suitable basking spots or hibernacula on Site to act as shelter. The grassland is also heavily poached by cattle along the base of the on-Site hedgerows, offering no suitable buffer between the grassland and the hedgerows. There is a ditch present on the northern boundary of the Site which may offer habitat suitable for grass snake, however the ditch experiences a high level of disturbance from cattle, supports little marginal vegetation and is directly adjacent to a major road on the other side of the Site.

3.3.4 Given the above it is considered highly unlikely that reptiles are present on Site and therefore they are excluded from further assessment. Invertebrates

BBRC returned 93 records of seven unique species of invertebrates for land within 2 km of the Site, between 1993 and 2023. There were 63 records returned for white-letter hairstreak (*Satyrium w-album*), all records are from Hugset Wood, 1.5 km west of Site. White-letter hairstreak feed primarily on honeydew produced by aphids in the treetops and breed on elm (*Ulnus sp.*) trees which are not present on or adjacent to the Site.

The Site is comprised predominantly of species-poor modified grassland and is therefore unlikely to support a rare or notable invertebrate assemblage. It is therefore assessed as

being of less than local importance to invertebrates. As such, invertebrates are unlikely to be significantly impacted upon by the proposals and are not discussed further in this report.

3.3.5 Birds

Records were returned by BBRC for 65 species of birds within 2 km of the Site centroid, although none pertained to the Site itself.

These records include:

- 14 Schedule 1 species, notable for this Site include curlew (*Numenius arquata*), fieldfare (*Turdus pilaris*), and redwing (*Turdus iliacus*);
- 18 red list species, notable for this Site include curlew, fieldfare, grey partridge (*Perdix perdix*), grey wagtail (*Motacilla cinerea*), house sparrow (*Passer domesticus*), kestrel (*Falco tinnunculus*), lapwing (*Vanellus vanellus*), lesser redpoll (*Acanthis cabaret*), linnet (*Linaria cannabina*), merlin (*Falco columbarius*), mistle thrush (*Turdus viscivorus*), redwing, and yellowhammer (*Emberiza citrinella*).
- 33 amber list species, notable for this Site include black-headed gull (*Chroicocephalus ridibundus*), bullfinch (*Pyrrhula pyrrhula*), common gull (*Larus canus*), common redpoll (*Acanthis flammea*), dunnock (*Prunella modularis*), house martin (*Delichon urbicum*), meadow pipit (*Anthus pratensis*), moorhen (*Gallinula chloropus*), skylark (*Alauda arvensis*), snipe (*Gallinago gallinago*), starling (*Sturnus vulgaris*), swift (*Apus apus*), tawny owl (*Strix aluco*),

The hedgerows offer suitable nesting habitat for common bird species such as blackbird (*Turdus merula*), wren (*Troglodytes troglodytes*), woodpigeon (*Columba palumbus*) and other tree / shrub / hedgerow nesting birds.

The Site is unlikely to support a bird assemblage of local importance or greater as the vast majority of the Site is comprised of heavily grazed pasture. The modified grassland within the Site is of low quality and experiences a high level of disturbance from cattle which reduced the suitability of the grassland for ground nesting birds. However, given the presence of suitable bird nesting habitat in the hedgerows and the protected status of active nests, breeding birds have been brought forward for further assessment in this EcIA.

3.3.6 Mammals

3.3.6.1 Bats

A total of 53 records of bats from within the 2 km search radius were provided by BBRC. In order of most to least numerous, these were: unidentified pipistrelle species (*Pipistrellus* spp.) (19 records), noctule bat (*Nyctalus noctule*) (11 records), common pipistrelle (*Pipistrellus pipistrellus*) (ten records), soprano pipistrelle (*Pipistrellus pygmaeus*) (five records), Leisler’s bat (*Nyctalus leisleri*) (four records), Daubenton's bat (*Myotis daubentonii*) (four records), brown long-eared bat (*Plecotus auritus*) (two records) and myotis bat species (*Myotis* spp.) (two records).

The closest records are from 2019, approximately 250 m east of the Site. The closest record of a roost in located 1.37 km to the west of the Site and pertains to a Daubenton’s bat roost from 2019.

No European Protected Species Applications were returned for bats within 2 km of the Site on the MAGIC application

There is a single mature oak tree on the eastern boundary which has been assessed as having roosting potential for bats (PRF-M) due to the large cracks and splitting of the bark and trunk. (Plate 3-10). However, this tree is set to be retained as part of the proposed development (Appendix A) and therefore no further surveys of this tree are necessary.

Plate 3-10: Large cracks and fissures visible in the oak tree situated on the eastern boundary of the Site. This tree is to be retained as part of the proposed development.

The Site generally offers low quality habitat for foraging and commuting bats with the core of the Site being species poor modified grassland. The four on-Site hedgerows have some value for bats for commuting and foraging bats.

It is concluded that the Site offers low suitability for bats, and no further bat roosting or activity surveys are necessary. However, given the presence of potential roosting habitat and some suitable foraging and commuting corridors, bats have been included for further assessment.

3.3.6.2 Badger

A total of four records were returned by BBRC for badger within the 2 km search radius. The only live record was over 1.8 km from site recorded in 2016.

No sign of badgers was found during the ecological walkover on the 23rd September 2024. Where accessible, the land surrounding the Site within a 30 m radius was also searched and no evidence of badgers was found here either. The land immediately adjacent to Site is made up of either residential developments, major roads, or heavily grazed pastureland and therefore considered of low suitability for badgers There is however a small pocket of woodland and scrub located 400 m to the south of the Site which may offer potential habitat for badgers. Badgers have therefore been included for further assessment.

3.3.6.3 Otter and Water Vole

BBRC returned two records of otter (*Lutra lutra*) within the 2 km search radius. The closest record was 1.5 km northeast of the Site, recorded in 2023.

A total of 11 records were returned by BBRC for water vole (*Arvicola amphibius*) within the 2 km search radius. The most recent record is from 2004, 1.8 km northeast of the Site.

There is ditch present on Site, adjacent to the northern boundary. However, this ditch is shallow with no significant banks and does not appear to hold water year-round. It also experiences significant disturbance and the banks subject to poaching from cattle. Therefore given that the ditch is highly unsuitable for otter and water vole and is isolated from suitable habitat that may be present in the wider landscape, it is considered both species are very unlikely to be present within the Site. Therefore both have been omitted from further assessment.

3.3.6.4 Other Mammals

BBRC returned three records of brown hare (*Lepus europaeus*) from 2001 and 2019. The Site is predominantly heavily grazed and disturbed modified grassland and is therefore of low suitability for brown hare and therefore they have been excluded from further assessment.

BBRC also returned 25 records of hedgehog (*Erinaceus europaeus*) within 2 km of the Site centroid, between 1980 and 2020. The closest record was 250 m west of the Site, recorded in 2019.

The hedgerow within the Site provides suitable habitat to support hedgehog, and therefore hedgehog have been included in further assessment.

3.4 Summary of Important Ecological Features

Table 3-4 summarises the important ecological features in need of specific assessment as part of this EcIA.

Table 3-3: Important Ecological Features

Ecological Feature	Scale at which Ecological Feature is Important	Comments on Legal Status and/or Importance
Individual Tree	Local	The individual tree has been assessed as having potential to support roosting bats as well as having its own intrinsic value.
Hedgerow	Local	Native hedgerows are considered a priority habitat, have intrinsic value and are likely to support a range of protected and notable species, and to act as general wildlife corridors.
Ditch	Local	Ditches have intrinsic value, act as habitat for protected and notable species, and can act as important wildlife corridors.
GCN	Local	European and UK protected species (Habitats Directive and Wildlife and Countryside Act 1981 (as amended)). NERC Act 2006 Section 41 species of principal importance.
Nesting Birds	Local	All species are protected whilst nesting under the Wildlife and Countryside Act 1981 (as amended)

Ecological Feature	Scale at which Ecological Feature is Important	Comments on Legal Status and/or Importance
		(some species are also protected from disturbance whilst nesting under Schedule 1); some species are NERC Act 2006 Section 41 species of principal importance and/ or local priority species.
Bats	Local	European and UK protected species (Habitats Directive and Wildlife and Countryside Act 1981 (as amended)). Some species are NERC Act 2006 Section 41 species of principal importance.
Badger	Local (if present)	Badgers, and their places of shelter and protection (i.e. setts) are legally protected under the Protection of Badgers Act 1992.
Hedgehog	Local	NERC Act 2006 Section 41 species of principal importance

4.0 Assessment of Effects and Mitigation Measures

The following design principles and "designed-in" mitigation have informed the assessment of impacts.

- Within the design of the proposal good practice environmental and pollution control measures are employed with regard to current best practice guidance such as, but not limited to, the following:
  - CIRIA C532, 'Control of water pollution from construction sites: guidance for consultants and contractors' (2001).
  - CIRIA C741, 'Environmental good practice on site guide' (2015 4th Ed.).
- The following landscaping measures are proposed:
  - Planting of 198 metres of species-rich native hedgerow containing native trees;
  - Planting of 662 metres of native formal hedgerow containing native trees;
  - Seeding of 0.21 ha with Emorsgate EL1 flowering lawn mixture[16], or similar;
  - Seeding of 0.09 ha with Emorsgate EM2 general meadow mixture[17], or similar;
  - Seeding of 0.15 ha with Emorsgate Em8 meadow mixture for wetlands[18], or similar;
  - Seeding of 0.22 ha with Emorsgate EP1 pond edge mixture[19], or similar;
  - Planting of 0.09 ha of native scrub;
  - Planting of 0.09 ha of ornamental shrubs; and
  - Planting of 96 individual native trees within POS.

The landscaping plan is provided in Appendix A.

The following section describes the predicted effects and proposed mitigation measures, focussing on the important ecological features identified in Section 3.4. Potential direct and indirect effects during the construction phase as well as the operational phase are assessed.

4.1 Habitats

4.1.1 Individual Trees

4.1.1.1 Potential Impacts

The single mature oak tree (T1 on Drawing 1) will be retained. In the absence of mitigation, the retained tree has the potential to be damaged during construction works via damage to roots or dust deposition.

4.1.1.2 Proposed Mitigation Measures

To protect the retained tree during construction, effective barriers would be erected around the tree for the duration of construction, including the Root Protection Areas (RPAs) in accordance with BS: 5837:2012. Advice from an arboriculturist regarding tree protection and

[16] EL1 Flowering Lawn Mixture - Emorsgate Seeds
[17] EM2 Standard General Purpose Meadow Mixture - Emorsgate Seeds (wildseed.co.uk)
[18] EM8 Meadow Mixture for Wetlands - Emorsgate Seeds
[19] EP1 Pond Edge Mixture - Emorsgate Seeds

retention shall be sought, as required. Machinery would not be permitted within these areas. Good practice dust suppression techniques shall be used during construction to prevent dust from damaging the adjacent habitats, such as sheeting of materials and wetting down of excavated areas in dry conditions.

4.1.1.3 Significance of Residual Effects

With the above mitigation measures put in place, no contravention of relevant wildlife legislation is anticipated, and impacts the single individual tree T1 are considered to be non-significant.

4.1.2 Native Hedgerow

4.1.2.1 Potential Impacts

The entire central hedgerow H4 will be removed entirely to facilitate the development. Additionally, the majority (166 metres) of hedgerow H3 adjacent to the northern boundary will also be removed.

4.1.2.2 Proposed Mitigation Measures

To protect the retained hedgerows during construction, effective barriers would be erected around the tree for the duration of construction, including the Root Protection Areas (RPAs) in accordance with BS: 5837:2012.

The proposed planting of 198 metres of native hedgerow with trees as well as 662 metres of formal native hedgerow with trees will compensate for this loss. The formal hedgerow will be comprised of a single native species, hornbeam (*Carpinus betulus*).

4.1.2.3 Significance of Residual Effects

With the above mitigation measures put in place, no contravention of relevant wildlife legislation is anticipated, and impact upon hedgerows are considered to be non-significant

4.1.3 Ditch

4.1.3.1 Potential Impacts

A 10-metre-wide culvert will be constructed in the centre of the ditch on the northern boundary to facilitate an access road from Barugh Green Road.

4.1.3.2 Proposed Mitigation Measures

The rest of the ditch will be retained and enhanced to improve its condition. The ditch will be deepened to ensure it holds water year-round, planted with aquatic and marginal vegetation and the banks seeded with Emorsgate EP1 pond edge mixture.

4.1.3.3 Significance of Residual Effects

With the above mitigation measures put in place, no contravention of relevant wildlife legislation is anticipated, and impact upon ditches is considered to be positive.

The proposed ditch enhancement shall deliver a net positive impact, although not significant at the local level.

4.2 Species

4.2.1 GCN

4.2.1.1 Potential Impacts

In the absence of mitigation, there is a very low risk that GCN could be killed or injured during vegetation clearance and construction works, and therefore a risk that wildlife legislation could be contravened.

4.2.1.2 Proposed Mitigation

Considering the very low risk of GCN occurring on Site, proposed best practice mitigation would involve precautionary working measures that will be adopted during clearance and construction operations, for any works required within GCN suitable habitat (i.e. other neutral grassland and hedgerows), to reduce the risk of inadvertently killing or injuring GCN, as follows:

- Any features within the construction zone which could act as refugia / hibernacula (such as log piles, although none were identified during the ecological walkover in September 2024) would be carefully checked and removed by hand under the supervision of the Ecological Clerk of Works (ECoW). These features would be moved into boundary habitat which is to be retained. This shall be undertaken in the March – October GCN active period, to avoid potentially disturbing GCN whilst hibernating.
- If construction is to commence within the active period for GCN (i.e. March to October), ground-level vegetation would be cut in a directional manner, to encourage any GCN that may be present to naturally disperse from the working area. Before vegetation clearance, the area would first be subject to a hand search by the ECoW. The cutting will be undertaken in a directional manner from the interior of the Site to the Site margins, to encourage GCN to naturally disperse into suitable boundary and off-Site habitat. The vegetation would then be kept short throughout construction, to decrease its suitability.
- If any GCN are found during this process, they would be carefully moved by the ECoW to an area of suitable habitat well away from the construction zone. Similarly, if any other species are found during this process, such as hedgehog, they would also be moved to an area of safety outside of the construction zone.
- If GCN are found then all works should be paused and further assessment of suitable next steps should be carried out.

The above precautionary working methods shall also protect other fauna (such as hedgehog) during the Site clearance and construction operations.

4.2.1.3 Significance of Residual Effects

If the best practice mitigation measures outlined in Section 4.2.1.2 above are followed, any adverse effect upon GCN which are considered very low risk, and would be adequately mitigated for, and no contravention of wildlife legislation would occur.

4.2.2 Nesting Birds

4.2.2.1 Potential Impacts

The Site has potential to support small numbers of nesting birds within the hedgerow and grassland. A large portion of the on-Site hedgerows will be removed, as will all of the grassland. Therefore, if unmitigated, construction activities have the potential to cause injury or mortality of breeding birds, and damage or destruction of eggs or nests during construction.

4.2.2.2 Proposed Mitigation

To avoid the killing/ injury of birds and damage/ destruction of active nests during vegetation clearance, Site clearance and vegetation removal would ideally take place outside of the main bird breeding season (which, for most species, extends from March to August inclusive). If this is not feasible, a search for active nests would first be undertaken by a suitably qualified ecologist within the 24 hours prior to vegetation clearance. If an active nest was identified, it would be left in situ until the breeding attempt was concluded and the young had fledged.

The hedgerow, meadow grassland and scrub planting within the Site will provide opportunities for a limited range of urban and sub-urban bird species, both as a feeding and nesting resource.

4.2.2.3 Significance of Residual Effects

With the above measure in place, no contravention of relevant wildlife legislation is anticipated, and impacts upon birds are considered to be non-significant.

4.3 Bats

4.3.1 Potential Impacts

The mature oak tree (T1) on the eastern boundary is assessed as having potential to support roosting bats. The tree will be retained as part of the development, and tree protection measures have been outlined in section 4.1.1.

The western boundary hedgerow, a portion of the northern boundary hedgerow and the mature oak tree on the eastern boundary will be retained. However, all of the central hedgerow H4 and a large length of the northern hedgerow H3 will be removed to facilitate the development.

In the absence of mitigation, there is the potential for light spill to disturb bats foraging and commuting along the boundary hedgerows. There is also the potential for bat foraging and commuting habitat to be lost as a result of the development.

4.3.2 Proposed Mitigation

The lighting for the development should be developed to account for foraging and commuting bats, with a sensitive lighting scheme considered. The landscaping proposals, including planting 198 m of species-rich native hedgerow with trees, 662 m of native formal hedgerow with native trees, 96 individual native trees, 0.21 a flowering lawn seeding, 0.46 ha of meadow grassland seeding, and 0.09 ha of native scrub shall provide additional foraging and commuting opportunities for bats across the Site. Furthermore, the on-Site ditch will be enhanced provided an enhanced feeding resource for foraging bats.

4.3.3 Significance of Residual Effects

With the above measure in place, no contravention of relevant wildlife legislation is anticipated, and impacts upon bats are considered to be non-significant.

4.3.4 Hedgehog & Badger

4.3.4.1 Potential Impacts

In the absence of mitigation, there is a risk of harm to hedgehog and badger during construction, should animals become trapped in footings or other on-Site hazards.

There is a risk of badger excavating new setts both on or immediately adjacent to the Site

4.3.4.2 Proposed Mitigation

Where possible, all trenches, pits and other diggings at the Site will be closed before nightfall. Where these must be left over night, they should be covered and sealed, or an escape ramp should be provided using wood planking or suitably compacted earth. All pipework and ironworks should be sealed or covered overnight. Alternatively, such trenches, pipes or other workings may be fenced off to prevent hedgehogs coming into contact with them.

pre-construction badger survey shall be undertaken to update the status of badger within and adjacent to the Site.

In addition, hedgehog highways would be created in proposed garden fences on Site boundaries, comprising minimum 15cm x 15cm gaps at the base of fencing, to allow hedgehog unimpeded access across the Site and between gardens. The access gaps shall be appropriately labelled with signs on both sides, to deter householders from blocking the purpose made gaps. An example of a hedgehog highway gap with appropriate labelling is shown in Plate 4-1. Hedgehog highway signs can be purchased from a number of manufacturers, such as The British Hedgehog Preservation Society.

Plate 4-1: Example hedgehog highway fence gap with sign.

4.3.4.3 Significance of Residual Effects

With the above measure in place, no contravention of relevant wildlife legislation is anticipated, and impacts upon hedgehog and badger are considered to be non-significant.

4.4 Proposed Biodiversity Compensation and Enhancement

4.4.1 Hedgerow

A total of 198 metres of species-rich native hedgerow with trees and 662 metres of formal (single species hornbeam (*Carpinus betulus*) native hedgerow with trees shall be planted within the Site. The species rich native hedgerow will be comprised of hawthorn, hazel (*Corylus avellana*), holly (*Ilex aquifolium*), blackthorn, and dog-rose.

The planted hedgerow will provide habitat for foraging birds, bats and small mammals, as well as providing important early-season nectar and pollen for invertebrates and strengthening ecological connection across the Site.

4.4.2 Other Neutral Grassland (g3c) – General Meadow Mixture

An area of approximately 0.09 ha, predominantly in the northern extent of the Site in the east will be seeded with Emorsgate EM2 general meadow mixture[20], or similar, and managed appropriately, to encourage species diversity to develop.

The meadow area will provide habitat for invertebrates and small mammals, and therefore a foraging resource for birds and bats.

4.4.3 Other Neutral Grassland (g3c) – Meadow Mixture for Wetlands

Two attenuation basins will be constructed in the northern POS of the Site and seeded with 0.15 ha of Emorsgate EM8 meadow mixture for wetlands[21], or similar, managed appropriately, to encourage species diversity to develop.

The meadow area will provide habitat for invertebrates and small mammals, and therefore a foraging resource for birds and bats.

4.4.4 Other Neutral Grassland (g3c) – Pond Edge Mixture

The edges of the two northern attenuation basins and the margins of the northern ditch will be seeded with 0.22 ha of Emorsgate EP1 pond edge mixture[22], or similar, managed appropriately, to encourage species diversity to develop.

The meadow area will provide habitat for invertebrates and small mammals, and therefore a foraging resource for birds and bats.

4.4.5 Modified Grassland (g4) – Flowering Lawn Mixture

Areas of amenity grassland will be sown with Emorsgate EL1 flowering lawn mixture[23], or similar totalling 0.21 ha across the Site. This grassland mix provides a good diversity of flowering plant diversity while tolerating a stricter mowing schedule and higher disturbance.

[20] EM2 Standard General Purpose Meadow Mixture - Emorsgate Seeds (wildseed.co.uk)

[21] EM8 Meadow Mixture for Wetlands - Emorsgate Seeds

[22] EP1 Pond Edge Mixture - Emorsgate Seeds

[23] EL1 Flowering Lawn Mixture - Emorsgate Seeds

The flowering lawn will provide habitat and nectar resource for invertebrates, and therefore a foraging resource for birds and bats.

4.4.6 Mixed Scrub (h3h)

In total 0.09 ha of mixed scrub will be planted in small pockets across the Site. The mixed scrub will be comprised of hazel, dogwood (*Cornus sanguinea*), hawthorn, holly, and guelder-rose (*Viburnum opulus*).

The flowering lawn will provide habitat for invertebrates, reptiles and small mammals, and therefore a foraging resource for birds and bats.

4.4.7 Bird and Bat Boxes

In order to enhance the Site for roosting bats, 10% of the houses (equating to 15 bat boxes in total) would be fitted with bat boxes during construction. The bat boxes shall comprise of Ibstock Enclosed Bat Box C[24] or similar. The boxes will be installed at a height of at least 4 metres and will mostly face south.

In order to enhance the Site for nesting birds, a total of 15 bird boxes (equating to 10% of properties) shall be fitted to the buildings during construction. The bird boxes will mostly face east, and a range of designs will be used to benefit species of conservation concern experiencing decline including starling (*Sturnus vulgaris*) (Starling Next Box[25]), house sparrow (Vivara Pro Woodstone House Sparrow Nest Box Double Chambered[26]) and swift (*Apus apus*) (Ibstock Eco Habitat for Swift Nest Box[27]) within properties.

4.4.8 BNG Offsetting

BNG calculations of area and linear habitats are provided in a separate report[28]. A shortfall of 2.57 units has been identified, and would be off-set via off-Site offsetting, via purchase of units from a habitat bank provider.

4.5 Summary of Potential Effects

A summary of potential impacts, proposed mitigation, and time constraints is provided for each important ecological feature included in the assessment in Table 5-6.

[24] https://www.nhbs.com/ibstock-enclosed-bat-box-c

[25] https://www.nhbs.com/starling-box-smooth-brick

[26] https://www.nhbs.com/vivara-pro-woodstone-house-sparrow-nest-box

[27] https://www.nhbs.com/ibstock-eco-habitat-for-swifts

[28] SLR Consulting. (2025). Barugh Green, Barnsley: Biodiversity Net Gain Assessment. 410.065569.00001

Table 4-1: Summary of Potential Impacts, Proposed Mitigation and Enhancement, and Time Constraints

Ecological Feature	Potential Impacts	Proposed Mitigation, Compensation and Enhancement	Residual Effects
Individual Tree	Risk of damage during the construction phase of development	Erection of barriers to protect retained habitat and root protection areas. CIRIA C532 and CIRIA C741 followed.	No contravention of wildlife legislation and no significant residual negative effect.
Hedgerow	Removal of 409 m of native hedgerow	A total of 198 m of species-rich native hedgerow with trees and 662 m of single species native hedgerow will be planted across the Site. Enhancement of 64 m of existing hedgerow with trees on the north-west boundary of the Site.	No contravention of wildlife legislation and no significant residual negative effect.
Ditch	A culvert will be constructed in the centre of the ditch to facilitate access on to the proposed development.	The existing ditch will be enhanced by deepening the ditch to ensure it holds water and planting with marginal plants.	No contravention of wildlife legislation and no significant residual negative effect.
GCN	Risk of killing or injuring GCN during construction that may be present within the Site during their terrestrial phase.	Precautionary working measures.	No contravention of wildlife legislation and no significant residual negative effect.
Nesting Birds	Risk of harm to nesting birds caused by vegetation clearance taking place during the nesting bird season (March to August inclusive).	Clearance/pruning of vegetation suitable for nesting birds will take place outside of the March to August nesting bird season to avoid impacts on nesting birds. If any suitable bird nesting habitat requires removal during the nesting season, this will be preceded by an inspection for nesting birds by the ECoW. If active nests are found to be present, clearance must stop until the young have fledged.	Not significant, and no contravention of wildlife legislation.

Ecological Feature	Potential Impacts	Proposed Mitigation, Compensation and Enhancement	Residual Effects
Bats	Risk of loss of foraging and commuting habitat. Risk of light pollution disturbing foraging and commuting bats along boundary habitat.	Sensitive lighting scheme to be implemented. Enhancement of current boundary features and new landscaping will provide alternative foraging and commuting resourced	No contravention of wildlife legislation and no significant residual negative effect.
Hedgehog & Badger	Risk of harm to hedgehog during construction should animals become trapped in footings or other on-Site hazards.	Where possible, all trenches, pits and other diggings at the Site will be closed before nightfall. Where these must be left over night, they should be covered and sealed, or an escape ramp should be provided using wood planking or suitably compacted earth. All pipework and ironworks should be sealed or covered overnight. Alternatively, such trenches pipes or other workings may be fenced off to prevent hedgehogs coming into contact with them.	Not significant, and no contravention of wildlife legislation.

Drawing 1 UK Habitat Plan

Ecological Impact Assessment

Barugh Green

Avant Homes Ltd

SLR Project No.: 410.065596.00001

22 January 2025

LEGEND

Site Boundary

Individual Tree

Primary Habitat Classification

Urban - Built-up Areas and Gardens

u1 - Built-up Areas and Gardens

Heathland and Shrub - Hedgerows

h2a6 - Other Native Hedgerow

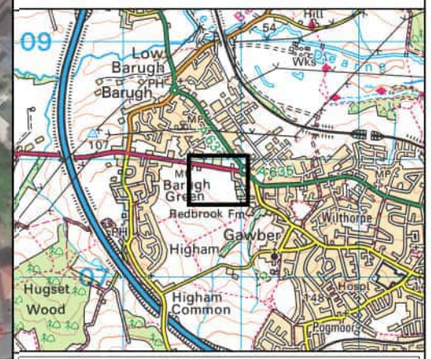
Grassland - Neutral Grassland

g3c8 - Holcus-Juncus Neutral Grassland

Grassland - Modified Grassland

g4 - Modified Grassland

Secondary Codes:
11 - Hedgerow with Trees
50 - Ditch
101 - Cattle Grazed
203 - Mature Tree
851 - Culvert



AVANT homes

SLR

BARUGH GREEN BARNSLEY

ECOLOGICAL IMPACT ASSESSMENT

UK HABITAT SURVEY RESULTS

DRAWING 1

Scale	Date
1:1,500 @ A3	JANUARY 2025

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Appendix A Landscape Plan

Ecological Impact Assessment

Barugh Green

Avant Homes Ltd

SLR Project No.: 410.065596.00001

22 January 2025

4582, Barugh Green, Barnsley	BNG calculation
Proposed Native Trees (POS Area)	18 nr
Proposed Large Native Trees (POS Area)	42 nr
Proposed Medium Native Trees	51 nr
Proposed Small Native Trees	70 nr
Proposed Ornamental Shrubs (Front gardens excluded)	910 m2
Proposed Native shrub mix	932 m2
Proposed Native Formal Hedge (Front gardens excluded)	662 lin. m.
Proposed Native Hedgerow Mix	198 lin. m.
Amenity Grass(POS)	2094 m2
Amenity Grass(Front garden)	1640 m2
Proposed Wildflower Meadow	860 m2
Proposed Wildflower Meadow(wetland)	1525 m2
Proposed Blubs (Native)	75 m2
Proposed Wet-Tolerant Grassland	2237 m2
Back Garden	9242 m2
Existing hedges to be retained (Northern)	64 lin. m.
Existing hedges to be retained (North-western)	37 lin. m.
Existing hedges to be retained (Western)	137 lin. m.

LEGEND

SOFT LANDSCAPE

Trees and Hedgerows to be Retained

Trees and Hedgerows to be Removed

Proposed POS Native Tree
Trees to be planted as 18-20cm girth, Semi-mature, min 6m high, to be staked and secured with suitable rubber ties.

Proposed Large Native Tree
Trees to be planted as 12-14cm girth, Heavy Standard, 3-4m high, to be staked and secured with suitable rubber ties.

Proposed Medium Native Tree
Trees to be planted as 12-14cm girth, Heavy Standard, 3-4m high, to be staked and secured with suitable rubber ties.

Proposed Small Native Tree
Trees to be planted as 10-12cm girth or 50L pots, 2-3m high and secured with single stake and suitable rubber ties.

Proposed Native Hedge
80-100cm, BR stock, planted as a double staggered row at 300mm centres

Proposed Native Formal Hedge
Evergreen hedge to be planted at 60-80cm, 5L pots, at 5 per lin.m. Species: Carpinus betulus

Proposed Native Buffer Planting
Native shrubs to be 60-90cm height in groups of 3 or 5 protected by tubex or spiral guard. Shrubs species should include a mix of native species which provide berries, fruits and flowers to attract a range of species such as bats, birds and invertebrates.

Proposed Ornamental Planting
Mixed shrub and herbaceous planting, 3-5L pots with 10-15L specimens. Planting beds to receive 75mm depth ornamental bark mulch.

Proposed Wildflower Meadow
To be Emorsgate EM2 Standard General Purpose Meadow Mix, supplied by Emorsgate or similar approved. Including 80% or ornamental grasses and 20% of wildflowers Sowing rate 4/gm2.

Proposed Wet-Tolerant Grassland
To be Emorsgate EP1 Pond Edge Mixture, supplied by Emorsgate or similar approved. Including 20% native wild flowers and 80% slow growing grasses. Sowing rate 4/gm2.

Proposed Wildflower Meadow for Wetlands
To be Emorsgate EM8 Meadow Mixture for Wetlands, supplied by Emorsgate or similar approved. Including 80% or ornamental grasses and 20% of wildflowers Sowing rate 4/gm2.

Proposed Bulb Planting

Proposed Maintained POS Grass
To be Emorsgate EL1 Flowering Lawn Mix or similar approved. Including 20% wild flowers and 80% meadow grasses. Sowing rate 4/gm2.

Proposed Amenity Grass
Front gardens to client specification.

Proposed Amenity Grass
Back gardens to client specification.

HARD LANDSCAPE

Proposed Gravel

Proposed Footpath

FURNITURE

Proposed Timber Bench

BOUNDARY TREATMENTS

Proposed Knee Rail
0.45m high

GENERAL NOTES

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2. This drawing is to be read in conjunction with detail landscape drawings, details and specification.
3. This drawing is to be read in conjunction with all relevant Architects', Engineer's, Specialists, Bills of Quantities and Specifications.
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REVISION NOTES

Rev	By	Description	Date
E	EO	Updated in line with comments	14.01.25
D	EO	Minor amendments	13.01.25
C	EO	Updated in line with comments	08.01.25
B	EO	Minor amendments	07.01.25
A	EO	BNG calculations updated	06.01.25

Client
Avant Homes

Project
Barugh Green, Barnsley

Description
Landscape Masterplan

Status
For Approval

Scale @ A1	Drawn	Checked	Date
1:500	EO/RN	KP	20.12.24
Job number	Drawing number		Revision
4582	101		E

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Appendix B Relevant Legislation and Policy

Ecological Impact Assessment

Barugh Green

Newett Homes

SLR Project No.: 410.065596.00001

22 January 2025

Relevant Legislation and Planning Policy

Legislation

A summary of legislation relevant to (onshore) biodiversity in England and Wales is provided below. Note that the summary provided here is intended for general guidance only and the original legislation should be consulted for definitive information.

Environment Act (2021)

The Environment Act has wide ranging provisions including those around:

- Environmental governance;
- Environmental regulation;
- Waste and resource efficiency;
- Air quality and environmental recall;
- Water;
- Nature and biodiversity;
- Conservation covenants.

Of particular relevance is Part 6 of the Act which introduces “biodiversity gain in planning” and will apply in England to planning applications under the Town & Countryside Act and the Planning Act. Schedule 14 now requires that biodiversity gain be a condition of planning permission in England. These changes will be enacted through subsequent secondary legislation or regulations. This part of the Act also changes the responsibilities that Government or public bodies have by strengthening the existing NERC Act biodiversity duty. Public authorities are now required to seek to conserve and enhance biodiversity in the exercise of their functions.

Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. Under the Habitats Regulations it is an offence to deliberately capture, kill or disturb[1] wild animals listed under Schedule 2 of the Regulations as well as damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time). European Sites, including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), are also protected under the Habitat Regulations, and any proposal that could affect them will require a Habitats Regulations Assessment (HRA).

[1] Disturbance, as defined by the Conservation of Habitats and Species Regulations 2010, includes in particular any action which impairs the ability of animals to survive, breed, rear their young, hibernate or migrate (where relevant); or which affects significantly the local distribution or abundance of the species.

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017

Part 3 of the regulations provide for the protection of areas of habitats or species where maintenance of the status of water is an important factor. Under the regulations additional consideration may need to be given to sites in the form of a Water Framework Directive (WFD) assessment where a project lies in proximity to a water body or to linked water bodies which could be affected. This includes consideration of whether water bodies are WFD receptors in particular those of high status or have high status morphology.

Environment (Wales) Act 2016

The Environment (Wales) Act puts in place the legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and joined-up way. Part 1 Section 6 of the Act introduces a new biodiversity duty, which replaces and enhances the biodiversity duties set out in the NERC Act 2006 and requires public authorities to seek to maintain and enhance biodiversity in the exercise of their functions and in so doing promote the resilience of ecosystems.

Section 7 of the Act lists living organisms and types of habitat in Wales, considered to be of key significance to sustain and improve biodiversity in relation to Wales.

Natural Environment & Rural Communities (NERC) Act 2006

Section 40 of the NERC Act 2006 places a duty on public authorities to have regard to the purpose of conserving biodiversity in the exercise of their functions. Public authorities include government departments, local authorities and statutory undertakers.

Section 41 of the Act (Section 42 in Wales) requires the publication of a list of habitats and species publish which are of principal importance for the purpose of conserving biodiversity. The Section 41 list is used to guide authorities in implementing their duty to have regard to the conservation of biodiversity.

Note that Sections 40 and 42 were superseded in Wales by the Environment (Wales) Act 2016 (see below).

Protection of Badgers Act 1992

The Protection of Badgers Act 1992 makes it illegal to kill, injure or take a badger or to intentionally or recklessly interfere with a badger sett. Sett interference includes disturbing badgers whilst they are occupying a sett or obstructing access to it.

Wildlife & Countryside Act 1981

The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way (CRoW) Act 2000 and the Natural Environment and Rural Communities (NERC) Act 2006, consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive), making it an offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting;
- Intentionally kill, injure or take any wild animal listed under Schedule 5 to the Act;

- intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act;
- intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection;
- Pick or uproot any wild plant listed under Schedule 8 of the Act; or
- Plant or cause to grow in the wild any plant species listed under Schedule 9 of the Act.

Planning Policy

A summary of national planning policy relevant to (onshore) biodiversity in England and Wales is provided below. Note that the summary provided here is intended for general guidance only and the original policy documents should be consulted for definitive information. For local planning policy relevant to biodiversity the relevant local plans should be consulted.

National Planning Policy Framework December 2024(England)

The National Planning Policy Framework (NPPF)[2] sets out guidance for local planning authorities and decision-makers in how to apply planning policies when drawing up plans and making decisions about planning applications. Along with Government Circular 06/052, the broad policy objectives in relation to the protection of biodiversity and geological conservation in England through the planning system are set out. Specific policies relating to habitats and biodiversity are set out in paragraphs 187 to 195 of the NPPF.

Paragraph 187 states that:
"Planning policies and decisions should contribute to and enhance the natural and local 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 f) 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".

[2] Ministry of Housing, Communities & Local Government (December 2024). https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf

Paragraph 192 states that:
"To protect and enhance biodiversity and geodiversity, plans should:

a) *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*
b) *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."*

Paragraph 193 of the NPPF states 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 improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this* is appropriate."

Paragraphs 194 - 195 relate to European sites (referred to as habitats sites) and state:
"The following should be given the same protection as habitats sites:

a) *potential Special Protection Areas and possible Special Areas of Conservation;*
b) *listed or proposed Ramsar sites; and*
c) *sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.*

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."

National Planning Policy (Wales)

Planning Policy Wales (PPW)[3] sets out the land use planning policies of the Welsh Government. The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic,

[3] Welsh Government. 2018. Planning Policy Wales. Edition 10, December 2018.

environmental and cultural well-being of Wales. Section 6.4 of PPW relates to biodiversity and ecological networks.

Paragraph 6.4.3 of PPW states that:

"The planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement."

It goes on to state that:

"Development plan strategies, policies and development proposals must consider the need to:

- *support the conservation of biodiversity, in particular the conservation of wildlife and habitats;*
- *ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats;*
- *ensure statutorily and non-statutorily designated sites are properly protected and managed;*
- *safeguard protected and priority species and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil, including peat; and*
- *secure enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks."*

Section 6.4 goes on to set out policy in respect of:

- The Biodiversity and Resilience of Ecosystems Duty, as set out in Section 6 of the Environment (Wales) Act 2016;
- Designated Sites, including:
  - Sites of Special Scientific Interest;
  - Special Protection Areas, Special Areas of Conservation and Ramsar Sites;
  - Proposed Special Areas of Conservation, Special Protection Areas and Ramsar sites; and
  - Non-statutory Designations.
- Protected Species; and
- Trees, Woodlands and Hedgerows.

PPW is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. TAN 5[4] deals with Nature Conservation and Planning and states in paragraph 2.4:

"When considering policies and proposals in local development plans and when deciding planning applications that may affect nature conservation, local planning authorities should:

- *Pay particular attention to the principles of sustainable development, including respect for environmental limits, applying the precautionary principle, using scientific*

[4] Welsh Assembly Government. 2009. Planning Policy Wales Technical Advice Note 5: Nature Conservation and Planning. September 2009.

knowledge to aid decision making and taking account of the full range of costs and benefits in a long term perspective;

- *Contribute to the protection and improvement of the environment, so as to improve the quality of life and protect local and global ecosystems, seeking to avoid irreversible harmful effects on the natural environment;*
- *Promote the conservation and enhancement of statutorily designated areas and undeveloped coast;*
- *Ensure that appropriate weight is attached to designated sites of international, national and local importance;*
- *Protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action Plans;*
- *Ensure that all material considerations are taken into account and decisions are informed by adequate information about the potential effects of development on nature conservation;*
- *Ensure that the range and population of protected species is sustained;*
- *Adopt a step-wise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation; where there may be significant harmful effects local planning authorities will need to be satisfied that any reasonable alternative sites that would result in less or no harm have been fully considered."*

Appendix C Desk Study Data

Ecological Impact Assessment

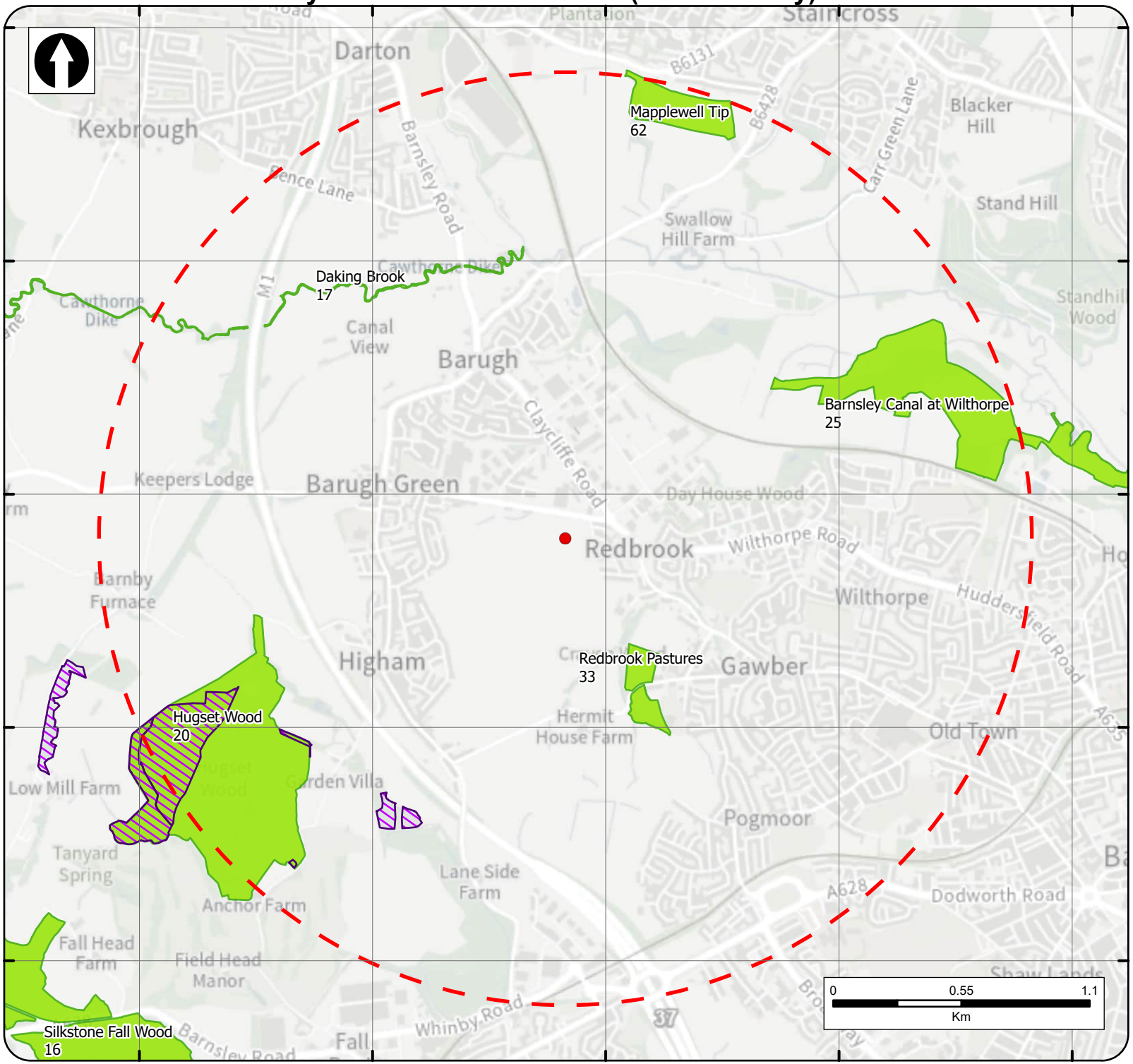
Barugh Green

Avant Homes Ltd

SLR Project No.: 410.065596.00001

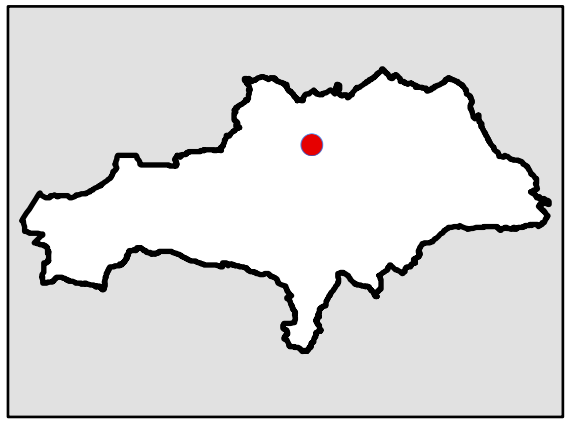
22 January 2025

Boundaries of Statutory and Local Wildlife Sites (non-statutory) Within the Search Area



Barugh Green

- Local Wildlife Sites - Barnsley
- Ancient Woodland Natural England Barnsley
- Centre of Search Area
- Barnsley Boundary
- 2km radius



BARNSLEY Metropolitan Borough Council

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PLANNING DESIGN ENVIRONMENT

17. Daking Brook

LWS Assessment and Phase 1 Survey

Prepared by
TEP

for

Barnsley Metropolitan Borough Council

January 2011
(Edited December 2011)

Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH

T: 01925 844004
F: 01925 844002
E: tep@tep.uk.com
W: www.tep.uk.com

Site Name:	Daking Brook
Site Length:	10.3km
Survey Date:	October 2010
Nearest Settlement:	Cawthorne
Grid Reference at Centre:	SE26500, 07600
Surveyor(s)	VG, HR

Site Description:

The source of Daking Brook is found between Upper Denby and Ingbirchworth to the west of the Borough of Barnsley. The brook flows west to east and on its way east the Brook passes through a landscape of arable and pastoral farmland. The brook is often tree lined or surrounded by a thin belt of semi-natural broadleaved woodland. It is largely unmodified and unpolluted and is a good example of an upland stream. The brook joins the River Dearne near Lower Barugh, approximately 1km east of the M1 motorway between junctions 37 and 38.

Six locations along the brook were surveyed for the presence of important species, particularly white-clawed crayfish (*Austropotamobius pallipes*) and water vole (*Arvicola amphibius*), approximately a 100m section at each location was surveyed. The adjacent habitat types were also noted. Drawing G2418.058 shows the locations of each section surveyed (TN1-TN6).

***Section One* (*TN1*)**

This section is close to the source of Daking Brook. The water is shallow and the substrate comprises small stones/cobbles with a thin layer of silt. It is surrounded by a mature beech (*Fagus sylvatica*) and sycamore (*Acer pseudoplatanus*) dominated plantation, with a reasonable range of woodland ground-flora species. Species noted during the 2010 survey included opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*), wood meadow-grass (*Poa nemoralis*) and wood sorrel (*Oxalsis acetosella*). There was limited vegetation on the banks of the brook due to the shading by the plantation. However, moss species, remote sedge (*Carex remota*) and hard fern (*Splechnum spicant*) were present.

Important species: No important species or field signs of important species were noted in this section of the brook.

***Section Two* (*TN2*)**

This section begins just to the east of Gunthwaite Dam. The brook was wider and slightly deeper than the first section. The substrate still comprised small stones/cobbles substrate with a thin layer of silt. There was also some larger slab like stones on the bed. The brook is bordered with broadleaved woodland, tree line and grazed pasture along this section. The broadleaved woodland is described in the Gunthwaite and Dam site report (site no 11, TEP report ref 2481.29). Oak (*Quercus* sp), sycamore and holly (*Ilex aquifolium*) were frequent tree species.

The brook had some aquatic vegetation in this section, with brooklime (*Veronica beccabunga*) and wavy bitter-cress (*Cardamine flexuosa*) the most frequent.

Important species: White-clawed crayfish were found in this section. Two juveniles and one female adult were recorded, in addition too one dead adult (porcelain

disease was the identified as the probable cause of death).

***Section Three* (*TN3*)**
The third section surveyed flows through Rons Cliff Wood (mature broadleaved plantation), north of Gadding Moor. It had a similar substrate and profile to the previous sections. Beech and sycamore were dominant species with a reasonable range of woodland ground-flora species including opposite-leaved golden saxifrage, dog's mercury (*Mercurialis perennis*) and herb-robert (*Geranium robertianum*) recorded.

The brook was devoid of marginal and aquatic vegetation along this section, due to heavy shading from the plantation and fast flowing water.

Important species: White-clawed crayfish were found in this section, with two juveniles noted. A juvenile brown trout (*Salmo trutta*) was also noted. There were some small mammal holes in the banks of the brook, considered to be of bank vole origin due to their small size.

***Section Four* (*TN4*)**
This section covered the series of man-made lakes and cascades at Cannon Hall Country Park, north west of Cawthorne which are fed by Daking Brook. The lakes were surrounded by scattered broadleaved trees, with some tall ruderal herbs and marginal vegetation.

There were a large number of Canada geese *(Branta Canadensis)* in the water and grazing the adjacent amenity grassland during the survey. Rhododendron (*Rhododendron ponticum*) was also present.

Important species: No important species or field signs of important species were noted in this section of the brook.

***Section Five* (*TN5*)**
Section five is adjacent to Cinder Farm north east of Cawthorne. The Brook meanders through surrounding improved cow grazed pastures and is lined with trees. The substrate was a mix of small stones and large slab like stones with a thin layer of silt, the water level was generally less than 50cm but there were some areas is this section that were up to 1m deep.

There was limited aquatic and marginal vegetation due to shading by the trees and grazing was up to the bank tops in many places. Abundant tree species included crack willow (*Salix fragilis*), sycamore and ash (*Fraxinus excelsior*).

Schedule 9 species signal crayfish was found in this section, a total of two juveniles and one adult male.

Important species: Two adult bullhead (*Cottus gobio*) were noted (a Local BAP priority species) and two adult stone loach (*Barbatula barbatula*), which is important indicator species, were noted. Additionally, kingfisher *(Alcedo atthis),* a schedule 1 species breeds on this stretch.

***Section Six* (*TN6*)**
This section is adjacent to Barnsley Road (A637) between Darton and Barugh near to where the brook joins the River Dearne. Part of the brook is channelised, where it flows under the road.

The water level was consistently higher than 50cm. The banks were well vegetated with tall ruderal herbs.

The invasive Schedule 9 species Himalayan balsam (*Impatiens glandulifera*) was dominant.

Important species: Kingfisher *(Alcedo atthis),* a schedule 1 species breeds on this part of the river.

Important Species:

UKBAP species white-clawed crayfish and brown trout were found to be present in the brook. Local BAP species bullhead was also present.

Dog's mercury (*Mercurialis perennis*), remote sedge (*Carex remota*), bluebell (*Hyacinthoides non-scripta*), wood sorrel (*Oxalis acetosella*), greater stitchwort (*Stellaria holostea*) and opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*) are all found on the banks of the brook or immediately adjacent and are considered as ancient woodland indicator species in South Yorkshire.

Invasive species were noted including signal crayfish (*Pacifastacus leniusculus*), rhododendron (*Rhododendron ponticum*) and Himalyan balsam (*Impatiens glandulifera*) were noted along the brook.

Target Note:	TN1	
Habitat:	Broadleaved plantation	
Species List:		
Scientific Name	**Common Name**	**Frequency**
Fagus sylvatica	Beech	D
Acer pseudoplatanus	Sycamore	A
Chrysosplenium oppositifolium	**Opposite-leaved Golden-saxifrage**	**F**
Moss sp.	Moss species	F
Poa nemoralis	Wood Meadow-grass	F
Oxalis acetosella	**Wood Sorrel**	**O**
Dryopteris dilatata	Broad Buckler-fern	O
Ulex gallii	Western Gorse	O
Sorbus aucuparia	Rowan	O
Carex remota	**Remote Sedge**	**O**
Rubus fruticosus agg.	Bramble	O
Hedera helix	Ivy	O
Geranium robertianum	Herb-Robert	O
Ilex aquifolium	Holly	O
Athyrium filix-femina	Lady-fern	R
Blechnum spicant	Hard Fern	R
D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare		

Target Note:	TN2	
Habitat:	Marginal vegetation	
Species List:		
Scientific Name	**Common Name**	**Frequency**
Cardamine flexuosa	Wavy Bitter-cress	F
Athyrium filix-femina	Lady-fern	O
Veronica beccabunga	Brooklime	O
Urtica dioica	Nettle	O
D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare		

Target Note:	TN3
Habitat:	Broadleaved plantation

Species List:

Scientific Name	Common Name	Frequency
Fagus sylvatica	Beech	D
Ilex aquifolium	Holly	F
Ulmus glabra	Wych Elm	F
Alnus glutinosa	Alder	F
Urtica dioica	Nettle	F
Geranium robertianum	Herb-Robert	O
Fraxinus excelsior	Ash	O
Dryopteris filix-mas	Male-fern	O
Mercurialis perennis	**Dog's Mercury**	**O**
Stellaria holostea	**Greater Stitchwort**	**O**
Chrysosplenium oppositifolium	**Opposite-leaved Golden-saxifrage**	**O**
Hyacinthoides non-scripta	**Bluebell**	**O**
Hedera helix	Ivy	O
Crataegus monogyna	Hawthorn	O
Cardamine flexuosa	Wavy Bitter-cress	O

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN4
Habitat:	Scattered broadleaved trees/tall ruderal herbs/marginal vegetation

Species List:

Scientific Name	Common Name	Frequency
Alnus glutinosa	Alder	F
Epilobium hirsutum	Great Willowherb	F
Urtica dioica	Nettle	F
Quercus sp.	Oak species	F
Rubus fruticosus agg.	Bramble	O
Rumex obtusifolius	Broad-leaved dock	O
Veronic beccabunga	Brooklime	O
Salix fragilis	Crack Willow	O
Agrostis stolonifera	Creeping Bent	O
Salix cinerea agg.	Grey willow	O
Crataegus monogyna	Hawthorn	O
Ilex aquifolium	Holly	O
Festuca rubra	Red Fescue	O
Rhododendron ponticum	**Rhododendron**	**O**
Acer pseudoplatanus	Sycamore	O
Aesculus hippocastanum	Horse Chestnut	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN5
Habitat:	Semi-natural broadleaved woodland

Species List:

Scientific Name	Common Name	Frequency
Acer pseudoplatanus	Sycamore	A
Geranium robertianum	Herb-Robert	F
Fraxinus excelsior	Ash	F
Urtica dioica	Nettle	F
Alnus glutinosa	Alder	F
Salix fragilis	Crack Willow	F
Ulex gallii	Western Gorse	O
Carex pendula	**Pendulous Sedge**	**O**
Elymus caninus	Bearded Couch	O
Geum urbanum	Wood Avens	O
Glechoma hederacea	Ground-ivy	O

Ranunculus repens	Creeping Buttercup	O
Rubus fruticosus agg.	Bramble	O
Sambucus nigra	Elder	O
Crataegus monogyna	Hawthorn	O
Alliaria petiolata	Garlic Mustard	O

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN6	
Habitat:	Tall ruderal herbs	
Species List:		
Scientific Name	**Common Name**	**Frequency**
Impatiens glandulifera	**Himalayan Balsam**	**D**
Epilobium hirsutum	Great Willowherb	A
Urtica dioica	Nettle	F
Arrhenatherum elatius	False Oat-grass	F
Rubus fruticosus agg.	Bramble	F
Cirsium arvense	Creeping Thistle	F
Betula pendula	Silver Birch	O
Quercus robur	English Oak	O

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Management Issues:

There are numerous public footpaths and bridleways that cross the brook throughout its length.

Invasive, non-native Schedule 9 species signal crayfish is present (and breeding, verified by the presence of juveniles) in the eastern end of the brook. This species can seriously threaten the population of white-clawed crayfish which was found further upstream (west of the cascades).

Invasive, non-native Schedule 9 species Himalayan balsam is present in the eastern end of the brook.

Invasive, non-native Schedule 9 species Rhododendron is present in the eastern adjacent to the lakes that are fed by Daking Brook at Cannon Hall Country Park.

Diversity:

The brook is relatively fast flowing and shallow which does not allow much aquatic vegetation to develop. However, the water is unpolluted and the brook is largely unmodified.

The brook provides habitat for a range of faunal species such as brown trout, bullhead and white-clawed crayfish, all of which important biodiversity priority and/or protected species. Stone loach, an important indicator species for unpolluted waters, was also confirmed in the brook. Daking Brook has strong ecological interest and good faunal diversity.

Naturalness:

The brook is largely unmodified and unpolluted. It is a good example of an upland stream with representative geographical features such as riffles, gravel banks, areas of loose flag like rock fragments and pools.

Rare or Exceptional Features:

Daking Brook supports a population of the nationally endangered and protected species white-clawed crayfish and UKBAP and the Local BAP fish species brown trout and bullhead. Stone loach was also recorded. These species indicate that the water is clean with little pollution.

Fragility:

A population of white-clawed crayfish in the west of Daking Brook was confirmed west of the series of cascades and lakes at Cannon Hall Country Park. A population of the non-native signal crayfish downstream from the location of the white-clawed crayfish, to the east of the cascades, was also identified. Both populations were confirmed to be breeding by the presence of juveniles.

Signal crayfish carry a fungus (*Aphanomyces astaci*) which causes crayfish plague. This infects only European freshwater crayfish species, including our native white clawed-crayfish, and is most often fatal. Signal crayfish will also out-compete the native species. If these populations meet, the white-clawed crayfish population will come under serious threat.

Typicalness:

There are a number of upland streams in the Barnsley area, however Daking Brook is a good example of a largely unimproved upland stream that is unpolluted and supports populations of a range of important faunal species.

Recorded History & Cultural Associations:

The Brook is dammed at Gunthwaite and is now used as a fishing pond. It has also been utilised to create a series of cascades and lakes at Cannon Hall Country Park.

Connectivity within the Landscape:

The brook itself acts as a wildlife corridor. It passes through and near to a number of registered semi-natural ancient woodland sites and other blocks of woodland. It passes Gunthwaite Dam and Woods LWS near its source. The corridor of the brook also has strong green and blue links with LWS's Margery Wood and Hugset Wood.

Daking Brook is a tributary of the River Dearne, which is a major wildlife corridor in the Barnsley area, itself having connective habitat with a number of LWS's within the Dearne Valley.

Value for appreciation of Nature and learning:

There are numerous public footpaths and bridleways that cross the brook throughout its length. The Barnsley Boundary Walk crosses the brook four times, twice near the source and twice near to Cannon Hall Country Park.

Daking Brook does not flow through any residential areas. It does however pass close to Cawthorne, near to Cannon Hall Country Park which has an extensive car park. Offering good access to the area pools and cascades fed by the brook.

Recommendations:

Future surveys carried out at the brook should be carried out west to east to avoid transferring the plague upstream. Advice notices should also be considered near angling spots to inform anglers about the risk of inadvertently transmitting the disease.

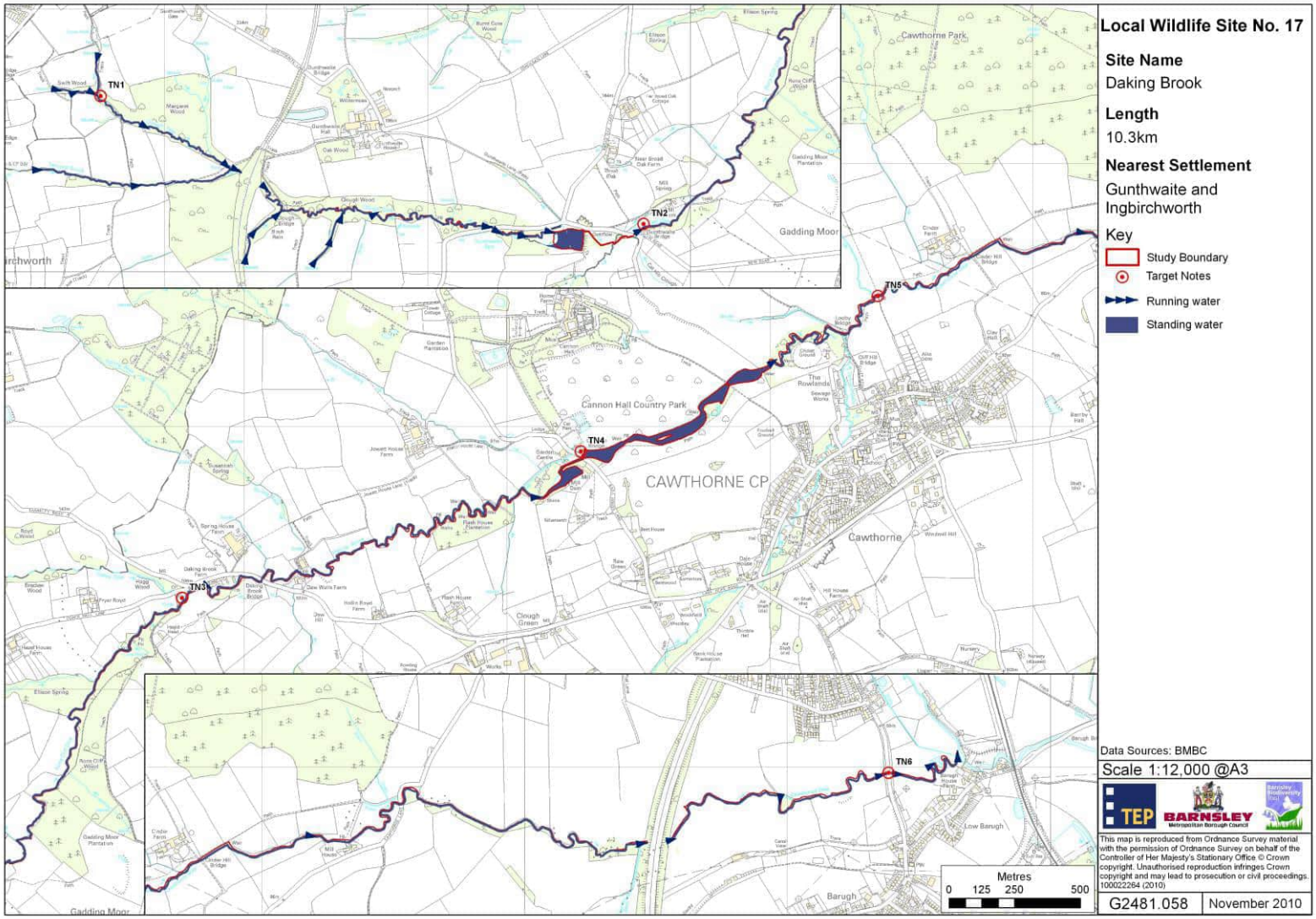
Clearing of non-native invasive species Himalayan balsam from the eastern end of Daking Brook site should be considered. This would encourage greater diversity of native flora and fauna along the stream and its banks.

Monitoring of the rhododendron on the banks of the lakes fed by Daking Brook is recommended and management control measures to stop any spread of the species is also recommended.

Daking Brook remains an important habitat at a local and nationally level. The presence of white-clawed crayfish and bullhead means that this site satisfies site selection criteria.

Action:

Retain as a Local Wildlife Site
Monitor the spread of the signal crayfish
Work with landowners/managers along the brook's length to create a buffer and creating a wider natural network


Local Wildlife Site No. 17
Site Name
Daking Brook
Length
10.3km
Nearest Settlement
Gunthwaite and Ingbirchworth
Key
Study Boundary
Target Notes
Running water
Standing water
TN1
TN2
TN3
TN4
TN5
TN6
Cawthorne Park
Cannon Hall Country Park
CAWTHORNE CP
Cawthorne
Gadding Moor
Barugh
Low Barugh
Metres
0 125 250 500
Data Sources: BMBC
Scale 1:12,000 @A3
TEP
BARNSLEY
Metropolitan Borough Council
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PLANNING DESIGN ENVIRONMENT

25. Barnsley Canal at Wilthorpe

LWS Assessment and Phase 1 Survey

Prepared by
TEP

for

Barnsley Metropolitan Borough Council

January 2011
(Edited December 2011)

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Site Name:	Barnsley Canal at Wilthorpe
Site Area:	33.36ha
Survey Date:	September 2010
Nearest Settlement:	Wilthorpe
Grid Reference at Centre:	SE33651, 08340
Surveyor(s)	VG, LAC, PG

Site Description:

The Barnsley Canal at Wilthorpe LWS Site includes a stretch of the disused Barnsley Canal and adjacent pastoral farmland. The River Dearne is to the north of the site and an active railway line lies to the south, with a mix of arable and pastoral farmland comprising the majority of the wider area. An old section of the river, which was cut off following channel straightening upstream, forms part of the northern site boundary.

The majority of the disused canal is now swamp with reed sweet-grass (*Glyceria maxima)* dominant. At the eastern end of the canal, Himalayan balsam (*Impatiens glandulifera)* and greater reedmace (*Typha latifolia)* are abundant. Greater reedmace and reed sweet-grass are abundant throughout the site in areas of standing water and swamp. Three areas of standing water remain in the section of the canal. An area of standing water at the eastern end of the canal section is dominated by least duckweed (*Lemna minuta).* Rigid hornwort (*Ceratophyllum demersum)* is abundant and Himalayan balsam (*Impatiens glandulifera)* is rare. In an area of standing water in the centre, there is a patch of floating pennywort (*Hydrocotyle ranunculoides)*. Great willowherb (*Epilobium hirsutum)* is abundant in the most westerly area of standing water.

The majority of the land surrounding the canal consists of semi-improved neutral grassland, with a variety of habitats found within the grassland. The largest parcel of land is in the west of the site, south of the canal. At the western end of this area lies unimproved neutral grassland, where red fescue (*Festuca rubra)* is abundant. To the east of this a willow carr dominated by grey willow (*Salix cinerea)* and a pond. Branched burr-reed (*Sparganium erectum)* and a pond weed species (*Potamogeton sp.)* are frequent within the pond. An area of swamp surrounded by semi-natural broadleaved woodland lies in the centre of the parcel of land, where sessile oak (*Quercus petraea)* and silver birch (*Betula pendula)* are dominant. To the west of the woodland lies an area of semi-improved acid grassland dominated by mat-grass (*Nardus stricta)*. Within the parcel of land there are areas of dense scrub where hawthorn (*Crataegus monogyna)*, blackthorn (*Prunus spinosa)* and goat willow (*Salix caprea)* are dominant. There are also areas of tall ruderal that are dominated by creeping thistle (*Cirsium arvense)*. A species-poor defunct hedge is present in the south east of the area. The hedge contains English (*Quercus robur)* and sessile oaks, field maple (*Acer campestre*), European ash (*Fraxinus excelsior)* and European beech (*Fagus sylvatica)*. South of the hedge lies an area of marshy grassland.

To the north of the canal lies a second parcel of land where there are two areas of swamp with some standing water. Reed sweet-grass and greater reedmace are dominant. There is also marshy grassland present within this parcel of land, where hard rush (*Juncus inflexus)* is abundant.

Along the eastern section of the canal runs a species-poor intact hedge along the northern bank, where there are occasional crab apple (*Malus sylvestris).* Adjacent to the canal and the former towpath there is a strip of modified neutral grassland dominated by false-oat grass (*Arrhenatherum elatius)*.

To the north of the hedge lies a third parcel of land where there are areas of dense scrub. Within the scrub there is a scattering of broadleaved trees which include wych elm (*Ulmus glabra)*, crack willow (*Salix fragilis)* and white willow (*Salix alba*). Bluebell (*Hyacinthoides non-scripta)* and Japanese knotweed are occasional in this area, and Himalayan balsam is frequent. To the west of the dense scrub lies a small area of unimproved acid grassland and marshy grassland, dominated by tufted hair-grass (*Deschampsia cespitosa)*. To the north lies the old course of the River Dearne, which consists of standing water and swamp. In the standing water Nuttall's pondweed (*Elodea nutallii)* is frequent and water starwort species (*Callitriche sp.*) occurs occasionally. Buttonweed (*Cotula coronopifolia*) is abundant on the banks. Greater reedmace is the dominant species in the swamp areas and lesser water-parsnip (*Berula erecta*) occurs occasionally.

In the southeast corner of the site there is an area of tall ruderal, where Himalayan balsam is present along the river channel. At Smithy's Bridge there is a species-poor hedge and trees, which contains Japanese knotweed (*Fallopia japonica*). The hedge connects the river corridor to a large area of swamp to the north.

Important Species:

Ancient woodland indicator species remote sedge (*Carex remota*) (TN 11), bluebell (*Hyacinthoides non-scripta*), wood speedwell (*Veronica montana*) (TN 3) and sessile oak (*Quercus petraea*)(TN 11) were found on site.

UKBAP species: reed bunting *(Emberiza schoeniclus),* grasshopper warbler *(Locustella naevia),* willow tit *(Poecile montanus),* dunnock *(Prunella modularis),* bullfinch *(Pyrrhula pyrrhula)* and song thrush *(Turdus philomelos)* all breed on the site and water rail (*Rallus aquaticus*), a Bird of Conservation Concern (Amber List species) also breeds and winters on site.

The section of canal with standing water and the cut off section of the River Dearne offer potential habitat for great crested newts (*Triturus cristatus*) and water vole (*Arvicola aquaticus*). It is likely that UKBAP priority species common toad (*Bufo bufo*) is present in these areas.

Target Note:	TN 1	
Habitat:	Species-poor hedge	
Species List:		
Scientific Name	**Common Name**	**Frequency**
Crataegus monogyna	Hawthorn	D
Rubus fruticosus agg.	Bramble	A
Hedera helix	Ivy	O
Lonicera periclymenum	Honeysuckle	O
Malus sylvestris	Crab-apple	O
Rosa canina agg.	Dog Rose	O
Sambucus nigra	Elder	O
Silene vulgaris	Bladder Campion	O
Torilis japonica	Upright Hedge-parsley	R
D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare		

Target Note:	TN 2
Habitat:	Swamp

Species List:

Scientific Name	Common Name	Frequency
Glyceria maxima	Reed Sweet-grass	D
Impatiens glandulifera	**Himalayan Balsam**	**A**
Typha latifolia	Greater Reedmace	A
Epilobium hirsutum	Great Willowherb	F
Juncus effusus	Soft Rush	F
Lycopus europaeus	Gypsywort	F
Mentha aquatica	Water Mint	F
Berula erecta	Lesser Water-parsnip	O
Crataegus monogyna	Hawthorn	O
Equisetum arvense	Field Horsetail	O
Juncus inflexus	Hard Rush	O
Persicaria amphibia	Amphibious Bistort	O
Phalaris arundinacea	Reed Canary-grass	O
Ranunculus acris	Meadow Buttercup	O
Rubus fruticosus agg.	Bramble	O
Salix caprea	Goat Willow	O
Salix cinerea	Grey Willow	O
Salix fragilis	Crack Willow	O
Solanum dulcamara	Bittersweet	O
Stachys palustris	Marsh Woundwort	O
Caltha palustris	Marsh-marigold	R
Cardamine flexuosa	Wavy Bitter-cress	R
Equisetum sylvaticum	**Wood Horsetail**	**R**
Filipendula ulmaria	Meadowsweet	R
Rumex sanguineus	Wood Dock	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 3
Habitat:	Dense scrub and scattered broadleaved trees

Species List:

Scientific Name	Common Name	Frequency
Crataegus monogyna	Hawthorn	D
Betula pendula	Silver Birch	A
Rubus fruticosus agg.	Bramble	A
Impatiens glandulifera	**Himalayan Balsam**	**F**
Salix fragilis	Crack Willow	F
Sambucus nigra	Elder	F
Crepis capillaris	Smooth Hawk's-beard	R
Dryopteris dilatata	Broad Buckler-fern	R
Fallopia japonica	**Japanese Knotweed**	**O**
Fraxinus excelsior	Ash	O
Hedera helix	Ivy	O
Hyacinthoides non-scripta	**Bluebell**	**O**
Quercus robur	English Oak	O
Salix alba	White Willow	O
Salix cinerea	Grey Willow	O
Ulmus glabra	Wych Elm	O
Veronica montana	**Wood Speedwell**	**R**

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 4
Habitat:	Unimproved acid grassland

Species List:

Scientific Name	Common Name	Frequency
Festuca rubra	Red Fescue	D
Agrostis capillaris	Common Bent	F
Galium saxatile	Heath Bedstraw	F
Juncus effusus	Soft Rush	O
Plantago lanceolata	Ribwort Plantain	O
Potentilla erecta	Tormentil	O
Rumex acetosa	Common Sorrel	O
Succisa pratensis	Devil's-bit Scabious	O
Luzula multiflora	Heath Woodrush	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 5
Habitat:	Unimproved neutral grassland

Species List:

Scientific Name	Common Name	Frequency
Holcus lanatus	Yorkshire-fog	D
Arrhenatherum elatius	False Oat-grass	F
Centaurea nigra	Knapweed	O
Cirsium arvense	Creeping Thistle	O
Rumex obtusifolius	Broad-leaved Dock	O
Chamerion angustifolium	Rosebay Willowherb	O
Juncus conglomeratus	Compact Rush	O
Poa pratensis	Smooth Meadow-grass	O
Stellaria graminea	Lesser Stitchwort	O
Dactylis glomerata	Cock's-foot	O
Hypochaeris radicata	Common Cat's-ear	O
Rumex acetosa	Common Sorrel	O
Senecio jacobaea	Ragwort	O
Ranunculus acris	Meadow Buttercup	O
Plantago major	Greater Plantain	O
Plantago lanceolata	Ribwort Plantain	O
Cerastium fontanum	Common Mouse-ear	O
Ranunculus repens	Creeping Buttercup	O
Deschampsia cespitosa	Tufted Hair-grass	O
Odontites verna	Red Bartsia	R
Tanacetum vulgare	Tansy	R
Cirsium palustre	Marsh Thistle	R
Crepis capillaris	Smooth Hawk's-beard	R
Veronica chamaedrys	Germander Speedwell	R
Carex ovalis	Oval Sedge	R
Cruciata laevipes	Crosswort	R
Pimpinella major	Greater Burnet-saxifrage	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 6
Habitat:	Unimproved acid grassland

Species List:

Scientific Name	Common Name	Frequency
Nardus stricta	Mat-grass	D
Agrostis capillaris	Common Bent	A
Festuca ovina	Sheep's Fescue	F
Calluna vulgaris	Heather	O
Rumex acetosella	Sheep's Sorrel	O

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN7
Habitat:	Modified neutral grassland

Species List:

Scientific Name	Common Name	Frequency
Arrhenatherum elatius	False Oat-grass	D
Agrostis stolonifera	Creeping Bent	F
Cirsium arvense	Creeping Thistle	F
Lolium perenne	Ryegrass	F
Plantago lanceolata	Ribwort Plantain	F
Poa annua	Annual Meadow-grass	F
Ranunculus repens	Creeping Buttercup	F
Trifolium pratense	Red Clover	F
Urtica dioica	Nettle	F
Achillea millefolium	Yarrow	O
Anthriscus sylvestris	Cow Parsley	O
Arctium minus	Lesser Burdock	O
Aster sp.	Michaelmas-daisy species	O
Cerastium fontanum	Common Mouse-ear	O
Dactylis glomerata	Cock's-foot	O
Equisetum arvense	Field Horsetail	O
Festuca rubra	Red Fescue	O
Heracleum sphondylium	Hogweed	O
Hieracium sp.	Hawkweed species	O
Hypochaeris radicata	Common Cat's-ear	O
Lathyrus pratensis	Meadow Vetchling	O
Linaria vulgaris	Common Toadflax	O
Lotus corniculatus	Bird's-foot Trefoil	O
Odontites verna	Red Bartsia	O
Plantago major	Greater Plantain	O
Pteridium aquilinum	Bracken	O
Ranunculus acris	Meadow Buttercup	O
Rosa canina agg.	Dog Rose	O
Rubus fruticosus agg.	Bramble	O
Rumex obtusifolius	Broad-leaved Dock	O
Tanacetum vulgare	Tansy	O
Taraxacum sp.	Dandelion species	O
Trifolium repens	White Clover	O
Berberis sp.	Garden Berberis	R
Lupinus x regalis	Lupin	R
Polygonum aviculare	Knotgrass	R
Rumex acetosella	Sheep's Sorrel	R
Rumex sanguineus	Wood Dock	R
Stellaria graminea	Lesser Stitchwort	R
Torilis japonica	Upright Hedge-parsley	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 8
Habitat:	Marshy grassland

Species List:

Scientific Name	Common Name	Frequency
Alisma plantago-aquatilis	Water-plantain	F
Ranunculus repens	Creeping Buttercup	F
Veronica beccabunga	Brooklime	O
Iris pseudacorus	Yellow Flag Iris	O
Lycopus europaeus	Gypsywort	O
Ranunculus sp.	Water-crowfoot species	O
Juncus articulatus	Jointed Rush	R
Pulicaria dysenterica	Fleabane	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 9
Habitat:	Standing water

Species List:

Scientific Name	Common Name	Frequency
Epilobium hirsutum	Great Willowherb	A
Glyceria maxima	Reed Sweet-grass	A
Alisma plantago-aquatilis	Water-plantain	F
Apium nodiflorum	Fool's Watercress	F
Lycopus europaeus	Gypsywort	F
Callitriche sp.	Water Starwort species	O
Juncus articulatus	Jointed Rush	O
Juncus effusus	Soft Rush	O
Lemna trisulca	Ivy-leaved Duckweed	O
Potamogeton sp.	Pondweed species	O
Ranunculus sceleratus	Celery-leaved Buttercup	O
Typha latifolia	Greater Reedmace	O
Bidens tripartita	Trifid Bur-marigold	R
Ranunculus sp.	Water-crowfoot species	R
Scutellaria galericulata	Skullcap	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 10
Habitat:	Semi-improved neutral grassland

Species List:

Scientific Name	Common Name	Frequency
Agrostis capillaris	Common Bent	F
Arrhenatherum elatius	False Oat-grass	F
Crataegus monogyna	Hawthorn	F
Trifolium repens	White Clover	F
Achillea millefolium	Yarrow	O
Centaurea nigra	Knapweed	O
Cynosurus cristatus	Crested Dog's-tail	O
Festuca rubra	Red Fescue	O
Hypochaeris radicata	Common Cat's-ear	O
Lolium perenne	Ryegrass	O
Plantago major	Greater Plantain	O
Poa annua	Annual Meadow-grass	O
Poa pratensis	Smooth Meadow-grass	O
Ranunculus acris	Meadow Buttercup	O
Ranunculus repens	Creeping Buttercup	O
Rumex acetosa	Common Sorrel	O
Senecio jacobaea	Ragwort	O
Silene vulgaris	Bladder Campion	O

Succisa pratensis	Devil's-bit Scabious	O
Tanacetum vulgare	Tansy	O
Taraxacum sp.	Dandelion species	O
Trifolium pratense	Red Clover	O
Anthoxanthum odoratum	Sweet Vernal-grass	R
Bromus hordeaceus	Soft Brome	R
Campanula rotundifolia	Harebell	R
Centranthus ruber	Red Valerian	R
Deschampsia cespitosa	Tufted Hair-grass	R
Festuca ovina	Sheep's Fescue	R
Holcus lanatus	Yorkshire-fog	R
Holcus mollis	Creeping Soft-grass	R
Knautia arvensis	Field Scabious	R
Lotus corniculatus	Bird's-foot Trefoil	R
Nardus stricta	Mat-grass	R
Odontites verna	Red Bartsia	R
Phleum pratense	Timothy	R
Potentilla reptans	Creeping Cinquefoil	R
Rumex acetosella	Sheep's Sorrel	R
Sambucus nigra	Elder	R
Stellaria graminea	Lesser Stitchwort	R
Veronica chamaedrys	Germander Speedwell	R
Vicia cracca	Tufted Vetch	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 11
Habitat:	Semi-natural broad-leaved woodland

Species List:

Scientific Name	Common Name	Frequency
Betula pendula	Silver Birch	D
Quercus petraea	**Sessile Oak**	**D**
Crataegus monogyna	Hawthorn	A
Holcus mollis	Creeping Soft-grass	A
Agrostis capillaris	Common Bent	F
Corylus avellana	Hazel	F
Rosa canina agg.	Dog Rose	F
Rubus fruticosus agg.	Bramble	F
Carex remota	**Remote Sedge**	**O**
Deschampsia cespitosa	Tufted Hair-grass	O
Deschampsia flexuosa	Wavy Hair-grass	O
Geum urbanum	Wood Avens	O
Hedera helix	Ivy	O
Urtica dioica	Nettle	O
Acer campestre	Field Maple	R
Stachys sylvatica	Hedge Woundwort	R
Torilis japonica	Upright Hedge-parsley	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 12
Habitat:	Species-poor hedge and trees

Species List:

Scientific Name	Common Name	Frequency
Typha latifolia	Greater Reedmace	D
Crataegus monogyna	Hawthorn	A
Rubus fruticosus agg.	Bramble	F
Sambucus nigra	Elder	F
Ulmus glabra	Wych Elm	F
Urtica dioica	Nettle	F
Acer pseudoplatanus	Sycamore	O
Calystegia silvatica	Large Bindweed	O
Hedera helix	Ivy	O
Phalaris arundinacea	Reed Canary-grass	O
Prunus spinosa	Blackthorn	O
Pteridium aquilinum	Bracken	O
Rosa canina agg.	Dog Rose	O
Salix fragilis	Crack Willow	O
Alnus glutinosa	Alder	R
Fallopia japonica	**Japanese Knotweed**	**R**
Fraxinus excelsior	Ash	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 13
Habitat:	Swamp

Species List:

Scientific Name	Common Name	Frequency
Typha latifolia	Greater Reedmace	D
Angelica sylvestris	Wild Angelica	O
Berula erecta	Lesser Water-parsnip	O
Deschampsia cespitosa	Tufted Hair-grass	O
Epilobium hirsutum	Great Willowherb	O
Filipendula ulmaria	Meadowsweet	O
Juncus articulatus	Jointed Rush	O
Lotus pedunculatus	Marsh Bird's-foot Trefoil	O
Lycopus europaeus	Gypsywort	O
Phalaris arundinacea	Reed Canary-grass	O
Ranunculus repens	Creeping Buttercup	O
Scrophularia auriculata	Water Betony	O
Sparganium erectum	Branched Bur-reed	O
Alisma plantago-aquatilis	Water-plantain	R
Epilobium montanum	Broad-leaved Willowherb	R
Epilobium palustre	Marsh Willowherb	R
Galium palustre	Marsh Bedstraw	R
Juncus bufonius	Toad Rush	R
Rumex hydropathalum	Water Dock	R
Salix cinerea ssp. cinerea	Grey Willow	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 14
Habitat:	Species-rich modified neutral grassland with some acidic areas

Species List:

Scientific Name	Common Name	Frequency
Agrostis stolonifera	Creeping Bent	F
Festuca rubra	Red Fescue	F
Holcus lanatus	Yorkshire-fog	F
Lotus corniculatus	Bird's-foot Trefoil	F
Trifolium pratense	Red Clover	F
Trifolium repens	White Clover	F
Achillea millefolium	Yarrow	O
Agrostis capillaris	Common Bent	O
Arrhenatherum elatius	False Oat-grass	O
Centaurium erythraea	Common Centaury	O
Dactylis glomerata	Cock's-foot	O
Hypochaeris radicata	Common Cat's-ear	O
Knautia arvensis	Field Scabious	O
Lathyrus pratensis	Meadow Vetchling	O
Odontites verna	Red Bartsia	O
Plantago lanceolata	Ribwort Plantain	O
Plantago major	Greater Plantain	O
Ranunculus repens	Creeping Buttercup	O
Anthriscus sylvestris	Cow Parsley	R
Carex otrubae	False Fox-sedge	R
Carex ovalis	Oval Sedge	R
Cerastium fontanum	Common Mouse-ear	R
Cirsium arvense	Creeping Thistle	R
Crataegus monogyna	Hawthorn	R
Cytisus scoparius	Broom	R
Deschampsia cespitosa	Tufted Hair-grass	R
Festuca ovina	Sheep's Fescue	R
Hieracium sp.	Hawkweed species	R
Juncus conglomeratus	Compact Rush	R
Juncus effusus	Soft Rush	R
Juncus inflexus	Hard Rush	R
Linaria vulgaris	Common Toadflax	R
Potentilla anserina	Silverweed	R
Potentilla erecta	Tormentil	R
Ranunculus acris	Meadow Buttercup	R
Rosa canina agg.	Dog Rose	R
Rumex acetosa	Common Sorrel	R
Stellaria graminea	Lesser Stitchwort	R
Trifolium dubium	Lesser Trefoil	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 15
Habitat:	Swamp/standing water

Species List:

Scientific Name	Common Name	Frequency
Typha latifolia	Greater Reedmace	D
Bidens tripartita	Trifid Bur-marigold	F
Callitriche sp.	Water Starwort species	F
Elodea nutallii	Nuttall's Pondweed	F
Glyceria maxima	Reed Sweet-grass	F
Agrostis stolonifera	Creeping Bent	O
Angelica sylvestris	Wild Angelica	O
Berula erecta	Lesser Water-parsnip	O
Calystegia sp.	Bindweed species	O
Chenopodium rubrum	Red Goosefoot	O
Impatiens glandulifera	**Himalayan Balsam**	**O**
Mentha aquatica	Water Mint	O
Persicaria amphibia	Amphibious Bistort	O
Ranunculus repens	Creeping Buttercup	O
Alisma plantago-aquatilis	Water-plantain	R
Artemisia vulgaris	Mugwort	R
Epilobium hirsutum	Great Willowherb	R
Juncus bufonius	Toad Rush	R
Lycopus europaeus	Gypsywort	R
Myosotis scorpioides	Water Forget-me-not	R
Ranunculus sceleratus	Celery-leaved Buttercup	R
Scrophularia auriculata	Water Betony	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 16
Habitat:	Marshy grassland

Species List:

Scientific Name	Common Name	Frequency
Deschampsia cespitosa	Tufted Hair-grass	D
Holcus lanatus	Yorkshire-fog	F
Typha latifolia	Greater Reedmace	F
Juncus effusus	Soft Rush	O
Plantago lanceolata	Ribwort Plantain	O
Ranunculus repens	Creeping Buttercup	O
Salix caprea	Goat Willow	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 17
Habitat:	Unimproved neutral grassland

Species List:

Scientific Name	Common Name	Frequency
Festuca rubra	Red Fescue	A
Achillea millefolium	Yarrow	F
Agrostis stolonifera	Creeping Bent	F
Anthoxanthum odoratum	Sweet Vernal-grass	F
Centaurea nigra	Knapweed	F
Holcus lanatus	Yorkshire-fog	F
Hypochaeris radicata	Common Cat's-ear	F
Lotus corniculatus	Bird's-foot Trefoil	F
Pulicaria dysenterica	Fleabane	F
Vicia cracca	Tufted Vetch	F
Achillea ptarmica	Sneezewort	O
Carex hirta	Hairy Sedge	O
Carex nigra	Common Sedge	O
Carex otrubae	False Fox-sedge	O
Cirsium arvense	Creeping Thistle	O
Cynosurus cristatus	Crested Dog's-tail	O
Deschampsia cespitosa	Tufted Hair-grass	O
Equisetum arvense	Field Horsetail	O
Juncus inflexus	Hard Rush	O
Knautia arvensis	Field Scabious	O
Lathyrus pratensis	Meadow Vetchling	O
Lolium perenne	Ryegrass	O
Lycopus europaeus	Gypsywort	O
Salix caprea	Goat Willow	O
Trifolium pratense	Red Clover	O
Trifolium repens	White Clover	O
Agrostis capillaris	Common Bent	R
Carex panicea	Carnation Sedge	R
Gnaphalium uliginosum	Marsh Cudweed	R
Juncus conglomeratus	Compact Rush	R
Plantago major	Greater Plantain	R
Potentilla erecta	Tormentil	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 18
Habitat:	Standing water

Species List:

Scientific Name	Common Name	Frequency
Potamogeton sp.	Pondweed species	F
Sparganium erectum	Branched Bur-reed	F
Typha latifolia	Greater Reedmace	F
Berula erecta	Lesser Water-parsnip	O
Glyceria maxima	Reed Sweet-grass	O
Juncus effusus	Soft Rush	O
Juncus inflexus	Hard Rush	O
Salix cinerea ssp. cinerea	Grey Willow	O

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 19
Habitat:	Semi-improved neutral grassland

Species List:

Scientific Name	Common Name	Frequency
Agrostis stolonifera	Creeping Bent	A
Plantago major	Greater Plantain	A
Poa annua	Annual Meadow-grass	A
Trifolium repens	White Clover	A
Cirsium arvense	Creeping Thistle	F
Polygonum aviculare	Knotgrass	F
Ranunculus repens	Creeping Buttercup	F
Achillea millefolium	Yarrow	O
Festuca rubra	Red Fescue	O
Gnaphalium uliginosum	Marsh Cudweed	O
Hypochaeris radicata	Common Cat's-ear	O
Impatiens glandulifera	**Himalayan Balsam**	**O**
Lolium perenne	Ryegrass	O
Matricaria discoidea	Pineapple-weed	O
Plantago lanceolata	Ribwort Plantain	O
Potentilla anserina	Silverweed	O
Ranunculus acris	Meadow Buttercup	O
Rumex crispus	Curled Dock	O
Rumex obtusifolius	Broad-leaved Dock	O
Trifolium pratense	Red Clover	O
Arctium minus	Lesser Burdock	R
Artemisia vulgaris	Mugwort	R
Centaurea nigra	Knapweed	R
Chenopodium rubrum	Red Goosefoot	R
Cirsium palustre	Marsh Thistle	R
Sonchus asper	Prickly Sow-thistle	R
Trifolium medium	Zigzag Clover	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 20
Habitat:	Swamp

Species List:

Scientific Name	Common Name	Frequency
Glyceria maxima	Reed Sweet-grass	D
Berula erecta	Lesser Water-parsnip	O
Juncus effusus	Soft Rush	O
Lycopus europaeus	Gypsywort	O
Mentha aquatica	Water Mint	O
Typha latifolia	Greater Reedmace	O
Epilobium palustre	Marsh Willowherb	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 21
Habitat:	Semi-improved grassland

Species List:

Scientific Name	Common Name	Frequency
Festuca rubra	Red Fescue	A
Anthoxanthum odoratum	Sweet Vernal-grass	F
Deschampsia cespitosa	Tufted Hair-grass	F
Holcus lanatus	Yorkshire-fog	F
Plantago lanceolata	Ribwort Plantain	F
Ranunculus repens	Creeping Buttercup	F
Trifolium repens	White Clover	F
Achillea ptarmica	Sneezewort	O
Agrostis capillaris	Common Bent	O
Centaurea nigra	Knapweed	O
Cerastium fontanum	Common Mouse-ear	O
Cirsium arvense	Creeping Thistle	O
Cirsium palustre	Marsh Thistle	O
Equisetum arvense	Field Horsetail	O
Hypochaeris radicata	Common Cat's-ear	O
Lathyrus pratensis	Meadow Vetchling	O
Lotus corniculatus	Bird's-foot Trefoil	O
Potentilla reptans	Creeping Cinquefoil	O
Pulicaria dysenterica	Fleabane	O
Ranunculus acris	Meadow Buttercup	O
Rumex acetosa	Common Sorrel	O
Torilis japonica	Upright Hedge-parsley	O
Trifolium pratense	Red Clover	O
Vicia cracca	Tufted Vetch	O
Angelica sylvestris	Wild Angelica	R
Potentilla anserina	Silverweed	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 22
Habitat:	Marshy grassland

Species List:

Scientific Name	Common Name	Frequency
Epilobium hirsutum	Great Willowherb	A
Juncus inflexus	Hard Rush	A
Agrostis stolonifera	Creeping Bent	F
Deschampsia cespitosa	Tufted Hair-grass	F
Lycopus europaeus	Gypsywort	F
Achillea ptarmica	Sneezewort	O
Alisma plantago-aquatilis	Water-plantain	O
Berula erecta	Lesser Water-parsnip	O
Cirsium palustre	Marsh Thistle	O
Filipendula ulmaria	Meadowsweet	O
Juncus conglomeratus	Compact Rush	O
Lotus pedunculatus	Marsh Bird's-foot Trefoil	O
Senecio erucifolius	Hoary Ragwort	O
Hypericum tetrapterum	Square-stalked St John's-wort	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 23
Habitat:	Standing water

Species List:

Scientific Name	Common Name	Frequency
ratophyllum demersum	Rigid Hornwort	A
Crataegus monogyna	Hawthorn	F
Lemna minuta	Least Duckweed	F
Typha latifolia	Greater Reedmace	F
Berula erecta	Lesser Water-parsnip	O
Callitriche sp.	Water Starwort species	O
Carex otrubae	False Fox-sedge	O
Elodea nutallii	**Nuttall's Pondweed**	**O**
Fraxinus excelsior	Ash	O
Glyceria fluitans	Floating Sweet-grass	O
Lycopus europaeus	Gypsywort	O
Mentha aquatica	Water Mint	O
Quercus robur	English Oak	O
Salix fragilis	Crack Willow	O
Sparganium erectum	Branched Bur-reed	O
Urtica dioica	Nettle	O
Angelica sylvestris	Wild Angelica	R
Artemisia vulgaris	Mugwort	R
Azolla filiculoides	Water-fern	R
Betula pendula	Silver Birch	R
Chamerion angustifolium	Rosebay Willowherb	R
Heracleum sphondylium	Hogweed	R
Impatiens glandulifera	**Himalayan Balsam**	**R**
Iris pseudacorus	Yellow Flag Iris	R
Stachys palustris	Marsh Woundwort	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 24
Habitat:	Standing water

Species List:

Scientific Name	Common Name	Frequency
Typha latifolia	Greater Reedmace	A
Crataegus monogyna	Hawthorn	F
Elodea nutallii	**Nuttall's Pondweed**	**F**
Alisma plantago-aquatilis	Water-plantain	O
Angelica sylvestris	Wild Angelica	O
Callitriche sp.	Water Starwort species	O
Callitriche stagnalis	Common Water Starwort	O
Cotula coronopifolia	Buttonweed	O
Epilobium hirsutum	Great Willowherb	O
Glyceria maxima	Reed Sweet-grass	O
Ranunculus sceleratus	Celery-leaved Buttercup	O
Salix cinerea	Grey Willow	O
Berula erecta	Lesser Water-parsnip	R
Eleocharis palustris	Common Spike-rush	R
Prunus spinosa	Blackthorn	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 25
Habitat:	Standing water

Species List:

Scientific Name	Common Name	Frequency
Glyceria maxima	Reed Sweet-grass	A
Typha latifolia	Greater Reedmace	A
Crataegus monogyna	Hawthorn	F
Fraxinus excelsior	Ash	O
Hydrocotyle ranunculoides	**Floating Pennywort**	**O**
Rubus fruticosus agg.	Bramble	O
Salix fragilis	Crack Willow	O
Fallopia japonica	**Japanese Knotweed**	**R**
Filipendula ulmaria	Meadowsweet	R
Sambucus nigra	Elder	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 26
Habitat:	Semi-improved neutral grassland

Species List:

Scientific Name	Common Name	Frequency
Holcus lanatus	Yorkshire-fog	F
Lolium perenne	Ryegrass	F
Plantago lanceolata	Ribwort Plantain	F
Plantago major	Greater Plantain	F
Ranunculus repens	Creeping Buttercup	F
Achillea millefolium	Yarrow	O
Centaurea nigra	Knapweed	O
Hypochaeris radicata	Common Cat's-ear	O
Phleum pratense	Timothy	O
Potentilla anserina	Silverweed	O
Ranunculus acris	Meadow Buttercup	O
Rumex crispus	Curled Dock	O
Rumex obtusifolius	Broad-leaved Dock	O
Senecio jacobaea	Ragwort	O
Trifolium pratense	Red Clover	O
Bellis perennis	Daisy	R
Dysenterica pulicaria	Fleabane	R
Lathyrus pratensis	Meadow Vetchling	R
Lotus corniculatus	Bird's-foot Trefoil	R
Odontites verna	Red Bartsia	R
Potentilla reptans	Creeping Cinquefoil	R
Prunella vulgaris	Selfheal	R
Trifolium repens	White Clover	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN 27
Habitat:	Dense scrub (grey willow carr)

Species List:

Scientific Name	Common Name	Frequency
Salix cinerea	Grey Willow	D
Bare ground	Bare ground	A
Glyceria fluitans	Floating Sweet-grass	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Management Issues:

There is a public footpath along the old towpath of the canal and a network of public footpaths along some of the field boundaries of the land to the south of the site which is used frequently by various people. There are also desire lines within the site, through much of the pastoral farmland north of the canal, where there are no public footpaths.

Invasive non-native species Japanese knotweed, Himalayan balsam, Nuttall's pondweed and floating pennywort are present on site. Floating pennywort is in the central section of the canal where it is the locally dominant aquatic species. Nuttall's pondweed is present in a section of the old route of the River Dearne. There are small stands of Japanese knotweed along the canal towpath in the eastern end of the site; there is another stand in the far east of the site adjacent to the fishing lake which borders the site. Himalayan balsam is abundant amongst the swamp in the eastern stretch of the canal; there are also some small stands on the River Dearne in the east of the site.

Scrub removal in the fields south of the canal would protect the grassland habitats present.

Diversity:

This site has a broad diversity of habitats for its size, and rich species diversity. There are some well established wetland/swamp areas with a good mix of aquatic and marginal species. The area to the north of the River Dearne and the old course of the River Dearne are of the most ecological interest. These areas also offer habitat for a range of invertebrate, amphibian and bird species.

The pastoral fields and grasslands to both the north and south of the canal have high species diversity. Between 20 and 35 species were noted per field, with a mix of both acid and neutral species present.

The scrub and broadleaved woodland habitats present provide habitat for nesting birds.

Naturalness:

The meandering old course of the River Dearne, although no longer forming an active part of the river since its channelization upstream, still displays many natural processes and the fairly large area of swamp and standing water that remains has a very natural appearance. The large area of swamp north of the river offers a natural habitat that has not been drained for farming like much of the surrounding land. There are smaller areas of ponds and swamp/marshy areas found throughout the site which display this naturalness but to a slightly lesser degree.

Another area displaying natural processes and appearance is a small area of established broadleaved woodland south of the canal in the western end of the site. Running through this woodland is a small gently meandering stream that has formed some swamp areas either side.

Rare or Exceptional Features:

A section of the disused Barnsley Canal runs the length of the site.

Fragility:

The two main areas of standing water/swamp on site, the old course of the River Dearne and the disused canal are both vulnerable to drying out as there is little supply of fresh water into these habitats. Natural build up of organic matter will occur and the swamp habitat will encroach into the standing water and over time succession of these areas into scrub will follow. Management of these habitats will be required to retain there current mix of swamp and standing water.

Typicalness:

Horse grazed pastoral fields are a fairly typical use of land in the Barnsley area. However the mix of more-acid areas and wet areas within the fields on site and the diversity of the species present is less typical of the area.

There is an area of grey willow (*Salix cinerea*) carr in the west of the site, just to the south of the canal. This is a relatively uncommon habitat in the borough.

The swamp habitat that occurs in the disused canal and the within the old course of the river is not a scarce habitat within the Borough and there are a number of wetland/swamp sites that have a similar mix of species to those that are on this site. However the way in which these have habitats have come about at this site is fairly unusual.

Recorded History & Cultural Associations:

Barnsley Canal was closed in 1953 following many problems with mining subsidence. The section of the canal within the site has since been left largely unmanaged. Only a few sections of open water remain and a build up of silt and organic matter has occurred so that much of the canal has now been populated by aquatic and marginal plants.

The surrounding pastoral fields appear established and are likely to have been grazed (low intensity grazing) for many years.

Connectivity within the Landscape:

The neighbouring land is largely agricultural and pastoral farmland. The River Dearne and the disused Barnsley Canal provide good connectivity to the wider environment, linking the site to other natural areas along the Dearne Valley.

Value for appreciation of Nature and Learning:

There is a public footpath along the old towing path of the canal. There is also a network of public footpaths in the south of the site. The east of the site is adjacent to the residential area of Honeywell.

A small car park off Smithies Lane, near the east of the site, makes the site accessible to people who do not live locally and is big enough for a mini-bus. There is a height restriction though, which will restrict vehicular access.

Recommendations:

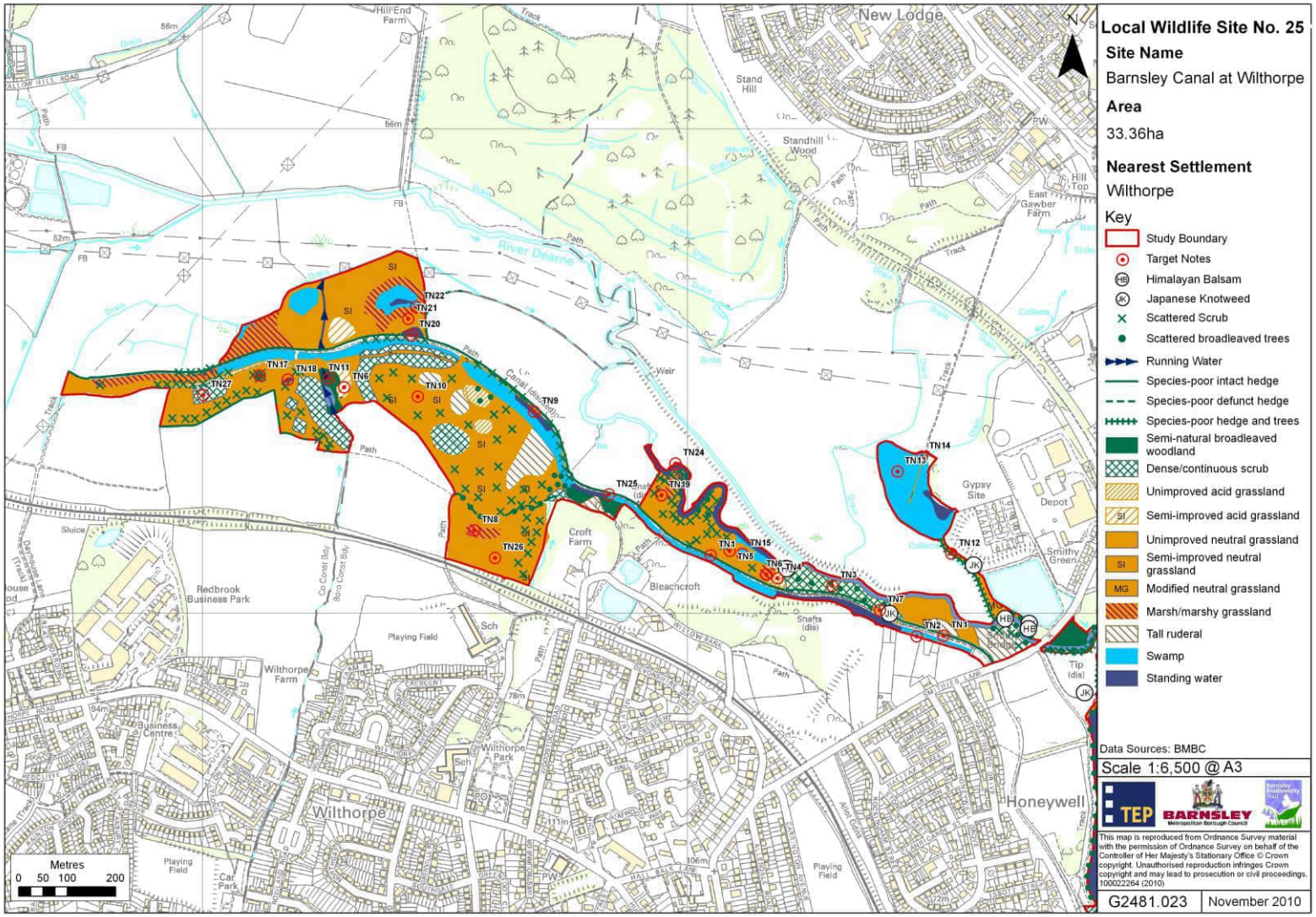
This site has a number of different habitats, both terrestrial and aquatic which are valuable and have a recreational value for the local communities.

The scrub in the southern section should be managed to prevent encroachment and the hedge-line on the southern boundary should be re-laid and the gaps filled in.

The waterbodies will most likely require some amount of management to maintain their function and to avoid siltation and succession. The site has the potential to be significant part of Barnsley's amphibian interest and, following survey, would most likely satisfy the site selection criteria on this basis alone. The presence of UKBAP bird species is also significant.

The site is also an important natural corridor through the landscape, for wildlife and people.

Action:
Retain as a Local Wildlife Site
Conduct an amphibian survey
Work with landowners/managers to manage the site for enhanced biodiversity


Local Wildlife Site No. 25
Site Name
Barnsley Canal at Wilthorpe
Area
33.36ha
Nearest Settlement
Wilthorpe
Key
Study Boundary
Target Notes
Himalayan Balsam
Japanese Knotweed
Scattered Scrub
Scattered broadleaved trees
Running Water
Species-poor intact hedge
Species-poor defunct hedge
Species-poor hedge and trees
Semi-natural broadleaved woodland
Dense/continuous scrub
Unimproved acid grassland
Semi-improved acid grassland
Unimproved neutral grassland
Semi-improved neutral grassland
Modified neutral grassland
Marsh/marshy grassland
Tall ruderal
Swamp
Standing water
Data Sources: BMBC
Scale 1:6,500 @ A3
TEP
BARNSLEY
Metropolitan Borough Council
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G2481.023
November 2010
Metres
0 50 100 200
N
New Lodge
Stand Hill
Standhill Wood
Hill Top
East Gawber Farm
River Dearne
Weir
Gypsy Site
Depot
Smithy Green
Croft Farm
Bleachcroft
Shafts (dis)
Tip (dis)
Redbrook Business Park
Sluice
Playing Field
Wilthorpe Farm
Business Centre
Wilthorpe Park
Wilthorpe
Honeywell
Car Park
TN1
TN2
TN3
TN4
TN5
TN6
TN7
TN8
TN9
TN10
TN11
TN12
TN13
TN14
TN15
TN17
TN18
TN19
TN20
TN21
TN22
TN24
TN25
TN26
TN27

PLANNING DESIGN ENVIRONMENT

20. Hugset Wood

LWS Assessment and Phase 1 Survey

Prepared by
TEP

for

Barnsley Metropolitan Borough Council

January 2011
(edited December 2011)

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Site Name:	Hugset Wood
Site Area:	53.7ha
Survey Date:	September 2010
Nearest Settlement:	Dodworth, Silkstone, Higham
Grid Reference at Centre:	SE30358, 06788
Surveyor(s)	LAC, VG

Site Description:

Hugset Wood lies between the settlements of Silkstone, Higham and Dodsworth, on the western side of Barnsley. Occupying a low hill between the valley of Silkstone Beck and the M1 motorway, to the east, most of this site is classed as replanted ancient woodland. The eastern and western flanks are on the register of ancient and semi-natural woodlands. Until the 1930s the wooded area extended further to the west, up to Low Mill on the banks of Silkstone Beck, at its western-most extent.

Hugset wood is mainly made up of pine plantation (TN2) interspersed with linked linear areas of broadleaved semi-natural woodland (TN1, TN3). The woodland is located in an agricultural landscape with other woodland areas to the south and good connection to the nearby river corridor, which is lined with trees. The M1 lies to the east of the site with residential development beyond. There are several tracks that run through the woodland from north to south.

The coniferous plantation is dominated by, Corsican Pine, a subspecies of black pine (*Pinus nigra* ssp.) throughout. Sycamore (*Acer pseudoplatanus*) dominates the canopy in some areas of the broadleaved semi-natural woodland, while in other areas sycamore along with dog's mercury (*Mercurialis perennis*) and ash (*Fraxinus excelsior*) are abundant

Important Species:

Dog's mercury (*Mercurialis perennis*), wood millet (*Milium effusum*), yellow archangel (*Lamiastrum galeobdolon*), sessile oak (*Quercus petraea*), remote sedge (*Carex remota*), wood horsetail (*Equisetum sylvaticum*), bluebell (*Hyacinthoides non-scripta*), wood sorrel (*Oxalis acetosella*), greater stitchwort (*Stellaria holostea*), wood speedwell (*Veronica montana*), bush vetch (*Vicia sepium*), wood melick (*Melica uniflora*), yellow pimpernel (*Lysimachia nemorum*) are all found on this site and are considered to be ancient woodland indicator species in South Yorkshire.

UKBAP breeding bird species include willow tit *(Poecile montanus),* dunnock *(Prunella modularis),* bullfinch *(Pyrrhula pyrrhula)* and song thrush *(Turdus philomelos).*

Additionally, white-letter hairstreak *(Satyrium w-album),* a UKBAP species have colonised the wood and this is probably the largest colony in Barnsley.

Target Note:	TN1
Habitat:	Semi-natural broadleaved woodland

Species List:

Scientific Name	Common Name	Frequency
Acer pseudoplatanus	Sycamore	A
Fraxinus excelsior	Ash	A
Mercurialis perennis	**Dog's Mercury**	**A**
Agrostis capillaris	Common Bent	F
Corylus avellana	Hazel	F
Deschampsia flexuosa	Wavy Hair-grass	F
Elymus caninus	Bearded Couch	F
Hedera helix	Ivy	F
Lonicera periclymenum	Honeysuckle	F
Pteridium aquilinum	Bracken	F
Rubus fruticosus agg.	Bramble	F
Ulmus glabra	Wych Elm	F
Urtica dioica	Nettle	F
Alliaria petiolata	Garlic Mustard	O
Alnus glutinosa	Alder	O
Betula pendula	Silver Birch	O
Betula pubescens	Downy Birch	O
Carex remota	**Remote Sedge**	**O**
Carex sylvatica	Wood Sedge	O
Circaea lutetiana	Enchanter's Nightshade	O
Crataegus monogyna	Hawthorn	O
Dryopteris dilatata	Broad Buckler-fern	O
Dryopteris filix-mas	Male-fern	O
Equisetum sylvaticum	**Wood Horsetail**	**O**
Fagus sylvatica	Beech	O
Geranium robertianum	Herb-Robert	O
Geum urbanum	Wood Avens	O
Heracleum sphondylium	Hogweed	O
Lamiastrum galeobdolon	**Yellow Archangel**	**O**
Melica uniflora	**Wood Melick**	**O**
Milium effusum	**Wood Millet**	**O**
Moss sp.	Moss species	O
Polytrichum sp.	Moss species	O
Quercus petraea	**Sessile Oak**	**O**
Rosa canina agg.	Dog Rose	O
Rumex sanguineus	Wood Dock	O
Silene dioica	Red Campion	O
Tilia x europaea	Common Lime	O
Arum maculatum	Lords-and-Ladies	R
Glechoma hederacea	Ground-ivy	R
Viola riviniana	Wood-dog-violet	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN2
Habitat:	Coniferous plantation

Species List:

Scientific Name	Common Name	Frequency
Pinus nigra	Corsican Pine	D
Pteridium aquilinum	Bracken	F
Rubus fruticosus agg.	Bramble	F
Acer pseudoplatanus	Sycamore	O
Betula pendula	Silver Birch	O
Carex sylvatica	Wood Sedge	O
Elymus caninus	Bearded Couch	O
Hedera helix	Ivy	O
Hyacinthoides non-scripta	**Bluebell**	**O**
Lamiastrum galeobdolon	**Yellow Archangel**	**O**

Polytrichum sp.	Moss species	O
Teucrium scorodonium	Woodsage	O
Ulmus glabra	Wych Elm	O
Circaea lutetiana	Enchanter's Nightshade	R
Fraxinus excelsior	Ash	R
Larix sp.	Larch species	R
Mercurialis perennis	**Dog's Mercury**	**R**
Oxalis acetosella	**Wood Sorrel**	**R**
Sambucus nigra	Elder	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN3
Habitat:	Semi-natural broadleaved woodland

Species List:

Scientific Name	Common Name	Frequency
Acer pseudoplatanus	Sycamore	D
Betula pendula	Silver Birch	F
Fagus sylvatica	Beech	F
Holcus mollis	Creeping Soft-grass	F
Pteridium aquilinum	Bracken	F
Rubus fruticosus agg.	Bramble	F
Ulmus glabra	Wych Elm	F
Corylus avellana	Hazel	O
Dactylis glomerata	Cock's-foot	O
Dryopteris filix-mas	Male-fern	O
Fraxinus excelsior	Ash	O
Geranium robertianum	Herb-Robert	O
Geum urbanum	Wood Avens	O
Hedera helix	Ivy	O
Ilex aquifolium	Holly	O
Mercurialis perennis	**Dog's Mercury**	**O**
Milium effusum	**Wood Millet**	**O**
Moss sp.	Moss species	O
Quercus petraea	**Sessile Oak**	**O**
Rosa arvensis	Field Rose	O
Sambucus nigra	Elder	O
Stellaria holostea	**Greater Stitchwort**	**O**
Teucrium scorodonium	Woodsage	O
Veronica montana	**Wood Speedwell**	**O**
Angelica sylvestris	Wild Angelica	R
Arum maculatum	Lords-and-Ladies	R
Athyrium filix-femina	Lady-fern	R
Lonicera periclymenum	Honeysuckle	R
Lysimachia nemorum	**Yellow Pimpernel**	**R**
Melica uniflora	**Wood Melick**	**R**
Pinus nigra	Black Pine	R
Ribes uva-crispa	Gooseberry	R
Silene dioica	Red Campion	R
Vicia sepium	**Bush Vetch**	**R**
Viola riviniana	Wood-dog-violet	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Management Issues:

Although planted as a forestry crop in the 1940s, 60s and 70s, there appears to have been little management since. In 2009, 34.14ha of the 53.7ha wood was sold, the intentions of the new owner is to take out the marketable pine/larch and replant with natural broadleaved trees and pine. This will open up a subdued seed-bank and it will be interesting what emerges.

Management is required to retain a diverse open structure and rides and glades should be managed to admit light for the benefit of the woodland edge invertebrates, in particular. Clearance of some areas of pine, to allow natural regeneration of native species would be ecologically advantageous.

Diversity:

During 2010 fieldwork, 59 plant species were recorded from this site, including 13 species of plants considered to be indicative of ancient woodlands in South Yorkshire. However, the recorded woodland flora is likely to have been greater had survey been possible earlier in the season; by late summer typical groundflora species such as wood anemone (*Anemone nemorosa*), moscatel (*Adoxa moschatellina*) and lesser celandine (*Ranunculus ficaria*), amongst others, are no longer discernible in the field. Previous surveys attest to the great diversity of plant species here.

The site's populations of woodland invertebrates and birds are also diverse. The mix of age classes and woodland types contributes to the structural diversity of the site. There are also overgrown rides, some small watercourses and old hawthorn hedges within the woodland matrix.

Naturalness:

The semi-natural broadleaved woodland elements of this site are its most natural aspect, although the preponderance of pines adds an exotic air to most of the site. The surviving groundflora is of particular interest, reflecting the site ancient woodland past.

Rare or Exceptional Features:

The natural elements of the woodland habitat are its main feature of ecological value, both in terms of flora and fauna.

Fragility:

There is a danger that continued lack of management will cause woodland rides to become increasingly shady, to the detriment of flora and fauna. I the long-term, increasing canopy density will have deleterious effects on surviving areas of groundflora and in turn, invertebrates and other animals which may longer be supported. The site is relatively well insulated from problems of fly-tipping and other sources of pollution.

Typicalness:

This natural element of this woodland is typical of those of the Barnsley area, though the groundflora is richer than many other local woodland areas. The pine plantations retain much fewer of the natural elements.

Recorded History & Cultural Associations:

This site lies within an area with a long industrial history and a document from 1607 quotes “all manner of Iron Mynes and Mineralls of Iron” in Hugset Wood. Its timber may well have been used to supply fuel for the charcoal powered furnaces that came into this area in Elizabethan and early Stuart times. The nearby Furnace Bridge gives another clue to local metal working. The site is also on coalfield and the OS map shows disused shafts and air shafts within the site boundary. Tanyard Spring, just to the south-west of the site, suggests use of the woodland’s oak bark and galls in Dodworth leather tanning concerns.

Connectivity within the Landscape:

The site is well connected with the surrounding countryside, including the golf course along its southern flanks. Broad hedgerows and strips of trees along watercourses provide functional links to other woodlands in the area, including Silkstone Fall Wood, just to the south-west. However, the nearby M1 does curtail wildlife links to the east of the site.

Value for appreciation of Nature and Learning:

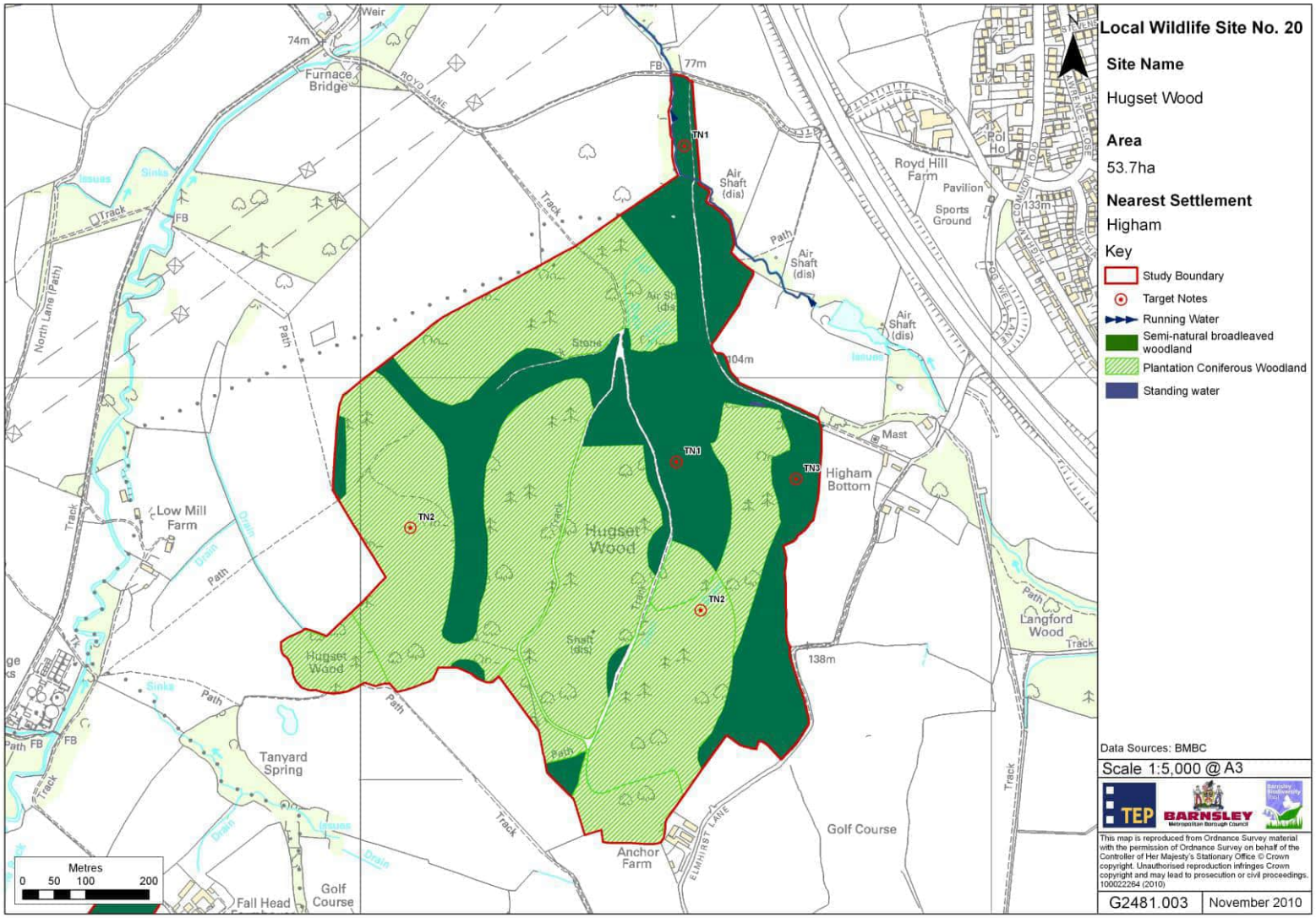
The site is accessible and the diverse woodland would be especially worth visiting during spring to illustrate the richness of woodland groundflora and make comparisons with plantation areas.

The public footpath network passes through many parts of the site and two of them link to the east of the M1 via under-passes. There are two footbridges carrying footpaths west over Silkstone Beck giving access to most areas of the surrounding countryside and also to the surrounding settlements of Higham, Dodworth and Silkstone.

Recommendations:

This site appears on the Natural England Ancient Woodland Inventory. It contains 13 ancient woodland indicators. It is also a large site at over 50ha. On this basis, in line with the site selection criteria, this site should remain within the register of Local Wildlife Sites.

Action:
Retain as a Local Wildlife Site.
Continue annual survey for white-letter hairstreak.
Survey for emerging plant species following current woodland management.


Local Wildlife Site No. 20
Site Name
Hugset Wood
Area
53.7ha
Nearest Settlement
Higham
Key
Study Boundary
Target Notes
Running Water
Semi-natural broadleaved woodland
Plantation Coniferous Woodland
Standing water
Data Sources: BMBC
Scale 1:5,000 @ A3
TEP
BARNSLEY
Metropolitan Borough Council
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G2481.003
November 2010
Metres
0 50 100 200
Furnace Bridge
Weir
74m
77m
ROYD LANE
TN1
Air Shaft (dis)
Royd Hill Farm
Pavilion
Sports Ground
133m
Path
Track
North Lane (Path)
Sinks
Issues
FB
Stone
104m
Mast
Higham Bottom
TN2
TN3
Low Mill Farm
Drain
Hugset Wood
Shaft (dis)
138m
Langford Wood
Tanyard Spring
Anchor Farm
ELMHIRST LANE
Golf Course
Fall Head

PLANNING DESIGN ENVIRONMENT

33. Redbrook Pastures

LWS Assessment and Phase 1 Survey

Prepared by
TEP

for

Barnsley Metropolitan Borough Council

January 2011
(Edited December 2011)

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Site Name:	Red Brook Pastures
Site Area:	3.7ha
Survey Date:	October 2010
Nearest Settlement:	Gawber
Grid Reference at Centre:	SE32160, 07169
Surveyor(s)	PG, VG

Site Description:

This site lies on the western side of the settlement of Gawber and to the east of the course of Red Brook. It consists of two fields lying north and south of the Church Lane (lane leading into Gawber from the west). Each field possess clearly visible traces of ridge and furrow.

The northern field (TN1) is currently grazed by ponies and has a short neutral sward, but also much scattered scrub development. It is mainly surrounded by hedgerows with occasional hedgerow trees (TN2, TN4). A hawthorn hedge which runs along the western side merges into the adjacent woodland of TN3.

The southern field (TN6) is enclosed within private property and mainly has a neutral sward with elements of acidic grassland. There is a disturbed area in the northern end dominated by tall ruderal herbs (TN7). The western and southern boundaries in this part of the site are marked by a strip of woodland development (TN8). The banks of Church Lane (TN5) lie mainly outside the site, but have a quite rich hedge and woodland edge mix.

Important Species:

Bluebell (*Hyacinthoides non-scripta*) and wood millet (*Milium effusum*) were found on site, which are considered to be ancient woodland indicator species for South Yorkshire. Other locally important species are devilsbit scabious *(Succisa pratensis)* and quaking grass *(Briza media).*

Target Note:	TN1
Habitat:	Semi-improved neutral grassland, scattered scrub, species-poor hedge with trees on northern edge.

Species List:

Scientific Name	Common Name	Frequency
Plantago lanceolata	Ribwort Plantain	A
Crataegus monogyna	Hawthorn	F
Centaurea nigra	Knapweed	F
Bellis perennis	Daisy	F
Hypochaeris radicata	Common Cat's-ear	F
Arrhenatherum elatius	False Oat-grass	F
Cerastium fontanum	Common Mouse-ear	F
Holcus lanatus	Yorkshire-fog	F
Ranunculus repens	Creeping Buttercup	F
Briza media	Quaking Grass	O
Urtica dioica	Nettle	O
Prunella vulgaris	Selfheal	O
Cirsium arvense	Creeping Thistle	O
Trifolium pratense	Red Clover	O
Dactylis glomerata	Cock's-foot	O
Rumex obtusifolius	Broad-leaved Dock	O
Trifolium repens	White Clover	O

Lolium perenne	Ryegrass	O
Festuca rubra	Red Fescue	O
Poa annua	Annual Meadow-grass	O
Agrostis capillaris	Common Bent	O
Rumex acetosa	Common Sorrel	O
Lotus corniculatus	Bird's-foot Trefoil	O
Senecio jacobaea	Ragwort	R
Ranunculus acris	Meadow Buttercup	R
Plantago major	Greater Plantain	R
Sambucus nigra	Elder	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN2
Habitat:	Species-poor hedge with trees

Species List:

Scientific Name	Common Name	Frequency
Crataegus monogyna	Hawthorn	D
Alliaria petiolata	Garlic Mustard	F
Dactylis glomerata	Cock's-foot	F
Anthriscus sylvestris	Cow Parsley	F
Arrhenatherum elatius	False Oat-grass	F
Sonchus oleraceus	Smooth Sow-thistle	O
Poa annua	Annual Meadow-grass	O
Festuca rubra	Red Fescue	O
Fraxinus excelsior	Ash	O
Hedera helix	Ivy	O
Cirsium arvense	Creeping Thistle	O
Urtica dioica	Nettle	O
Taraxacum officinale agg.	Dandelion	O
Holcus lanatus	Yorkshire-fog	O
Rumex obtusifolius	Broad-leaved Dock	O
Plantago major	Greater Plantain	O
Tanacetum parthenium	Feverfew	R
Sambucus nigra	Elder	R
Arctium minus	Lesser Burdock	R
Tamus communis	Black Bryony	R
Heracleum sphondylium	Hogweed	R
Acer campestre	Field Maple	R
Malus sylvestris	Crab-apple	R
Lapsana communis	Nipplewort	R
Rosa canina agg.	Dog Rose	R
Geum urbanum	Wood Avens	R
Lonicera periclymenum	Honeysuckle	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN3
Habitat:	Semi-natural broadleaved woodland, broad-leaved plantation, species-poor hedge (on, but outside, site boundary)

Species List:

No species list compiled for this target note area

Target Note:	TN4
Habitat:	Species-poor hedge

Species List:

Scientific Name	Common Name	Frequency
Crataegus monogyna	Hawthorn	D
Ranunculus repens	Creeping Buttercup	F

Sambucus nigra	Elder	F
Urtica dioica	Nettle	F
Rumex obtusifolius	Broad-leaved Dock	O
Rubus fruticosus agg.	Bramble	O
Alliaria petiolata	Garlic Mustard	O
Ilex aquifolium	Holly	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN5
Habitat:	Hedge with trees (outside site)

Species List:

Scientific Name	Common Name	Frequency
Rubus fruticosus agg.	Bramble	F
Acer pseudoplatanus	Sycamore	F
Hedera helix	Ivy	F
Arrhenatherum elatius	False Oat-grass	F
Fraxinus excelsior	Ash	F
Quercus robur	English Oak	F
Crataegus monogyna	Hawthorn	F
Festuca rubra	Red Fescue	O
Holcus lanatus	Yorkshire-fog	O
Ulmus glabra	Wych Elm	O
Chamerion angustifolium	Rosebay Willowherb	O
Ranunculus repens	Creeping Buttercup	O
Alliaria petiolata	Garlic Mustard	O
Anthriscus sylvestris	Cow Parsley	O
Mnium hornum	Moss species	O
Dactylis glomerata	Cock's-foot	O
Acer campestre	Field Maple	O
Senecio jacobaea	Ragwort	R
Solanum dulcamara	Bittersweet	R
Sorbus aria	Whitebeam	R
Digitalis purpurea	Foxglove	R
Rumex acetosa	Common Sorrel	R
Hyacinthoides non-scripta	**Bluebell**	**R**
Agrostis stolonifera	Creeping Bent	R
Stellaria holostea	**Greater Stitchwort**	**R**
Festuca gigantea	Giant Fescue	R
Ilex aquifolium	Holly	R
Rosa arvensis	Field Rose	R
Taxus baccata	Yew	R
Milium effusum	**Wood Millet**	**R**
Tilia x europaea	Common Lime	R
Rumex obtusifolius	Broad-leaved Dock	R
Pteridium aquilinum	Bracken	R
Rosa canina agg.	Dog Rose	R
Tamus communis	Black Bryony	R
Corylus avellana	Hazel	R
Bromopsis ramosus	Hairy-brome	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN6
Habitat:	Semi-improved neutral grassland, with acidic elements

Species List:

Scientific Name	Common Name	Frequency
Arrhenatherum elatius	False Oat-grass	A
Phleum pratense	Timothy	F
Rumex acetosa	Common Sorrel	F
Agrostis stolonifera	Creeping Bent	F
Holcus lanatus	Yorkshire-fog	F
Lathyrus pratensis	Meadow Vetchling	F
Lolium perenne	Ryegrass	F
Achillea millefolium	Yarrow	F
Festuca rubra	Red Fescue	F
Plantago lanceolata	Ribwort Plantain	F
Succisa pratensis	Devil's-bit Scabious	O
Urtica dioica	Nettle	O
Trifolium pratense	Red Clover	O
Alopecurus pratensis	Meadow Foxtail	O
Centaurea nigra	Knapweed	O
Danthonia decumbens	Heath Grass	O
Heracleum sphondylium	Hogweed	O
Anthriscus sylvestris	Cow Parsley	O
Prunella vulgaris	Selfheal	O
Vicia sativa	Common Vetch	O
Galeopsis tetrahit	Common Hemp-nettle	O
Hieracium sp.	Hawkweed species	O
Vicia hirsuta	Hairy Tare	O
Festuca ovina	Sheep's Fescue	O
Melilotus sp.	Melilot species	O
Medicago lupulina	Black Medick	O
Elytrigia repens	Common Couch	O
Hypochaeris radicata	Common Cat's-ear	O
Ranunculus acris	Meadow Buttercup	O
Cirsium arvense	Creeping Thistle	O
Dactylis glomerata	Cock's-foot	O
Deschampsia cespitosa	Tufted Hair-grass	O
Ranunculus repens	Creeping Buttercup	O
Agrostis capillaris	Common Bent	O
Leucanthemum vulgare	Oxeye daisy	R
Sonchus oleraceus	Smooth Sow-thistle	R
Poa annua	Annual Meadow-grass	R
Senecio erucifolius	Hoary Ragwort	R
Rubus fruticosus agg.	Bramble	R
Crataegus monogyna	Hawthorn	R
Cirsium palustre	Marsh Thistle	R
Stachys officinalis	Betony	R
Chamerion angustifolium	Rosebay Willowherb	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN7
Habitat:	Tall ruderal herb

Species List:

Scientific Name	Common Name	Frequency
Chenopodium rubrum	Red Goosefoot	A
Artemisia vulgaris	Mugwort	F
Tussilago farfara	Colt's-foot	F
Epilobium hirsutum	Great Willowherb	O
Rumex obtusifolius	Broad-leaved Dock	O
Sonchus asper	Prickly Sow-thistle	O
Juncus bufonius	Toad Rush	O
Tripleurospermum inodorum	Scentless Mayweed	O
Rumex crispus	Curled Dock	O

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN8
Habitat:	Semi-natural broadleaved woodland

Species List:

Scientific Name	Common Name	Frequency
Quercus robur	English Oak	A
Acer pseudoplatanus	Sycamore	A
Ulmus glabra	Wych Elm	F
Pteridium aquilinum	Bracken	F
Rubus fruticosus agg.	Bramble	F
Hedera helix	Ivy	F
Crataegus monogyna	Hawthorn	F
Ulex europaeus	Gorse	F
Urtica dioica	Nettle	F
Sambucus nigra	Elder	O
Fraxinus excelsior	Ash	O
Solanum dulcamara	Bittersweet	O
Corylus avellana	Hazel	O
Betula pendula	Silver Birch	O
Rosa canina agg.	Dog Rose	O
Hyacinthoides non-scripta	**Bluebell**	**O**

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Management Issues:

Considering the amount of tree and shrub colonisation present, it would appear that the northern field has been lacking management for a considerable period. It is grazed, but there are still some tall weedy areas present and the scrub extent remains quite significant. The surviving sward does not appear to be species-rich, nor are any of the species particularly rare or valuable, in nature conservation terms. If horse grazing were to be suspended here for a summer season, it would allow an assessment of species-richness to be made.

A few years ago the owner was approached to see if the management could be improved but there was a problem with this by the tenant, who grazes the horses. An agreement could not be reached on protective management measures at the time.

The southern field retains a more diverse sward; it has had some recent past management by sheep grazing but is now cut annually. However, the resulting hay crop is not considered to be suitable for use as animal feed. It appears that the current regime is retaining some plant diversity here though.

Diversity:

This site is predominantly semi-improved neutral grassland, with the southern field retaining a greater intrinsic diversity. The site also has stands of tall ruderal herbs, hedgerows, hedgerow trees and tall semi-natural broadleaved woodland. It therefore includes a diversity of structure and niches for wildlife.

Naturalness:

During the course of site survey in October 2010, 91 species of vascular plant were recorded, mostly species native to this area of Barnsley. Since the site is predominantly managed grassland and hedgerows, it shows strong signs of human impact and therefore does not present a prime example of natural processes in operation.

Rare or Exceptional Features:

As well as the grassland swards and the range of quite mature trees present in some of the hedgerows, this site also has cultural interest due to the visible signs of the former ridge and furrow field system.

Fragility:

The condition and ecological diversity of the grassland swards is highly dependant upon the type of management input and is extremely sensitive to both lack of management or inappropriate management.

Typicalness:

These grasslands and their hedges would appear to be fairly typical for the Barnsley area, but with the age indicated by the ridge and furrow and the more extensive range of species in the southern field they are perhaps lifted above the majority of semi-improved swards locally.

Recorded History & Cultural Associations:

The pattern of ridge and furrow in each field is certainly of interest and deserves closer study into its history and relation to the development of Gawber.

Connectivity within the Landscape:

This site sits in a quite diverse landscape, on the fringes of a small settlement. The course of Redbrook, on the western fringes and also partially within the site, is marked by a strip of semi-natural woodland and plantation, with a strong corridor effect to the north and south. Hedgerows link in from the east and less so from the west. Much of the surrounding agricultural landscape is pastoral but there are also some arable fields with a strong network of hedges surviving on the east of the brook. The hedgerows along Church Lane provide a strong corridor to the west.

Value for appreciation of Nature and Learning:

This site is close to the residential area of Gawber. There is a school very nearby, with ready access to the public footpath that crosses the northern field diagonally to the north-west. This footpath crosses Redbrook, giving access to the countryside west of the site.

The small size of the site limits its value for presenting a wider view of natural history and nature conservation. This land is in private ownership; this, in addition to its small size, militates against high value for organised use to learn about ecological systems and landscape history. However the presence of the ridge and

furrow system greatly increases the educational value of this site.

Recommendations:

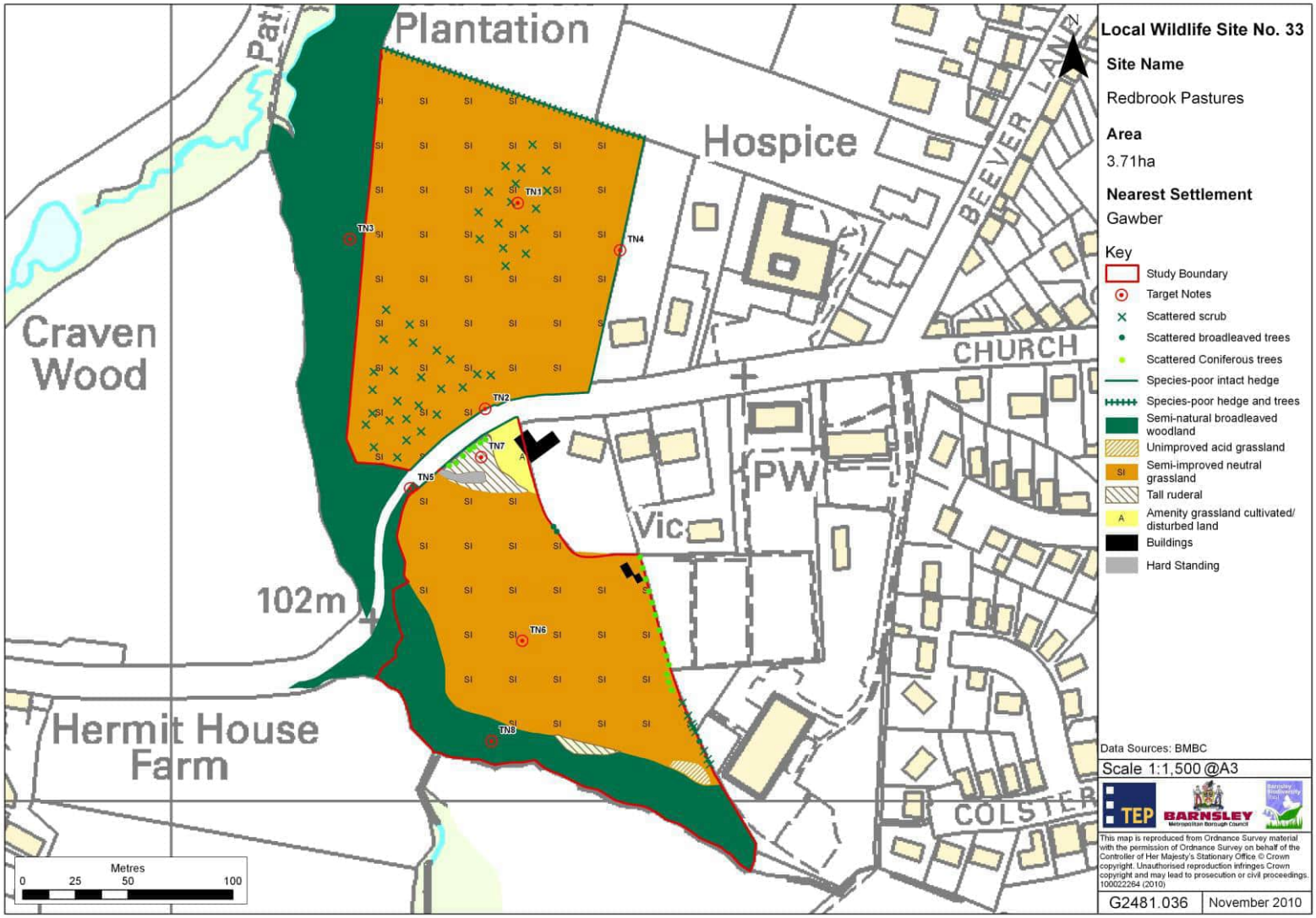
This site is an important record of previous land management systems, with its ridge and furrow pattern being one of the few remaining examples of its type in the Barnsley area.

The southern section of this site is where the biodiversity interest is concentrated and it complements the adjacent woodland and hedgerows. This site, the woodland and hedgerows make up the only area of real biodiversity interest to the west of Gawber. Open agricultural land dominates the landscape to the west. Whilst the northern section of this site has degraded since the last survey engagement with the landowner regarding management may help redress this.

The cultural and natural value of this site makes it worthy of inclusion in the LWS system. To ensure the wildlife and cultural value of this site is protected and understood, the co-operation of the landowner/manager is needed.

Actions:

Retain as a Local Wildlife Site
Search for information of the history of the site
Engage again with the landowner to enhance/protect the natural and cultural value of the site


Local Wildlife Site No. 33
Site Name
Redbrook Pastures
Area
3.71ha
Nearest Settlement
Gawber
Key
Study Boundary
Target Notes
Scattered scrub
Scattered broadleaved trees
Scattered Coniferous trees
Species-poor intact hedge
Species-poor hedge and trees
Semi-natural broadleaved woodland
Unimproved acid grassland
Semi-improved neutral grassland
Tall ruderal
Amenity grassland cultivated/ disturbed land
Buildings
Hard Standing
Data Sources: BMBC
Scale 1:1,500 @A3
TEP
BARNSLEY
Metropolitan Borough Council
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G2481.036
November 2010
Plantation
Hospice
Craven Wood
Hermit House Farm
102m
CHURCH
BEEVER LANE
PW
Vic
COLSTER
TN1
TN2
TN3
TN4
TN5
TN6
TN7
TN8
Metres
0
25
50
100

Mapplewell Tip

Ecological Report

and

Phase 1 Habitat Survey

Mapplewell Tip
Ecological report and Phase 1 Habitat Survey

Introduction

The area examined in this report was suggested by the Trevor Mayne, the biodiversity officer for Barnsley Metropolitan Borough Council (BMBC) as an area worthy of study. It appears to be fairly typical of many sites which have developed as a result of Barnsley's industrial past but which despite their heritage (or perhaps because of it), tend to get overlooked with regard to nature conservation. This report broadly outlines the substantive value for nature conservation of the site which seems to be best known locally as Mapplewell Tip. It also assesses whether it would be appropriate for the site to be put forward for selection as a Local Wildlife Site (LWS) based on its value for wildlife by matching it against selection criteria laid out in BMBC's LWS selection documents.

Scope and Limitations

The main focus of the survey work was the habitats and botanical interest. However, other species were noted during the survey work and these have been included in the species lists for the site. Suggestions have also been made in the report as to the suitability of the habitats on the site for a range of other species; effectively a kind of scoping survey. These suggestions are not exhaustive nor are they based on any evidence other than the *potential* suitability of the habitats for the species mentioned. Only surveys aimed at recording these groups of species would confirm the site's value for them.

Two site visits were made to the area and both took place in the same month (July). Early flowering species may therefore have been missed. Nocturnal or twilight activity on the site is likewise not recorded.

Date of Visits

11th July 2015: 11.00hrs-13.00hrs (23°C, sunny with a light, cool wind).
21st July 2015: 10.30hrs-12.30hrs (21°C, sunny with a light breeze).

Access

There are no formal footpaths on the site or which provide access to it. A path marked on the Ordnance Survey map shows a track which follows the course of a dismantled railway along the northern perimeter of the site but this is very overgrown with vegetation and barely discernible for most of its length. Informal tracks provide access to the site from Spark Lane and an unofficial footpath leads from Darton Lane directly onto the site. The site appears to be used by recreational and dog walkers. Evidence of vehicle use, mainly quad and trials bikes can clearly be seen in the bare substrate areas of the site.

Site Description

The site is relatively small and only covers an area of 5ha. It is a former colliery spoil heap which has been levelled off and is therefore very flat with poor drainage. The main habitats are grassland and scrub with some ephemeral pools. There are also areas which contain a heath/grassland mosaic and there are significant areas of bare substrate where no vegetation exists. Within these main habitats there is great heterogeneity which forms a complex mosaic. In the south-eastern corner of the site, hedgerows are developing.

The site seems to have developed naturally with no evidence of any planting schemes or soil improvement having taken place. As such, the site provides a good example of early successional habitats, particularly grassland and heathland. As is often the case with former mining spoil, the soil is rather acidic and this is reflected in the large number of calcifugous (acid-loving) species found within the sward on the main part of the site. Abundant grass species include wavy hair-grass (*Deschampsia flexuosa*) and mat grass (*Nardus stricta*). There are also areas with sheep's fescue (*Festuca ovina*) and a small amount of heath grass (*Danthonia decumbens*). Stands of vegetation commonly comprise small patches and vary over relatively small areas, reflecting small-scale variation in substrate. Small areas where tiny ditches or hollows have formed support a somewhat different vegetation community with common spotted-orchid (*Dactylorhiza fuchsii*), rough hawkbit (*Leontodon hispidus*) and grasses such as crested dog's-tail (*Cynosurus cristatus*) or tufted hair-grass (*Deschampsia cespitosa*) found in some areas.

Small areas of heath have also developed on the site which are dominated by common heather (*Calluna vulgaris*) often with sheep's sorrel (*Rumex acetosella*). These areas lack the structural diversity of 'true' heathland and have a more open character to the vegetation. They also exhibit transitional and ecotone habitats with the grassland. These can be very beneficial to a wide range of invertebrate species.

Also within the main body of the site there is some scattered scrub. This tends to be mainly silver birch (*Betula pendula*), a pioneer species typical of developing habitats. There are ephemeral pools found within the open mosaic of habitats on the site. Most of these were dry at the time of the site visit but are dominated by common cotton-sedge (*Eriophorum angustifolium*) and sharp-flowered rush (*Juncus acutiflorus*) indicating their acidic nature and that moisture must be present for significant periods of time.

There are significant areas of bare substrate which support little or no vegetation; occasionally mosses are present in small numbers. The soil in these areas lacks organic matter and has the appearance of being a kind of shale mixed with grit. These are the areas which seem to be favoured for recreational use by quad bikes and off-road motor bikes. This disturbance, depending on the frequency and level is likely to maintain these areas as they are and inhibit the development of vegetation. Such bare earth areas can provide opportunities for thermophillic invertebrates. Due to the paucity of nutrients, soil conditions generally on the site may mean that the process of natural succession is slowed so that habitats, even grasslands can remain stable for long periods without any intervention in terms of management.

Around the edge of the main part of the site the habitats differ, mainly because of increased nutrient levels giving more neutral soil conditions which are able to support a more lush vegetation. Along the northern edge of the site where it adjoins the backs of houses on Darton Lane and Pye Avenue the grassland has a much denser sward and is dominated by species such as cock's-foot (*Dactylis glomerata*), false oat-grass (*Arrhenatherum elatius*) and Yorkshire-fog (*Holcus lanatus*). There is also young ash (*Fraxinus excelsior*) found along this narrow strip along with occasional field maple (*Acer campestre*) and scrub species such as hawthorn (*Crataegus monogyna*). The scrub on this part of the site is more developed than elsewhere. This area also contains ruderal species such as rosebay willowherb (*Chamerion angustifolium*) and creeping thistle (*Cirsium arvense*) and the grass sward is dense and somewhat rank.

The north-west corner of the site is by far the most botanically diverse. It contains grassland which is relatively more species-rich than the major part of the site. Grasses such as common bent (*Agrostis capillaris*), crested dog's-tail and Yorkshire-fog are more abundant and the sward also contains a range of wild flowers such as bird's-foot-trefoil (*Lotus corniculatus*), common vetch (*Vicia sativa*), ox-eye daisy (*Leucanthemum vulgare*), common knapweed (*Centaurea nigra*) and ribwort plantain (*Plantago lanceolata*). Also, the scrub is more diverse with species such as hawthorn, oak (*Quercus spp*.) and dog rose (*Rosa canina agg*.). The scrub area is open with a good ground flora which includes species such as perforate St. John's-wort (*Hypericum peforatum*), hawkweed (*hieracium agg*.) and common centaury (*Centaurium erythraea*). It also provides excellent ecotone habitat where it forms a mosaic with the grassland. This area appears to be very rich in invertebrate fauna with a large number of butterflies seen with small skipper (*Thymelicus sylvestris*), meadow brown (*Maniola jurtina*) and ringlet (*Aphantopus hyperantus*) being particularly abundant. There were also large numbers of day-flying moths present within the grassland area, particularly chimney-sweeper (*Odezia atrata*).

The western edge of the site slopes away towards the fields beyond. At the upper part of the slope there are areas of bare earth caused by land slippage. The lower part of the slope supports a more developed scrub habitat with more unusual species such as sea-buckthorn (*Hippophae rhamnoides*) and a small amount of broom (*Cytisus scoparius*) as well as some denser sward areas within the grassland habitat.

For mapping purposes, the closest 'fit' in terms of Phase 1 habitat-types is unimproved acid grassland and much of the site has been mapped as such (see Fig.1) but this is a crude representation of the spatial diversity to be found within the main area of the site. Due to the habitats present and the spatial diversity that the site exhibits, it fits well with the criteria for Open Mosaic Habitat on Previously Developed Land, a UK and Local Biodiversity Action Plan (BAP) 'priority' habitat (see below).

The site is surrounded by open fields. To the west is arable land. To the east is an area of grassland that was being cut for hay at the time of the first site visit. It was not therefore possible to assess the value of this field for wildlife. To the south of the site are large fields of open grassland. These appear to be species-poor and are dominated by fescues (*Festuca* spp.) and bents (*Agrostis* spp.) with very few wild flower species. As such they would fail to meet the criteria for selection as LWS grasslands.

Mammals

The only evidence of mammals noted at the time of the survey was for rabbit (*Oryctolagus cuniculus*). The denser swards of grassland along the northern and western edge of the site provide suitable habitat for small mammals such as voles, mice, etc. The open nature of the sward over the majority of the site would limit its potential for most small mammals. There is no potential for bat roosts on the site though it may be useful as an area for foraging, particularly around some of the scrub areas. However, bats have yet to be recorded on the site.

Amphibians and Reptiles

Some of the habitat may be suitable for the terrestrial phase of the amphibian life cycle. A search of the local records centre revealed a record for smooth newt (*Lissotriton vulgaris*) within 500m of this location. There is a small pond in the field adjacent to the site. This was inaccessible and therefore the condition of the pond and its suitability for this species could

not be assessed. Whether the ephemeral pools would contain water long enough to be of any use to amphibians is unknown but not likely as they appear to be generally very shallow. Whilst the site provides ample basking opportunities for reptiles, no reptile species have yet been recorded on the site and no evidence of these was found at the time of the site visit. The site lacks habitat which would be suitable as hibernacula for either reptiles or amphibians.

Birds

Swallow (*Hirundo rustica*) was observed foraging over the site at the time of the survey; this species is on the amber list of Birds of Conservation Concern. A lapwing (*Vanellus vanellus*) was heard calling from the grassland on the western edge of the site. This is a UK and Local BAP 'priority' species and on the red list of Birds of Conservation Concern.

The scrub component of the site provides some good cover for birds though only a small number of common species were noted at the time of the site visit. An early morning or evening visit would probably produce better results.

Other habitats present on site (the open grassland and mosaic habitats) are suitable for priority species such as skylark (*Alauda arvensis*) but the persistent disturbance from recreational users means that the potential of the site for such ground-nesting species, particularly for breeding, is somewhat limited.

Invertebrates

The site was not surveyed for invertebrates but some of the more obvious ones were encountered at the time of the habitat survey. At the time of the site visit a large number of insects was noted. Some common butterfly species were seen in great numbers as were chimney-sweeper moths. Micro-moths were regularly disturbed from the grassland areas and a large number of *Orthoptera* were heard stridulating from the same habitat. The flower-rich grassland area in the north-western corner of the site is particularly attractive to nectaring species of invertebrates.

One of the ephemeral pools still contained water at the time of the site visit and a male broad-bodied chaser (*Libellula depressa*) was observed flying over and resting adjacent to the pool. It may well have originated from the pond adjacent to the site. According to the 'Species Assessment Criteria' document for Local Wildlife Sites, this species is "important" in Yorkshire. Although it should be noted that the range of this species has seen something of a northward movement in recent years, this is still a notable species for the area.

According to the 'UK Biodiversity Action Plan Priority Habitat Descriptions' (2010), brownfield sites such as this one account for "between 12% and 15% of all nationally-rare and nationally-scarce insects". Further survey work for invertebrates on the site may help to confirm whether this site is of importance in this regard.

Local Record Centre Data Search

A search of the Local Records Centre produced additional records for the following notable species which have been recorded on the site.

Small heath (*Coenonympha pamphilus*)
Dingy skipper (*Erynnis tages*)
Siskin (*Carduelis spinus*)

Cicadula quadrinotata – recorded in 2014. Whilst widespread in Britain* this was a first record for Barnsley.
Chorosoma schillingi – recorded in 2014. Uneven UK distribution, rare in the north.*
Coriomeris denticulatus – recorded in 2014. Mainly southern species, rare in the north.*
Rhopalus subrufus – recorded in 2014. Mainly southern species, rare in the north.*
Aelia acuminate – recorded in 2014. Mainly southern species, rare in the north.*

*Distribution information taken from NBN Gateway.

Smooth newt (*Lissotriton vulgaris*) – recorded within 500m of the site in 2012.

A number of common mosses often associated with heathland habitats was recorded in 2013. These include bank haircap (*Polytrichum formosum*), juniper haircap (*Polytrichum juniperum*), bristly haircap (*Polytrichum piliferum*) and heath plait-moss (*Hypnum jutlandicum*). Mosses are often a feature of early successional habitats on brownfield sites.

Recommendations:

1. ***Select the area known as Mapplewell Tip as outlined on the Phase 1 map to be designated a Local Wildlife Site. The site should be selected for the following reasons:***
   - Open Mosaic Habitat on Previously Developed Land – UK and Local BAP 'priority' habitat. The site fulfils all criteria for this habitat outlined in the 'UK Biodiversity Action Plan Priority Habitat Descriptions' (2010);

1.	The area of open mosaic habitat is at least 0.25 ha in size.
2.	Known history of disturbance at the site or evidence that soil has been removed or severely modified by previous use(s) of the site. Extraneous materials/substrates such as industrial spoil may have been added.
3.	The site contains some vegetation. This will comprise early successional communities consisting mainly of stress-tolerant species (e.g. indicative of low nutrient status or drought). Early successional communities are composed of (a) annuals, or (b) mosses/liverworts, or (c) lichens, or (d) ruderals, or (e) inundation species, or (f) open grassland, or (g) flower-rich grassland, or (h) heathland.
4.	The site contains unvegetated, loose bare substrate and pools may be present.
5.	The site shows spatial variation, forming a mosaic of one or more of the early successional communities (a)–(h) above (criterion 3) plus bare substrate, within 0.25 ha.

   - The site includes twelve of the plant species listed for Open Mosaic Habitat on Previously Developed Land in the BMBC 'Site Assessment Criteria (Habitat Quality)' document (2011).
   - The BMBC 'Species Assessment Criteria' document states that a site should be selected for LWS status if it contains "an assemblage of 10 or more butterfly species including species that are considered not to be under threat (nationally)." Mapplewell Tip has twelve recorded species of butterfly. These are; meadow brown, peacock (*Inachis io*), ringlet, small skipper, speckled wood (*Pararge aegeria*), small tortoiseshell (*Aglais urticae*), small white (*Pieris rapae*), large white (*Pieris brassicae*), comma (*Polygonia c-album*), gatekeeper (*Pyronia tithonus*), dingy skipper and small heath. If the latter two of these species can be ascertained to be breeding on the site, this is an additional selection criterion fulfilled.

- The BMBC ‘Species Assessment Criteria’ document also states that a site should be selected for LWS status if it contains a dragonfly or damselfly site including the species’ “core breeding water body and any outlying habitat that is used for hunting, where this area can be easily identified” for key species. One such key species is broad-bodied chaser, identified on site in 2015.

2. ***Management:***
   - The site appears to receive no management at present other than some tree felling underneath the power line which runs along the northern edge of the site. In view of the poor nutrient levels within the soil the most suitable management at present would be to take a non-intervention approach as natural succession is likely to be slow. However, the condition of the habitats should be regularly monitored and appropriate management developed if deemed necessary.
3. ***Further Study:***
   - In view of the potential importance of this type of habitat for invertebrates, survey work by an entomologist is particularly recommended. Additional information on any bird species utilizing the site would also be useful.

Species Lists:

Abundance ratings given follow the usual DAFOR system of rating;
D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare
LA = Locally Abundant

Plants

Species Name		***Abundance***
Ash	*Fraxinus excelsior*	O
Barley, Wall	*Hordeum murinum*	R
Bartsia, Red	*Odontites vernus*	R
Bent, Common	*Agrostis capillaris*	O
Bent, Creeping	*Agrostis stolonifera*	R
Bindweed, Field	*Convolvulus arvensis*	R
Birch, Silver	*Betula pendula*	F
Bird's-foot-trefoil	*Lotus corniculatus*	O
Blackthorn	*Prunus spinosa*	R
Bramble	*Rubus fruticosus agg.*	LA
Brome, False	*Brachypodium sylvaticum*	R
Broom	*Cytisus scoparius*	R
Buttercup, Creeping	*Ranunculus repens*	R
Canary-grass, Reed	*Phalaris arundinacea*	R
Cat's-ear, Common	*Hypochaeris radicata*	O
Centaury, Common	*Centaurium erythraea*	F
Cinqfoil, Creeping	*Potentilla reptans*	LA
Clover, Red	*Trifolium pratense*	O
Clover, White	*Trifolium repens*	LA
Cock's-foot	*Dactylis glomerata*	O
Cotton-grass, Common	*Eriophorum angustifolium*	LA
Couch, Common	*Elytrigia repens*	R

Daisy, Ox-eye	*Leucanthemum vulgare*	O
Dog's-tail, Crested	*Cynosurus cristatus*	F
Elder	*Sambucus nigra*	R
Fescue, Red	*Festuca rubra agg.*	R
Fescue, Sheep's	*Festuca ovina*	LA
Foxglove	*Digitalis purpurea*	R
Grass, Heath	*Danthonia decumbens*	R
Grass, Mat	*Nardus stricta*	LA
Hair-grass, Tufted	*Deschampsia cespitosa*	F
Hair-grass, Wavy	*Deschampsia flexuosa*	A
Hawkbit, Rough	*Leontodon hispidus*	R
Hawkweed	*Hieracium agg.*	LA
Hawkweed, Leafy	*Hieracium umbellatum*	R
Hawkweed, Orange	*Pilosella aurantiaca*	R
Hawthorn	*Crataegus monogyna*	F
Heather	*Calluna vulgaris*	LA
Hogweed	*Heracleum sphondylium*	R
Honeysuckle	*Lonicera periclymenum*	LA
Ivy	*Hedera helix*	LA
Knapweed, Common	*Centaurea nigra*	O
Maple, Field	*Acer campestre*	R
Meadow-grass, Annual	*Poa annua*	LA
Mouse-ear, Common	*Cerastium fontanum*	R
Mouse-ear-hawkweed	*Pilosella officinarum*	LA
Mugwort	*Artemisia vulgaris*	O
Nettle, Common	*Urtica dioica*	LA
Oak, Hybrid	*Quercus x rosacea*	LA
Oak, Pedunculate	*Quercus robur*	R
Oat-grass, False	*Arrhenatherum elatius*	LA
Parsley, Cow	*Anthriscus sylvestris*	LA
Pine, Scot's	*Pinus sylvestris*	R
Plantain, Greater	*Plantago major*	R
Plantain, Ribwort	*Plantago lanceolata*	O
Ragwort, Common	*Senecio jacobaea*	R
Ragwort, Oxford	*Senecio squalidus*	R
Rose, Dog	*Rosa canina agg.*	O
Rowan	*Sorbus aucuparia*	R
Rush, Compact	*Juncus conglomeratus*	O
Rush, Sharp-flowered	*Juncus acutiflorus*	O
Rush, Soft	*Juncus effusus*	O
Rye-grass, Perennial	*Lolium perenne*	R
Sea-buckthorn	*Hippophae rhamnoides*	LA
Sedge, Glaucous	*Carex flacca*	R
Sedge, Spiked	*Carex spicata*	R
Sorrel, Sheep's	*Rumex acetosella*	LA
Spotted-orchid, Common	*Dactylorhiza fuchsii*	R

St. John's-wort, Perforate	*Hypericum perforatum*	LA
Stitchwort, Lesser	*Stellaria graminea*	R
Thistle, Creeping	*Cirsium arvense*	LA
Timothy	*Phleum pratense*	R
Trefoil, Lesser	*Trifolium dubium*	R
Vetch, Common	*Vicia sativa*	R
Vetchling, Meadow	*Lathyrus pratensis*	R
Whitebeam, Swedish	*Sorbus intermedia agg.*	O
Willow, Goat	*Salix caprea*	R
Willowherb, Broad-leaved	*Epilobium montanum*	R
Willowherb, Rosebay	*Chamerion angustifolium*	LA
Yarrow	*Achillea millefolium*	O
Yorkshire-fog	*Holcus lanatus*	A

Additional species observed at the time of the survey:

Species Name		***Abundance***
Blackbird	*Turdus merula*	2
Bumblebee, Red-tailed	*Bombus lapidarius*	2
Burnet, Six-spot	*Zygaena filipendulae*	1
Chaser, Broad-bodied	*Libellula depressa*	1
Chiffchaff	*Phylloscopus collybita*	1
Chimney Sweeper	*Odezia atrata*	A
Comma	*Polygonia c-album*	2
Damselfly, Common Blue	*Enallagma cyathigerum*	1
Gatekeeper	*Pyronia tithonus*	3
Ladybird, Seven-spot	*Coccinella septempunctata*	2
Lapwing	*Vanellus vanellus*	1
Meadow Brown	*Maniola jurtina*	A
Pigeon, Wood	*Columba palumbus*	2
Rabbit	*Oryctolagus cuniculus*	1
Ringlet	*Aphantopus hyperantus*	A
Robin	*Eriithacus rubecula*	1
Skipper, Small	*Thymelicus sylvestris*	A
Snail, Brown-lipped Banded	*Cepaea nemoralis*	1
Swallow	*Horundo rustica*	6
White, Large	*Pieris brassicae*	2

Photographs:

Open scrub habitat with good ground flora and transitional zones between habitats.

An informal path running through the site. More developed scrub and grassland habitats on the right are the northern edge of the site.

North-eastern corner of the site showing a mosaic of habitats.

South-eastern corner of the site with a relatively mature hedgerow establishing. Nutrient deficiency in the grassland area is clearly evident.

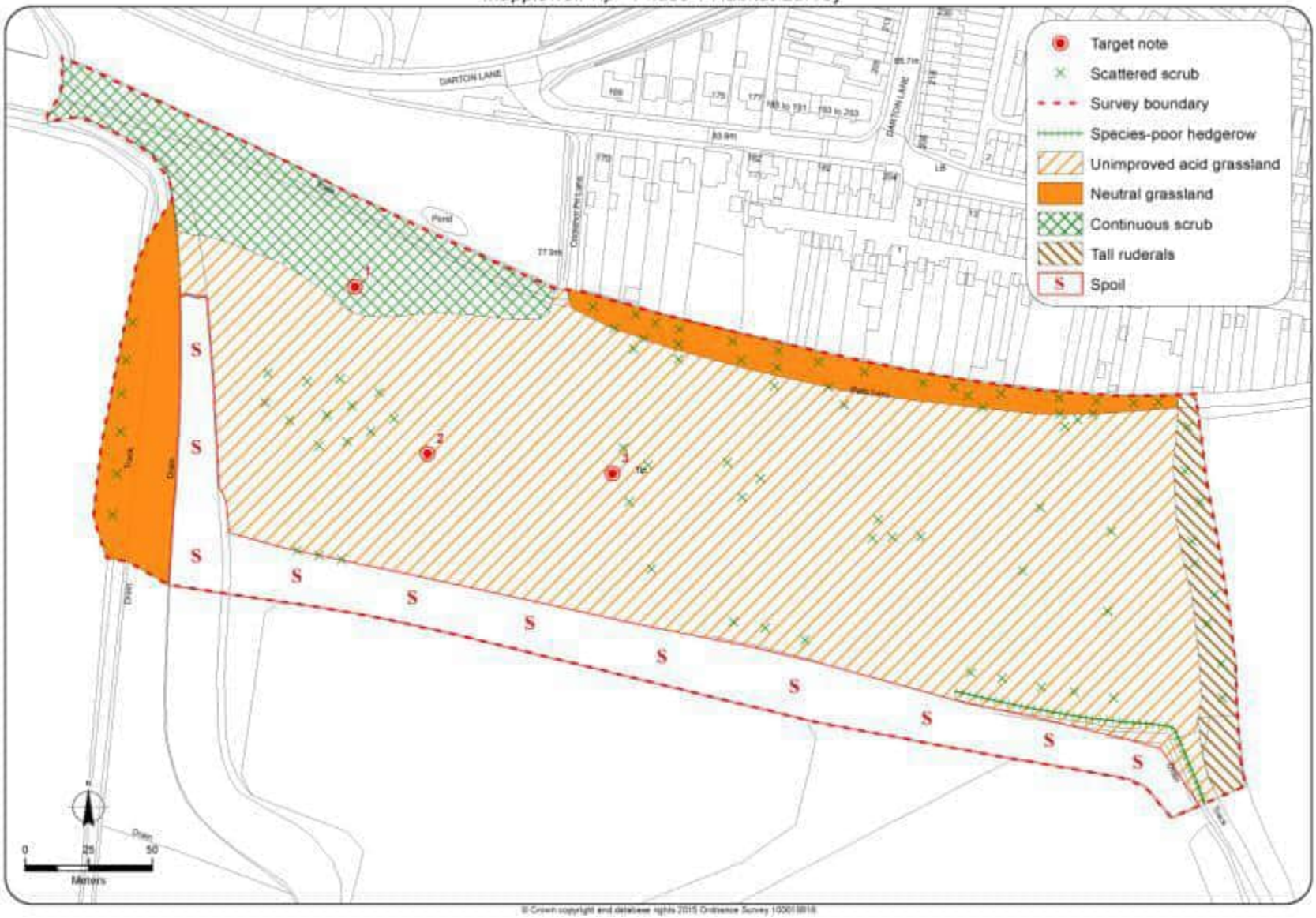
Southern edge of the site showing an extensive area of bare substrate and evidence of markings from use by off-road vehicles.

Western edge of the site showing land slip and developing area of scrub.

Male broad-bodied chaser at rest on soft rush (*Juncus effusus*) and ephemeral pool.

Ephemeral pool (dry) with common cotton-grass and sharp-flowered rush

Mapplewell Tip - Phase 1 Habitat Survey



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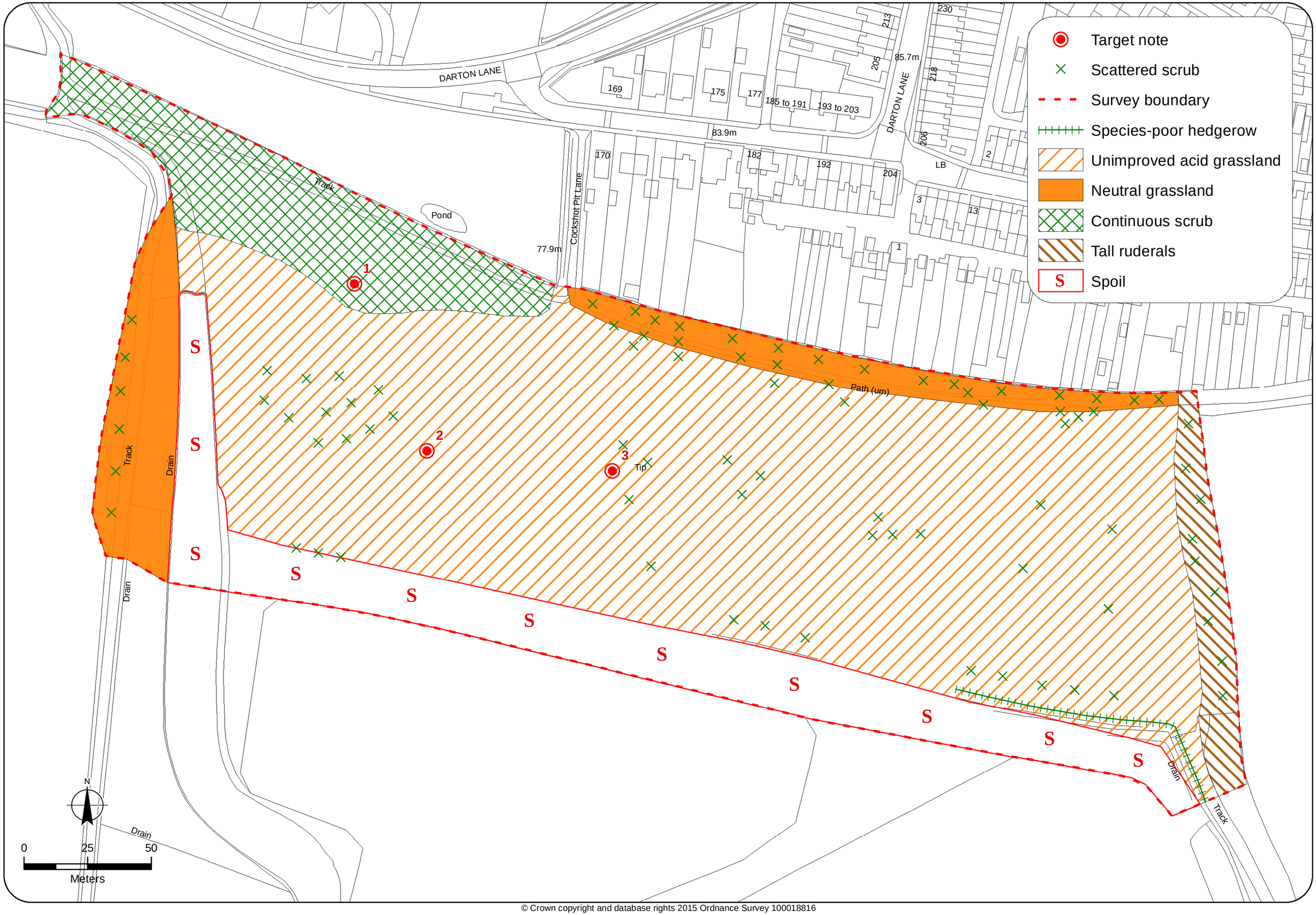
Target Notes:

1. SE32200972: An area of fairly continuous scrub providing good habitat for a range of invertebrate and bird species. The wild flower-rich grassland area adjacent and contiguous with the scrub habitat provides the most botanically diverse part of the site.
2. SE32230966: This is the location of the largest of the ephemeral pools. Although dry at the time of the site visit, the vegetation, which is typical of acid pools, was still present and thriving.
3. SE32300965: This is the location of the largest area of heath on the site though there are very many smaller pockets and individual plants scattered more or less across the entire site creating a true mosaic of heath and grassland habitats.

Survey and Report by Michael Guy (Barnsley Biological Records Centre)
October 2015

Mapplewell Tip - Phase 1 Habitat Survey



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Appendix D Biodiversity Statutory Metric (Supplied Separately)

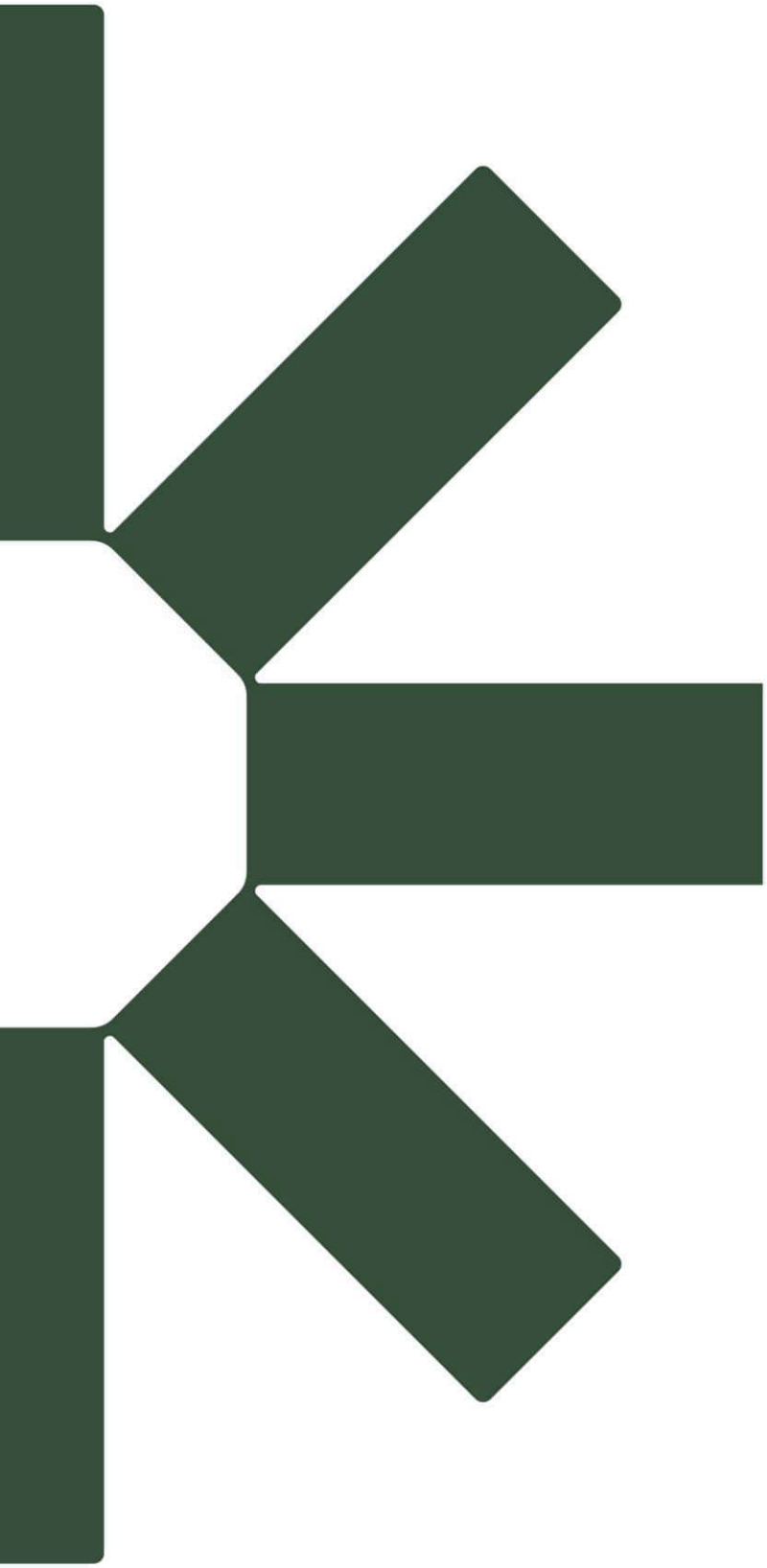
Ecological Impact Assessment

Barugh Green

Avant Homes Ltd

SLR Project No.: 410.065596.00001

22 January 2025



Making Sustainability Happen