Land off Barnsley Road, Darton

Preliminary Ecological Appraisal

28th April 2022



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Contents

1. Summary 3
2. Introduction 4
3. Site Description 4
4. Methodology 5
5. Ecological Baseline 7
6. Assessment 18
7. References 22

Appendix 1. UK Habitat Classification Plan 23
Appendix 2. Plant Species Recorded on Site 24
Appendix 3. Relevant Legislation and Planning Policy 25
Appendix 4. Pond HSI Results 28
Appendix 5. eDNA Results 29
Appendix 6. Small Sites Metric Headline Results 31
Appendix 7. Proposed Plan Showing Assumed Habitats Used To Calculate Metric 32

Site Name Land Off Barnsley Road	**Location** Barnsley Road, Darton
Local Authority Barnsley Metropolitan Borough Council	**Grid Reference** SE 31260 09390
Surveyor Robert Bell MCIEEM	**Date of Survey** 13/04/2022
Soilscape Freely draining slightly acid loamy soils	**Designation of Site** None

UK Habitat Classification habitats on Site Habitats: g4 – modified grassland, h3h – mixed scrub, u1c – artificial unvegetated/unsealed surface, u1b5 – buildings, u1b6 – other developed land Secondary codes: 17 – ruderal/ephemeral, 61 – horse grazed, 64 – mown, 73 – bare ground, 77 – neglected, 133 – nutrient-enriched substrate
Protected/Notable Species, Constraints on Site None
HPIs and SPIs under NERC Act 2006 Mixed scrub loosely fits Hedgerow HPI
Barnsley BAP Mixed scrub loosely fits Hedgerow HPI

1. Summary

1.1.1 This Preliminary Ecological Appraisal of land off Barnsley Road, Darton was commissioned by Jonathan Scott of Britology on 12th April 2022.

1.1.2 The survey was commissioned in order to inform proposals to demolish existing livery buildings and to re-develop the site with three dwellings.

1.1.3 The site is 0.25ha in size and comprises an active livery stables comprising three large buildings and a shipping container. The buildings are largely surrounded by artificial unvegetated ground, with hardstanding between two buildings and modified grassland in areas on the periphery of the site. An outgrown former hedgerow borders Barnsley Road. A large manure heap forms the northwest boundary.

1.1.4 Site habitats are not considered to be of greater than site level importance to nature conservation. The site is not considered to be of more than site level importance to any species group.

1.1.5 It is proposed to construct three new dwellings in the centre of the site, accessed via an existing gated opening off Barnsley Road. Existing mixed scrub bordering the road will be retained. New gardens will extend from the dwellings up to the offsite ditch and a new access track to the paddock is proposed. Planting of new native scrub is planned between the existing area of scrub and the access road/gardens of the properties. New semi-natural habitat is also to be created either side of the new paddock access. The verges either side of this track are proposed to comprise species-rich grassland, managed as a meadow. A new 41m length of native species-rich hedge is also proposed for the southeast boundary.

1.1.6 The Headline Results output of the Small Sites Metric shows the development is expected to result in a net gain of 0.30 Habitat Units, resulting in a projected 63.71% increase in the Habitat Units present on site. The scheme is also expected to result in the creation of 0.32 Hedgerow Units.

1.1.7 In order to prevent tipping of garden waste by new homeowners into the adjacent off-site ditch, it is recommended that garden fences are erected 2m from the bank of the ditch. It is also recommended that artificial lighting is designed to avoid light spill on this ditch.

1.1.8 Vegetation clearance should take place at a time when it would not be expected to affect nesting birds (outside March to August). If works are to be undertaken during the typical nesting period, then they should be preceded by a nesting bird check.

1.1.9 British Standard 5837 (2012): Trees in relation to design, demolition and construction, should be followed.

1.1.10 A range of ecological enhancement measures are recommended. These include the installation of a swift nest brick and integrated bat box within each of the three new dwellings and the creation of hedgehog holes in all new fences.

1.1.11 The results of this survey are considered to be valid for a period of 12 months. After this time Middleton Bell Ecology should be contacted to determine the need for update survey.

2. Introduction

2.1.1 This Preliminary Ecological Appraisal of land off Barnsley Road, Darton was commissioned by Jonathan Scott of Britology on 12th April 2022.

2.1.2 The survey was commissioned in order to inform proposals to demolish existing livery buildings and to re-develop the site with three dwellings.

2.1.3 The purpose of this report is to present the findings of a desk-based study and UK Habitat Classification survey. The report considers the ecological value of the site and presents an assessment of the impacts of the proposed development. Mitigation and compensation measures necessary to avoid or reduce these impacts are detailed.

2.1.4 Key legislation relating to designated sites, protected species and habitats is detailed in Appendix 3. The implications of legislation are detailed in the body of the report where necessary.

2.1.5 Site buildings were subject to a targeted bat survey in September 2021 (MBE, 2021). The bat survey recorded that all buildings displayed a negligible level of bat roosting potential. A total of 11 defunct swallow *Hirundo rustica* nests were however recorded from the buildings. This report includes relevant observations from the bat survey.

2.1.6 The site is located off the A637 Barnsley Road on the outskirts of Darton, 4.3km northwest of Barnsley town centre.

3. Site Description

3.1.1 The site comprises an active livery stables including three large buildings, two used as stables and one for storage, together with a shipping container. The buildings are largely surrounded by artificial unvegetated ground. Hardstanding covers the area between the two stable blocks and modified grassland is present in two areas on the periphery of the site. An outgrown former hedgerow borders Barnsley Road on the southwest boundary of the site. A large manure heap forms the northwest boundary.

3.1.2 A ditch is present outside the site but immediately adjacent to the northeast boundary, with pasture fields beyond. The River Dearne is present c.150m east of the site. To the southeast is a menage, with residential housing beyond Barnsley Road on the southwest boundary. A further paddock is present beyond the manure heap on the northwest boundary.

3.1.3 The site falls within National Character Area (NCA) 38: The Nottinghamshire, Derbyshire and Yorkshire Coalfield. This NCA comprises a generally low-lying area, with hills and escarpments above wide valleys, the landscape embraces major industrial towns and cities as well as villages and countryside. Over half of the NCA is currently designated as greenbelt land; this maintains some distinction between settlements and represents areas that are often under pressure for development and changes in land use. The landscape is dotted with many pockets and patches of habitat where species find refuge. This is often on land that was once worked for minerals or occupied by major industry.

3.1.4 The Soilscapes resource shows that soils in the area comprise freely draining slightly acid loamy soils

Figure 1. The site location, as indicated by red circle



4. Methodology

4.1 Data Consultation

4.1.1 Barnsley Biological Records Centre (BBRC) were contacted to request the following information for locations within a 1.5km radius of the site:

- Protected and notable species records
- The boundaries of non-statutory designated sites of nature conservation interest

4.1.2 A search of the Multi-Agency Geographical Information for the Countryside (MAGIC) website was undertaken to determine the following:

- The boundaries of statutory designated sites of nature conservation interest
- The locations of historic European Protected Species (EPS) licences granted by Natural England

4.2 Field Survey

UK Habitat Classification Survey

4.2.1 The site was surveyed on 13th April 2022 using UK Habitat Classification habitat survey methodology (Butcher *et al*., 2020) by Robert Bell (MCIEEM).

4.2.2 The surveyor is a competent botanist with more than 12 years' experience of undertaking botanical surveys, including appraisals of Local Wildlife Sites in Barnsley.

4.2.3 Notable, rare or scarce plant species were highlighted if present. Evidence of protected species or species of nature conservation importance was recorded where present at the time of survey. Species recorded are included within the report as appropriate. Information is presented on the UK Habitat Classification plan, using Target Notes (TN) to identify particular features of interest, where appropriate.

4.2.4 Ariel photographs (Google Earth) were studied to place the site in its wider context and to look for ecological features that would not be evident on the ground during the walkover survey. This is particularly useful for identifying wildlife corridors and ponds but because the latter are often not apparent on aerial photographs, OS 1:25 000 scale maps are also used.

4.2.5 Habitats of Principal Importance (HPIs) and Species of Principal Importance (SPIs) are included on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 were noted together with priority species and habitats as included on the Local Biodiversity Action Plan (LBAP).

4.2.6 Ponds located within 500m of the site were subject to a Habitat Suitability Indices (HSI) assessment.

GCN eDNA Survey

4.2.7 An eDNA survey to determine the presence/absence of Great Crested Newt (GCN) *Triturus cristatus* within one pond and one ditch was undertaken on 18th April 2022 by Robert Bell (GCN Survey Licence: 2015-19174-CLS-CLS).

4.2.8 Water samples for the eDNA test were taken in accordance with methodology approved by Natural England (Biggs *et al.,* 2015). A total of 20 water samples were taken from each of the water features identified. The surveyor was careful to stir the water but not disturb the sediment whilst collecting each sample. The twenty samples were mixed together to give one combined water sample for each waterbody. Six samples were then taken from each combined liquid and added to laboratory sample pots/vials (per pond). All samples were taken using in-date sterile kits provided by the laboratory at Surescreen Scientifics. The eDNA test itself was also undertaken by Surescreen.

4.3 Method of Assessment

4.3.1 The value and sensitivity of ecological features present on site were determined based on the guidance given in 'Guidelines on Ecological Impact Assessment' (CIEEM, 2018). Individual ecological receptors (habitats and species that could be affected by the development) for the scheme were assigned levels of importance for nature conservation. The highest level is international, then decreasing in order of importance through national, regional, county, local and lastly site.

4.4 Biodiversity Calculation

4.4.1 The Small Sites Metric (Arthur *et al*., 2021) is used to calculate the biodiversity impact of this scheme. This metric uses habitat as a proxy for wider biodiversity, with different habitat types scored according to their relative biodiversity value. This value is then adjusted depending on the condition and location of the habitat, to calculate 'biodiversity units'. The Small Sites Metric incorporates similar but separate calculations for habitats that require a different method of measurement such as

hedgerows and rivers. Calculations are undertaken in a purpose designed spreadsheet, which provides the main output of the process.

4.5 Survey Limitations

4.5.1 The survey was undertaken early during the main plant growing season, at a time when some plant species are not visible above ground. The habitats present are however common and ubiquitous, and it is considered that their type could be accurately determined, with condition also able to be tentatively assessed.

5. Ecological Baseline

5.1 Designated Sites

5.1.1 Sites designated for nature conservation and present within 1.5km of the site are detailed in Table 1.

Table 1. Designated sites

Designation	Name	Description	Distance and direction from site
Local Wildlife Sites (LWS)	Daking Brook	A largely unpolluted and unmodified tree-lined brook	391m south
	Mapplewell Tip	Naturally vegetated spoil heap with an affinity with lowland heath	913m northeast

5.1.2 The closest area of ancient woodland to the site comprises Husband Wood, an area of ancient and semi-natural woodland located 1.6km north of the site.

5.2 Habitats

5.2.1 The arrangement of site habitats is shown on the UK Habitat plan in Appendix 1, whilst a full list of plant species recorded is provided in Appendix 2.

5.2.2 The habitats present within the site are not considered to be of greater than site level importance to nature conservation. The site is not considered to be of more than site level importance to any species group.

5.2.3 A detailed description of the site and adjacent habitats and the site's potential to support protected and notable species is provided within this section of the report.

Plate 1. Looking onto site from the west. The menage is not included within the site



Plate 2. Modified grassland along the northeast boundary, with off-site ditch on right of image



Plate 3. Heavily poached modified grassland between outgrown hedge/mixed scrub and B1 on western side of site



g4 – modified grassland

5.2.4 Modified grassland is present in several places around the site. In some areas this is mown (Plates 1 & 2), with the area of grassland to the west of B1 (Plate 3), grazed and severely poached.

5.2.5 The species present vary throughout this habitat depending upon the management regime, with grasses present including abundant perennial rye grass *Lolium perenne* together with occasional cocksfoot *Dactylis glomerata*, red fescue *Festuca rubra* and Yorkshire fog *Holcus lanatus*. Herbs present include frequent creeping buttercup *Ranunculus repens*, broad-leaved dock *Rumex obtusifolius*, dandelion *Taraxacum officinale* agg. and white clover *Trifolium repens*. Occasional bramble *Rubus fruticosus* agg., creeping thistle *Cirsium arvense*, yarrow *Achillea millefolium*, broad-leaved plantain *Plantago major*, ribwort plantain *Plantago lanceolata* and cleavers *Galium aparine* were also recorded.

5.2.6 A cautious attempt (given the season of survey and short sward nature of the grassland) was made to assess the grassland's condition using the Biodiversity Metric 3.0 condition criteria (Panks *et al*., 2021). The grassland is considered likely to be in moderate condition. In places there are 6-8 species/m^2, sward height is quite varied, there is little scrub and there is no bracken. There is however extensive physical damage and areas of bare ground, together with more than 5% cover of undesirable species.

h3h – mixed scrub

5.2.7 A 4m wide x 6m high outgrown hedge is present along the southwest site boundary (Plates 3 & 4). This feature includes two semi-mature sycamore *Acer pseudoplatanus* trees at the northwest end, with a gap in the former hedge between these trees. The

decision was made to map this habitat as mixed scrub, given the small size of the site and the proportion of the site encompassed by this habitat. If mapped as hedgerow it is considered this habitat would be undervalued within the Small Sites Metric and it would leave a substantial area of the site (covered by this habitat), which would need to be mapped as a non-hedgerow habitat.

5.2.8 Component species include frequent hawthorn *Crataegus monogyna*, elder *Sambucus nigra*, dog rose *Rosa canina*, bramble *Rubus fruticosus* agg. and the two sycamore trees. Nettle *Urtica dioica* is present in the field layer.

5.2.9 This area of habitat is dominated by native woody species and consequently classifies as an example of the hedgerows Habitat of Principal Importance (HPI) under Section 40 of the NERC Act 2006. Considered as a hedgerow, this habitat is species poor (< five woody species in representative 30m length) and does not classify as Important under the ecological criteria of the Hedgerow Regulations (1997).

5.2.10 Considered against the hedgerow condition assessment criteria (which are more applicable in this instance), this habitat is considered to be in moderate condition. It meets all criteria, except for the presence of undisturbed ground within at least 1m of hedge (heavily poaching on one side and a footpath on the other), and presence of undesirable perennial vegetation (with frequent nettle present).

5.2.11 Neither of the two sycamore trees are of notable age or form.

Plate 4. Scrub on southwest boundary with the stems of two sycamore trees present on right of image



Plate 5. Northwest end of site buildings, viewed from the manure pile on the northwest site boundary



u1b5 - Buildings

5.2.12 The site supports two stable blocks, a store and a metal shipping container.

5.2.13 The potential importance of site buildings to roosting bats and nesting/roosting birds is discussed in the corresponding species sections of the report.

u1b6 – other developed land

5.2.14 Other developed land on the site comprises the area of hardstanding between the two stable blocks.

u1c – artificial unvegetated, unsealed surface

5.2.15 Approximately half the site comprises artificial unvegetated, unsealed surface. Compacted gravel forms the site access and is present across much of the centre of the site (Plate 1).

5.2.16 A large manure pile, which is being actively added to, is present on the northwest boundary (Plate 5), and for want of a better classification, this area has also been classified as this habitat type.

5.3 Species and Species Groups

Amphibians

5.3.1 A total of 93 Great Crested Newt (GCN) *Triturus cristatus* records were provided by BBRC. The closest records were all collected from a location c.800m southeast of the site. The number of animals caught in this location was not stated, however the most recent presence record collected from this location was recorded in 2016.

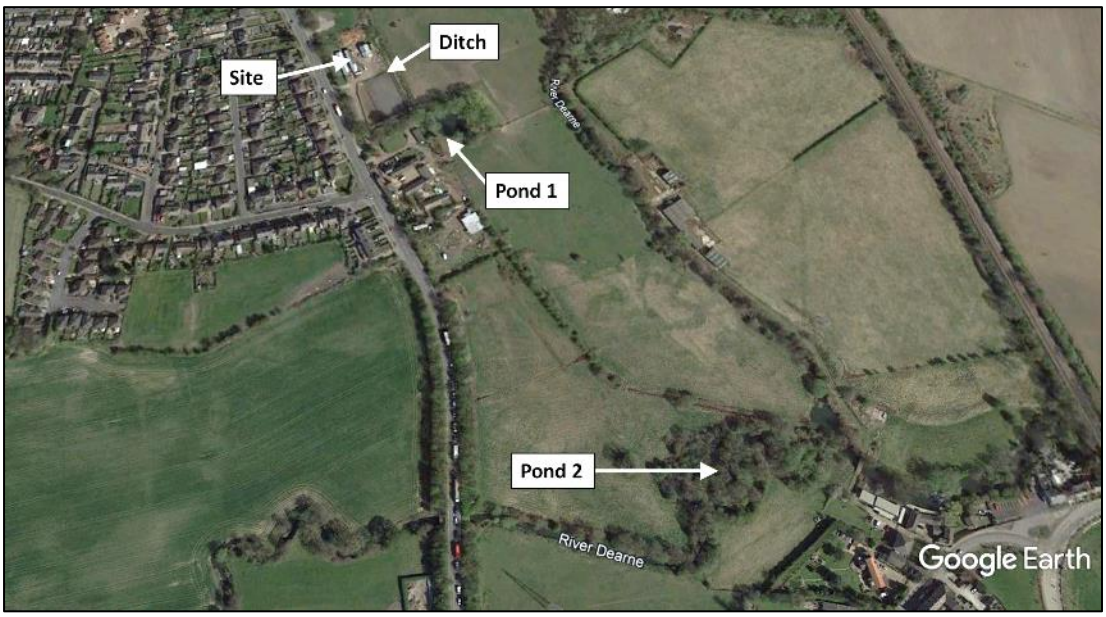
5.3.2 A single GCN EPS mitigation licence has been issued for a location within 2km of the site (the same site as detailed in the records presented above). This licence was issued

in 2016 for a location 770m southeast of the site, to permit damage to a resting place used by this species.

5.3.3 A total of seven records included in the GCN Class Licence Returns dataset fall within 2km of the site. The closest of these comprises a series of 2014 presence records, collected from a location 737m southeast of the site. No records included in the Great Crested Newt Pond Surveys 2017 – 2019 dataset fell within 2km of the site.

5.3.4 A pond search recorded the presence of two ponds within 500m of the site boundary. A ditch is also present adjacent to the northeast boundary of the site, with this ditch lacking any visible flow and comprising, in effect, a linear pond. The locations of these ponds and the site ditch are shown in Figure 2. Full Habitat Suitability Indices (HSI) assessment scores for each waterbody are presented in Appendix 4.

Figure 2. Ponds falling within 500m of the site



5.3.5 The HSI assessment of the ditch, which is located immediately adjacent to the site, showed this watercourse displays good suitability for use by breeding GCN. This ditch (Plate 6) is a continuation of a longer ditch which runs adjacent to Pond 1, however, the connection appears to have become blocked with the result that the section of ditch adjacent to the site does not appear to flow. The water in this section of ditch was approximately 0.5m deep at the time of survey and apparently the ditch never dries. The ditch has high aquatic macrophyte cover with species present including water plantain *Alisma plantago-aquatica*, starwort *Callitriche* spp., water cress *Rorippa nasturtium-aquaticum*, brooklime *Veronica beccabunga* and the non-native and invasive species parrot's feather *Myriophyllum aquaticum*. Runoff from the manure pile enters the ditch with the result that the water is expected to be very nutrient rich. Small fish were noted within this watercourse.

5.3.6 Observations reported by the tenant of the site noted that both the ditch and Pond 1 are regularly flooded (typically at least once per year) by the nearby River Dearne. The eDNA survey showed that GCN DNA was not present in this ditch at the time of survey (Appendix 5). An adult toad *Bufo bufo* was recorded from the ditch during the eDNA survey.

Plate 6. Ditch adjacent to site



Pond 1 (Plate 7) is located 70m southeast of the site with good connectivity to it. The HSI assessment showed this pond displays poor suitability for use by breeding GCN. This waterbody is quite large (c.1100m^2) and is heavily shaded with high levels of leaf litter noted within it. A previous ecological survey of Pond 1, undertaken in 2021, noted a large population of carp, most likely crucian carp *Carassius carassius* within it (Parsons Ecology, 2021). The presence of fish and the low level of macrophyte cover largely account for the pond's poor suitability for GCN. The eDNA survey showed that at the time of survey GCN DNA was not present within it (Appendix 5). Toad tadpoles were recorded from Pond 1 during the eDNA survey.

Plate 7. Pond 1



Plate 8. Pond 2



5.3.7 Pond 2 (Plate 8) is located directly adjacent to a bend in the River Dearne, in a location 430m southeast of the site. This large pond (1700m^2) is heavily shaded with a very low level of aquatic macrophyte cover. This pond is expected to be regularly flooded by the River Dearne and is likely to support a high population of fish. The HSI assessment showed the pond displays below average suitability for use by breeding GCN. An eDNA survey was not undertaken on this pond, primarily given its distance from the site. It is also considered that if GCN are present in Pond 2 then they would be highly likely to also be present in either the ditch adjacent to the site and/or within Pond 1.

5.3.8 On the basis of survey works undertaken, GCN appear to be absent from the local area and they are not considered a receptor to the proposed scheme.

5.3.9 A total of 25 common frog *Rana temporaria* records, 79 common toad records and 87 smooth newt *Lissotriton vulgaris* records were received from BBRC. The closest records of each species were collected from a location c.800m southeast of the site.

5.3.10 The site is likely to experience some use by common amphibians, however, the extent of suitable habitats is limited with more extensive potential foraging habitat nearby.

Badger

5.3.11 A total of two badger *Meles meles* records were provided by BBRC for locations within 1.5km of the site. Neither of these records related to locations within 500m of the site.

5.3.12 No signs of badger presence were noted during the field survey. It is considered unlikely that badger use the site.

Bats

Historic records

5.3.13 A total of 25 bat records were provided by BBRC. Species positively identified in the

records included common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and noctule *Nyctalus noctula*. Other records were attributed to an unidentified bat species. The closest record comprises a bat of an unidentified species, recorded from a location 570m north of the site in 1999.

5.3.14 No bat European Protected Species mitigation licences have been issued for locations within 2km of the site.

Bat roost suitability

5.3.15 For ease of description, site buildings are numbered as shown in Appendix 1.

5.3.16 Buildings 1 and 2 (B1 & B2) comprise long rectangular stable blocks with seven compartments each. The buildings are of a simple construction and wood framed with largely single-skin wood-clad walls beneath pitched bitumen felted roofs with mainly corrugated metal sheeting above (35% of B2 has corrugated asbestos-cement sheeting forming the roof). Building 2 has three air vents on the ridge. Both buildings have lean-to extensions with mono-pitched sheet metal roofs on the southern gables.

5.3.17 Building 3 comprises a steel-framed open-fronted agricultural building used for the storage of animal feed and bedding. The building has a pitched corrugated sheet metal roof, and the sides are clad with sheet metal (bottom half) with 'hit-and-miss' vertical wooden slats above. With the exception of a doorway, the north gable is entirely clad in corrugated sheet metal. A tarpaulin is draped down the front of the building.

5.3.18 Building 4 comprises a metal shipping container.

5.3.19 No evidence of bats was recorded during the building inspection and these structures were considered to display a negligible level of bat roost suitability (MBE, 2021).

5.3.20 The site trees were not considered to display a greater than negligible level of bat roost suitability.

Foraging and commuting

5.3.21 The scrub on the southwest boundary is likely to be used by foraging bats and they may feed over the manure pile along the northwest boundary. The remainder of site habitats are considered to be of fairly low value to foraging and commuting bats.

5.3.22 The ditch adjacent to the site's northeast boundary is likely to be well used by foraging bats, attracted by the high number of invertebrates it is expected to generate. The local area supports quite extensive alternative high quality bat foraging and commuting habitat, most notably the tree-lined River Dearne.

Birds

5.3.23 A total of 11 defunct swallow *Hirundo rustica* were recorded from site buildings during the original bat survey (MBE, 2021). Other bird species recorded during site survey works comprised robin *Erithacus rubecula*, great tit *Parus major*, blue tit *Cyanistes caeruleus*, dunnock *Prunella modularis*, pied wagtail *Motacilla alba*, blackbird *Turdus merula*, goldfinch *Carduelis carduelis* and Canada goose *Branta canadensis*, in addition to domestic chickens and farm ducks.

5.3.24 Of the birds species recorded from the site, all are included on the green list of the birds of conservation concern, other than dunnock, which is amber listed (Stanbury *et al*., 2021).

5.3.25 In addition to swallow nesting within the site buildings, other species may also nest in these structures, as well as nesting in the scrub along the northeast site boundary. The site is however of limited size with abundant alternative nesting habitat present in the wider area.

Hedgehog

5.3.26 Four hedgehog *Erinaceus europaeus* records were received from BBRC, with the closest record collected in 2015 from a location 320m southwest of the site. The site does have potential for hedgehog, however, this the surrounding area offers similar and more extensive opportunities for this species.

Invasive species

5.3.27 No species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were found on site, however, the invasive aquatic plant parrot's feather, was recorded from the adjacent ditch (outwith the site).

Invertebrates

5.3.28 The site supports a range of ubiquitous habitats of limited extent and consequently, rarely occurring invertebrate species are unlikely to be present.

Plants

5.3.29 The habitats present do not include long-established unimproved grasslands, ancient woodlands, species rich hedgerows or other diverse botanical communities. Therefore, protected or priority plants are unlikely to be present.

Reptiles

5.3.30 No reptile records were provided by BBRC for locations within 1.5km of the site.

5.3.31 The offsite ditch displays some potential for use by grass snake *Natrix helvetica* and if present in the wider area, this species may occasionally bask or forage on site. The site is however unlikely to be of much value to this species.

Water vole and otter

5.3.32 A single water vole *Arvicola amphibius* record was provided for a location 470m southwest of the site, collected in 1983. No otter records were returned by BBRC.

5.3.33 No waterbodies or watercourses are present on site, however, a ditch is located adjacent to the northeast boundary of the site. This ditch was inspected with no evidence of water vole recorded. This species expected to be absent from the ditch due to the known local presence an American mink *Neovison vison*. Otter would be unlikely to use this ditch.

5.4 Summary of Value Assigned to Habitats and Species

5.4.1 A summary of the ecological value assigned to the habitats and species present within the survey area is given in Table 2 below.

Table 2. Ecological importance of each habitat, species or species group on site and adjacent

Habitat, Species or Species Group	Ecological value
g4 – modified grassland	Site
h3h – mixed scrub	Site
u1b5 – buildings	Site
u1b6 – other developed land	Site
u1c – artificial unvegetated/unsealed surface	Site
Amphibians	Site
Badger	Unlikely to be present
Bats	Site
Birds	Site
Hedgehog	Site (if present)
Invasive species	Not recorded from site, parrot's feather in adjacent ditch
Invertebrates	Site
Plants	Site
Reptiles	Unlikely to be present
Water vole and otter	Unlikely to be present

5.5 Biodiversity Calculation

5.5.1 The existing site's value as calculated by the Small Sites Metric is 0.476 Habitat Units (Appendix 6).

6. Assessment

6.1 Proposals

6.1.1 The assessment of impacts is based upon a consideration of the drawing '0280_BARN_108 Parameters Site Plan', dated 8th October 2021.

6.1.2 The proposals show the clearance of site buildings and all other habitats, with the exception of the scrub (and trees) on the southwest boundary.

6.1.3 It is proposed to construct three new dwellings in the centre of the site, accessed via an existing gated opening off Barnsley Road. New gardens are proposed to extend from the dwellings up to the offsite ditch and a new access track to the paddock is proposed. It is proposed to plant new native scrub between the existing area of scrub and the access road/gardens to the southwest of the site (Appendix 7). New semi-natural habitat is also to be created either side of the new paddock access. The verges either side of this track are proposed to comprise species-rich grassland. managed as a meadow. A new 41m length of native species-rich hedge is also proposed for the southeast boundary.

6.2 Biodiversity Calculations

6.2.1 The Headline Results output of the Small Sites Metric, based upon the proposed habitats shown in Appendix 7, is presented in Appendix 6. The metric shows a net gain of 0.30 Habitat Units, resulting in a projected 63.71% increase in the Habitat Units present on site. The positive impact is mainly the result of the planned creation of additional medium distinctiveness habitats (i.e. native scrub and other neutral grassland), on a site which currently is mainly either a low distinctiveness habitat (modified grassland), or a habitat of negligible ecological value (i.e. developed land). The calculation spreadsheet presents the full workings of the calculations and will be provided with this report.

6.2.2 The scheme will also result in the creation of 0.32 Hedgerow Units through the planting of the new hedgerow on the southeast boundary.

6.3 Assessment of Impacts

Designated sites

6.3.1 No impacts are anticipated upon designated sites due to the nature of the development and the distance of designated sites from the application area.

Habitats

6.3.2 The most ecologically valuable area of semi-natural habitat on site comprises the outgrown hedgerow/scrub along the southwest boundary, which is to be retained. Other site habitats are of low intrinsic value and their loss will be more than compensated for through the planting proposals.

6.3.3 The ditch adjacent to the northeast boundary (outwith the site) is of ecological interest, despite being nutrient enriched and despite supporting an invasive and non-native

species. There is however potential for householders to tip garden waste into this feature, potentially reducing its ecological interest.

6.3.4 Although trees within the southwest scrub are to be retained during the development, there is potential for damage to these trees during construction works.

Species

Bats

6.3.5 Roosting bats are unlikely to be impacted by the proposed scheme. The importance of site habitat loss to foraging and commuting bats will be offset by the creation of new higher value foraging habitats within the site.

6.3.6 There is, however, a risk that artificial lighting associated with the new dwellings could result in light spill across the ditch, limiting the appeal of this feature to foraging bats.

Birds

6.3.7 If buildings are demolished during the bird nesting season, or if there is any tree/shrub removal required during this period, then there is a risk of active bird nests being destroyed.

6.3.8 Site buildings have been historically well-used for nesting by swallows, with this species requiring a covered space area within which to nest. Without mitigation, this species is expected to be lost as a breeding species on site.

Invasive species

6.3.9 There does not appear to be any requirement to manage the off-site ditch associated with the scheme. If, however, this need does arise then appropriate precautions should be taken to avoid the spread of the parrot's feather, a plant species included on Schedule 9 of the Wildlife and Countryside Act (1981) (as amended). It is an offence to spread parrot's feather in the wild.

6.4 Further Survey, Licensing and Mitigation

Habitats

6.4.1 The proposals include the creation of a new area of native scrub between existing scrub/outgrown hedge and the new access road/dwellings, along the southwest side of the site. New species-rich grassland creation is also included along the verges of a new track at the southeast end of the site, with a new length of species-rich native hedgerow to be planted along the southeast boundary. Detail in relation to the extent, creation and management of new areas of semi-natural vegetation could be required in connection with a planning condition stipulating that a Landscape and Environmental Management Plan (LEMP) be produced for the site.

6.4.2 British Standard 5837 (2012): Trees in relation to design, demolition and construction, should be followed. Root Protection Zones (RPZ's) should be calculated and implemented to prevent harm to trees on-site or near the boundary. This should also apply to any trees out-with the site, up to 5m from the boundary.

6.4.3 In order to reduce the likelihood of homeowners' fly-tipping garden waste into the adjacent ditch, it is recommended that garden fences are erected 2m from the bank of the ditch, with a spiky native scrub species, such as blackthorn *Prunus spinosa and* hawthorn, to be planted between the fence and ditch edge.

Bats

6.4.4 New external lighting should be designed such that it does not result in light spill across the ditch, which forms the northeast boundary. New lighting proposals could be presented within an Ecological Design Strategy (EDS), to be written following the approval of planning permission. It is advised that new external lighting be PIR (Passive Infrared) sensor activated, to limit the time of use to those when lighting is required.

Birds

6.4.5 Vegetation clearance and building demolition should take place at a time when it would not be expected to affect nesting birds (outside March to August). If works are to be undertaken during the typical nesting period, then they should be preceded by a nesting bird check.

6.4.6 As detailed within the original bat survey report (MBE, 2021), in order to mitigate for the loss of swallow nest sites, it is advised that an open fronted porch, canopy or wood store is integrated into the design for the new development. At least five swallow nest cups should be fitted inside this structure or structures, in an attempt to attract this species back to the site. Alternatively, were new stables to be erected close to the site, then swallow nest cups could be integrated into these off-site buildings. This measure could be detailed in a EDS written for the site.

6.5 Enhancements

6.5.1 In accordance with the aims of planning policy National Planning Policy Framework: 15, it is suggested that the developer follows the recommendations detailed below. Please note that the enhancements have been informed by the results and findings of the field survey.

- Each of the three new dwellings should incorporate an integrated swift brick, such as the Manthorpe Swift Brick (see Plates 9 & 10). These features should be installed at wall top height. Studies have shown that swift *Apus apus* boxes are used by the full range of nesting birds that utilise buildings; consequently, these boxes will also provide potential nesting space for house sparrow *Passer domesticus* and starlings *Sturnus vulgaris.*
- Each of the new dwellings should incorporate a new integrated bat roost feature, such as the Build-in Woodstone Bat Box (see Plates 11 & 12). These boxes should be installed at wall top height, preferably on a southern elevation and away from any areas of artificial light spill.
- In order to ensure that hedgehogs continue to be able to freely access the site, 13cm x 13cm hedgehog holes should be cut at the base of new dwelling boundary fences (Figure 3). In order to show new homeowners, the purpose of new fence holes, signs should be affixed over the hole on both sides of the fence (i.e. Eco Hedgehog Hole Fence Plate).

Plates 10 & 11. Manthorpe Swift Brick





Plates 12 & 13. Vivara Pro Build-in WoodStone Bat Box





6.6 Conclusion

6.6.1 The scheme is expected to result in an ecological net gain. In order to ensure the scheme maximises potential benefits to nature conservation, it is recommended that mitigation and enhancement measures detailed in Sections 6.3 and 6.4 are adopted.

6.6.2 The results of this survey are considered to be valid for a period of 12 months. After this time Middleton Bell Ecology should be contacted to determine the need for update survey.

7. References

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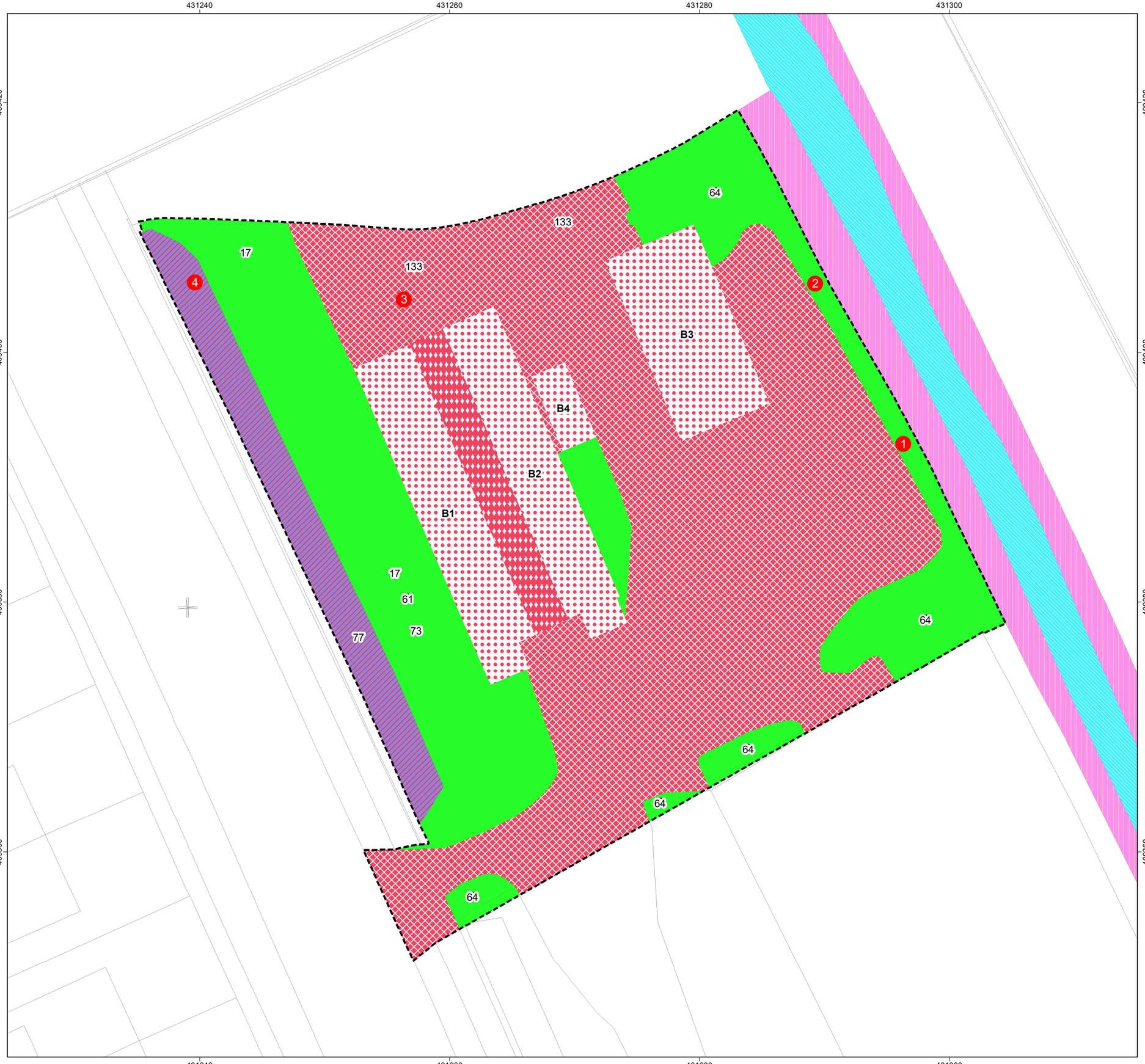
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Appendix 1. UK Habitat Classification Plan





Survey Information	
	Site boundary (2,518.8m^2)
UK Habitat Survey (Primary Habitats)	
	f2d - Aquatic marginal vegetation
	g4 - Modified grassland (729.6m^2)
	h3h - Mixed scrub (151.9m^2)
	r1a - Eutrophic standing waters
	u1b5 - Buildings (391.3m^2)
	u1b6 - Other developed land (74.1m^2)
	u1c - Artificial unvegetated, unsealed surface (1,171.9m^2)
X	Target note

Secondary codes:

17 - Ruderal/ ephemeral
61 - Horse grazed
64 - Mown
73 - Bare ground
77 - Neglected
133 - Nutrient-enriched substrate

Target notes:

1 - Incinerator
2 - Stored material including logs, pallets and tiles
3 - Horse manure pile
4 - Two semi-mature sycamore trees

Source:
Ordnance Survey © Crown copyright 2022, All rights reserved. License Number 100049837.

N

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Metres

PROJECT TITLE

LAND OFF BARNSLEY ROAD, DARTON

DRAWING TITLE

Figure 1. UK Habitat Survey Plan

VER	DATE	REMARKS	Drawn	Checked
1.1	22/04/22	UKHab	MP	RB

DRAWING NUMBER:
MIDDLETONBELLECOLOGY/BarnsleyRdDarton/UKHab

SCALE	1:300	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

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www.middletonbellecology.co.uk
T: 01226 286282

Appendix 2. Plant Species Recorded on Site

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

Common name	Taxon	g4 - modified grassland	h3h - mixed scrub
Perennial Ryegrass	*Lolium perenne*	A	
Broad-leaved Dock	*Rumex obtusifolius*	F	
Creeping Buttercup	*Ranunculus repens*	F	
Dandelion	*Taraxacum officinale* agg.	F	
White clover	*Trifolium repens*	F	
Bramble	*Rubus fruticosus* agg.	O	F
Cleavers	*Galium aparine*	O	
Cock's-foot	*Dactylis glomerata*	O	
Creeping Thistle	*Cirsium arvense*	O	
Greater Plantain	*Plantago major*	O	
Red Fescue	*Festuca rubra*	O	
Ribwort Plantain	*Plantago lanceolata*	O	
Yarrow	*Achillea millefolium*	O	
Yorkshire-fog	*Holcus lanatus*	O	
Common Nettle	*Urtica dioica*	R	F
Cow Parsley	*Anthriscus sylvestris*	R	
Garlic Mustard	*Alliaria petiolata*	R	
Grape-hyacinth	*Muscari neglectum*	R	
Herb Bennet	*Geum urbanum*	R	
Lesser Burdock	*Arctium minus*	R	
Dogrose	*Rosa canina*		F
Elder	*Sambucus nigra*		F
Hawthorn	*Crataegus monogyna*		F
Sycamore	*Acer pseudoplatanus*		F
Oxeye Daisy	*Leucanthemum vulgare*		R
Primrose	*Primula vulgaris*		R

Appendix 3. Relevant Legislation and Planning Policy

Wildlife legislation relating to statutory designated sites and species is summarised in Table A1 and A2 below. This legal information is intended for summary only, and the original legal documents should be consulted if a detailed understanding is required.

Table A1. Legislation relating to designated sites and habitats

Designated Site	Legal Status
Local Wildlife Site	While they have no direct legal status, Local Wildlife Sites are considered important enough to receive recognition within the planning system. National planning policy requires local authorities to identify Local Wildlife Sites and provide for their protection through local policy.

Table A2. Legislation relating to species

Species	Legal Status
European protection	
European Protected Species (EPS) (including bats, Great Crested Newt (GCN), otter and hazel dormouse)	These animal species and their breeding sites or resting places are protected under Schedule 2 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which makes it illegal to: • Intentionally or deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs. • Deliberately disturb such an animal. • Damage or destroy a breeding site or resting place of such an animal. European Protected Species (EPS) licences can be granted by Natural England in respect of development to permit activities that would otherwise be unlawful under the Conservation Regulations, providing that the following 3 tests (set out in the EC Habitats Directive) are passed: • The development is for reasons of overriding public interest. • There is no satisfactory alternative; and • The favourable conservation status of the species concerned will be maintained and/or enhanced. Under Regulation 9(5) of the Conservation Regulations, Planning Authorities have a legal duty to 'have regard to the requirements of the EC Habitats Directive in the exercise of their functions'. This means that they must consider the above 3 tests when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations. As a consequence, Planning Applications for such developments must demonstrate that the 3 tests will be passed. Natural England also allow sites to be registered on the Bat Low Impact Class Licence to permit activities that would otherwise be unlawful under the Conservation Regulations where the 3 tests can

Species	Legal Status
	be passed and the bat roosts to be impacted are of low conservation status.
National protection	
European Protected Species and other species including water vole and white clawed crayfish	These animals receive full protection under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to: • Intentionally kill, injure or take any such animal. • Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal; and • Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.
Common amphibians and reptile species	These animals receive limited protection under The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal to intentionally kill or injure any such animal.
Badger	The Protection of Badgers Act 1992 makes it illegal to wilfully kill or injure a Badger or attempt to do so and also make it illegal to intentionally or recklessly interfere with a Badger sett. This includes damaging or destroying a sett, obstructing access to a sett and disturbing a Badger while it is occupying a sett. Licences can be granted by Natural England to permit sett closure and/or disturbance between July and November inclusive.
Schedule 1 birds	Special penalties relate to offences concerning birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In addition to the offences detailed above relating to all wild birds, it is illegal to intentionally or recklessly disturb any Schedule 1 bird or their dependent young while nesting.
All bird species	All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to: • Intentionally kill, injure or take any wild bird. • Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.
Invasive species	The Wildlife and Countryside Act 1981 (as amended) contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 of the Act. In relation to Schedule 9 plants, it is an offence to plant or otherwise cause these plant species to grow in the wild.

Species and Habitats of Principal Importance

Planning authorities have a duty under Section 40 of the NERC Act 2006 to have regard to priority species and habitats in exercising their functions including development control and planning. In compliance with Section 41 of the NERC Act, the Secretary of State has published a list of species and habitats considered to be of principal importance for conserving biodiversity in England under the UK Post-2010 Biodiversity Framework. This is known as the list of Habitats and Species of Principal Importance (HPI/SPI). The HPI/SPI list is used to guide planning authorities in implementing their duty under the NERC Act.

National Planning Policy Framework

The National Planning Policy Framework for England was revised in 2021. This document states that plans should 'promote the conservation, restoration and re-creation 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'. It also puts an emphasis on refusing development which would result in the 'loss or deterioration of irreplaceable habitats (such as ancient woodland)' unless there are 'wholly exceptional reasons and a suitable mitigation strategy exists'.

Local Biodiversity Action Plans

The HPI/SPI list included on Section 41 of the NERC Act 2006 is supported by a series of Local Biodiversity Action Plans (LBAPs), usually set up on a local authority local authority administrative boundary basis. Each LBAP identifies those habitats and species considered to be most important in that area (usually referred to as priority habitats and species). Commonly, an LBAP will identify a number of habitats and species for which "action plans" have been prepared.

Appendix 4. Pond HSI Results

Pond/Ditch Name	Grid Reference	Location	Pond Area	Pond Drying	Water Quality	Shade	Fowl	Fish	Ponds	Terrestrial Habitat	Macrophytes	HSI	Suitability
Pond 1	SE 31362 09321	Zone A	1100m2	Never Dries	Moderate	71-75%	Minor	Major	4	Moderate	1-5%	0.46	**Poor**
Pond 2	SE 31593 09026	Zone A	1700m2	Never Dries	Poor	96-100%	Minor	Minor	4	Moderate	1-5%	0.53	**Below Average**
Ditch	SE 31296 09406	Zone A	300m2	Never Dries	Moderate	0-60%	Absent	Minor	4	Moderate	56-60%	0.74	**Good**

Appendix 5. eDNA Results

SureScreen Scientifics

Folio No: E12784
Report No: 1
Purchase Order: Barnsley Rd 2
Client: MIDDLETON BELL ECOLOGY
Contact: Robert Bell

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 21/04/2022
Date Reported: 26/04/2022
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
2270	Ditch, Barnsley Rd, Darton	SE3128709425	Pass	Pass	Pass	Negative	0
2271	Pond 1, Barnsley Rd, Darton	SE3136309323	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Chris Troth **Approved by:** Esther Strafford

SureScreen Scientifics

METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

INTERPRETATION OF RESULTS

SIC: **Sample Integrity Check** [Pass/Fail]
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.

DC: **Degradation Check** [Pass/Fail]
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

IC: **Inhibition Check** [Pass/Fail]
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result: **Presence of GCN eDNA** [Positive/Negative/Inconclusive]
Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.
Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.
Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.

Appendix 6. Small Sites Metric Headline Results

Site Name:	Land off Barnsley Rd, Darton
Sheet Name	Headline Results

Headline Results

Headline	BNG Targets Met

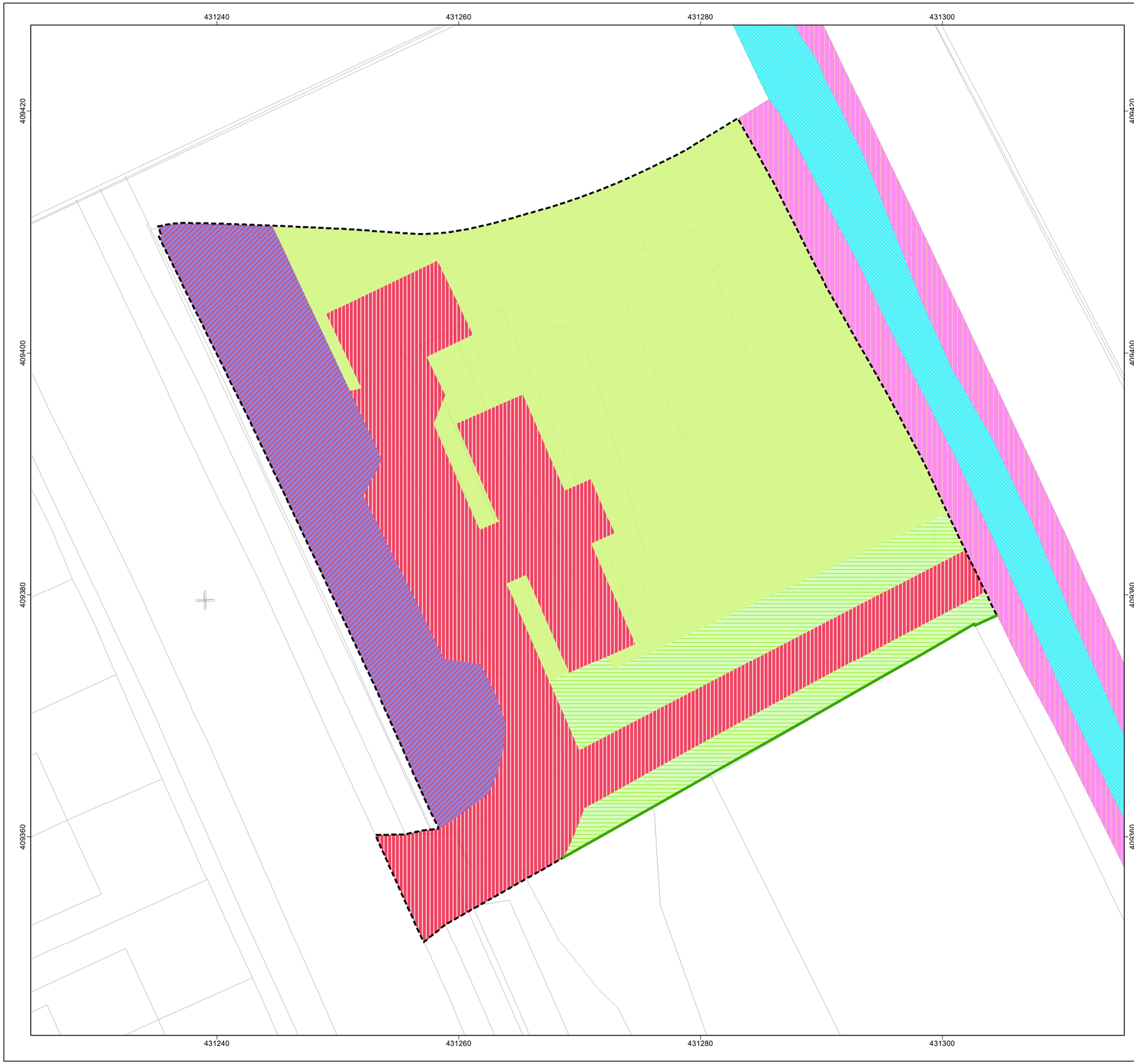
Next steps	Submit metric to LPA

Total net unit change	*Habitat units*	0.3030
	Hedgerow units	0.3157
	River units	0.0000

Total net % change	*Habitat units*	63.71%
	Hedgerow units	% target not appropriate
	River units	% target not appropriate

Habitats units required to meet target	0.0000
Hedgerow units required to meet target	0.0000
River units required to meet target	0.0000

Appendix 7. Proposed Plan Showing Assumed Habitats Used To Calculate Metric





Survey Information	
	Site boundary (2,518.8m^2)
UK Habitat Survey (Primary and Secondary Habitats)	
	f2d - Aquatic marginal vegetation
	g3c - Other neutral grassland (250.5m^2)
	h3h - Mixed scrub (403.0m^2)
	r1a - Eutrophic standing waters
	u1b - Developed land; sealed surface (727.9m^2)
	231 - Vegetated garden (1,137.4m^2)
	h2a - Hedgerow (priority habitat) (41.2m)

Source:
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0 2.5 5 10
Metres

PROJECT TITLE

LAND OFF BARNSLEY ROAD, DARTON

DRAWING TITLE

Figure 2. UK Habitat Proposed Plan

VER	DATE	REMARKS	Drawn	Checked
1.2	21/04/22	Proposal	MP	RB

DRAWING NUMBER:
MIDDLETONBELLECOLOGY/BarnsleyRdDarton/Proposal

SCALE	PLOT SIZE	DATUM	PROJECTION
1:300	A3	OSGB	BNG

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