SF 2263/2289 | Land off Millstones, Oxspring

ECOLOGICAL APPRAISAL AND BIODIVERSITY NET GAIN ASSESSMENT

December 2023
Revision D

SMEEDEN FOREMAN

Landscape Architecture • Ecology • Arboriculture

Quality Assurance

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Revisions

16.10.2020	Rev A	Proposals updated to Revision C, buffer added and bird/bat box recommendations included.
10.10.2023	Rev B	Habitats on site re-surveyed in accordance with the UK Habitat Classification to inform Biodiversity Net Gain Assessment (included). Proposals updated to Revision D. Incorporation of existing ecological data obtained to date.
14.11.2023	Rev C	Habitats on site assessed in accordance with the updated Biodiversity Net Gain Assessment version 4.0.
18.12.2023	Rev D	Section 5.0 (Biodiversity Net Gain assessment) amended to reflect the addition of three trees within the landscape proposals.

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EXECUTIVE SUMMARY (REVISED)

Smeeden Foreman Limited has been commissioned by Yorkshire Land to undertake an ecological appraisal of a proposed development site off Millstones, Oxspring, South Yorkshire (central grid reference SE 27030 02178). The site is proposed for residential development.

This report includes a desk study of relevant information including designated nature conservation sites and existing records of protected species; an initial site survey (extended phase 1 habitat survey, otter and water vole check and bat transect) commissioned to support a planning application.

The site is located within the village of Oxspring, a small residential village surrounded by open countryside approximately 7km south west of Barnsley. The site is approximately 0.35 hectares composed principally of semi-improved grassland, a line of young and semi-mature trees along the southern boundary adjacent to the River Don and an existing track running along the northern boundary, with scrub beyond.

Designated sites
There are no statutorily designated nature conservation sites within 1.5km of the proposals site and two non-statutory sites at 1.25-1.5km. It is considered that there will be no adverse impact upon these designated sites as a result of the development due to a combination of the distance from the proposals site, intervening land-uses (roads and built-up areas) and the scale/nature of the proposals.

Habitats
The grassland habitat within the proposals site offers some conservation value, supporting a range of grass and forb species throughout the sward. The tree lined River Don strategic wildlife corridor along the southern boundary and woodland to the north and west are of local ecological value being priority UKBAP habitat, supporting species of interest and providing wildlife connectivity. In addition the woodland to the north is also considered ancient and semi-natural.

In order to protect habitats/features of ecological value present within the site and adjacent to it, the following is recommended:

- Retain/protect the line of trees and river corridor habitat along the southern boundary with an 8m buffer of appropriate natural habitat;
- Protect young and mature woodland to the western and northern boundaries;
- Protect the root protection area of the ancient woodland to the north of site by retaining a buffer of existing scrub, supplemented by the planting of a hedgerow to include appropriate native species and incorporation of a boundary fence to deter access in the long term;
- Compliance with pollution prevention guidelines during construction such as sediment fencing and appropriate design of drainage outlet if required;
- Use of temporary protective demarcation fencing to protect retained areas/features and prevent accidental damage to adjacent vegetation;
- Use of directional lighting during construction and post-development which will not shine upon the site boundaries or trees within the site.

In order that the proposed development provides enhancement to wildlife the following recommendations are to be incorporated within the proposals:-

- Planting of species rich native hedgerows or lines of native shrubs, where feasible;

- The inclusion of appropriate native species (trees, shrubs and wildflower seeding) within the landscape proposals;
- Incorporation of ornamental species of trees and shrubs known to be a value to wildlife within any landscape planting.
- Inclusion of bird and bat boxes on new build/retained trees.

Refer to section 6.2 for more information.

Species
The potential for the following protected and notable species to be affected by the development has been assessed with potential mitigation and further survey work as follows:

- Bats – roosting - trees on site are to be retained in order to minimise impacts on the river corridor and allow for the provision of dead wood habitats. If this should change, further survey is recommended in respect to the potential for roosting bats within TN1, TN4 and TN8, and precautionary working methods for TN3, TN6 and TN9, if any of these trees are to be removed or subject to pruning. Bat roost features to be included within new build and/or retained trees.
- Bats – foraging/commuting – potential impact on use of the site by foraging and commuting bats to be minimised by layout orientation and appropriate lighting design to avoid illuminating the river corridor and woodland edges. General mitigation to include appropriate native species within the landscape proposals.
- Breeding birds – site clearance works to be undertaken outside the bird nesting season (March to August inclusive) or following a site check to establish the absence of active nests. Potential for enhancement include incorporation of appropriate native species within the landscape proposals and installation of bird boxes on retained trees/new build. Kingfisher (a Schedule 1 species) were observed using the river corridor during the survey therefore precautionary working practices and pollution prevention measures are recommended to protect the river habitat from degradation and disturbance. Pre-commencement checking survey required to determine current status on site if works to take place during breeding season (March to July).
- Badger – pre-start checking survey to confirm presence/absence of setts within 30m of the site boundary and precautionary working methods to be used during construction to avoid accidental harm or injury.
- Otter – precautionary working methods to be used during construction to avoid accidental harm or injury.
- Hedgehog – precautionary working methods to be used during construction to avoid accidental harm or injury, with appropriate design of fences/boundary features if required.
- Himalayan balsam – control treatment to be put in place and working measures during construction to prevent spread of this species.
- Signal crayfish – areas of disturbance along the river corridor to be inspected by a suitably qualified ecologist before works commence. Precautionary working methods to be used during construction to avoid accidental spread of this species or signal crayfish plague, under the guidance of a suitably qualified ecologist.

- Other species – potential for the presence of great crested newt, water vole, and reptiles is considered unlikely with no further survey required.

Refer to section 6.3 for more information.

The development is considered feasible with minimal impact on biodiversity provided that mitigation and enhancement measures detailed within this report are incorporated within the site proposals.

1.0 INTRODUCTION

1.1.1 Smeeden Foreman Limited has been commissioned by Yorkshire Land to undertake an ecological appraisal of a proposed development site off Millstones, Oxspring, South Yorkshire (central grid reference SE 27030 02178), here after referred to as the 'site'.

1.1.2 This report will include the following information gathered by desk study and site survey (extended phase 1 habitat survey, UK Habitat Classification survey, otter and water vole assessment and bat transect):

- Proximity to statutory and non-statutory designated sites;
- Proximity to existing records of protected species;
- Site habitat appraisal and potential to support protected species; and
- Details of the Biodiversity Net Gain (BNG) assessment which has been completed for the above scheme in order to demonstrate net biodiversity gains / losses, with reference to the DEFRA Biodiversity v3.1 Metric.

1.1.3 A review of the above information will be made to identify any features or sites of ecological interest which may be affected by the development proposals. Where potential impacts or protected species are identified the need for mitigation measures, potential environmental enhancements and requirements for further surveys will be discussed.

1.1.4 The report has been commissioned to inform a planning application for residential development of six homes. It forms an update to original surveys of the site undertaken in 2014 and revisions undertaken in October 2020 (refer to, *SF2263 Ecology Report, October 2014*; *SF2263 Ecological Appraisal, June 2020*).

1.1.5 The methodologies used to survey and assess the ecological value and potential impacts on the site are based upon guidelines produced by the Chartered Institute of Ecology and Environmental Management (CIEEM) (Guidelines for Preliminary Ecological Appraisal, 2017 and Guidelines for Ecological Impact Assessment, 2018).

2.0 SITE DESCRIPTION

2.1.1 The site is located within the village of Oxspring, which lies approximately 7km south west of Barnsley, South Yorkshire. Oxspring is a small residential village surrounded by open countryside. Refer to *Figure 02* below.

2.1.2 The proposed development site is approximately 0.35 hectares and is composed principally of semi-improved grassland, scrub, a line of young and semi-mature trees with tall herb vegetation and an existing track running along the northern boundary.

2.1.3 The River Don runs along the southern boundary of the site such that the site falls within the River Don Valley Corridor. It is bound to the west by a fence beyond which lies established tree and shrub vegetation planted in association with the existing development to the east; to the north by a strip of bramble scrub beyond which lies an area of ancient semi-natural woodland, to the east by garden fencing beyond which lies existing residential housing.

Figure 01: Aerial view of site location

3.0 PRINCIPAL LEGISLATION AND POLICIES

3.1.1 The national nature conservation legislation and policies that may be relevant to the proposed development are listed below. A brief explanation of the principle legislation and policies relating to nature conservation, biodiversity and ecology is provided in *Appendix 01.*

- Wildlife and Countryside Act 1981 (*as amended*)
- EC Habitats Directive (92/43/EEC)
- EC Birds Directive (79/409/EEC)
- Countryside and Rights of Way Act 2000
- Protection of Badgers Act 1992
- United Kingdom Biodiversity Action Plan (UKBAP)
- Natural Environment and Rural Communities Act (NERC), 2006 – Biodiversity Duty
- Hedgerow Regulations 1997
- National Planning Policy Framework (NPPF)

4.0 BASELINE INFORMATION

4.1 METHODOLOGY

4.1.1 The ecological interest of the site and its surroundings has been investigated by a combination of the following:

- Field survey of the site and immediate surroundings; original surveys undertaken by Smeeden Foreman Ltd. in 2014 with updates in June 2020 (including a phase 1 habitat survey, otter and water vole survey and bat transects) and July 2023 (including an updated habitat survey pertaining to UK Habitat Classification methodology and River Condition Assessment to inform the Biodiversity Net Gain Assessment (Refer to, *SF2263 Ecological Appraisal Revision A, June 2020*);
- Consultation with relevant bodies to obtain existing protected species records and statutory / non-statutory designated sites information within the local area (1.5km of the development site): Sheffield Biological Records Centre (SBRC), South Yorkshire Bat Group (SYBatG) and South Yorkshire Badger Group (SYBadgerG).
- The UK Biodiversity Action Plan (UKBAP);
- The Barnsley Biodiversity Action plan (LBAP);
- Magic map, a government website for nature conservation information; and,
- Aerial photographs;

4.2 NATURE CONSERVATION DESIGNATED SITES

Statutory Designations

4.2.1 There are no statutorily designated nature conservation sites within 2km of the proposals site boundary. This includes European, national and local statutorily designated nature conservation sites such as RAMSAR, Special Areas for Conservation (SAC), Special Protection Areas (SPA), Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR).

4.2.2 The proposals site does not lie within an Impact Risk Zone relevant to residential development for any designated site (refer to Natural England (NE) Geographic Information System (GIS) dataset, magic map).

Non-statutory Designations

4.2.3 Sheffield Biological Records Centre (SBRC) provided information on two non-statutorily designated sites within 1.5km of the proposals site. These sites are designated as Barnsley Wildlife Sites (BWS[1]) and are detailed in *Table 01* below with locations on *Figure 03*.

Table 01: Non-statutorily designated sites within 1.5km

Site Name	Designation	Grid reference	Location from site	Notes
Black Moor Common	BWS[1]	SE 277 007	1.25km south east	Mixed habitat
Royd, Vicar, Lindley and Coates Great Woods	BWS[1]	SE 277 037	1.5km north	Woodland

[1] Barnsley Wildlife Sites (BWS): Non statutory designated sites are areas identified by the relevant local authority as being important for their flora and fauna. They are of county wide importance and are afforded protection through local planning policy. This designation is equivalent to the national Sites of Importance for Nature Conservation (SINC's) designated by local authorities to enable consideration of their ecological interest within the planning system. The designation can be operated in different ways such that the status and name given to such sites can vary from one area to another.

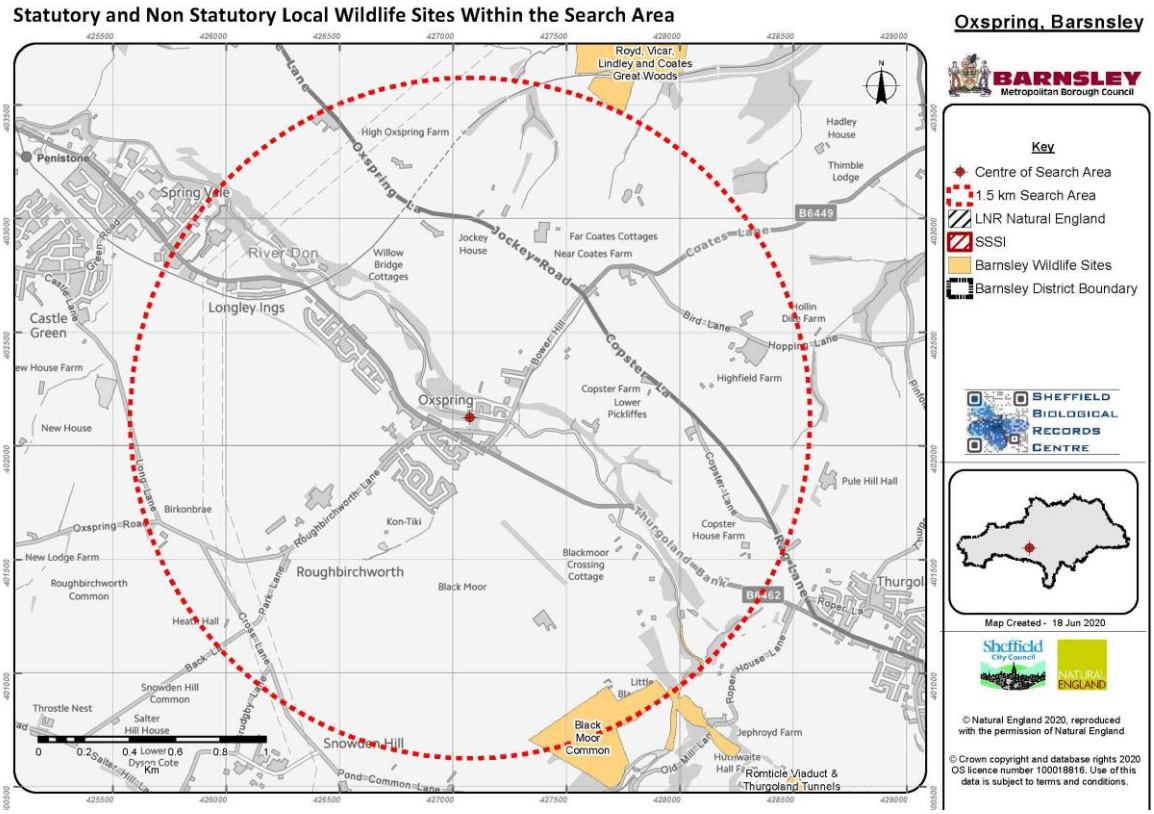

Figure 02:Non-statutory designated sites.

Other sites of interest

4.2.4 The closest areas of ancient and semi-natural woodland lie adjacent to the north of the proposals site.

4.3 EXISTING SPECIES RECORDS

4.3.1 Existing biological record data was provided by SBRC, the local biological records centre for the Barnsley area and SYBatG. The records supplied were extensive, providing over 4000 entries covering 700 species within 1.5km of the site. The records included within the report have been selected either for their level of protection or where the records are relevant to the proposals site, being species for which suitable habitat is considered to be present on, or within close proximity to, the proposals site. The full records can be provided on request.

The records detailed in *Table 02* were provided by SBRC.

Table 02: Protected species records within 1.5km (SBRC)

Species	Protection/ status	Distance (km)	Dates	Notes
King fisher *Alcedo atthis*	WCA 1	0.6-0.4km up/down river	1990,2006	Four records along the River Don Valley.
Great crested newt *Triturus cristatus*	EC WCA 5 UKBAP, BBAP	0.325km NE	1995	Single record Bell Cottage pond (SE 273024).
Water vole *Arvicola terrestris*	WCA 5 UK BAP BBAP	0.1-0.6km	1988,1997	Two records. 0.6km SW (2 in pond) SE267016 >0.1km W (SF2602)
Daubentons *Myotis daubentonii*	EC WCA 5 UKBAP BBAP	1.3km SE	2013/2014	Roost – Romtickle Viaduct.
Nyctalus sp	EC WCA 5 UKBAP BBAP	1.3km SE	2013/2014	Roost – Romtickle Viaduct.
Common pipistrelle *Pipistrellus pipistrellus*	EC WCA 5 BBAP	1.3km SE 0.4km E 0.59km SE 0.23km W	2013/2014 2012 2012 2000	Roost – Romtickle Viaduct. River Don Thurgoland Bridge Oxspring 1Y school
Soprano pipistrelle *Pipistrellus pygmaeus*	EC WCA 5 BBAP	1.3km SE	2013/2014	Roost – Romtickle Viaduct.
Pipistrelle sp. *Pipistrellus sp.*	EC WCA 5 BBAP	1.3km SE >0.8km SE On site	2013/2014 2006 1991	Roost – Romtickle Viaduct. Huthwaite Croft Willow Lane, Bridge
Brown long-eared bat *Plecotus auritus*	EC WCA 5 UKBAP BBAP	1.3km SE	2013	Roost – Romtickle Viaduct.

NERC 41: NERC Act (2006) Section 41: Species listed under Section 41 of the Natural Environment and Rural Communities Act (2006). These are the species found in England which have been identified as requiring action under the UK BAP. All local authorities and other public authorities in England and Wales have a duty to promote and enhance biodiversity in all of their functions.
WCA 1: Wildlife and Countryside Act (1981) Schedule 1: birds which are protected by special penalties at all times.
WCA 5: Wildlife and Countryside Act (1981) Schedule 5: species protected against killing, injury, disturbance and handling – full protection.
EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats & Species Directive): Designation of protected areas for animal and plant species listed.
UKBAP UK Priority Species (Short and Middle Lists – UK Biodiversity Steering Group Report 1995): species that are globally threatened and rapidly declining in the UK (by more than 50% in the last 25 years). Action Plans have been produced.
BBAP Barnsley Biodiversity Action Plan species: these have been identified as species of key conservation concern in the Barnsley area.

4.3.2 Numerous bat records have been provided by SYBatG including, common pipistrelle, soprano pipistrelle, brown long-eared bat, Daubenton's bat, whiskered/Brandt's bat, Myotis sp. Leisler's bat, Noctule and Natterer's bat.

4.3.3 Numerous records of badger have been provided by SBRC within 1.5km of the proposals site including setts, latrines, field signs and dead animals (from approximately 0.25 to 1.5km from the site N, NE, S, SE, SW and W). Additional records were sought from SYBadgerG who confirmed sett locations all of which were beyond 1.5km from the site.

4.3.4 Non-native invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 which have been recorded within 1.5km of the proposals site include: Japanese knotweed *Fallopia japonica,* Indian balsam *Impatiens glandulifera* and Japanese rose *Rosa rugosa.*

4.3.5 Non-native invasive animal species included on Schedule 9 of the Wildlife and Countryside Act 1981 which have been recorded within 1.5km of the proposals site include: Mink *Mustela vison* recorded from the River Don between 1998 and 2012 between 0-1.0km from the site, Canada goose *Branta Canadensis.*

4.3.6 Records of priority UK Biodiversity Action Plan species within 1.5km of the study area were provided for the following species:

Birds: lesser redpoll, skylark, cuckoo, yellowhammer, reed bunting, linnet, spotted flycatcher, curlew, house sparrow, tree sparrow, grey partridge, willow tit, bullfinch, dunnock, starling, song thrush, lapwing.
Fish: bullhead
Insects: small heath, dingy skipper, wall, white-letter hairstreak,
Mammals: hedgehog, brown hare.

4.3.7 All UK BAP species are also included within the Barnsley BAP where relevant. In addition to those species listed above, the following species have also been afforded local action plans within the Barnsley BAP:-

Amphibians: common frog *Rana temporaria,* smooth newt *Triturus vulgaris.*
Birds: kingfisher, house martin, grey wagtail, mistle thrush.

4.3.8 One European Protected Species Licence was identified within the 2km search area, 2.9km south west of the proposals site (reference *2020-46131-EPS-MIT* for common pipistrelle bat, 27/03/2020 – 31/08/2023). The locations of the nearest EPS licences

outside of the 2km search area are approximately 3.2km north west of the proposals site (reference *EPSM2009-1299* for common pipistrelle bat, 2009-2011), 3.4km south west of the proposals site (reference *2015-18124-EPS-MIT* for common pipistrelle, soprano pipistrelle, brown-long eared and whiskered bat, 2016-2017) and 3.6km north east of the proposals site (reference *2016-24447-EPS-MIT* for common pipistrelle, brown-long eared and natterers bat, 2016-2026).

4.4 BIODIVERSITY ACTION PLANS

National Biodiversity Action Plan

4.4.1 The UK Biodiversity Action Plan (UK BAP) identifies priority species and habitats which are those considered to be the most threatened and therefore most in need of conservation action. The lists were updated in 2007 to include 1150 species and 65 habitats. The UK Post-2010 Biodiversity Framework (July 2012) has succeeded the UKBAP, however priority species and habitats listed under the UKBAP remain a valuable reference source and have been used to inform statutory lists at a national level including Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (England).

4.4.2 Priority habitats known to occur within 2km of the site include ancient and semi-natural woodland, deciduous woodland and hedgerows. Refer to section 5.2 for discussion on avoidance of adverse impacts upon these habitats.

4.4.3 During the walkover survey no priority habitats were identified on site but the site is bounded by deciduous woodland, with that to the north being ancient semi-natural, and the site has the potential to be used by priority species including bats, hedgehog and bird species.

Local Biodiversity Action Plan

4.4.4 The Barnsley Biodiversity Action Plan (LBAP) includes all relevant UKBAP priority habitats and the following additional habitats:-

- Amenity grassland
- Built environment, gardens and school grounds.

4.4.5 The site does not contain any of these habitats but is bounded by deciduous woodland, with that to the north being ancient semi-natural.

4.4.6 The Barnsley Biodiversity Action Plan (LBAP) includes all relevant UKBAP priority species, species protected under the Wildlife and Countryside Act (1981) and those included on non-statutory red lists.

4.4.7 It is considered that bats may use the site for commuting/foraging and potentially roosting; the site may also support hedgehog and bird species

4.5 SITE SURVEY – HABITAT SURVEY (UPDATED)

Methodology

4.5.1 A walk over survey was undertaken on 12th July 2023 by Georgina Southon (PhD, MSc). This has been used to update the previous surveys undertaken in 2020 and 2014 by Smeeden Foreman Ltd. Habitat types and key species were noted in accordance with UK Habitat Classification methodology which replaces the former Phase 1 Habitat format proposed by the Joint Nature Conservation Committee (2010), refer to *Figure 03* for habitat distribution.

4.5.2 The 2023 survey was undertaken within the optimal survey season in warm, dry but overcast conditions.

Results

4.5.3 The site is bounded by woodland to the north, west and south separated from the site by bramble scrub, a post and rail timber fence and the River Don respectively. To the east the site is bounded by a garden fence beyond which lies existing residential properties.

4.5.4 The predominant habitat on site in 2014/2020 was species poor semi-improved grassland, with other habitats including scrub, tall herb vegetation and a line of individual trees associated with the northern bank of the River Don.

4.5.5 No significant change was apparent in 2023, however, in accordance with the UK Habitat Classification condition assessment criteria, the grassland was classified as **g3c – other neutral grassland** habitat in '**poor**' ecological condition, supporting an average of approximately 9 species per metre squared, although relative species abundance was not evenly distributed throughout the grassland. This change of condition from the previous survey reflects nature recovery after the cessation of intensive management practices at the site.

4.5.6 Four main habitat types were identified (to UKHabs) on site: other neutral grassland, scrub, line of trees and the riparian zone of the River Don.

Semi-improved grassland

4.5.7 The dominant habitat within the site is semi-improved neutral grassland (**TN10**) which is currently unmanaged (although previously managed regularly by flail to a height of 0.1m and treated with herbicide). In 2014 it was characterised by constant and frequent cock's-foot *(Dactylis glomerata),* Yorkshire-fog *(Holcus lanatus)*, tufted hair-grass (*Deschampsia cespitosa*) and red fescue *(Festuca rubra)*, white clover (*Trifolium repens*), common mouse-ear (*Cerastium fontanum*), meadow buttercup (*Ranunculus acris*) and dandelion (*Taraxacum* agg.). Other species present include locally frequent common nettle (*Urtica* dioica), cleavers (*Galium aparine*), common sorrel (*Rumex acetosa*), creeping buttercup (*Ranunculus repens*), great willowherb (*Epilobium hirsutum*), hogweed (*Heracleum sphondylium*), moss species and willow (saplings), and occasional broad-leaved dock (*Rumex obtusifolius*).

4.5.8 The 2020 survey found a similar range of species with additional species including occasional black medick *(Medicago lupulina)* and yarrow *(Achillea millefolium)*, with rarely occurring bird's foot trefoil *(Lotus corniculatus)* and meadow vetchling *(Lathyrus pratensis)*.

4.5.9 The grassland species recorded in 2023 include those noted above, with additional species occurring occasionally to rarely within the sward including dove's foot cranesbill (*Geranium molle)*, hairy tare (*Vicia hirsuta)*, smooth hawksbeard (*Crepis capillaris)*, lesser trefoil (*Trifolium dubium)*, common centaury (*Centauria erythraea)*, common vetch (*Vicia sativa)*, thyme leaved speedwell (*Veronica serpyllifolia)* and changing forget-me-not (*Myosotis discolor*). Please refer to *Appendix 07* for detailed quadrat data.

Artificial, unsealed surface

4.5.10 A hardcore track (**TN11**) runs along the northern boundary of the field.

Scrub

4.5.11 To the north of the track is a strip of dense continuous bracken (*Pteridium aquilinum*) and bramble (*Rubus fruticosa*) (TN12) on an embankment which separates the site from the area of woodland beyond.

Tall herb vegetation

4.5.12 Tall herb vegetation within the dense scrub (TN12) includes common nettle, great willow herb, cleavers, creeping thistle *(Cirsium arvense)*, curled dock *(Rumex crispus)*, sow thistle *(Sonchus arvensis)* and rose bay willow herb *(Chamerion angustifolium)*, with forget me not *(Myosotis spp.)* and hedge wound wort *(Stachys sylvatica)*.

4.5.13 No significant changes were observed during the 2023 survey, however in accordance with UKHabs methodology, this area is now classified as h3h – Mixed scrub habitat, to reflect the inclusion of bracken, cherry laurel (*Prunus laurocerasus*) and young ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*) and wych elm (*Ulmus glabra*) trees within this area.

4.5.14 The site slopes towards the riverbank along the southern boundary of the site. The slope supports a mix of grasses and tall herb vegetation (TN13) dominated by false oat grass *(Arrhenatherum elatius),* cock's foot and butter bur *(Petasites hybridus)*, with constant and frequent hogweed, creeping buttercup, common nettle, creeping bent (*Agrostis stolonifera*) and bramble. Other species present include locally frequent creeping thistle, barren brome (*Anisantha sterilis*), lesser celandine (*Ranunculus ficaria*) and sweet cecily *(Myrrhis odorata)* with rarely occurring male fern *(Dryopteris filix-mas)*, wood avens *(Geum urbanum)* and Himalayan balsam *(Impatiens glandulifera).*

4.5.15 No significant changes were observed during the 2023 survey, however in accordance with UKHabs methodology the tall-herb grassland that forms part of the riparian zone has been classified as g3c 17 – other neutral grassland with tall herb vegetation.

Individual trees

4.5.16 A line of trees is present along the southern boundary of the site and comprises mature/semi-mature broadleaf trees of alder (*Alnus glutinosa*), ash, sycamore and willow (*Salix* sp.). In the shaded areas under these trees the ground flora is typical of woodland, with species including opposite-leave golden saxifrage (*Chrysosplenium oppositifolium*), forget-me-not (*Myosotis* sp), wood avens (*Geum urbanum*), bluebell (*Hyacinthoides non-scripta*), red campion (*Silene dioica*), lesser celandine and greater woodrush (*Luzula sylvatica*).

4.5.17 The trees are described in *Table 04* below with locations indicated on *Figure 04*. All trees were inspected from ground level to assess their potential to support roosting bats (from negligible to high based upon Bat Conservation Trust Guidelines 2016, *Table 03*).

Table 03: Summary of BCT structure (tree/building) categories

BCT Category	*Description*
High	One or more highly suitable features capable of supporting larger roosts on a regular basis and for long periods of time.
Moderate	One or more suitable features but unlikely to support a roost of high conservation status.
Low	One or more suitable features suitable for low numbers of bats e.g. individual bats opportunistically.
Negligible	Negligible features likely to be used by roosting bats.

Table 04: Trees on site

Target note (Figure 04)	Refer - Arb. Report ref. [1]	Species	Notes	Potential to support roosting bats
TN1	T1	Ash	Semi-mature/mature tree with single knot hole to south at 5m.	Moderate
TN2	-	Alder	Young tree with no obvious features.	Negligible
TN3	T2	Sycamore	Semi-mature tree with no obvious features, size precludes full inspection	Low
TN4	T3	Ash	Semi-mature tree with dead wood and number of knot holes at height.	Moderate
TN5	T4	Alder	Young tree no obvious features.	Negligible
TN6	T4	2x dead trunk	Potential access to rot holes within dead wood.	Low
TN7	T4	Sycamore	Semi-mature tree with no obvious features.	Negligible
TN8	T5	Alder	Semi-mature tree with single knot hole to north at 4m.	Moderate
TN9	T6	Sycamore	Semi-mature tree with no obvious features, size precludes full inspection	Low

[1]NB: Tree reference numbers used to coincide with Arboricultural Survey (Tree Survey by James Royston dated 2019).

4.5.18 The trees were predominantly sycamore and alder with single ash, occurring along the river's edge. Trees support features suitable for use by roosting bats as follows; three trees (TN3, TN6 and TN9) were noted to hold low potential and three trees (TN1, TN4 and TN8) were noted to hold moderate potential.

4.5.19 *River*

The River Don courses along the southern site boundary. In accordance to UKHabs methodology, the river is classified as a **r2c – other rivers and streams** linear habitat. A River condition Assessment (RCA) was conducted in July 2023 by an accredited assessor and achieved a condition score of 'Fairly Good' reflecting high vegetation structure and diversity within the riparian zone and good hydraulic feature within the river channel. It was negatively scored in relation to the presence of the invasive plant species, Himalayan balsam *Impatiens glandulifera* along the riverbanks and faces. Please refer to *Appendix 05* for more detail on the RCA results and methodology.

Fauna

4.5.20 During the 2020 survey wood pigeon, song thrush, swallow, swift and mallard were noted and a tawny owl was heard calling from the trees to the north. No sightings or evidence of other fauna species were recorded.

4.5.21 During the 2023 site visit two Kingfishers (Schedule 1 bird species) were recorded using the river corridor. A brown hare was seen on site, exiting into woodland to the western boundary. Invertebrates observed using the grassland include butterfly species red admiral (*Vanessa Atalanta)*, Comma (*Polygonium c-album)*, ringlet (*Aphantopus hyperantus*) and meadow brown (*Maniola jurtina)*.

Photographs (2020)

Refer to *Appendix 06* for updated habitat photos (2023).

Photograph 01: Species poor semi-improved grassland (TN10): view from east.

Photograph 02: Existing track and bramble scrub /woodland to northern boundary (TN11/12).

Photograph 03: Garden fence to eastern boundary.

Photograph 04: Established woodland to western boundary.

Photograph 05: Trees and ruderal vegetation along river corridor (TN13)

Photograph 06: Trees and ruderal vegetation along river corridor (TN13)

Conclusion

4.5.22 The habitat on site is predominantly comprised of semi-improved grassland which has value for invertebrates, birds and small mammals. The trees, scrub and associated tall herb vegetation are of value forming the river corridor providing suitable foraging and nesting habitat for a number of bird species, small mammals and foraging/commuting and potential roost sites for bats.

4.5.23 The river, riparian zone, bankside trees and associated woodland flora which includes opposite-leaved golden-saxifrage, bluebell, lesser celandine and red campion are all of ecological interest. The grassland as assessed in 2023, is considered to provide ecological value, representing good condition, neutral grassland. The plant communities at the site are however, of widespread occurrence and are characteristic of the habitats present in the wider area and common nationally. No rare or locally uncommon plant species as listed under the Wildlife and Countryside Act 1981 (as amended) were detected at the site.

4.5.24 The invasive species, Himalayan balsam, as listed under the Wildlife and Countryside Act 1981 (as amended) was detected at the site in association with the riverbanks.

Limitations

4.5.25 The river condition assessment was conducted just outside of the optimal survey period (spring to early summer) and therefore some of the bank faces were obscured by dense vegetation, impeding access. The distance between Morph sampling units had to be modified in some cases to include areas of riverbank that were accessible.

4.6 SITE SURVEY – WATER VOLE AND OTTER CHECK

Methodology

4.6.1 Following the initial site survey undertaken in 2014 a water vole and otter survey along the adjacent River Don was undertaken. There were no existing otter records within 1.5km, however the river was considered suitable habitat to support this species. With respect to water vole, the habitat was considered sub-optimal, with shaded, rocky or shallow banks with a lack of emergent/grassy vegetation, however, records were provided within the adjacent grid square (>0.1-1.1km) to the west of the site.

4.6.2 The survey was undertaken on the 17th October 2014. The survey looked for evidence of otters, such as spraints, feeding remains, prints, otter slides, holts and couches (where the otters lie up in the day) and water vole including burrows, latrines, feeding remains, footprints, etc. The survey was carried out in favourable conditions where water levels allowed the banks to be checked for recent signs of the species and there had been no recent rainfall to wash away potential otter signs. Methods suggested by the Common Standards Monitoring Guidance for Mammals (JNCC, 2004) were followed in surveying for otter and the Water Vole Conservation Handbook (3rd Edition, 2011) for water vole. Surveys continued up to approximately 500 metres up and downstream of the site where accessible. The aerial photograph below shows the extent of the survey in relation to the proposals site (*Figure 06*).

Figure 06: Otter and water vole survey 2014.

Results

4.6.3 During the survey in 2014 no sign of otter or water vole was detected. A footpath was noted to run along the river to the north-west and south east of the site and this appeared to be fairly well used which would therefore cause disturbance along the river. Signs for private fishing were noted along the river to the south-east of the site which was also likely to cause further disturbance.

4.6.4 During the June 2020 survey the riverbanks immediately adjacent to the site were re-checked for signs of otter and water vole, up to approximately 20m from the site boundary, including prominent features and the bridge crossing where otter spraints, particularly would be expected. No evidence of either species was found. The river is still considered to provide suitable habitat for otter but sub-optimal habitat for water vole. Evidence of regularly used footpaths has decreased with exception of a recreation area on the opposite side of Bower Hill, to the south east.

4.6.5 Site conditions were not noted to have significantly altered during the 2023 walkover survey.

4.7 SITE SURVEY - BAT TRANSECT

Methodology

4.7.1 A single bat activity transect survey was undertaken in June to establish the use of the site by foraging and commuting bats with methodology based on guidance outlined within the Bat Conservation Trust's 'Bat Surveys: Good Practice Guidelines 2016'. Though limited to the mid-season for activity surveys, this survey provides an indication of the general level of use of the site by bats.

4.7.2 One surveyor was present for the survey incorporating accessible habitats that were considered important for bats; a single transect, walked repeatedly around the perimeter of the site. The surveyor was equipped with a heterodyne Batbox Duet bat

detector. A Titley Anabat Express detector was used to record bat activity during the transect survey.

4.7.3 A remote detector was deployed for 4 consecutive nights per survey month; 19-22 June 2020 to record bat activity on site over a number of nights. A Titley Anabat Express detector was used, located adjacent to the River Don, anticipated to be a favourable location for commuting and foraging bats.

4.7.4 Refer to *Figure 07* for the transect routes, location of remote detectors and pattern of bat activity noted during the transect survey. *Table 05* below includes information on the timing and conditions of the transect and remote detector surveys:

Table 05: Bat Transect Survey Specifics

Date	Start time	Finish time	Sunset/ Sunrise	Temp.	Cloud cover	Wind speed	Rain	Humidity
19/06/20	21:39	23:39	21:39	13-11°C	40-20%	9-20mph	NONE	80-84%

Walked Transect Results

4.7.5 During the walked transect bat activity was noted on site from 21:48 until the end of the survey. Species were predominantly common pipistrelle (up to 10 records) with soprano pipistrelle (up to 5 records), noctule (3 records) and *Myotis* species (1-2 records) noted to use the site for both foraging and commuting. Both commuting and foraging activity was concentrated along the river corridor (A) and the woodland edge along the western boundary (B) with some use of the woodland edge to the north (C) and low use of the garden vegetation to the east (D).

Remote Detector Results

4.7.6 The remote detector was deployed adjacent to the River Don, adjacent to the site. It was left for 4 consecutive nights to detect variations in bat activity.

4.7.7 The species detected over the four night period were generally in line with those identified from the walked transect with an additional low number of calls of brown long eared bats. The majority of the activity was found to be common pipistrelle and *Myotis* species.

4.7.8 Site conditions were not noted to have significantly altered during the 2023 walkover survey.

5.0 BIODIVERSITY NET GAIN ASSESSMENT

5.1 METHODOLOGY

5.1.1 This report details the BNG assessment which has been completed for the above scheme in order to demonstrate the net biodiversity gains / losses, with reference to the DEFRA Biodiversity v4.0 Metric. Site proposals are for the development of up to 6 dwellings, with associated infrastructure and landscaping.

5.1.2 The principle of 'net gain' is set out in the National Planning Policy Framework (NPPF July 2021):

> Paragraph 174: '*Planning policies and decisions should contribute to and enhance the natural and local environment by:…*
> *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;'*
> Paragraph 179: ''*To protect and enhance biodiversity and geodiversity, plans should:*
> *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 180: *When determining planning applications, local planning authorities should apply the following principles:*
> *d) development whose primary objective is to conserve or enhance biodiversity be supported; while opportunities to incorporate biodiversity improvements 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.*

5.1.3 The requirement for developers to secure a minimum biodiversity net gain of 10% is currently progressing through the legislative process within the Environment Bill.

5.1.4 The Barnsley Local Plan (Supplementary Planning Document July 2023) states that "*development will be expected to conserve and enhance the biodiversity and geological features of the borough by protecting and improving habitats, species, sites of ecological value and sites of geological value with particular regard to designated wildlife and geological sites of international, national and local significance, ancient woodland and species and habitats of principal importance identified via Section 41 of the Natural Environment & Rural Communities Act 2006 (for list of the species and habitats of principal importance) and in the Barnsley Biodiversity Action Plan*". Furthermore, the Local Plan states that" *Barnsley Metropolitan Borough Council have implemented BNG as a planning requirement following adoption of the Local Plan in 2019; of which one of the objectives is to protect and enhance Barnsley's natural assets and achieve net gains in biodiversity*".

5.1.5 It is understood that a Biodiversity Net Gain design should improve the extent or condition of biodiversity affected by a project. It should not result in lost or damaged features being replaced by features of lower biodiversity value. The mitigation hierarchy principle of avoid – minimise – remediate – compensate should be followed within the design process with irreplaceable features retained.

Baseline Assessment

5.1.6 The DEFRA Biodiversity Metric v4.0 has been used to carry out the calculation with reference made to *The Biodiversity Metric 4.0 User Guide* (Panks *et al.* March, 2023) and *Technical Supplement* (March, 2023). The Metric has been developed by Natural England, the Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency with input from various environmental NGOs, developers, councils and other interested parties.

5.1.7 The site has been subject to an Ecological Appraisal with habitat types and key species presented in accordance with the UK Habitats Classification System (*Version 1.1 UKHabs,* September 2020). The habitats on site were then subsequently subject to condition assessments (with reference to the DEFRA 4.0 Metric – Panks *et al.* 2023).

5.1.8 Habitats on site comprise the following when assessed using the UKHabs classification system. This system includes the use of secondary (2°) codes to provide further information on the habitat parcels identified, where relevant:

Habitats

- **Ref 1**: Other neutral grassland (g3c)
- **Ref 2:** Mixed scrub (h3h)
- **Ref 3**: Artificial, unvegetated, unsealed surface (u1c)

Linear features

- **Ref L1:** Line of trees (w1g6)
- **Ref R1:** Other Rivers and Streams (r2c)

5.1.9 Details of on-site habitats are summarised in Table 06 along with the measurements for each habitat type. Baseline habitats have been mapped and measured using scaled GIS drawings (*Figure 04*). Please refer to *Appendix 05* for details relating to the River Condition Assessment and *Appendix 06* for a summary of the condition assessment for each habitat.

Table 06: Site Habitats Baseline Summary

Ref No.	UKHAB Habitat Type	UKHAB Code	Area (ha)/ Length (km)	Distinctiveness (pre-set)	Condition	Strategic Significance	Justification
1	Other Neutral grassland	g3c	0.387	Medium	Poor	High	Passes 3 out of 6 criteria, not including criterion 1.
2	Mixed Scrub	h3h	0.009	Medium	Poor	High	Passes 2 out of 5 criteria
3	Artificial unvegetated, unsealed surface	u1c	0.364	Very Low	N/A Other	Low	Pre-set to low
L1	Line of Trees	w1g6	0.07	Low	Good	Medium	Passes 5 out of 5 criteria

R1	River Don	r2c	0.08	High	Fairly Good	High	Please see *Appendix 05* for details

5.1.10 Inputting the above site habitat baseline information into the Metric Calculation Tool (*SF2289 Biodiversity Metric 4.0 Calculation Tool, October 2023-REVISION A)* to derive on-site habitat and hedgerow baseline units equates to a total of **1.83 habitat units** for area-based habitats, **0.50 hedgerow units** and **1.32 river units**.

5.2 POST-DEVELOPMENT PROPOSALS

5.2.1 Development proposals for the site have been updated by Smeeden Foreman. These proposals form the basis for post-development habitat retention and creation calculations and have been used to inform the Metric.

5.2.2 Details of the post-development habitats are summarised in Table 07 along with the measurements for each habitat type. Refer to *Figure 05* for a map of proposed post-development habitats. The revised proposals include the inclusion of native shrub buffer planting to the river corridor, retention of the line of trees, new native hedgerow planting to the site boundaries, introduced shrubs and individual trees and wildflower rich grassland.

Table 06: Post-development habitats

Ref No.	UKHAB Habitat Type	UKHAB Code	Area (ha)/ Length (km)	Distinctiveness (pre-set)	Condition	Strategic Significance
1	Developed land; sealed surface	u1b	0.125	Very Low	N/A Other	Low
2	Introduced shrub	u1160	0.002	Low	N/A Other	Low
3	Mixed scrub	h3h	0.056	Medium	Moderate	High
4	Other neutral grassland	g3c	0.07	Medium	Moderate	High
5	Artificial unvegetated, unsealed surface	u1c	0.028	Very Low	N/A Other	Low
6	Vegetated garden	u231	0.146	Low	N/A Other	Low
7	Urban tree	u1170	0.219	Medium	Moderate	High
H1	Native hedgerow	h2a	0.02	Low	Moderate	High
H2	Native hedgerow	h2a	0.05	Low	Moderate	High
L1	Line of Trees	w1g6	0.07	Low	Good	Medium
R1	River Don	r2c	0.08	High	Fairly Good	High

5.3 SUMMARY

5.3.1 Units obtained for the site post-development, based on retained habitats and habitat creation included within the landscape proposals indicate that a net gain in respect to habitat areas is likely to be achieved with the current scheme with a potential biodiversity net gain of 0.24 habitat units (13.32 % net change). Potential gains of 0.27 hedgerow units (+ 53.50 % net change) are also considered likely. Whilst the proposals do currently encroach within the 10m riparian zone of the River Don, the level of encroachment is considered to be minor and the river units remain unaffected.

5.3.2 To improve biodiversity net gain in habitat units, consideration could be given to the allocation of more native tree and shrub planting within the proposals in lieu of introduced shrub which currently scores low in the Metric. The implementation of sustainable urban drainage schemes in the form of vegetated bioswales or attenuation ponds would offer water management solutions that also provide valuable habitat for biodiversity and gain a higher metric score.

5.3.3 To date, the Metric does not accommodate biodiversity enhancements with respect to species and biodiversity net gains attributed to these enhancements are not reflected within the measurable results obtained from the Metric. Please refer to section 5.3 for details of species-specific mitigation and enhancement measures.

5.3.4 Finalised landscape proposals should be implemented in accordance with an appropriate landscape specification and Construction Environmental Management Plan: Biodiversity (CEMP: Biodiversity) which will detail measures to avoid accidental impacts on retained habitats. Commitment to long term future management of the site will be required to achieve the habitat conditions aimed for and should be undertaken in accordance with a site-specific Biodiversity and Ecological Management Plan (BEMP).

6.0 IMPLICATIONS /RECOMMENDATIONS

6.1 NATURE CONSERVATION DESIGNATED SITES

6.1.1 There are no European or national statutorily designated nature conservation sites within 2km of the proposals site boundary. This includes RAMSAR, Special Areas for Conservation (SAC), Special Protection Areas (SPA), Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) or Local Nature Reserves (LNR).

6.1.2 The proposals site lies outside of any Impact Risk Zone of relevant sites with respect to residential development.

6.1.3 There are two non-statutorily designated sites located within 1.5km of the site, with the closest at approximately 1.25km. It is considered that there will be no adverse impact upon these designated sites as a result of the development due to a combination of distance from the proposals site, intervening land uses (roads and built up areas) and the nature and scale of the proposals.

6.2 HABITATS

6.2.1 The site predominantly consists of semi-improved grassland which at the time of survey in 2023, was unmanaged. Previously, it had been regularly flailed to a height of less than 0.1m and treated with herbicide. There is also a line of trees with tall herb vegetation to the southern boundary in association with the adjacent River Don, and mixed scrub to the northern boundary adjacent to ancient woodland.

6.2.2 The grassland habitat within the proposals site has ecological value, providing foraging, commuting and habitat for a range of invertebrate species, small mammals and birds. The tree lined river corridor habitat along the southern boundary and woodland, outside the site boundary, to the west and north are of local ecological value being UKBAP habitats and providing wildlife connectivity forming part of the River Don Strategic Wildlife corridor.

6.2.3 In order to protect habitats/features of ecological value present within the site and adjacent to it, the following is recommended;

- Retain and protect the line of trees and river corridor habitat along the southern boundary with a buffer of appropriate natural habitat. With no statutory requirement or legislation to determine this, a suitable buffer of 8m has been proposed;
- Protect areas of established woodland to the western boundary by avoiding or minimising construction within the root protection area;
- Protect areas of ancient woodland to the northern boundary by retaining the existing scrub buffer and incorporating a boundary fence or wall to deter access. It is not anticipated that any work would be required within the root protection zone due to the distance of the trees from the site boundary and the location of the existing track along which the access is to be aligned;
- Enhance existing grassland habitat by reseeding less diverse areas with wildflower seed mixes;
- Compliance with pollution prevention guidelines, particularly in respect to implementation of measures required to avoid effects on water quality during

construction such as sediment fencing, bunding of fuel tanks etc. and during operation with attenuated drainage design to incorporate appropriate silt/oil traps. In the event of a drainage outlet being required it should be appropriately designed to minimise the area disturbed, with any affected herbaceous vegetation of interest translocated to areas of less value if not able to be avoided;

- Use of temporary protective demarcation fencing to protect retained areas/features including those immediately adjacent to the site. The fencing must be in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction, extend outside the canopy of the retained trees, and remain in position until all plots have been developed; and,
- Use of directional lighting during construction, which is not allowed to shine outwards towards the boundaries of the site, especially towards the tree line adjacent to the River Don and woodland edges to the north and west, which may be used as a commuting route by nocturnal species such as badger and otter whilst transect surveys have found these features to be used by bats.

6.2.4 In order that the proposed development provides enhancement to wildlife, in accordance within the stated aims of the National Planning Policy Framework (NPPF), it is recommended that features which will increase the biodiversity value of the site are included within the proposals. Appropriate recommendations for the site are as follows;

- Planting of species rich native hedgerows or lines of native shrubs, where feasible;
- The inclusion of appropriate native species (trees, shrubs and wildflower seeding) within the landscape proposals;
- Incorporation of ornamental species of trees and shrubs known to be a value to wildlife within any landscape planting.

6.3 PROTECTED SPECIES

6.3.1 Existing records data and/or site survey have noted the potential for the following protected species to occur within the search area or on site, upon which the potential effects of the proposed development are discussed in the following sections (refer to *Appendix 02* for relevant species legislation).

Great Crested Newts

6.3.2 No areas of standing water occur within the site, however, terrestrial habitat within the site is suitable for foraging GCN, with sheltering and hibernating habitat available within woodland adjacent to the site.

6.3.3 From consulting an OS base of the site and surrounding area, no water bodies were identified within 500m of the proposals site. A single record for GCN was provided by the local records centre approximately 345m to the north-east of the site which appears to be a garden pond. The record is severed from the proposed development site by housing and a minor road.

6.3.4 The Natural England Rapid Risk Assessment was used to determine the potential effect of the development on breeding GCN if still present at the pond in question, refer to Table 08.

Table 08: Natural England Rapid Risk Assessment

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	0.5 - 1 ha lost or damaged	0.03
Individual great crested newts	No effect	0
	Maximum:	0.03
Rapid risk assessment result:	**GREEN: OFFENCE HIGHLY UNLIKELY**	

6.3.5 Due to the size of the development site and its distance from the pond, this resulted in '*Green: Offence Highly Unlikely*'. It is therefore considered that development at the site will not have an impact on populations of breeding GCN in the local area and no further survey for this species is considered necessary.

Bats – commuting/foraging habitat

6.3.6 Bat species recorded within 2km of the proposals site include field and roost records relating to common pipistrelles, soprano pipistrelle, brown long-eared bats, *Nyctalus* species and Daubenton's bat; with the closest of these records being for pipistrelle.

6.3.7 The tree lined river corridor provides suitable habitat for foraging and commuting bats, which connects to suitable woodland habitat both up and downstream of the site. The predominant activity along the river was found to be common pipistrelle and *Myotis* species with low use by soprano pipistrelle and brown long eared bats. It is therefore recommended that the river corridor habitat and woodland edges are retained and protected.

6.3.8 Commuting and foraging activity to the western and northern woodland edges was found to be predominantly that of common pipistrelle with low use of the eastern boundary garden vegetation.

6.3.9 Any new lighting should be appropriately designed including directional and low wattage luminaires to avoid illuminating the areas of planting, particularly the river corridor along the southern boundary which has greatest potential for use and woodland edges to the west and north. Appropriate lighting would aim to minimise impacts on light sensitive bat species and ecological receptors on/adjacent to site. Reference should be made to the Bat Conservation Trust publication/s '*Artificial Lighting and Wildlife*' (2014) and '*Bats and Artificial Lighting in the UK*' (2018) which includes the following guidelines:

- Using warm white, narrow spectrum lights with little or no UV;
- Low wattage (e.g. 20W);
- Directional lighting with near full horizontal cut off, mounted at a low height;
- Minimum height columns at maximum spacing.

6.3.10 The retention of the river corridor and woodland edges with housing generally orientated away from these features where possible, along with a sympathetic lighting scheme will minimise impacts on the use of this area by bats.

Bats – potential tree roosts

6.3.11 Trees on site were inspected from ground level for potential roost features. Three trees on site (TN1, TN4 and TN8) were assessed as having moderate potential to support roosting bats, with knot holes and/or splits having the potential to allow access to cavities in the main trunk or broken branches at height. It is understood these trees are proposed for retention, however, if this changes or pruning works are required, they should be subject to further survey work to establish the presence/absence of roost sites prior to removal.

6.3.12 Further assessment of these trees for bats would consist of either a climb and inspect survey looking for signs of bat use prior to works (no timing restrictions are applicable to this type of survey), or where a climb and inspect survey is not possible due to health and safety reasons, or cavity too large for thorough inspection, a bat emergence/re-entry survey carried out at the tree during the appropriate survey season (May to September). In the event of a bat roost being found a licence from Natural England may be required, with appropriate mitigation and working methods.

6.3.13 Trees TN3, TN6 and TN9 were found to support minor breaks and few knot holes providing limited features giving them a low potential for roosting bats. These trees are also proposed to be retained with the exception of TN3 which is to be removed for arboricultural reasons. TN3 (and TN6 and TN9, should proposals change) should be removed or pruned in accordance with BCT Guidelines (2016) which proposes the use of precautionary working methods for trees with a low potential to support roosting bats. Appropriate precautionary working measures include:-

- alerting arborists to the possibility of bats being present and the need for vigilance during pruning/felling activities,
- measures such as careful cutting and lowering of limbs where necessary,
- timing of works; preferentially carried out in the period September to November inclusive (or less suitably during March to May, although this may interfere with nesting birds). This time-frame avoids the summer period when bats are more likely and reduces the probability of encountering hibernating bats (avoids bats in deep torpor with works undertaken when bats present should be active enough to fly out).
- In the event of a bat being found works to be stopped; advice and potentially a European Protected Species Licence to be gained prior to the tree being felled.

6.3.14 Consideration should be given to the installation of bat roosting features (see *Appendix 03*) on retained trees and/or within the new build, irrespective of whether roosts are found, to enhance site biodiversity in line with the National Planning Policy Framework (NPPF).

Breeding Birds

6.3.15 The trees and bramble scrub within and adjacent to the site provides suitable habitat for breeding birds.

6.3.16 All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended) during breeding. It is therefore recommended that any vegetation clearance takes place outside the core bird nesting period (March – August inclusive) unless checks by an appropriately qualified ecologist find active nests to be absent immediately prior to clearance works. If nesting birds are identified advice will be sought. The advising ecologist will issue guidance in relation to the protection of the nesting birds in

conjunction with the scheduled works. Measures such as applying a set boundary around the nest may be necessary until the young birds have fledged.

6.3.17 Schedule 1 bird species are afforded additional protection from disturbance while breeding. Records of one Schedule 1 species, kingfisher, were provided within 1.5km of the site and two Kingfishers were observed using the river corridor adjacent to the site's southern boundary, during the 2023 river condition assessment. The presence of two birds could indicate a breeding pair are occupying a territory and therefore utilising the section of the river in proximity to site during the breeding season. Close inspection of the River Don corridor adjacent/in proximity to site was not possible at the time of survey and features within the river profile, channel and banks, as assessed during the RCA survey, have the potential to support breeding kingfisher. These include: good water quality and oxygen levels offering suitable foraging habitat/supporting fish prey; the availability of perches such as overhanging branches for use as territory markers and vantage points for feeding; and the presence of vertical banks of compact sand/earth to support breeding burrows.

6.3.18 The retention and protection of the River Don associated riparian habitat including mature trees will avoid potential adverse impacts on this species. It is considered, however, that the timing of the works in proximity to the riverbank may have the potential to disturb kingfisher if undertaken during the core breeding season (March to July for this species). If works cannot be undertaken outside this time a pre-commencement check along the sections of river in close proximity to the site will be required to assess the habitat suitability for breeding kingfisher and the potential for disturbance to this species.

6.3.19 Enhancement of the site in relation to birds would be provided by the buffer planting along the river as discussed above. The installation of species-specific boxes upon suitable trees or integral to the new builds would aim to provide roosting/breeding opportunities for breeding birds in general (see *Appendix 03*).

Badger

6.3.20 No badgers or signs of badger were detected within the site, or within accessible habitat located 30m from the site boundary during the survey. However, there are multiple records of badger within the local area and suitable habitat adjacent to the site for supporting this species.

6.3.21 A badger checking survey is therefore recommended just prior to commencement of works, of the site and up to a distance of 30m from the site boundary. This survey will check for badger activity and/or presence of setts within the vicinity of the site which may have established in the interim period. If setts are identified, a licence from Natural England may be required, with appropriate mitigation and working methods.

6.3.22 During the construction phase of the development the following measures should be taken to prevent accidental harm or injury to any badger which may come onto site:-

- capping any open pipe ends,
- covering open trenches and/or providing a means of access via sloping ends or planking.

Otter

6.3.23 There are no records of otter in the local area, but the River Don provides habitat suitable for otter immediately adjacent to the site. Dense scrub on site alongside the riverbank has the potential to be used as lying-up habitat and mature tree roots along the river may provide suitable holt/resting sites for this species.

6.3.24 Otter surveys were undertaken in respect of the site in 2014 and a checking survey of the river immediately adjacent to the site was undertaken in June 2020. No sign of this species was noted during either survey and site conditions were not noted to have significantly changed since these surveys were undertaken. Although subject to some disturbance the river habitat would still be considered suitable for foraging and commuting otter which is a mobile species known to be increasing its range, which can disperse over some distance.

6.3.25 Retention of the river corridor habitat would avoid any potential impacts on this species should it move into the area and precautionary working methods, in line with those recommended for badger, would avoid accidental harm or injury to individual animals during construction. The strengthening of riverbank vegetation with additional appropriate planting would enable continued availability of this section of river for this species for foraging and commuting purposes.

Water vole

6.3.26 There are records of water vole within the local area, the closest and the most recent being at 1km south from 1997, however, adjacent to the site, the River Don is considered to provide sub-optimal habitat for this species. There are also records of American mink, a voracious predator of water voles, at 60m east of the site on the River Don from 2012.

6.3.27 Water vole surveys were undertaken in respect of the site in 2014 and a checking survey of the river immediately adjacent to the site was undertaken in June 2020. No sign of this species was noted during either survey and site conditions were not noted to have significantly changed since these surveys were undertaken. The river is considered to provide sub-optimal habitat for water vole and this species is considered unlikely to be present.

Other protected species

6.3.28 Due to the lack of records and/or suitable habitat on or within the vicinity of the site the presence of other protected species including reptiles and white-clawed crayfish, is considered unlikely. No adverse impact upon such species is anticipated as a result of the proposed development.

6.4 NOTABLE SPECIES

Hedgehog

6.4.1 Records within 2km of the site included hedgehog and habitats within and adjacent to the site are suitable for this species for foraging and shelter. Precautionary working methods are therefore recommended to ensure hedgehogs are not harmed/killed during works. Such works would include:-

- the removal of any tree/shrub cuttings from site, once vegetation is cut so as to avoid the creation of brash piles; these may be attractive to hedgehogs, which could subsequently be harmed if the brash pile is burnt or removed with machinery,
- any trenches created on site will be covered or a means of escape shall be provided,
- any open pipe work will be capped at the end of each working day.

6.4.2 It is recommended that small gaps (0.15m) are left under sections of new fencing/walls within the development to allow passage of hedgehog and maintain connectivity across the site.

Brown Hare

6.4.3 There are records of brown hare within the local area and a single brown hare was seen on-site during the 2023 survey, exiting the grassland towards the site's western boundary. The site is not considered favourable for brown hare owing to its small size and proximity to residential housing and roads. Furthermore there is an abundance of suitable habitat within the local and wider countryside area. It is not considered that the proposed development will have an adverse effect on this species.

UKBAP Priority Bird Species

6.4.4 There is a record of Lesser Redpoll (UKBAP) within the site and records of a further eleven priority species within 1.5km of the site. Of these species it is considered that habitats within or immediately adjacent are suitable for Lesser Redpoll, House Sparrow, Linnet, Song Thrush, Tree Sparrow and Yellowhammer.

6.4.5 To enhance the site for these priority bird species and birds in general the following is recommended;

- Installation of species-specific boxes on houses/garages and within retained trees (see *Appendix 03*);
- Inclusion of native tree and shrub planting within the landscape proposals.

6.5 INVASIVE NON-NATIVE SPECIES

6.5.1 Himalayan balsam, a non-native invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) was evident on site at the time of the survey. It is an offence to plant or otherwise cause this plant to grow in the wild. It is recommended that this species is removed or treated on site prior to the proposed development works commencing and precautionary working methods put in place during construction to prevent accidental spread.

6.5.2 The LPA has highlighted the potential presence of signal crayfish within the River Don. This is an invasive, non-native species which it is illegal to release or cause to spread in the wild. Historically released or escaped into the river system from crayfish farms, this species has spread extensively to the detriment of fish stocks and native crayfish upon which it preys, out-competes for food/habitat and spreads crayfish plague.

6.5.3 For works which will disturb the riverbank, works will need to be undertaken with care and include precautionary working methods to avoid accidental spread of signal crayfish or crayfish plague including: Inspection of areas to be disturbed and supervision during excavations within the riverbank, by a suitably qualified ecologist.

6.5.4 Biosecurity measures in respect to cleaning all items of personal equipment and machinery used during inspection/excavations within the riverbank.

6.5.5 Works which are anticipated to require the above include the installation of a new drainage outflow.

6.6 IMPACT ASSESSMENT SUMMARY

6.6.1 A summary of the resulting impact assessment based upon CIEEM guidelines (see *Appendix 04* for methodology) is provided in Table 09. With the mitigation and

enhancement measures detailed within this report incorporated within the site proposals, there are anticipated to be no significant residual ecological impacts.

Table 09: Ecological Impacts: Summary

Ecological Feature (to be affected by the proposals)	Geographical level of importance (of local level and above assessed)	Identified impacts	Magnitude Of impact	Duration of impact (reversibility)	Impact significant without mitigation	Mitigation and enhancement proposals	Residual impact.
Designated sites							
Black Moor Common	County	None	N/A	N/A	N/A	N/A	None
Royd, Vicar, Lindley and Coates Great Woods	County	None	NA	N/A	N/A	N/A	None
Habitats							
River Don	Local	Potential effects on water quality	Negative	Temporary/permanent	Yes	Retention and protection of watercourse on site including the adoption of pollution prevention measures, precautionary working methods during construction, appropriate drainage design and avoidance of artificial illuminating the river area.	Neutral
River corridor (tree and herbaceous)	Local	Disturbance Accidental damage	Negative	Permanent	Yes	Temporary protective fence during construction. Retention of vegetation with 10m buffer zone of appropriate native vegetation.	Neutral – minor adverse
Adjacent woodland	Site/Local	Disturbance Accidental damage	Negative	Temporary/permanent	Yes	Temporary protective fence during construction. No construction within the root protection area, retention of intervening scrub vegetation and installation of boundary fence/wall to deter access.	Neutral
Semi-improved neutral grassland	Site	Direct loss	Major negative	Permanent	No	Inclusion of wildflower grassland and/or species of value to wildlife within the landscape proposals.	Neutral
Species							
Bats (foraging)	Local	Loss of foraging / commuting habitat and effects of light pollution.	Negative	Permanent	Yes	Retention of principle foraging /commuting habitat to site boundaries (south, west and north). Inclusion of native species within the landscape proposals. Sympathetic lighting design.	Neutral – minor adverse
Bats (potential roost)	Local (potential)	Loss of roost (if trees removed).	Negative	Permanent	Yes	Provision of roost features in new builds and bat boxes in retained trees. (Removal under EPSM licence).	Neutral
Badger	Site	Accidental harm	Minor negative	Temporary	No	Working methods during construction.	Neutral
Otter	Site	Accidental harm	Minor negative	Temporary	No	Working methods during construction.	Neutral
Birds	Site	Disturbance	Minor negative	Permanent/ temporary	No	Retention and protection of river habitat for Kingfisher. Vegetation clearance outside the nesting season (or following checks for active nests) if required. Replacement planting to include appropriate native species. Installation of nest boxes in retained trees/new build.	Neutral
Hedgehog	Site	Accidental harm	Minor negative	Permanent	No	Working methods during construction and measures to maintain habitat connectivity	Neutral

7.0 CONCLUSIONS

7.1.1 No impacts on designated nature conservation sites are anticipated from the development proposals.

7.1.2 The neutral grassland, tree lined river corridor habitat along the southern boundary and woodland to the north and west are of local ecological value being UKBAP habitat, supporting species of interest and providing wildlife connectivity. In addition the woodland to the north is also considered ancient and semi-natural.

7.1.3 Measures recommended to protect features of value and mitigate potential impacts include retention of the river corridor habitat with a 10m buffer, protection of woodland to the western and northern boundaries, temporary fencing during construction, pollution prevention measures including sediment fencing, appropriate drainage design and sympathetic lighting.

7.1.4 Recommendations for general site enhancements include appropriate native species planting, wildflower seeding and incorporation of bird and bat boxes on retained trees/new build.

7.1.5 Checking surveys prior to works commencing on site are recommended for Schedule 1 kingfisher (where works in proximity to River Don scheduled March to July) and badger to assess current site conditions.

7.1.6 Precautionary working methods and/or mitigation have been recommended for species such as bats (trees TN3, TN6 and TN9) badger, otter, hedgehog and breeding birds; also to control and prevent spread of invasive species Himalayan balsam, and signal crayfish.

7.1.7 The mature trees along the river are to be retained. However if this were to change, additional surveys may be required with respect to roosting bats if individual trees are to be removed or subject to pruning works; with potential roost features being identified within trees TN1, TN4 and TN8.

7.1.8 The development is considered feasible with minimal impact on biodiversity provided that mitigation and enhancement measures detailed within this report are incorporated within the site proposals. Under the current proposals, the scheme is likely to achieve biodiversity net gain.

8.0 REFERENCES

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FIGURES

FIGURE 03: PHASE1 HABITAT PLAN

FIGURE 04: BASELINE HABITATS MAP (UKHABS)

FIGURE 05: POST-DEVELOPMENT HABITATS MAP (UKHABS)

FIGURE 07: BAT TRANSECT PLAN

APPENDICES

Appendix 01: Principle Legislation and Policies
Appendix 02: Protected Species Legislation
Appendix 03: Bat and Bird Boxes
Appendix 04: Ecological Assessment Methodology
Appendix 05: River Condition Assessment Methodology
Appendix 06: Habitat Condition Assessments
Appendix 07: Grassland Quadrat Data

APPENDIX 01: PRINCIPAL LEGISLATION AND POLICIES

Principle Legislation

Wildlife and Countryside Act 1981 (as amended)

This is the primary legislation for nature conservation in England and Wales. It confers varying degrees of protection on selected species according to their conservation status, ranging from making it an offence to take a species from the wild for profit, to full protection of a species and its habitat. The Act also gives guidance and instruction on statutory sites, such as sites of Special Scientific Interest (SSSI). License exempting specific works can be granted by Natural England. Such licenses are only granted once a full assessment has been made and an appropriate, sustainable mitigation package devised.

Protection of Badgers Act 1992

Allied to the Wildlife and Countryside Act, 1981 are subsidiary Acts such as the Protection of Badgers Act, 1992 which consolidated and added to previous legislation. According to the PBA it is an offence to wilfully kill, injure or maim a badger. Badger setts are also protected from interference unless such activities are licensed through Natural England. Any mitigation packages devised for badgers found on development sites must be agreed by Natural England and all mitigation activities must be fully licensed.

Countryside and Rights of Way Act 2000

As well as providing measures to improve countryside access for walkers, ramblers and horse riders, this Act also strengthens the protection of species and designated sites made in the Wildlife and Countryside Act 1981. This Act also gives the importance of biodiversity conservation statutory basis requiring government departments to have regard for biodiversity in carrying out their functions, and to take positive steps to further the conservation of listed species and habitats.

Natural Environment and Rural Communities Act (NERC), 2006 – Biodiversity Duty

NERC received royal assent in March 2006. Section 40 of the Act replaces and extends a duty, from Section 74 of the Countryside and Rights Of Way Act 2000, on Ministers and Government which already requires them to have regard to the purpose of conserving biodiversity. Section 40(1) states that, "*Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity*."

EC Habitats Directive (92/43/EEC)

This Directive aims to give Europe-wide protection to certain rare and threatened habitats on land and at sea. It builds on legislation already established under the Birds Directive of 1979, and aims to establish a series of protected sites known as Natura 2000 series. These sites are intended to protect the unique and special wildlife of Europe and to preserve it for future generations. In Britain these Natura 2000 sites include those areas designated as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). The Habitats Directive is implemented in the UK through the Conservation of Habitats and Species Regulations 2017.

EC Birds Directive (79/409/EEC)

The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It sets broad objectives for a wide range of activities, although the precise legal mechanisms for their achievements are at the discretion of each Member State (in the UK delivery is via several different statutes). The Directive applies to the UK and to its overseas territory of Gibraltar.

The main provisions of the Directive include:

The maintenance of the favourable conservation status of all wild bird species across their distributional range with the encouragement of various activities to that end;

The identification and classification of Special Protection Areas (SPAs) for the rare and vulnerable species listed in Annex I of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance;

The establishment of a general scheme of protection for all wild birds; Restrictions on the sale and keeping of wild birds.

The Hedgerow Regulations 1997

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

For species-specific legislation, please refer to *Appendix 02* for further information.

Policy

National Planning Policy Framework (2018)

The National Planning Policy Framework replaces Planning Policy Statement 9 (PPS 9) Biodiversity and Geological Conservation but the accompanying guidance document (ODPM 06/2005: Biodiversity and Geological Conservation-Statutory Obligations and their impact within the Planning System) has not been withdrawn.

The NPPF sets out the Government's policies on the protection of biodiversity and sites of geological interest through the planning system. It required local planning authorities, when taking decisions, to ensure that appropriate weight is attached to designated sites of international, national and local importance, protected species and to biodiversity and sites of recognised geological interest within the wider environment. It states:

''The planning system should contribute to and enhance the natural and local environment by:

Protecting and enhancing values landscapes, geological conservation interests and soils;

Recognising the wider benefits of ecosystem services;

Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.''

''When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

If significant harm resulting from a development cannot be abided (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.''

Biodiversity Action Plan (BAP)

In 1993, the UK government consulted over three hundred organisations throughout the UK and held a two day seminar to debate the key issues raised at the Convention of Biological Diversity. The product of this was the launch of Biodiversity: the UK Action Plan in 1994 which outlined the UK Biodiversity Action Plan for dealing with biodiversity conservation in response to the Rio Convention.

The UK Biodiversity Steering Group was created in 1994 and published Biodiversity: the UK Steering Group Report – meeting the Rio challenge. This established the framework and criteria for identifying species and habitat types of conservation concern.

From this list, action plans for 391 species and 45 broad habitat types were produced. As well as having national priorities and targets, action was also taken at a local level. The Steering Group drew up as set of guidelines that were discussed with the Local Authority Association and the Local Government Board.

Today there are 162 Local Biodiversity Action Plans in the UK. A review of the UK BAP was undertaken between 2003 and 2006.

APPENDIX 02: PROTECTED SPECIES LEGISLATION

Bats

Bats and their roosts are afforded full legal protection under both UK and European legislation. Conservation of Habitats and Species Regulations 2017 transpose the Habitats Directive into UK law, making it an offence to:

- deliberately disturb a bat;
- deliberately kill, injure or capture a bat;
- damage, destroy or obstruct access to a breeding site or resting place (note this applies to both deliberate and reckless actions).

The Wildlife and Countryside Act 1981 (as amended) (Schedule 5) made it an offence to:

- intentionally kill, injure or take a bat ;
- damage, destroy or obstruct a bat roost *;
- disturb a bat at a roost *;
- possess or control a bat or any part thereof;
- sell, offer for sale, possess or transport for sale any bat or part thereof;
- set traps for catching, killing or injuring bats;
- possess articles for the purposes of committing offences against bats;

[*= intentional and reckless offences covered].

Legal protection under the Habitats Directive applies to the animals and their breeding sites and resting places. This means that bat roosts are fully protected, whether they are in use at the time or not. Where roosts or resting/breeding sites are identified, any works which may contravene the protection afforded to them require derogation from the provisions of the legislation in the form of a licence from Natural England.

Great crested newts

The Wildlife and Countryside Act 1981 (as amended) transposes into UK law and the Convention on the Conservation of European and Wildlife and Natural Habitats (commonly referred to as the 'Bern Convention'). The 1981 Act was amended by the Countryside and Rights of Way ['CRoW'] Act 2000.

The great crested newt is listed on Schedule 5 of the 1981 Act, and is therefore subject to the provisions of Section 9, which make it an offence to:

- Intentionally kill, injure of take a great crested newt [Section 9 (1)];
- Possess or control any live or dead specimen or anything derived from a great crested newt [Section 9 (2)];
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a great crested newt [Section 9 (4)(a)];
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place which it uses for that purpose [Section 9(4)(b)].

The Conservation of Habitats and Species Regulations 2017 transpose into the UK law Council Directive 92/43/EEC of 21st May 1992 on the conservation of Natural Habitats and of Wild Fauna and Flora (often referred to as the 'Habitats [and Species] Directive'). The great crested newt is listed on Annex II and Annex IV of the Directive. The former Annex relates to the designation of Special Areas of Conservation (SACs) for this species; even where great crested newts occur outside SACs, the inclusion on Annex II serves to underline their conservation significance. Inclusion of the Annex IV ('European Protected Species') means that member states are required to put in place a system of strict protection as outlined in Article 12, and this is done through inclusion on Schedule 2 of the Regulations. Regulation 43 makes it an offence to:

- Deliberately capture or kill a great crested newt [Regulation 43(1)(a)]
- Deliberately disturb a great crested newt [Regulation 43(1)(b)]
- Deliberately take or destroy the eggs of a great crested newt [Regulation 43(1)(c)]
- Damage or destroy a breeding site or resting place of a great crested newt [Regulation 43(1)(d)]

The legislation applies to all life stages of great crested newts.

Breeding birds

The Wildlife and Countryside Act 1981 (as amended) makes it an offence to:

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

This protection applies from the moment the nest is being built. Additional protection against disturbance on the nest or of dependent young is provided for birds included on Schedule 1.

Badger

Badgers and their setts are protected by the Protection of Badgers Act 1992. Under the Act it is illegal to:

- Wilfully kill, injure or take a badger or attempt to do so;
- Cruelly ill-treat a badger; and,
- Interfere with a sett by doing any of the following:
  (i) damaging a badger sett or any part of it;
  (ii) destroying a badger sett;
  (iii) obstructing access to a badger sett;
  (iv) causing a dog to enter a sett; and,
  (v) disturbing a badger while it is occupying a sett.

Reptiles

The Wildlife and Countryside Act 1981 makes it an offence to intentionally kill any of our native snakes and lizards. The sand lizard and smooth snake receive additional protection; for these species, it is unlawful to capture or possess them, or to damage/obstruct access to places they use for shelter or protection, or to disturb them whilst in such a place.

Otter

Otter are afforded full legal protection under both UK and European legislation. The Conservation of Habitats and Species Regulations 2017 transpose the Habitats Directive into UK law, making it an offence to:

- deliberately capture, injure or kill an otter;
- deliberately disturb an otter in such a way as to be likely to significantly affect the local distribution or abundance of otters or the ability of any significant group of otters to survive, breed, rear or nurture their young; or,
- damage or destroy an otter holt.

The otter is also protected under Section 9(4)(b) of the Wildlife and Countryside Act 1981

- intentionally or recklessly disturb any otter whilst it is occupying a holt; or,
- intentionally or recklessly obstruct access to a holt.

Water Vole

Water voles are given full legal protection under Section 9(4) of Schedule 5 of the Wildlife & Countryside Act 1981 (as amended in 2008). This makes it a legal offence to intentionally kill, injure or take, sell, damage or destroy or obstruct access to any structure or place used by water voles for shelter or protection, or to disturb water voles while they are using such a place.

APPENDIX 03: BAT AND BIRD BOXES

BOX 1: Installation into new build		
Manufacturer	Schwegler	
Model	Bat Tube 1FR	
Number	3No.	
Description & Installation	This is the ideal bat box for all types of bats that inhabit buildings. The bats may use it for roosting, to form a colony or to shelter their young. If desired, the front panel can be painted to match your building using an air-permeable paint. Position 3-6 metres above the ground in a place where there is clear flight path for bats entering and leaving the box; on south east to south west elevations, out of strong winds. **Lighting:** Bat boxes should be located away from existing/proposed street lighting to ensure they are attractive to bats.	
Dimensions	475h x 200w x 125d (mm)	

BOX 2: Installation within retained trees		
Manufacturer	Schwegler	

Model	General Purpose Bat Box 2F	
Number	3No.	
Description & Installation	This general purpose model is suitable for bat species which inhabit buildings i.e. pipistrelle bats, brown long eared bats. It is manufactured from long-lasting Woodcrete, which is a blend of wood, concrete and clay which will not rot, leak, crack or warp, and will last for at least 20 - 25 years, making it suitable for long-term mitigation projects. It also provides a good rough surface for bats to cling on to and climb. Bat boxes should ideally be sited in open sunny positions and in groups facing different directions to provide a variety of micro-habitats. Boxes are best positioned at a height of 4-6 metres. Boxes to be positioned facing south-west, south-east or north, at a height of 4-6m and positioned to provide a clear flight path and out of strong winds. These boxes are to be installed in a cluster on a single tree with aluminium nails.	
Cleaning:	The box can be easily accessed by removing the front panel. Cleaning should only be conducted by a licenced bat worker.	
Dimensions	Diameter: 16 cm x height: 33 cm Weight: 3.8 kg	

BOX 3: Installation within covered parking		
Manufacturer	Schwegler	

Model	No. 10B Swallow Nest	
Number	4No.	
Description & Installation	The 10B Nest Bowl is made entirely from Woodcrete, a durable blend of wood and concrete that is guaranteed to last for at least 25 years. It is designed to be installed inside an outbuilding such as a shed, stable or porch where there is constant access for birds. Distance between the top of the nest and the ceiling is to be at least 6 cm, with an adequate drop (at least 2-3m) beneath the bowl for the swallows. As swallows are social nesters more than one bowl can be used in the same building, although they should be placed at least one metre apart. If required, a 'droppings board' can be installed underneath which prevents the nuisance caused by droppings accumulating underneath nest sites.	
Dimensions	External dimensions: Height: 10 cm, width: 20cm, depth: 14cm Weight: 1.1kg	
Cleaning	The design of the bowl means that it can be easily cleaned out in the autumn when the birds have departed. Cleaning is not absolutely necessary but is recommended if possible. Must only be accessed outside the breeding season, (March – August, inclusive).	

BOX 4: Installation within new build homes		
Manufacturer	Schwegler	

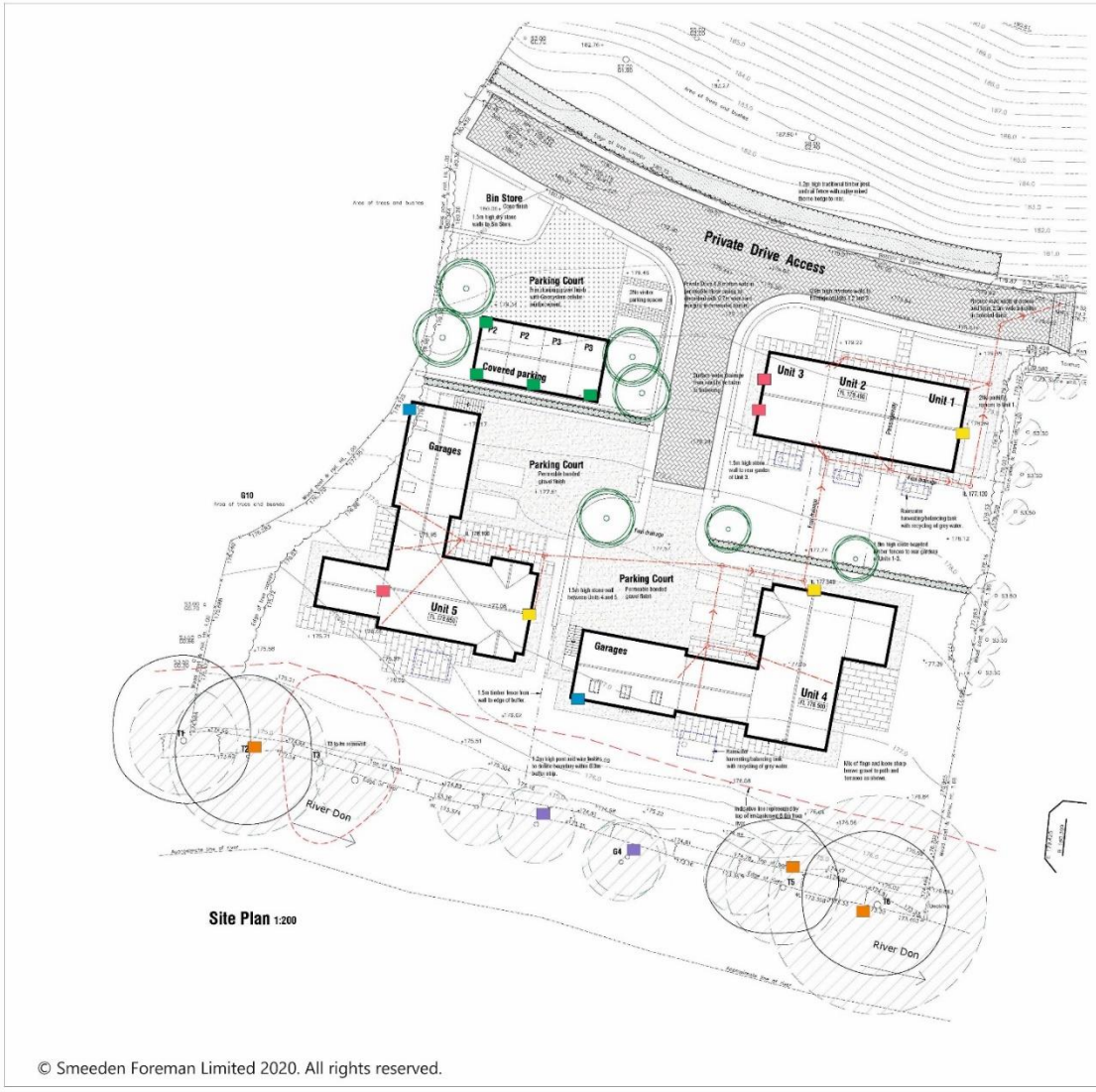
Model	Swift Nest Box No. 17C (double cavity)	
Number	3No	
Description & Installation	Bird species such as swifts have occupied the cracks and crevices in our buildings for thousands of years. Due to the effective sealing of eaves in new build houses, swift numbers are declining as nesting opportunities are lost and new sites difficult to find. Can be installed externally on facades or under roofs of all kinds of buildings. To be installed at least 5.5 to 7m above the ground. Ensure unobstructed access for birds entering and leaving the box. A clear distance (drop) below the box is recommended, preferably 5 m or more. Installed to face between north and east and out of direct sunlight, unless shaded by buildings.	
Dimensions	W660 x H150 x D150mm plus wing screws Weight: approx. 5.5kg Includes nest box, fixing bracket, screw, plugs.	

BOX 5: Installation within new build homes		
Manufacturer	Vivaro Pro	

Model	Woodstone House Sparrow Nest Box	
Number	2No.	
Description & Installation	Suitable for house and tree sparrows, and in some instances other birds which use nest boxes such as tits, redstart and spotted flycatcher. It is suitable for all types of houses and buildings in built-up areas. Ensure the nest box is located at least 2 m above the ground. Either install on the surface of the wall using the plugs and screws provided, or install directly into the wall as an integral feature.	
Dimensions	External dimensions: 29 x 21 x 16 cm Weight: 7kg	
Cleaning	Whilst cleaning and inspection is not necessary, the box can be easily accessed by removing the front panel, but must only be accessed outside the breeding season, (March – August, inclusive).	

BOX 6: Installation within retained trees		
Manufacturer	Schwegler	

Model	General Purpose Nest Box 1B	
Number	2No.	
Description & Installation	Ideal for small hole nesting birds such as tit species, great tit, blue tit and coal tit and sparrows such as tree and house sparrow. With trees, fixing height is between 1.5 and 5 metres above the ground, positioned out of direct sunlight. Installed to face between north and south-east, unless shaded. Can be hung from wall or tree and is supplied with aluminium nail.	
Dimensions	260h x 170w x 180d	
Cleaning	Cleaning of the box can be undertaken if required (the lid is hinged). Cleaning should take place outside the breeding season, (March – August, inclusive).	



KEY:

- Bat Tube 1FR Schwegler (3No)
- Bat Box 2F Schwegler (3No)
- 10B Swallow Nest Cup Schwegler (4No)
- 17C Swift Nest Box Schwegler (3No)
- House Sparrow Nest Box Vivaro Pro (2No)
- 1B General Purpose Nest Box Schwegler (2No)

NORTH

NOTE: Proposed plans and elevations taken from mboothdesign dwg P1,P2,P3,P4.

SMEEDEN FOREMAN

Project: Land off Millstones, Oxspring

Title: Bat and bird box locations Plan

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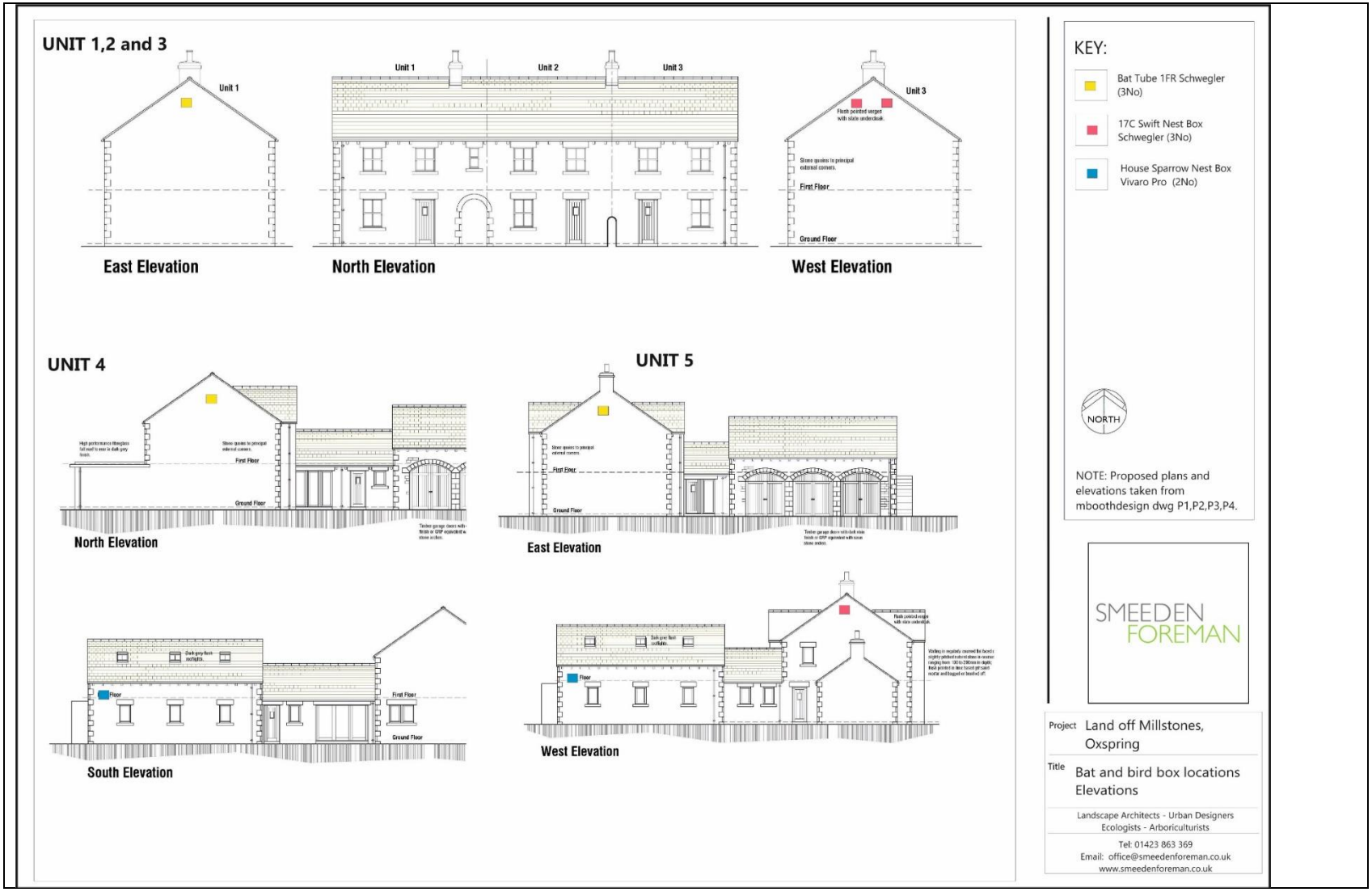
UNIT 1,2 and 3
Unit 1
East Elevation
Unit 1
Unit 2
Unit 3
North Elevation
Unit 3
First Floor
Ground Floor
West Elevation
UNIT 4
First Floor
Ground Floor
North Elevation
UNIT 5
First Floor
Ground Floor
East Elevation
Floor
First Floor
Ground Floor
South Elevation
Floor
West Elevation
KEY:
Bat Tube 1FR Schwegler (3No)
17C Swift Nest Box Schwegler (3No)
House Sparrow Nest Box Vivaro Pro (2No)
NORTH
NOTE: Proposed plans and elevations taken from mboothdesign dwg P1,P2,P3,P4.
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APPENDIX 04: ECOLOGICAL ASSESSMENT METHODOLOGY

The assessment of the impact of the proposed development on ecological features is based upon the Chartered Institute of Ecology and Environmental Management publication Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (2018).

The baseline condition of the site is established through a combination of desk study and site survey.

This identifies the ecological features present on and within the vicinity of the site. These features are evaluated to establish their level of importance and their potential to be significantly affected by the proposed development. Features which are judged to be important and likely to be significantly affected by the proposed development are assessed.

The importance of an ecological feature is based upon consideration of the following:

- Designation: European, national and local designated wildlife sites;
- Listing: Country Biodiversity, Biodiversity Action Plan, Red Listed, Rare and Legally Protected Species;
- Function: e.g. as a buffer, corridor or 'stepping stone' etc.;
- Characteristics: naturalness, rarity, diversity, connectivity, trend, assemblage, typicality, range.

The guidelines suggest that the importance of the ecological feature is considered within a defined geographical context. The following frame of reference is recommended:

- International and European e.g Ramsar sites;
- National e.g. Sites of Special Scientific Interest;
- Regional e.g. North West England;
- Metropolitan, County vice-county or other local authority wide area e.g. West Yorkshire;
- Local.

The following table illustrates how the concept of importance of the ecological features has been applied to assess the impacts of the development.

Level of importance	Description of ecological features
International	Internationally designated sites (Special Protection Area (SPA), Ramsar, Special Area for Conservation (SAC)) Habitats listed on Annex 1 of the Habitats Directive. Species listed on Annexes II, IV and V of the Habitats directive. Species listed on Annex 1 of the Birds Directive.
	e.g. A significant population of a European protected species in this geographical region (a population of bird species representative of more than 1% of the international population).
National	Nationally designated sites (Site of Special Scientific Interest (SSSI), National Nature Reserve).

	Habitats listed as habitats of principle importance under section 41/42 of the NERC Act 2006. Species listed as species of principle importance under section 41/42 of the NERC Act 2006.
	e.g. A significant population of a more common and widespread European protected species in this geographical region (a population of bird species representative of more than 1% of the national population). e.g. A significant population of a protected species under all parts of Schedule 1, 5 or 6 of the Wildlife and Countryside Act 1981 e.g. water vole.
Regional	e.g. A good/typical example of a UK BAP Priority Habitat that satisfies all the criteria in the Priority Habitat definition but is in some way slightly enhanced (e.g. presence of a species that is localised in the region). e.g. A regularly occurring, locally significant population of a species listed as being nationally scarce.
County	Sites of county importance (non-statutory) designated by local authorities to allow their importance to be considered within the planning system. Names vary between authorities including Local Wildlife Sites (LWS), Sites of Interest for Nature Conservation (SINC). Local Biodiversity Action Plan (LBAP) Priority Habitats and Species considered to be exceptional or of significance in the local (county/district) geographical area.
Local	Populations of BAP Priority Species which are not considered to be exceptional or of significance in the local geographical area. Areas of habitat which contribute towards habitat resources at the local level but are not of significant ecological importance e.g. local greenspaces and wildlife corridors within an urban area. Priority habitats and species listed on the LBAP (but not already listed under UK BAP).
Negative	Presence of a legally controlled animal or plant species listed under Schedule 9 of the wildlife and Countryside Act 1981 or other non-native invasive/injurious species that have potential to have a significant impact on the native flora and fauna and could be considered to have an ecological commercial or social adverse effect, usually at the local or site level.

Site level has been used for ecological features of less than local importance such as:

- species-poor vegetation communities;
- typical populations of common and widespread mammal, bird, amphibian and/or invertebrate species;
- habitats common and abundant within the local area, where that within the site does not represent a significant concentration.

Once the important ecological features are identified, consideration is given to the likelihood of change to these features as a result of the development and associated activities i.e. the predicted impacts of the development.

This change may be either positive or negative and includes consideration of the following characteristics of the impact:

- Extent

- Magnitude
- Duration
- Timing
- Frequency
- Reversibility

Positive and negative effects are defined as follows:

- Positive impact: a change that improves the quality of the environment e.g. by increasing species diversity, extending habitat or improving water quality; halting or slowing an existing decline.
- Negative impact: a change which reduces the quality of the environment e.g. destruction of habitat, removal of species foraging habitat, habitat fragmentation, pollution.

The identification of whether these effects are significant is based upon whether the effect supports or undermines biodiversity conservation objectives of the features which have been judged to be 'important' and is considered at the relevant geographical scale. It is generally the case that no significant effect can occur to features of less than local importance, other than in exceptional circumstances such as where a feature has high social or economic value, or the magnitude of effect is particularly high.

The identification of a significant effect then forms the basis for further consideration of the effects on the feature concerned and the potential to reduce effects by employing appropriate mitigation measures or providing compensation. The 'mitigation hierarchy' is applied to reduce identified impacts, and provide enhancements, by avoidance in the first instance, then mitigation and finally compensation.

The overall effects of the proposed development with appropriate mitigation and/or compensation incorporated within the project proposals provide the residual impacts of the scheme.

APPENDIX 05: RIVER CONDITION ASSESSMENT

Methodology

Whilst the calculation of biodiversity units for Rivers and Streams, to inform BNG, is undertaken with reference to The Biodiversity Metric 3.1 User Guide (Panks et al. April, 2022b) and Technical Supplement (Panks et al. April, 2022a) as for terrestrial habitats, the assessment of river condition is calculated via a RCA, an assessment specific to Rivers and Streams. The RCA is undertaken upon any rivers and streams located within a proposed site boundary or where a site boundary is located within the riparian zone of any given river or stream (with the riparian zone defined as the area within 10m of the bank top). The RCA comprises a combination of a desk-based assessment (which indicates 'River Type') and field survey (to assess the 'condition' of the river), as summarised in Panks et al. (April 2022a) and detailed within Gurnell et al., (August, 2021).

The desk-based assessment assigns the river or stream into one of 13 river types, based upon a homogenous 'reach' that contains the site of interest. The reach is identified using current Ordnance Survey maps (1:10,00 scale) and / or aerial photographs, and will typically include areas upstream and downstream of the site of interest. The start and end point of a reach is defined where one of the following are encountered:

- a major tributary (e.g., likely to contributing > 10% flow in the river/stream)
- a major artificial barrier (e.g., > 5m tall- likely to significantly change flow or sediment movements)
- a distinct and persistent change in planform (e.g., meandering to straight / slightly sinuous)

Two alternative river types can be assigned to a river by the surveyor for rivers that are too large or deep for the riverbed to be adequately surveyed (Large River) or for rivers that are too heavily modified to conform to one of the other river types (Navigable Rivers and Canals).

The field element comprises a series of five MoRPh (Modular River Physical) surveys (Gurnell et al., 2022.) undertaken on contiguous lengths (modules) of a river. The length of each MoRPh module is approx. twice the river length. Completing five contiguous MoRPh modules provides a 'sub-reach'. Where required, the sub-reach survey of five modules is repeated until at least 20% of the total river length under consideration is surveyed, or to allow for characterisation of any notable variations in the river character. The field survey information is subsequently input into the MoRPh web application which, along with consideration of the desk-based assessment, automatically provides an overall condition classification.

The field survey was undertaken on *12*th *July* 2023 by Georgina Southon, Smeeden Foreman Ecologist and accredited MoRPh surveyor. The weather was dry with no significant precipitation events having taken place within 48 hours of the survey.

Results

The river extends beyond the proposals site boundary to the *east and* west. Within the site boundary, the sub-reaches were characterised by *smooth* water flow and scored high on the range of natural features within the riparian zone *that included trees and tall herb grassland*. *Lower scores were assigned for the presence of Himalayan Balsam along the bank tops and facing.*

A summary of values attributed to the RCA are summarised in Table G1 below, along with condition score and final condition classification. Full survey details from each MoRPh module or MoRPh5 group can be provided, upon request.

Table G1: Summary of the River Condition Assessment Values

River Name	Reach	Sub-reach	Module length	River shape	Average width	River category	A1: Braiding Index	A2: Sinuosity Index	A3: Anabranching Index	A4: Level of Confinement	A5: Reach Valley Gradient	A6: Bedrock reach	A7: Coarsest Bed Material	A8: Average Bed Material	River Type	Condition Score	Condition Class
Don	Oxspring	Millstones	10m	7.283	10m	Other	1	1.094	0	Unconfined	0.011	No	CO	GP	F	1.64	Fairly Good

The river achieves a condition score of **Fairly-good**.

APPENDIX 06: HABITAT CONDITION ASSESSMENT

Condition Sheet 6 - Grassland (Medium, High & Very High Distinctiveness)		
Condition Assessment Criteria		**Passed/Failed Criteria**
A	The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present. **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	**Fail**
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates	**Fail**
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens[1].	**Fail**
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	**Pass**
E	Combined cover of species indicative of sub-optimal condition[2] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]) are present, this criterion is automatically failed.	**Pass**
Additional Criterion - must be assessed for all non-acid grassland types		
F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 2 and 4 cannot contribute towards this count. **Note - this criterion is essential for achieving Good condition for non-acid grassland.**	**Fail**
Number of Criteria Passed		**2**
Condition		**Poor**
Assessment Result		**Condition**
Acid Grassland Types (Result out of 5 criteria)		
Passes 5 criteria		**Good (3)**
Passes 3 or 4 criteria		**Moderate (2)**
Passes 2 or fewer criteria		**Poor (1)**

Condition Sheet 16 - Line of Trees		
Condition Assessment Criteria		**Passed/Failed Criteria**
A	At least 70% of trees are native species.	**Pass**
B	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	**Pass**
C	One or more trees has veteran features and or natural ecological niches for vertebrates and invertebrates, such as presence of standing and attached deadwood, cavities, ivy or loose bark.	**Pass**
D	There is an undisturbed naturally-vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other human activities (excluding grazing). Where veteran trees are present, root protection areas should follow standing advice[2].	**Pass**
E	At least 95% of the trees are in a healthy condition (deadwood or veteran features valuable for wildlife are excluded from this). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	**Pass**
Number of Criteria Passed		**5**
Condition		**Good**
Assessment Result		**Condition**
Passes 5 criteria		**Good (3)**
Passes 3 or 4 criteria		**Moderate (2)**
Passes 2 or fewer criteria		**Poor (1)**

Condition Sheet 20 - Scrub		
Condition Assessment Criteria		**Passed/Failed Criteria**
A	The scrub is a good representation of the habitat type it has been identified as, based on its UKHab description (where in its natural range). The appearance and composition of the vegetation closely matches the characteristics of the specific scrub type. At least 80% of scrub is native, and there are at least three native woody species[1], with no single species comprising more than 75% of the cover (except hazel *Corylus avellana* , common juniper *Juniperus communis* , sea buckthorn *Hippophae rhamnoides* or box *Buxus sempervirens* , which can be up to 100% cover).	**Pass**
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran[2]) shrubs are all present.	**Fail**
C	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]) and species indicative of sub-optimal condition[5] make up less than 5% of ground cover.	**Fail**
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	**Pass**
E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	**Fail**
Number of Criteria Passed		**2**
Condition		**Poor**
Assessment Result		**Condition**
Passes 5 criteria		**Good (3)**
Passes 3 or 4 criteria		**Moderate (2)**
Passes 2 or fewer criteria		**Poor (1)**

APPENDIX 07: GRASSLAND QUADRAT DATA

Common Name	Species	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Yorkshire fog	*Holcus lanatus*	o		o	o	o	o		o	f	f
Red fescue	*Festuca rubra*	f	f	o	a	a	f	f			
Creeping bent	*Agrostis stolonifera*	o		r				o	a	o	
Cocksfoot grass	*Dactylis glomerata*	o									
Common centaury	*Centaurea erythraea*	r									
Selfheal	*Prunella vulgaris*	o									
Dandelion	*Taraxacum agg.*	o	f	o	o	o	o	o	o	o	
Moss sp.	*Yellow moss*	f		f	f			f	f	r	
Smooth Hawksbeard	*Crepis capillaris*	r	r								
Common Mouse-ear	*Cerastium fontanum*	r	o	o	o	r		r			o
Thyme leaved speedwell	*Veronica serpyllifolia*	r				o		r	r		
Springy turf moss	*Rhytidiadelphus squarrosus*		f		o	a					
Creeping buttercup	*Ranunculus repens*		r	o	o		o		o	f	f
White clover	*Trifolium repens*		o	o	o	r		o	o	o	
Willow seedling	*Salix spp.*		o								
Lady's Mantle	*Alchemilla mollis*		o								
Field horsetail	*Equisetum arvense*			a	r	r				o	
Hairy tare	*Vicia hirsuta*			o		r					
Lesser trefoil	*Trifolium dubium*			r							
Tufted hair grass	*Deschampsia cespitosa*				r		f	o		o	
Rough meadow grass	*Poa trivilais*				r						
Bird's foot trefoil	*Lotus corniculatus*							f			
Common vetch	*Vicia sativa*						o			r	
Common nettle	*Urtica dioica*						f				

Creeping thistle	*Cirsium arvense*						o				f
Broad-leaved dock	*Rumex obtusifolius*						r		o	o	
Changing forget-me-not	*Myosotis discolor*						o				f
Dove's foot cranesbill	*Geranium mollis*							r			
Soft rush	*Juncus effusus*								r		
Broadleaf plantain	*Plantago major*									o	
Meadow buttercup	*Ranunculus acris*								r	o	
Hedge woundwort	*Stachys sylvatica*									r	
Marsh thistle	*Cirsium palustre*									o	
Nipplewort	*Lapsana communis*										r
Hogweed	*Heracleum spondylium*										r
	Species per m2	**11**	**9**	**11**	**11**	**9**	**10**	**10**	**10**	**14**	**7**
	Average species per m2 = 10 (incl. bryophytes)										