

# Church Mews, Bolton-upon-Dearne

## Ecological Impact Assessment

31<sup>st</sup> October 2022



Prepared by:

Middleton Bell Ecology, School House, Green Moor, Sheffield, S35 7DQ

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| For Planning                     | G Slack<br>MCIEEM<br><i>Greg Slack</i> | P Middleton<br>MCIEEM<br><i>P Middleton</i> | R Bell<br>MCIEEM<br><i>R Bell</i> | 31 <sup>st</sup> October<br>2022 |

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|----------------------------------------------------------------------------------|-----------------------------------------|
| <b>Site Name</b><br>Church Mews, Bolton-upon-Deane, Rotherham, S63 8NW           |                                         |
| <b>Local Authority</b><br>Barnsley Metropolitan Borough Council                  | <b>Grid Reference</b><br>SE 45475 02459 |
| <b>Surveyor</b><br>Greg Slack MCIEEM                                             | <b>Date of Survey</b><br>08/08/2022     |
| <b>Soilscape</b><br>Slowly permeable seasonally wet acid loamy and clayey soils. | <b>Designation of Site</b><br>None      |

|                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UK Habitat Classification habitats on Site</b><br>Habitats: h2b – other hedgerows, u1c – artificial unvegetated, unsealed surface.<br><br>Secondary codes: 11 – scattered trees, 17 - ruderal/ephemeral, 68 – mortared wall, 69 – fence, 115 - track. |
| <b>Protected/Notable Species, Constraints on Site</b><br>Japanese knotweed, wall cotoneaster                                                                                                                                                             |
| <b>HPIs and SPIs under NERC Act 2006</b><br>None                                                                                                                                                                                                         |
| <b>Barnsley BAP</b><br>None                                                                                                                                                                                                                              |

## 1. Summary

- 1.1.1 This Ecological Impact Assessment of Church Mews, Bolton-upon-Deane was commissioned by the client Nicola Tinker on 25<sup>th</sup> July 2022. The survey was commissioned in order to inform a planning application for the proposed construction of 14 dwellings.
- 1.1.2 The vegetation within the site had been cleared in winter 2021/22 as part of ongoing management to remove and prevent fly-tipping. Regular work to clear rubbish and some vegetation had been undertaken during most winters since 2019 when a barn had been removed for reasons of health and safety. Much of the site had previously comprised ephemeral vegetation on hardcore. Because of the vegetation clearance, the baseline metric score was low (0.06 habitat units, and 0.02 hedgerow units) and the metric therefore showed a net gain of 0.40 habitat units, and 0.14 hedgerow units.
- 1.1.3 The habitats present were not considered to be of greater than site level importance to nature conservation. No species or species group using the site was considered to be of more than site level importance. No further survey is required.
- 1.1.4 A stand of Japanese knotweed was identified and reported to the client immediately after the survey. Treatment commenced on 16<sup>th</sup> August and an eradication plan has been developed by a specialist Japanese knotweed removal contractor. The removal should be completed to ensure no Japanese knotweed is present during construction.
- 1.1.5 The lawned areas within the proposed development will be seeded with a basic meadow grass seed mix. The mixed scrub planting, and new tree planting should comprise native UK species, including species which would provide good forage for invertebrates and birds (nectar, pollen, fruit, and berry rich species).
- 1.1.6 The new boundary walls/fences should have holes at ground level to allow hedgehogs free movement between the gardens within the proposed development site. The holes should be located close to areas of retained trees and scrub if feasible.
- 1.1.7 In order to retain as much suitability as possible for light adverse species including bats, no permanently lit outside lighting should be installed. Where outside lighting is necessary it should be activated only by a passive infrared sensor.
- 1.1.8 Half of the new dwellings should incorporate an integrated bat roost feature with the other half incorporating integrated swift bricks.
- 1.1.9 The clearance of the three sycamore trees should take place at a time when it would not be expected to affect nesting birds. If works are to be undertaken during the typical nesting period, then they should be preceded by a nesting bird check.
- 1.1.10 A minimum of three large logs cut from the sycamore trees should be retained and placed within or along the edge of, the areas of mixed scrub. This will create habitat for wood-feeding and wood-boring invertebrate species.
- 1.1.11 Biodiversity net gain assessment guidance states the work is considered to be valid for six months from the time of the field work. For all other purposes the results of this survey are considered to be valid for a period of 12 months. After this time Middleton Bell Ecology should be contacted to determine the need for update survey.

## 2. Introduction

- 2.1.1 This Ecological Impact Assessment of: Church Mews, Bolton-upon-Deane was commissioned by the client Nicola Tinker on 25<sup>th</sup> July 2022. The survey was commissioned in order to inform a planning application for the proposed construction of 14 dwellings (as shown in Appendix 1).
- 2.1.2 The site was approximately 0.32 ha in size and located in the southern half of Bolton-upon-Deane (Figure 1) approximately half way between Barnsley and Doncaster.
- 2.1.3 Previous ecological survey work at the site comprised a bat and bird survey in 2016 prior to the demolition of an unsafe barn (MEC, 2016) and the relocation of a barn owl box from within the site, to a location near the River Deane in 2022 (MBE, 2022).
- 2.1.4 The purpose of this report is to present the findings of a desk-based study and UK Habitat Classification survey. The report considers the ecological value of the site and presents an assessment of the impacts of the proposed development. Mitigation and compensation measures necessary to avoid or reduce these impacts are detailed.
- 2.1.5 Key legislation relating to designated sites, protected species and habitats is detailed in Appendix 2. The implications of legislation are detailed in the body of the report where necessary.

## 3. Site Description

- 3.1.1 A track (Church Mews) led down to the site which was fenced off with hedges fencing. The site comprised unsealed, unvegetated land bounded by fences and walls, with a small area of hedgerow present on the western boundary.
- 3.1.2 The site falls within National Character Area (NCA) 38: The Nottinghamshire, Derbyshire and Yorkshire Coalfield. This NCA comprises “a generally low-lying area, with hills and escarpments above wide valleys, the landscape embraces major industrial towns and cities as well as villages and countryside. The landscape is dotted with many pockets and patches of habitat where species find refuge. This is often on land that was once worked for minerals or occupied by major industry”<sup>1</sup>.
- 3.1.3 The Soilscape resource<sup>2</sup> shows soils in the area to comprise slowly permeable seasonally wet acid loamy and clayey soils.

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<sup>1</sup> This description is provided by  
<http://publications.naturalengland.org.uk/publication/4743624?category=587130> [accessed 27 April 2022]  
<sup>2</sup> <http://www.landis.org.uk/soilscape/> [accessed 13 May 2022]

**Figure 1. The site location, as indicated by red line boundary shown**



## 4. Methodology

### 4.1 Data Consultation

4.1.1 Barnsley Biological Records Centre was contacted in July 2022, and Rotherham Biological Records Centre contacted in August 2022 to request the following information for locations within a 2 km radius of the site:

- protected and notable species records; and
- the boundaries of non-statutory designated sites of nature conservation interest.

4.1.2 A search of the Multi-Agency Geographical Information for the Countryside (MAGIC) website was undertaken to determine the following for locations within a 1 km radius of the site:

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

4.1.3 Aerial photographs (Google Earth, Bing Mapping, and ESRI imagery) and Ordnance Survey mapping were studied to consider the wider context and to look for ecological features that would not be evident on the ground during the walkover survey. This was particularly useful for identifying wildlife corridors and ponds. Images from previous years were also used to understand the historical context of the site.

## **4.2 Field Survey**

### UK Habitat Classification Survey

- 4.2.1 The site was surveyed on 8<sup>th</sup> August 2022 using UK Habitat Classification habitat survey methodology (Butcher *et al.*, 2020) by Greg Slack MCIEEM. Greg is a competent ecologist with more than 15 years' experience.
- 4.2.2 The surveyor methodically covered the site and included searching for notable, rare or scarce plant species and evidence of protected species and species of nature conservation importance. Features of interest are presented on the UK Habitat Classification plan, using Secondary Codes and Target Notes.
- 4.2.3 Habitats of Principal Importance (HPIs) and Species of Principal Importance (SPIs) included on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 were recorded. Any priority species and habitats included on the Local Biodiversity Action Plan (LBAP) were also noted.

## **4.3 Method of Assessment**

- 4.3.1 In line with CIEEM guidelines (CIEEM, 2017) the survey results were used to identify any ecological constraints to the proposed development, any further surveys, and any mitigation measures likely to be required. Opportunities for ecological enhancement measures were also included where possible.
- 4.3.2 The value and sensitivity of ecological features present on site were determined based on the guidance provided within 'Guidelines on Ecological Impact Assessment in the UK and Ireland' (CIEEM, 2018). Individual ecological receptors (habitats and species that could be affected by the development) were assigned a geographic level of importance for nature conservation. The highest level is international, decreasing through national, regional, county, local and lastly site importance.

## **4.4 Biodiversity Calculation**

- 4.4.1 The Biodiversity Metric 3.1 (Panks *et al.*, 2022) was used to calculate the ecological impact of this scheme. This metric uses habitat as a proxy for wider biodiversity with different habitat types scored according to their relative biodiversity value. This value is then adjusted depending on the condition and location of the habitat, to calculate 'biodiversity units'. Biodiversity Metric 3.1 incorporates similar but separate calculations for habitats that require a different method of measurement such as hedgerows, lines of trees, rivers, streams and street trees. Calculations are undertaken in a purpose designed spreadsheet, which provides the main output of the process.

## **4.5 Survey Limitations**

- 4.5.1 No survey limitations were encountered.

## 5. Ecological Baseline

### 5.1 Designated Sites

- 5.1.1 The Dearne Valley Wetlands Site of Special Scientific Interest (SSSI) was the only statutory designated sites of nature conservation interest present within 2 km of the site. The SSSI boundary is not contiguous, with areas of the SSSI located both approximately 780 m to the east and 1190 m to the west of the proposed development. The SSSI is designated due to its bird assemblage and habitats. The best connectivity between these two areas comprises the River Dearne and adjacent habitat which lies approximately 350 m south of the proposed development.
- 5.1.2 No non statutory designated sites were present within the two-kilometre desk study area, however, the site did lie within the Dearne Valley Green Heart Nature Improvement Area. No ancient woodland was present within two kilometres of the site.

### 5.2 Habitats

#### Summary and context

- 5.2.1 At the time of survey, the site had been cleared and only relatively recently established pioneer plants were present across the artificial unvegetated, unsealed surface. The client explained that the clearance had been undertaken in winter 2021/22 together with the creation of a bund around the northern site boundary as part of ongoing site management and to combat fly-tipping. The client explained that regular work to clear rubbish and some vegetation had been undertaken during most winters since 2019 when a barn had been removed for reasons of health and safety. Aerial photographs of the site were studied to try to identify the habitats present and site condition prior to the clearance (Appendix 3).
- 5.2.2 A photo of the site during the demolition of the barn in 2019 is included as Plate 1, and current and historic aerial images from Google Earth are given in Appendix 3. The aerial photographs of the site are considered to show it as supporting only ephemeral vegetation prior to the vegetation clearance in winter 2021/22. Based on the historic images and use of the site, and the fact the most recent vegetation clearance had occurred more than seven months prior to the site visit as part of the ongoing management of the site, it was deemed most appropriate to class the cleared habitat as artificial unvegetated, unsealed surface.

**Plate 1. A photo of the site taken during the demolition of the barn in 2019 showing ephemeral vegetation on hardcore across most of the site**



- 5.2.3 The boundaries were marked with fences and walls with three sycamore *Acer pseudoplatanus* trees present in the southeast corner and a largely non-native hedge (other hedgerow) at the northern end of the western site boundary.
- 5.2.4 A small stand of Japanese knotweed *Fallopia japonica* was present near the southern site boundary (Target Note 1) and wall cotoneaster *Cotoneaster horizontalis*. was present in one section of hedgerow. Both species are listed on Schedule 9 of the Wildlife and countryside act as non native invasive plant species meaning it is illegal to allow them to spread into the wild (Appendix 2).
- 5.2.5 The habitats present were not considered to be of greater than site level importance to nature conservation. No species or species group using the site was considered to be of more than site level importance.
- 5.2.6 A detailed description of the site and adjacent habitats and the site's potential to support protected and notable species is provided below.

#### h2b – other hedgerows

- 5.2.7 A hedgerow was present along the northern end of the western site boundary, sandwiched between a fence and a retaining wall (Plate 2). The woody species in the area of other hedgerow comprised dominant wall cotoneaster abundant Leyland cypress *Cupressus × leylandii* occasional sycamore *Acer pseudoplatanus*, and rarely occurring elder *Sambucus nigra*, holly *Ilex aquifolium*, hawthorn *Crataegus monogyna*, and ash *Fraxinus excelsior*.
- 5.2.8 The ground flora comprised abundant ivy *Hedera helix*, locally abundant bramble *Rubus fruticosus* agg., and rarely occurring great willowherb *Epilobium hirsutum*, and bracken *Pteridium aquilinum*.

- 5.2.9 As a habitat dominated by non-native species there is no applicable condition assessment for this habitat type (Panks *et al.*, 2021).

**Plate 2. Section of hedgerow at the northern end of the western site boundary**



u1c – artificial unvegetated, unsealed surface

- 5.2.10 Almost the entire site comprised habitat type u1c - artificial unvegetated, unsealed surface (Plate 3).
- 5.2.11 Some pioneer vegetation was present at the time of survey. Tree and scrub saplings comprised rarely occurring sycamore, holly, crack willow *Salix × fragilis*, butterfly bush *Buddleja* sp., and bramble. Herbs and grasses comprised: occasionally occurring creeping bent *Agrostis stolonifera*, ivy, creeping thistle *Cirsium arvense*, mugwort *Artemisia vulgaris*, ribwort plantain *Plantago lanceolata*, fat-hen *Chenopodium album*, black medic *Medicago lupulina*, dandelion *Taraxacum* sp., foxglove *Digitalis purpurea*, common fleabane *Pulicaria dysenterica*, and occasional/rarely occurring common knotgrass *Polygonum aviculare*. Rarely occurring grasses and herbs comprised: cock's foot *Dactylus glomerata*, common nettle *Urtica dioica*, great lettuce *Lactuca virosa*, prickly Lettuce *Lactuca serriola*, oxeye daisy *Leucanthemum vulgare*, bristly oxtongue *Helminthotheca echioides*, spear thistle *Cirsium vulgare*, white clover *Trifolium repens*, weld *Reseda luteola*, catsear *Hypochaeris radicata*, ragwort *Jacobaea vulgaris*, poppy *Papaver* sp., black nightshade *Solanum nigrum*, common comfrey *Symphytum officinale*, perennial sow thistle *Sonchus arvensis*, and the non-native invasive species Japanese knotweed *Fallopia japonica*. Springy turf moss *Rhytidiadelphus squarrosus* was also present (rarely occurring) near the track at the northern edge of the site.

**Plate 3. The cleared site looking southeast from the northwest corner**



5.2.12 A total of three scattered trees (Secondary Code 11) were present within the area of artificial unvegetated, unsealed surface habitat. These are shown in Plate 4 and detailed in Table 1 below.

**Table 1. Scattered trees present on site**

| Species  | Diameter in cm at 1.5 m height        | RPA <sup>3</sup><br>(m <sup>2</sup> ) | Due to be retained? |
|----------|---------------------------------------|---------------------------------------|---------------------|
| Sycamore | Two stems: 22, 20                     | 21.9                                  | No                  |
| Sycamore | Four stems: 18, 12, 10, 7             | 14.7                                  | No                  |
| Sycamore | Seven stems: 15, 12, 12, 10, 10, 7, 5 | 10.2                                  | No                  |

5.2.13 The tree with two stems appeared to have been set on fire relatively recently and may now be dead. However, for the purposes of the biodiversity metric it has been included on a precautionary basis.

5.2.14 The urban trees condition assessment identified that the trees were in poor condition as the only condition criteria (Panks *et al.*, 2021) they passed were:

- The trees were a native species<sup>4</sup>, and
- As individual trees they were automatically considered to have continuous canopy cover.

<sup>3</sup> In line with guidance (Panks *et al.* 2022), in order to determine an area for use in the biodiversity metric, the largest stem was used to calculate the root protection area (RPA) using the formula  $\text{area} = \pi \times r^2$  where  $r$  is 12 times the trees diameter at 1.5 m. As standard the largest stem is used to generate this measurement for multi-stemmed trees.

<sup>4</sup> For the purpose of the condition criteria assessment sycamore is taken to be a native (naturalized) species.

**Plate 4. Three scattered trees in the southeast corner of the site.**



### 5.3 Species and Species Groups

- 5.3.1 The site was located, in the southern half of Bolton-upon-Deane surrounded by residential dwellings. A small block of woodland was present approximately 35 m to the south, with farmland and the River Dearne beyond. Although these features were relatively close, the site wasn't within a connective corridor leading to another area of semi natural habitats. Therefore, the site was not considered to be important to species or species groups as part of a connective corridor and is considered below in terms of its intrinsic importance only.

#### Badger

- 5.3.2 In a well recorded area (346 records of terrestrial mammal were returned by BBRC and 58 records were returned by RBRC) one badger *Meles meles* record was returned by RBRC. The two-figure grid reference provided was deliberately vague and therefore it's proximity to the site could not be determined.
- 5.3.3 No badger signs were recorded during the site visit and the site was considered broadly unsuitable for use by badgers due to the lack of vegetation.

#### Otter

- 5.3.4 Ten records of otter *Lutra lutra* were returned by BBRC, and two were returned by RBRC. The closest record was located approximately 380 m to the south of the site in the River Dearne with the most recent record dated from 2016.
- 5.3.5 However, no suitable otter habitat was present within the site and no otter records were located to the north of the site. It is therefore considered very unlikely that otter would use, or pass through, the site.

#### Hedgehog

- 5.3.6 Six hedgehog *Erinaceus europaeus* records were provided by BBRC across five

locations. All five locations were to the west of the site with the majority on the western edge of Bolton-upon-Dearne. The closest record was collected in 2014 from a location approximately 750 m southwest of the site. No hedgehog records were provided by RBRC.

- 5.3.7 The habitat within the site was considered broadly unsuitable for use by hedgehogs due to the lack of vegetation to support their invertebrate food and the presence of boundary walls and fences which would create a barrier to their movement.

#### Water vole

- 5.3.8 231 records of water vole were returned by BBRC and 26 were provided by RBRC. The closest record was located approximately 380 m south of the site adjacent to the River Dearne and dated from 2002. The most recent record dated from 2013.
- 5.3.9 Eight American mink *Neovision vision*, records were also included in the data search dating from between 2002 and 2012. As mink predate water voles it is possible that the local water vole population was wiped out around this time.
- 5.3.10 No suitable water vole habitat was present within the site and no water vole records were located to the north of the site. It is therefore considered very unlikely that water vole would use, expand into, or pass through, the site.

#### Bats

- 5.3.11 A total of 20 bat records were provided by BBRC and one was provided by RBRC. Four were for common pipistrelle *Pipistrellus pipistrellus*. Two were for soprano pipistrelle *Pipistrellus pygmaeus*, three were for Daubenton's bat *Myotis daubentonii*, three were for noctule *Nyctalus noctula*, and two were for Leisler's bat *Nyctalus leisleri*. There were also an additional four records of an unidentified *Myotis* species, and two were records of an unidentified bat species.
- 5.3.12 The closest desk study bat record was for a Daubenton's bat recorded in 2012 approximately 350 m southwest of the site adjacent to the River Dearne.
- 5.3.13 A bat survey of an onsite barn was undertaken in 2016 (MEC, 2016). The survey comprised an inspection and two nocturnal surveys. The surveys recorded three species of bat (common pipistrelle, Natterer's bat *Myotis nattererii*, and noctule) foraging in the vicinity of the barn but no bat roosts present.
- 5.3.14 The habitats present on site were potentially suitable to be used, to a limited extent, by foraging or commuting bats. It is likely that bats roosting in the buildings around the site would commute across the site to access the habitat to the south of Bolton-upon-Dearne.

#### Birds

- 5.3.15 A total of 4196 bird records for 150 species were returned by BBRC and 1891 records for 145 species were returned by RBRC for locations within two kilometres of the site. Previous work undertaken by Middleton Bell Ecology on the site had identified the presence of a barn owl roost in a barn which had previously been demolished on health and safety grounds (MEC, 2016). A barn owl box had been erected on site to facilitate the demolition, but this was relocated in March 2022 (following consultation with

Barnsley Council's Biodiversity Officer Trevor Mayne) to maximise the chance of it being used. Additional detail is reported in a letter report (MBE, 2022).

- 5.3.16 Wood pigeon *Columba palumbus* and magpie *Pica pica* were recorded from the surrounding area, but no birds were noted within the site itself.
- 5.3.17 The three sycamore trees present in the southwest corner of the site and the hedgerow in the northeast corner afforded some suitability for use of the site by nesting birds. However, no active nests were recorded during the site visit and no suitability for use by nesting birds remained within the area of artificial unvegetated, unsealed surface. Furthermore the site was considered to be of little appeal to foraging birds in its current state.

#### Reptiles

- 5.3.18 Two grass snake *Natrix helvetica* records were provided by BBRC for locations within two kilometres of the site. Both records were located to the east of the site and Bolton-upon-Deerne, with the closest being approximately 980 m from the site boundary.
- 5.3.19 One record of the non-native species: red-eared terrapin *Trachemys scripta*, was returned by RBRC located at Wath-Manvers Lake approximately 1600 m to the southwest of the proposed development.
- 5.3.20 No other reptile species records were reported.
- 5.3.21 The lack of shelter or suitable foraging habitat within the site meant that it was considered unlikely that reptiles would use the proposed development site.

#### Amphibians

- 5.3.22 A total of 14 amphibian records were reported by BBRC and a further nine were reported by RBRC. These comprised: four great crested newt *Triturus cristatus* records; six smooth newt records; five common toad records; and eight common frog records. The closest GCN record was located approximately 1500 m northeast of the proposed development. No great crested newt (GCN) EPS mitigation licences have been issued within two kilometres of the proposed development.
- 5.3.23 The closest amphibian record was a common toad recorded approximately 390 m south of the proposed development. The closest pond to the site shown on OS mapping was approximately 515 m southeast of the proposed development.
- 5.3.24 The lack of ponds within the site or immediate surrounding area, and the lack of shelter within the site meant that amphibian species were considered unlikely to be present.

#### Invertebrates

- 5.3.25 The BBRC search returned 841 invertebrate records, the RBRC search returned a further 1140. Of these, 1934 were insect records, 36 were crustaceans, 42 were molluscs, 121 were arachnids, 12 were *Myriapoda* records, and three were records of annelids.
- 5.3.26 The invertebrate records included dingy skipper *Erynnis tages*, small heath *Coenonympha pamphilus*, and cinnabar moth *Tyria jacobaeae* which are all identified

as species of principal importance (SoPI) under the NERC Act (see Appendix 2). The closest of these SoPI records was a cinnabar moth located approximately 300 m northeast of the red line boundary.

- 5.3.27 Bare ground can be useful for invertebrate species for basking and as a place to build nests but the regular disturbance of the whole site meant that there was no evidence of established long term use by invertebrate populations. Although plants offering nectar were present on site, and even some of the foodplants for SoPI caterpillar species were recorded within the site's boundary (notably creeping bent which can be a food plant of small heath, and ragwort which is a cinnabar moth caterpillar food plant), these plants were not present in a sufficient density or abundance to be of significant importance to these species.

#### Plants

- 5.3.28 The BBRC desk study returned 4264 plant species records; 2 of the records were for conifers; 31 records were of ferns; 4134 records were of flowering plants; 18 records were for horsetails; four records were for liverworts. Many of the plant records were from plant atlas surveys and had been given a four-figure grid reference which encompassed the site itself (the centre of the kilometre square sat just to the north of the sites boundary). Aside from these records (which could be up to 1 km from the sites location), the closest plant records were located approximately 90 m south of the proposed development and comprised bread wheat *Triticum aestivum*, and *Astrantia Astrantia major*.
- 5.3.29 No protected or priority plant species were recorded during the survey. The plant species that were recorded within the site comprised a typical assemblage of pioneer vegetation largely expected from an area of disturbed ground.

#### Invasive species

- 5.3.30 No species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were reported in the BBRC desk study. The RBRC desk study identified Japanese knotweed and Himalayan balsam *Impatiens glandulifera* within the search area. The Japanese knotweed was reported with a four-figure grid reference to be present to the south of the site on the opposite side of the River Dearne.
- 5.3.31 The location of the Himalayan balsam was more accurate, being identified at four locations relatively close together approximately 1050 m southwest of the proposed development.
- 5.3.32 A single Japanese knotweed plant was recorded on site near the southern boundary. Its location is shown in Plate 5 and as Target Note 1 on the UK Habitat Survey Plan included in Appendix 4. Wall cotoneaster was also recorded on site. It was a dominant component of the hedgerow at the northern end of the western site boundary. Both plants are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) meaning they must be treated as controlled waste if transported and that it is illegal to allow them to spread into the wild.

**Plate 5. Small Japanese knotweed plant on the southern site boundary**



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

| Habitat, Species or Species Group              | Ecological value                                            |
|------------------------------------------------|-------------------------------------------------------------|
| H2b – other hedgerows                          | Negligible                                                  |
| u1c - artificial unvegetated, unsealed surface | Negligible                                                  |
| 11 – scattered urban trees                     | Negligible                                                  |
| Badger                                         | Unlikely to be present                                      |
| Otter and water vole                           | Unlikely to be present                                      |
| Hedgehog                                       | Unlikely to be present                                      |
| Bats                                           | Site (principally for commuting)                            |
| Birds                                          | Site                                                        |
| Reptiles                                       | Unlikely to be present                                      |
| Amphibians                                     | Unlikely to be present                                      |
| Invertebrates                                  | Site                                                        |
| Plants                                         | No protected or priority species present                    |
| Invasive species                               | Negligible (Japanese knotweed and wall cotoneaster present) |

## 6. Assessment

### 6.1 Proposals

- 6.1.1 The assessment of impacts is based upon a consideration of the drawing '2206.01 / Planning Layout', dated January 2022 (Appendix 1).
- 6.1.2 The proposals comprise the construction of 14 new dwellings with carparking, and gardens. The proposed site will include areas of mixed scrub and new hedgerows. The proposals will require the removal of the three trees in the southeast corner of the site.

### 6.2 Biodiversity Calculations

- 6.2.1 The Headline Results output of the Biodiversity Metric, based upon the proposed habitats shown in Appendix 6, is presented in Appendix 7. Because the site was classed as predominantly artificial unvegetated, unsealed surface, the baseline metric score was low (0.06 habitat units, and 0.02 hedgerow units). **The metric therefore shows a substantial net gain of 0.40 habitat units, and 0.14 hedgerow units.**
- 6.2.2 The calculation tool spreadsheet presents the full workings and will be provided with this report.

### 6.3 Assessment of Impacts

#### Designated sites

- 6.3.1 The Dearne Valley Wetlands SSSI is located both 780 m to the east and 1190 m to the west of the proposed development. The bird assemblage which the SSSI is (in part) designated for is a mobile species group likely to move between the two areas of the SSSI and to use additional suitable habitat within the vicinity. The site was not considered likely to be well used by birds from the SSSI, particularly as the River Dearne, approximately 350 m to the south, provides the most suitable connective habitat between the two areas of the SSSI. Both areas of the SSSI are considered to be too distant for impacts to the habitats present (the other reason for its designation) to arise as a result of the proposed development.

#### Habitats

- 6.3.2 The proposed development would result in the loss of an area of hedgerow dominated by non-native species, including wall cotoneaster. It would also mean the loss of the artificial unvegetated, unsealed surface which forms the rest of the site, including the Japanese knotweed plant near the southern boundary. The proposed landscaping would include vegetated gardens as well as mixed scrub and scattered trees in communal areas around the parking locations (as shown in the proposed layout included as Appendix 1, and assumed habitats used to complete the biodiversity net gain calculations included as Appendix 6).
- 6.3.3 Without mitigation it is anticipated that this development would result in a neutral, or possibly even a slight beneficial effect significant at no more than a site level.

### Bats

- 6.3.4 The area covered by the proposed development is identified as being of site importance to local bat populations principally for commuting. The proposed development is likely to result in increased lighting, however, there will be an increase in the amount of vegetation post development.
- 6.3.5 As a result of the site being surrounded by other dwellings within Bolton-upon-Deane, in the absence of mitigation, it is anticipated that the proposals would result in a neutral impact on the local bat populations.

### Birds

- 6.3.6 The three trees present in the southwest corner of the site are expected to be used by nesting birds. These are also likely to be used to a certain extent for foraging by local bird populations.
- 6.3.7 In the absence of mitigation, the proposed development would include some tree planting, shrubs and lawned areas which would continue to provide some suitability for nesting and foraging birds within the local area. Overall, the proposed development is considered likely to result in a neutral effect on local bird populations.

### Invertebrates

- 6.3.8 Without mitigation, the loss of the bare ground, and sparse vegetation in the proposed development would be likely to result in a minor negative effect on invertebrate populations which require this habitat type. The planned lawns, hedges and trees would be likely to result in increased availability of cover and food sources which would benefit other invertebrate species.
- 6.3.9 Without mitigation, the lawns and landscape planting are likely to include non-native species. Overall, this is considered to result in a minor negative impact on invertebrate populations effective at no more than a site level.

### Invasive species

- 6.3.10 The removal or treatment of the Japanese knotweed and wall cotoneaster should be undertaken in a way that prevents their spread onto other properties. The removal of these two plant species which are listed as non-native invasive species on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) would prevent their further spread and would result in a slight beneficial impact significant at no more than a site level.

## **6.4 Further Survey, Mitigation, and Enhancements**

### Habitats

- 6.4.1 The lawned areas will be seeded with a basic meadow grass seed mix<sup>5</sup> including

---

<sup>5</sup> A seed mix similar to the one sold here should be used:  
<https://www.thegrassseedstore.co.uk/supplier/environmental/meadow-grass-seed/economy-meadowgrass/> [accessed 22/08/2022]

wildflowers which will grow well in a lawn<sup>6</sup>.

- 6.4.2 The mixed scrub planting should comprise native UK species. The planting mix should include species which would provide good forage for invertebrates and birds (nectar, pollen, fruit, and berry rich species). A list of suitable species is included in Appendix 8.
- 6.4.3 The three trees to be felled should be replaced on a two for one basis with new standard trees. New trees to be planted should comprise native species or fruit trees, as identified in Appendix 8.

#### Hedgehogs

- 6.4.4 The new boundary walls/fences should have a minimum of one hole at ground level allowing hedgehogs access between the proposed development site and each adjacent garden. The holes should be located near fence junctions, close to areas of retained trees and scrub if feasible.
- 6.4.5 Each hole should be a minimum of 13 cm high and 13 cm wide. Signs should be put in place to identify that the purpose of the holes is to allow hedgehog free movement (as shown in Plate 6).

**Plate 6. Hedgehog hole in a boundary wall with signage to identify its purpose.<sup>7</sup>**



<sup>6</sup> A seed mix similar to the one sold here should be used: <https://wildseed.co.uk/product/mixtures/wild-flower-only-mixtures/wild-flowers-for-lawns/> [accessed 22/08/2022]

<sup>7</sup> Image available from: <https://archive.curbed.com/2018/2/20/17031300/hedgehog-crossings-london-barnes-preservation>

### Bats

- 6.4.6 No further survey or licensing is considered necessary.
- 6.4.7 In order to retain as much suitability as possible for commuting bats which may use the proposed development site, no permanently lit external lighting should be installed. Where outside lighting is necessary it should be activated only by a passive infrared (PIR) sensor with low level bollard style lighting preferred. Light spill from windows should be minimised. All lighting should be designed in line with guidance issued by the Institute of Lighting Professionals (Anon, 2018).
- 6.4.8 Half of the new dwellings should incorporate an integrated bat roost feature, such as the Build-in Woodstone Bat Box (see Plates 7 & 8). These boxes should be installed at wall top height, on the south, east, or west elevations.

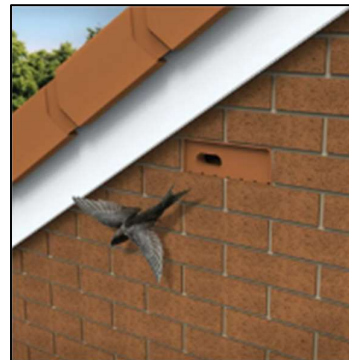
### **Plates 7 & 8. Vivara Pro Build-in WoodStone Bat Box**



### Birds

- 6.4.9 The clearance of the three sycamore trees should take place at a time when it would not be expected to affect nesting birds (outside March to August). If works are to be undertaken during the typical nesting period, then they should be preceded by a nesting bird check.
- 6.4.10 Half of the new dwellings should incorporate two integrated swift bricks, such as the Manthorpe Swift Brick (see Plates 9 & 10). These features should be installed at wall top height on the north, east, or west elevations. Studies have shown that swift *Apus apus* boxes are used by the full range of nesting birds that utilise buildings; consequently, these boxes will also provide potential nesting space for house sparrow *Passer domesticus* and starlings *Sturnus vulgaris*.

**Plates 9 & 10. Manthorpe Swift Brick**



6.4.11 Soft landscaping should include fruit and berry rich species as identified in Appendix 8.

Invertebrates

6.4.12 The use of a meadow grass and herb rich short sward seed mix for the lawned areas (as prescribed above in Section 6.4.1) will help to ensure an increase in food plants for invertebrate species post development. The use of native species of shrub and tree within the mixed scrub and the six standard trees will also help increase the invertebrate food source, and shelter available on site.

6.4.13 A minimum of three large logs (1.5 m or more in length and 0.18 m or more in diameter) cut from the sycamores should be retained and placed within or along the edge of, the areas of mixed scrub. This will create habitat for wood-feeding and wood-boring invertebrate species. Indicative placement locations are shown in Figure 2.

Invasive species

6.4.14 The stand of Japanese knotweed was reported to the client immediately after the survey. Treatment commenced on 16<sup>th</sup> August and an eradication plan has been developed by a specialist Japanese knotweed removal contractor. The removal should be completed and monitored to ensure no Japanese knotweed is present during construction.

6.4.15 The wall cotoneaster should be cut back when berries aren't present and composted, burnt, or buried on site.

6.4.16 If plant material from either species is removed from site it must be treated as controlled waste and transported by a registered waste carrier and disposed of at a specially licensed waste disposal facility.

**Figure 2. Indicative locations for hedgehog holes and invertebrate logs**



## **6.5 Conclusion**

- 6.5.1 With the mitigation and enhancement measures proposed, it is considered that the planned development maximises the potential benefits to nature conservation and would result in a significant net gain in terms of the sites biodiversity value.
- 6.5.2 The biodiversity net gain assessment is considered to be valid for six months from the time of the field work (i.e. until 8<sup>th</sup> February 2022).
- 6.5.3 For all other purposes the results of this survey are considered to be valid for a period of 12 months. After this time Middleton Bell Ecology should be contacted to determine the need for update survey.

## 7. References

Anon (2018) *Guidance Note 8 Bats and Artificial Lighting in the UK*. Institute of Lighting Professionals. <https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/>

BSI (2012) *BSI Standards Publication BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*. The British Standards Institution.

Butcher B, Carey P, Edmonds R, Norton L & J Treweek (2020) *The UK Habitat Classification User Manuals Version 1.1* at <http://www.ukhab.org/>

CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

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

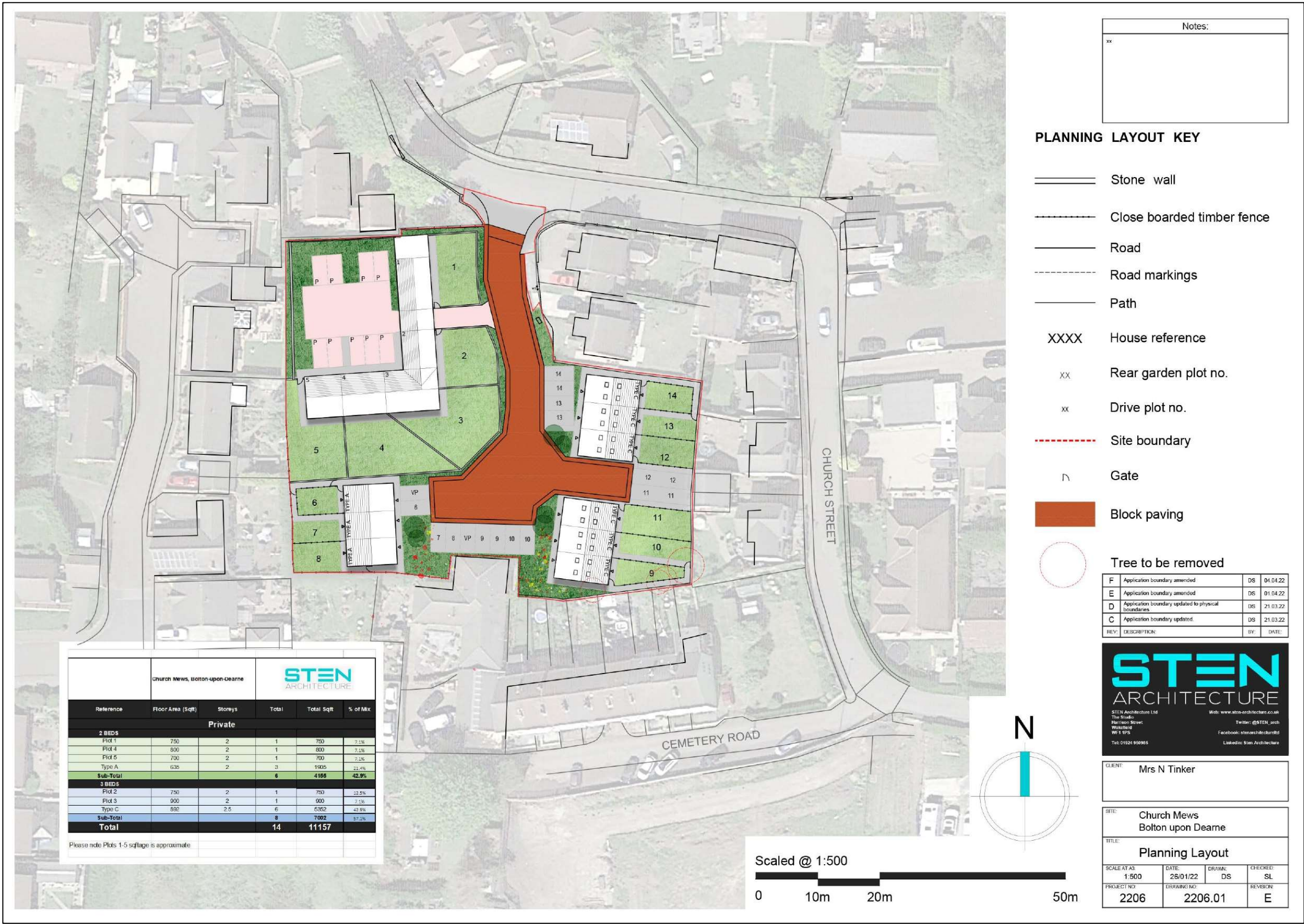
MEC (2016) *Bat Survey Report, Barn off Church Street, Bolton on Dearne*. Middleton Ecological Consultancy, Barnsley.

MBE (2022) *Barn Owl Box Relocation, Bolton on Dearne – Letter Report*. Middleton Bell Ecology. Sheffield

Panks S, White N, Newsome A, Nash M, Potter J, Heydon M, Mayhew E, Alvarez M, Russell T, Cashion C, Goddard F, Scott SJ, Heaven M, Scott SH, Treweek J, Butcher B & D Stone (2022) *Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide*. Natural England.

Appendix 1. Proposed Plan

The Proposed Plan, used to identify potential impacts, is shown below.



## Appendix 2. Relevant Legislation and Planning Policy

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

**Table A1.** Legislation relating to designated sites and habitats

| Designated Site                            | Legal Status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Site of Special Scientific Interest (SSSI) | SSSIs are the national suite of sites providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs have been re-notified under the Wildlife and Countryside Act 1981 (as amended). Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000. SSSIs are of at least national importance to nature conservation |

**Table A2.** Legislation relating to species

| Species                                                                                               | Legal Status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| European protection                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| European Protected Species (EPS) (including bats, great crested newt (GCN), otter and hazel dormouse) | <p>These animal species and their breeding sites or resting places are protected under Schedule 2 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which makes it illegal to:</p> <ul style="list-style-type: none"> <li>• Intentionally or deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs.</li> <li>• Deliberately disturb such an animal.</li> <li>• Damage or destroy a breeding site or resting place of such an animal.</li> </ul> <p>European Protected Species (EPS) licences can be granted by Natural England in respect of development to permit activities that would otherwise be unlawful under the Conservation Regulations, providing that the following 3 tests (set out in the EC Habitats Directive) are passed:</p> <ul style="list-style-type: none"> <li>• The development is for reasons of overriding public interest.</li> <li>• There is no satisfactory alternative; and</li> <li>• The favourable conservation status of the species concerned will be maintained and/or enhanced.</li> </ul> <p>Under Regulation 9(5) of the Conservation Regulations, Planning Authorities have a legal duty to 'have regard to the requirements of the EC Habitats Directive in the exercise of their functions'. This means that they must consider the above 3 tests when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations. As a consequence, Planning Applications for such developments must demonstrate that the 3 tests will be passed.</p> |

| Species                                                                                     | Legal Status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                             | Natural England also allow sites to be registered on the Bat Low Impact Class Licence to permit activities that would otherwise be unlawful under the Conservation Regulations where the 3 tests can be passed and the bat roosts to be impacted are of low conservation status.                                                                                                                                                                                                                                                                                   |
| National protection                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| European Protected Species and other species including water vole and white clawed crayfish | These animals receive full protection under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to: <ul style="list-style-type: none"> <li>• Intentionally kill, injure or take any such animal.</li> <li>• Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal; and</li> <li>• Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.</li> </ul> |
| Common reptile species                                                                      | These animals receive limited protection under The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal to intentionally kill or injure any such animal.                                                                                                                                                                                                                                                                                                                                           |
| Badger                                                                                      | The Protection of Badgers Act 1992 makes it illegal to wilfully kill or injure a Badger or attempt to do so and also make it illegal to intentionally or recklessly interfere with a Badger sett. This includes damaging or destroying a sett, obstructing access to a sett and disturbing a Badger while it is occupying a sett. Licences can be granted by Natural England to permit sett closure and/or disturbance between July and November inclusive.                                                                                                        |
| Schedule 1 birds                                                                            | Special penalties relate to offences concerning birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In addition to the offences detailed above relating to all wild birds, it is illegal to intentionally or recklessly disturb any Schedule 1 bird or their dependent young while nesting.                                                                                                                                                                                                                                          |
| All bird species                                                                            | All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to: <ul style="list-style-type: none"> <li>• Intentionally kill, injure or take any wild bird.</li> <li>• Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.</li> </ul>                                                                                                                                                                 |
| Invasive species                                                                            | The Wildlife and Countryside Act 1981 (as amended) contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 of the Act. In relation to Schedule 9 plants, it is an offence to plant or otherwise cause these plant species to grow in the wild.                                                                                                                                                                        |

### Species and Habitats of Principal Importance

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

**National Planning Policy Framework**

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

**Local Biodiversity Action Plans**

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

### Appendix 3. Google Earth Images of Site

- 7.1.1 Figure A3.1 shows the most recent aerial image of the site on Google Earth. An image from April 2020 (Figure A3.2) shows the ephemeral vegetation on site at its most developed. It is clear that the site is not an established grassland and would best be described as a well-established community of ephemeral vegetation potentially with some establishing scrub and areas of bare ground.
- 7.1.2 Figure A3.3 shows the site from June 2018. The ephemeral vegetation is establishing but a significant area of bare ground persists. The final image (Figure A3.4) shows the site in January 2009. The image clearly shows the sparse ephemeral habitat over the hardcore base.

**Figure A3.1. Current Google Earth Image of the proposed development site dating from March 2022**



**Figure A3.2. Google Earth Image of the proposed development site dating from April 2020**



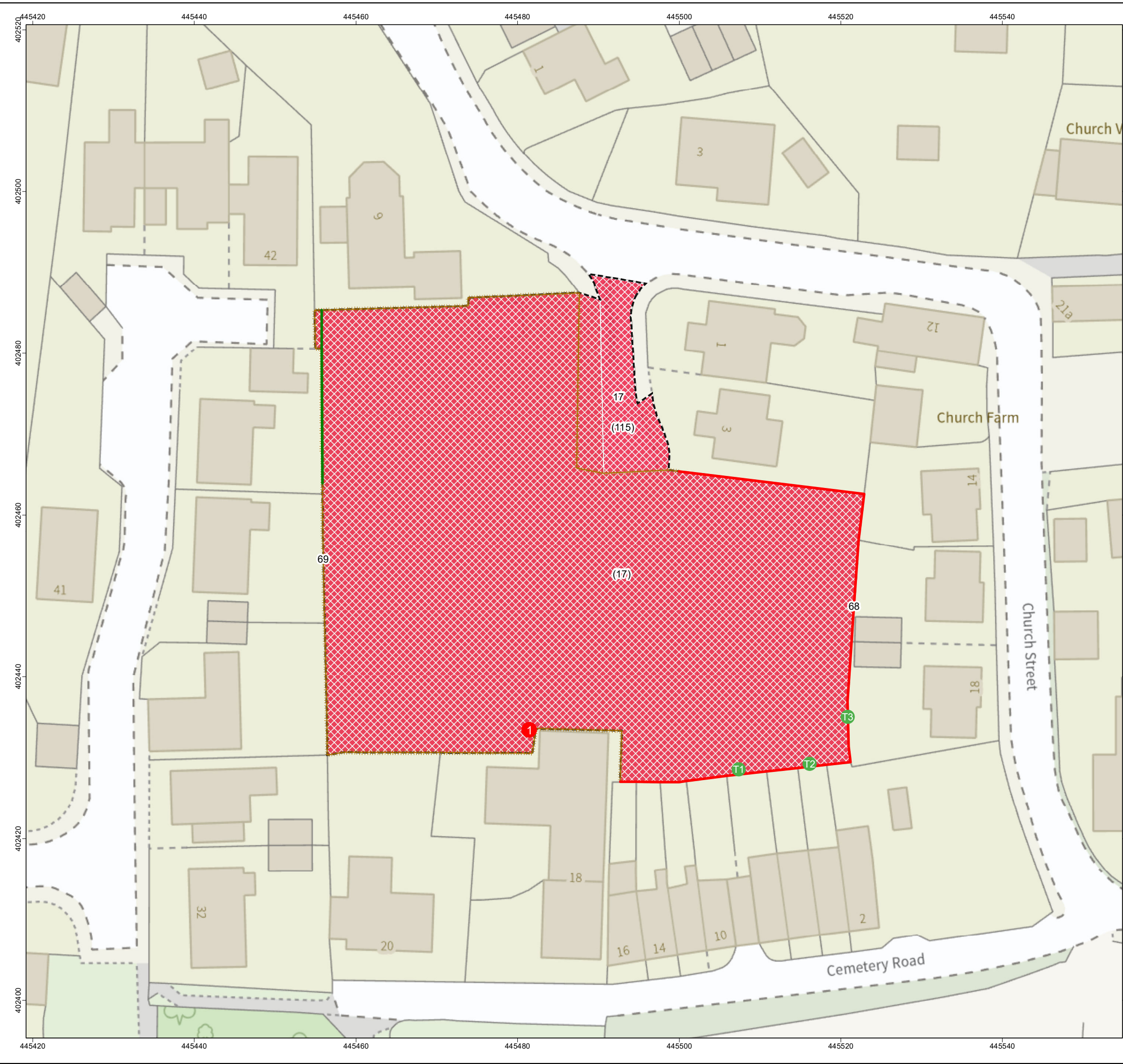
**Figure A3.3. Google Earth Image of the proposed development site dating from June 2018 (prior to the demolition of the unsafe building)**



**Figure A3.4. Google Earth Image of the proposed development site dating from January 2009**



## **Appendix 4. UK Habitat Classification Plan**



| Survey Information                                                                                                                                                                                                                                         |                                                            |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|--|--|--|
|                                                                                                                                                                                                                                                            | Site boundary (3,153.8m²)                                  |  |  |  |
| UK Habitat Survey (Primary Habitats)                                                                                                                                                                                                                       |                                                            |  |  |  |
|                                                                                                                                                                                                                                                            | u1c - Artificial unvegetated, unsealed surface (3,153.8m²) |  |  |  |
|                                                                                                                                                                                                                                                            | h2b - Other hedgerows (21.4m)                              |  |  |  |
|                                                                                                                                                                                                                                                            | 68 - Mortared wall (85.0m)                                 |  |  |  |
|                                                                                                                                                                                                                                                            | 69 - Fence (169.6m)                                        |  |  |  |
|                                                                                                                                                                                                                                                            | 11 - Scattered trees                                       |  |  |  |
|                                                                                                                                                                                                                                                            | Target note                                                |  |  |  |
| <b>Secondary codes:</b><br>11 – Scattered trees – there are three trees labelled T1 to T3<br>17 – Ruderal/ ephemeral<br>68 – Mortared wall [this is shown in pink on the plan]<br>69 – Fence<br>115 - Track<br><br><b>Target notes:</b><br>1 - Rubble pile |                                                            |  |  |  |

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|                                               |          |           |       |            |
|-----------------------------------------------|----------|-----------|-------|------------|
| PROJECT TITLE                                 |          |           |       |            |
| <b><i>CHURCH MEWS, BOLTON UPON DEARNE</i></b> |          |           |       |            |
| DRAWING TITLE                                 |          |           |       |            |
| <b>Figure 1. UK Habitat Survey Plan</b>       |          |           |       |            |
| VER                                           | DATE     | REMARKS   | Drawn | Checked    |
| 1.3                                           | 18/08/22 | UKHab     | MP    | GS         |
| DRAWING NUMBER:                               |          |           |       |            |
| MIDDLETONBELLECOLOGY/ChurchMews/UKHab         |          |           |       |            |
| SCALE                                         | 1:450    | PLOT SIZE | A3    | DATUM      |
|                                               |          |           | OSGB  | PROJECTION |
|                                               |          |           |       | BNG        |

33 Wilthorpe Road, Barnsley, South Yorkshire, S75 1JA  
www.middletonbellecology.co.uk  
T: 01226 286282

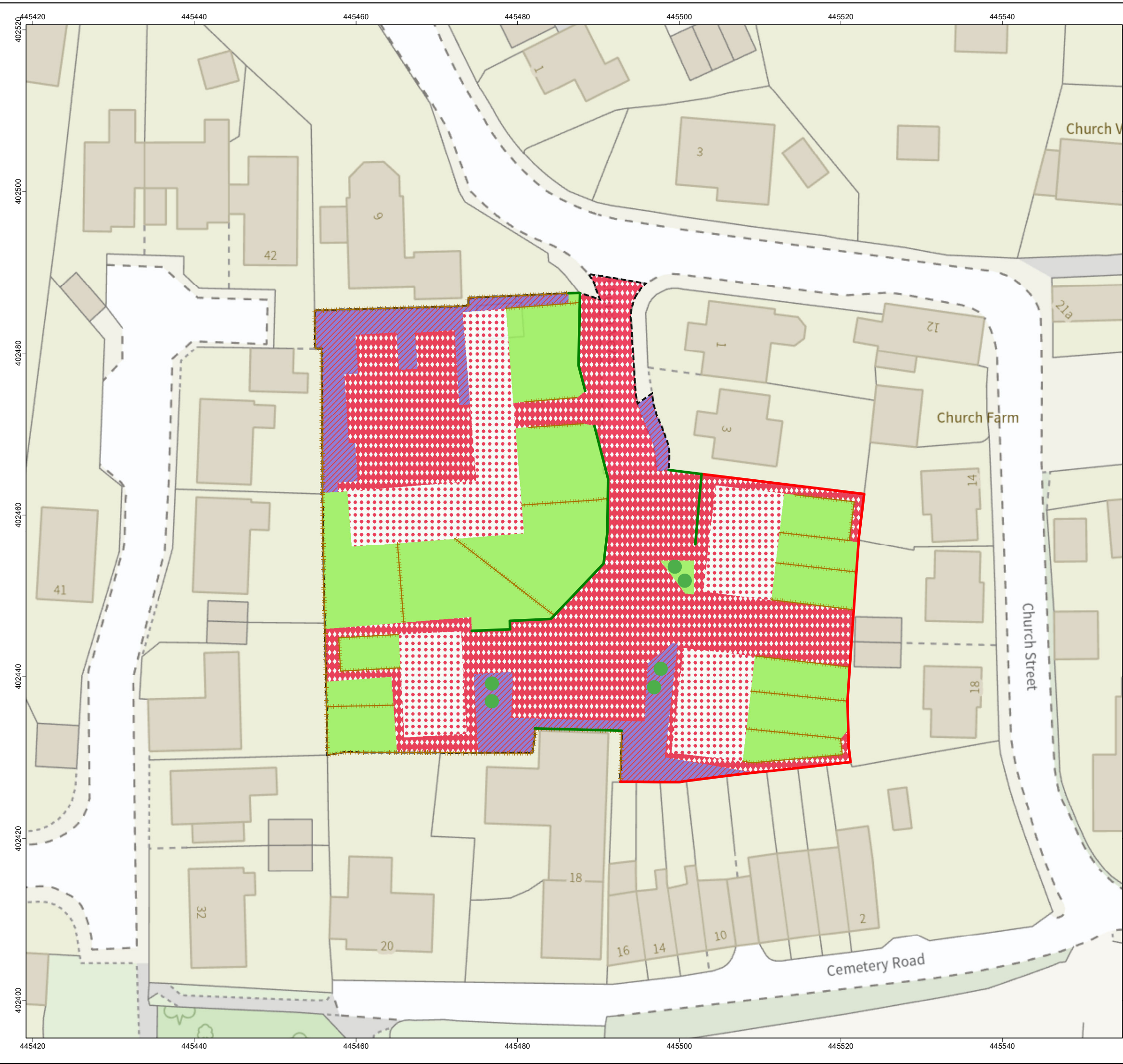
## Appendix 5. Plant Species Recorded on Site

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

| Common name      | Taxon                            | h2b - Other hedgerows | u1c - artificial unvegetated, unsealed surface |
|------------------|----------------------------------|-----------------------|------------------------------------------------|
| Cotoneaster      | <i>Cotoneaster sp.</i>           | D                     |                                                |
| Leyland cypress  | <i>Cupressus × leylandii</i>     | A                     |                                                |
| Sycamore         | <i>Acer pseudoplatanus</i>       | O                     | R                                              |
| Elder            | <i>Sambucus nigra</i>            | R                     |                                                |
| Holly            | <i>Ilex aquifolium</i>           | R                     | R                                              |
| Hawthorn         | <i>Crataegus monogyna</i>        | R                     |                                                |
| Ash              | <i>Fraxinus excelsior</i>        | R                     |                                                |
| Ivy              | <i>Hedera helix</i>              | A                     | O                                              |
| Bramble          | <i>Rubus fruticosus</i>          | LA                    | R                                              |
| Great willowherb | <i>Epilobium hirsutum</i>        | R                     |                                                |
| Bracken          | <i>Pteridium aquilinum</i>       | R                     |                                                |
| Creeping bent    | <i>Agrostis stolonifera</i>      |                       | O                                              |
| Creeping thistle | <i>Cirsium arvense</i>           |                       | O                                              |
| Mugwort          | <i>Artemisia vulgaris</i>        |                       | O                                              |
| Ribwort plantain | <i>Plantago lanceolata</i>       |                       | O                                              |
| Fat-hen          | <i>Chenopodium album</i>         |                       | O                                              |
| Black medic      | <i>Medicago lupulina</i>         |                       | O                                              |
| Dandelion        | <i>Taraxacum sp.</i>             |                       | O                                              |
| Foxglove         | <i>Digitalis purpurea</i>        |                       | O                                              |
| Common fleabane  | <i>Pulicaria dysenterica</i>     |                       | O                                              |
| Common knotgrass | <i>Polygonum aviculare</i>       |                       | O/R                                            |
| Yorkshire fog    | <i>Holcus lanatus</i>            |                       | R                                              |
| Common nettle    | <i>Urtica dioica</i>             |                       | R                                              |
| Great lettuce    | <i>Lactuca virosa</i>            |                       | R                                              |
| Oxeye daisy      | <i>Leucanthemum vulgare</i>      |                       | R                                              |
| Bristly oxtongue | <i>Helminthotheca echinoides</i> |                       | R                                              |
| Spear thistle    | <i>Cirsium vulgare</i>           |                       | R                                              |
| White clover     | <i>Trifolium repens</i>          |                       | R                                              |
| Weld             | <i>Reseda luteola</i>            |                       | R                                              |
| Cock's-foot      | <i>Dactylus glomerata</i>        |                       | R                                              |
| Catsear          | <i>Hypochaeris radicata</i>      |                       | R                                              |
| Ragwort          | <i>Jacobaea vulgaris</i>         |                       | R                                              |
| Poppy            | <i>Papaver sp.</i>               |                       | R                                              |

| Common name           | Taxon                             | h2b - Other hedgerows | u1c - artificial unvegetated, unsealed surface |
|-----------------------|-----------------------------------|-----------------------|------------------------------------------------|
| Japanese knotweed     | <i>Fallopia japonica</i>          |                       | R                                              |
| Black nightshade      | <i>Solanum nigrum</i>             |                       | R                                              |
| Common comfrey        | <i>Symphytum officinale</i>       |                       | R                                              |
| Perennial sow thistle | <i>Sonchus arvensis</i>           |                       | R                                              |
| Prickly lettuce       | <i>Lactuca serriola</i>           |                       | R                                              |
| Springy turf moss     | <i>Rhytidiadelphus squarrosus</i> |                       | R                                              |
| Crack willow          | <i>Salix fragilis</i>             |                       | R                                              |
| Butterfly bush        | <i>Buddleja sp.</i>               |                       | R                                              |

**Appendix 6. Proposed Plan Showing Assumed Habitats Used To Calculate Metric**



| Survey Information                                                                  |                                                      |
|-------------------------------------------------------------------------------------|------------------------------------------------------|
|  | Site boundary (3,153.8m <sup>2</sup> )               |
| UK Habitat Survey (Primary Habitats)                                                |                                                      |
|  | g4 - Modified grassland (995.6m <sup>2</sup> )       |
|  | h3h - Mixed scrub (341.6m <sup>2</sup> )             |
|  | u1b5 - Buildings (585.7m <sup>2</sup> )              |
|  | u1b6 - Other developed land (1,230.9m <sup>2</sup> ) |
|  | h2a - Hedgerow (priority habitat) (74.9m)            |
|  | 68 - Mortared wall (82.2m)                           |
|  | 69 - Fence (311.2m)                                  |
|  | 11 - Scattered trees                                 |

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 0 2.5 5 10  
Metres

PROJECT TITLE

***CHURCH MEWS, BOLTON UPON DEARNE***

DRAWING TITLE

**Figure 2. Proposed Site Plan**

| VER | DATE     | REMARKS | Drawn | Checked |
|-----|----------|---------|-------|---------|
| 1.1 | 17/08/22 | UKHab   | MP    | GS      |

| DRAWING NUMBER:                          |           |       |      |            |     |
|------------------------------------------|-----------|-------|------|------------|-----|
| MIDDLETONBELLECOLOGY/ChurchMews/Proposed |           |       |      |            |     |
| SCALE                                    | PLOT SIZE | DATUM | OSGB | PROJECTION | BNG |
| 1:450                                    | A3        |       |      |            |     |

## Appendix 7. Biodiversity Metric Headline Results

The headline results from the Biodiversity Metric are shown in the extract below. NB the habitat units required to meet the target shown assumes a target of a 10 % biodiversity net gain.

|                                                                                                                                  |                |                        |  |
|----------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------|--|
| Church Mews, Bolton-upon-Deane                                                                                                   |                | Return to results menu |  |
| Headline Results                                                                                                                 |                |                        |  |
| On-site baseline                                                                                                                 | Habitat units  | 0.06                   |  |
|                                                                                                                                  | Hedgerow units | 0.02                   |  |
|                                                                                                                                  | River units    | 0.00                   |  |
| On-site post-intervention<br>(including habitat retention, creation & enhancement)                                               | Habitat units  | 0.46                   |  |
|                                                                                                                                  | Hedgerow units | 0.16                   |  |
|                                                                                                                                  | River units    | 0.00                   |  |
| On-site net % change<br>(including habitat retention, creation & enhancement)                                                    | Habitat units  | 716.58%                |  |
|                                                                                                                                  | Hedgerow units | 551.86%                |  |
|                                                                                                                                  | River units    | 0.00%                  |  |
| Off-site baseline                                                                                                                | Habitat units  | 0.00                   |  |
|                                                                                                                                  | Hedgerow units | 0.00                   |  |
|                                                                                                                                  | River units    | 0.00                   |  |
| Off-site post-intervention<br>(including habitat retention, creation & enhancement)                                              | Habitat units  | 0.00                   |  |
|                                                                                                                                  | Hedgerow units | 0.00                   |  |
|                                                                                                                                  | River units    | 0.00                   |  |
| Total net unit change<br>(including all on-site & off-site habitat retention, creation & enhancement)                            | Habitat units  | 0.40                   |  |
|                                                                                                                                  | Hedgerow units | 0.14                   |  |
|                                                                                                                                  | River units    | 0.00                   |  |
| Total on-site net % change plus off-site surplus<br>(including all on-site & off-site habitat retention, creation & enhancement) | Habitat units  | 716.58%                |  |
|                                                                                                                                  | Hedgerow units | 551.86%                |  |
|                                                                                                                                  | River units    | 0.00%                  |  |
| Trading rules Satisfied?                                                                                                         | Yes ✓          |                        |  |

## Appendix 8. Proposed Planting Mix

The planting mix for the mixed native scrub should comprise the following species:

| Species List for Proposed Mixed Scrub Planting |                           |
|------------------------------------------------|---------------------------|
| Common name                                    | Taxon                     |
| Alder                                          | <i>Alnus glutinosa</i>    |
| Dogwood                                        | <i>Cornus sanguinea</i>   |
| Field Maple                                    | <i>Acer campestre</i>     |
| Hawthorn                                       | <i>Crataegus monogyna</i> |
| Blackthorn                                     | <i>Prunus spinosa</i>     |
| Hazel                                          | <i>Corylus avellana</i>   |
| Guelder rose                                   | <i>Viburnum opulus</i>    |
| Crab apple                                     | <i>Malus sylvestris</i>   |
| Holly                                          | <i>Ilex aquifolium</i>    |

The planting for the six new standard trees should comprise the following species:

| Species List for Proposed Standard Trees |                         |
|------------------------------------------|-------------------------|
| Common name                              | Taxon                   |
| Rowan                                    | <i>Sorbus aucuparia</i> |
| Silver birch                             | <i>Betula pendula</i>   |
| Plum                                     | <i>Prunus domestica</i> |
| Apple                                    | <i>Malus domestica</i>  |
| Pear                                     | <i>Pyrus communis</i>   |