



**Lumley Street, Sheffield**  
**Preliminary Ecological Appraisal**

**Hamilton Plant Hire Ltd**

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**February 2020**

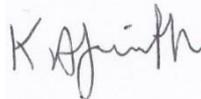
## Ecus Ltd

Report to: **Hamilton Plant Hire Ltd  
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Report Title: **Lumley Street, Sheffield  
Preliminary Ecological Appraisal**

Version: **V1.0**  
Issue Date: **February 2020**  
Report Ref: **14042**

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Version	Author	Description	Date
V0.1	Katie Smith	Initial Draft	26.11.2019
V0.2	Jennie Caddick	QA1	20.02.2020
V0.3	Katie Smith	Review of comments	21.02.2020
V0.4	Faye Davies	QA2	25.02.2020
V1.0	Katie Smith	Final comment review and version for issue	26.02.2020

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## Executive Summary

Ecus Limited (Ecus Ltd), was commissioned in November 2019 by Hamilton Plant Hire Ltd to undertake a Preliminary Ecological Appraisal (PEA) for a c.2.6 hectare (ha) area of land adjacent to Lumley Street, situated to the north east of Sheffield City Centre within the inner city (central OS Grid Reference: SK 3731 8791), as annotated on Figure 1.

The Site supports brownfield land with dense/continuous and scattered scrub, ephemeral/short perennial habitat, broadleaved semi-natural woodland, scattered trees, hardstanding and bare ground, two buildings (B1 and B2), scattered spoil piles, bracken and tall ruderal habitats. The mosaic of these habitats are considered to form open mosaic habitat on previously developed land. The Site is surrounded by industrial land uses and to the south beyond the boundary lies a railway line. All habitats inside the Site are considered to be of importance to nature conservation at the site or local level only.

The proposals for the Site include development of a workshop and waste management area with associated parking and infrastructure on approximately 0.8 ha of land in the eastern part of the Site only. The western part of the Site will be developed separately at a currently unknown later date in the future.

The Site supports open mosaic habitat on previously developed land given the history of the Site and range of habitats present. This is a NERC Act 2006 Section 41 priority habitat however based on current proposals habitat loss associated with this will be small scale and considered to be of value at no greater than the site level.

Where habitats cannot be retained, new soft landscaping in the form of native shrub and grassland planting takes place around the perimeter of the Site. Buglife (2009) provides appropriate guidance for creation of habitats, for example the inclusion of wildflower grassland using native nectar-rich species and sparsely vegetated stony ground. This will provide a continued varied habitat structure beneficial for invertebrates and other wildlife such as bats and birds.

Two buildings (B1 and B2) with moderate and low bat roost potential (respectively) on Site will be lost to the development. B1 should be subject to two nocturnal bat surveys at least two weeks apart during the main bat activity season (peak season mid-May to August inclusive). B2 should be subject to a direct endoscopic inspection by a licensed bat ecologist to check for roosting bats. Further advice on mitigation and/or compensation measures can be provided following completion of the further survey work. The Site has moderate suitability for foraging and commuting bats however no further survey is considered necessary given the current proposals. It is recommended that peripheral habitats are retained and/or reinstated to maintain foraging habitat. A sensitive lighting scheme should also be implemented to reduce the impacts of lighting on foraging and commuting bats.

Active birds' nests may be destroyed during scrub or tree removal. As a precautionary measure, it is recommended that any works to remove trees or scrub should be undertaken outside of the bird breeding season, i.e. between September and February (inclusive). If this is not possible, a nesting bird check should be undertaken by a suitably qualified ecologist no more than 48 hours prior to tree/scrub removal commencing. Inclusion of bird nesting provision is recommended as part of the development.

The Site supports suitable habitat for little ringed plover *Charadrius dubius* therefore it is recommended a check for little ringed plover is carried out by a suitably qualified ecologist prior to the commencement of works on Site where this takes place during the breeding bird season, typically March –August (inclusive). Site workers should also remain vigilant for the potential to encounter little ringed plover during construction activities as the species favours open, frequently disturbed bare ground.

A further check during the growing season should be undertaken to identify any presence of

invasive species listed on Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) brought onto Site within fly-tipped material. Removal of identified cotoneaster displaying characteristics of known invasive cotoneaster species listed on Schedule 9 on Site should be carried out appropriately to prevent further spread.

# 1. Introduction

## 1.1 Background

- 1.1.1 Ecus Limited (Ecus Ltd), was commissioned in November 2019 by Hamilton Plant Hire Limited to undertake a Preliminary Ecological Appraisal (PEA) for land adjacent to Lumley Street, to the north east of Sheffield city centre (central OS Grid Reference: SK 3731 8791), hereafter referred to as 'the Site' and as annotated on Figure 1.
- 1.1.2 The Site supports c.2.6 hectare (ha) of brownfield land. Habitats on Site are dominated by ephemeral/short perennial vegetation, dense and scattered scrub, scattered trees, a large former railway sidings building (B1), small hut building (B2) and scattered spoil piles. The Site is situated within an industrial area with a railway line to the south.
- 1.1.3 The proposals for the Site include development of a workshop and waste management area with associated parking and infrastructure on approximately 0.8 ha of land in the eastern part of the Site.
- 1.1.4 This PEA is required prior to submission of a full planning application for development of the Site. The purpose of the PEA was to record and map habitats, and assess the potential for the Site to support (or contain) species, which are protected under UK and/or European nature conservation legislation, namely the Wildlife & Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2017 and the Natural Environment and Rural Communities (NERC) Act 2006. For full details of legislation relating to those habitats and species discussed within this report visit <http://www.legislation.gov.uk>.
- 1.1.5 This report details the findings of a data consultation and extended Phase 1 habitat survey carried out during November 2019. Methodologies employed during the surveys are described along with the survey findings, evaluation, assessment and requirement for any further survey work and/or mitigation/enhancement as required.

## 2. Methodology

### 2.1 Data Consultation

- 2.1.1 As part of the PEA process, a data consultation was undertaken by Ecus Ltd in November 2019 with the local ecological record centre, Sheffield Biological Records Centre (SBRC), to determine the presence of existing biological records or locally non-statutory designated sites of nature conservation interest within 2 km of the Site. A data consultation was also undertaken with the local bat group, South Yorkshire Bat Group (SYBG) for notable bat records within 2 km of the Site.
- 2.1.2 The Multi-Agency Geographic Information for the Countryside (MAGIC) website (<http://magic.defra.gov.uk>) was consulted for information on statutory designated sites of nature conservation interest, and the presence of great crested newt *Triturus cristatus* (GCN) and bat European Protected Species (EPS) mitigation licences within 2 km of the Site.
- 2.1.3 Google Earth was also used to view publicly accessible historic aerial imagery, for context of the historic development of the Site.
- 2.1.4 Information obtained from SBRC, SYBG, MAGIC and Google Earth is included within the report where appropriate.

### 2.2 Extended Phase 1 Habitat Survey

- 2.2.1 The Site was surveyed on 21<sup>st</sup> November 2019 by Assistant Ecologist Katie Smith using the extended Phase 1 habitat survey methodology (JNCC, 2010). This survey method aims to characterise habitats and communities present and is not intended to provide a complete list of all plants occurring across the Site.
- 2.2.2 Habitats and vegetation types present inside the Site were recorded on to a field map and notable, rare or scarce plant species, including other features of ecological interest, were highlighted and marked using Target Notes (TN). Evidence of protected species or species of nature conservation importance were also recorded where present at the time of survey. Survey findings and TN are detailed in Section 3 below and annotated on Figure 1.
- 2.2.3 The abundance of plant species recorded was classified according to the DAFOR rating. The standardised terms are as follows:
- D – Dominant;
  - A – Abundant;
  - F – Frequent;
  - O – Occasional, and,
  - R – Rare.
- 2.2.4 Habitats present that are listed under Section 41 of the NERC Act 2006 or the Local Biodiversity Action Plan (LBAP) for Sheffield were also noted.
- 2.2.5 The value and sensitivity of ecological features present in the Site was determined based on the guidance given in ‘*Guidelines on Ecological Impact Assessment*’ (CIEEM, 2019). Individual ecological receptors (habitats and species) that could be affected by the proposed Site development were assigned levels of importance for nature conservation. The highest level is International, then decreasing in order of importance through UK, national, regional, county, district, local, and lastly site level

(within the zone of influence).

## **2.3 Protected and Key Species**

2.3.1 Any evidence of protected species or groups encountered during the survey was recorded. This included observations of field signs and an assessment of the suitability of the habitats present to support protected species. For full details of legislation relating to all habitats and species discussed within this report visit <http://www.legislation.gov.uk>.

### ***Amphibians***

2.3.2 The presence of waterbodies within 500 m of the Site which are not separated by a significant barrier to amphibian dispersal, was checked for using Ordnance Survey (OS) 1:10,000 mapping and aerial imaging.

### ***Badger***

2.3.3 Signs of badger *Meles meles* activity were searched for within the Site and up to 30 m from the Site boundary, where accessible.

2.3.4 The survey followed standard methodology detailed in '*Surveying Badgers*' (Harris et al., 1989). This included survey for badger setts, latrine/dung pits, foraging marks, feeding signs and pathways, specifically along linear features and boundaries in the Site.

### ***Bats***

2.3.5 Buildings and trees within the Site were subject to an external assessment for their suitability to support roosting bats during the extended Phase 1 habitat survey.

2.3.6 An individual building or tree may have several features of potential interest to roosting bats associated with it and it is not always possible to confirm usage of a feature by bats, as often the animals may be present on one day and no evidence of occupation may be found on the next. Consequently it is customary when undertaking such surveys to assign each feature to a defined category of roosting potential as follows: negligible, low, moderate, high, confirmed (Collins, 2016).

2.3.7 The Site was also assessed for its suitability to be used by foraging and commuting bats.

### ***Birds***

2.3.8 While on Site during the extended Phase 1 habitat survey the opportunity was taken to record any species of birds encountered and habitats on Site were assessed for their potential value to nesting and foraging birds.

### ***Reptiles***

2.3.9 The habitats present on Site were assessed for their suitability to support reptiles, with reference to their connectivity with other areas of suitable habitat in the surrounding area.

### ***Riparian Mammals and White-clawed Crayfish***

2.3.10 A desk based search for watercourses on, and within 30 m of, the Site which are not separated from the Site by a significant barrier to dispersal was undertaken using OS 1:10,000 mapping.

### ***Other Key and Notable Species***

2.3.11 The opportunity was taken whilst on Site to assess habitats for their potential to support any other nationally, locally scarce or locally notable species. It should be noted that there are currently no faunal species listed as being of importance within the Sheffield

LBAP.

## **2.4 Invasive Species**

- 2.4.1 During the extended Phase 1 habitat survey any evidence of invasive species, as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), was recorded and mapped where seen.

## **2.5 Survey Limitations**

- 2.5.1 An extended Phase 1 habitat survey is intended to provide a rapid assessment of habitats present within a site and is not intended to replace detailed vegetation or protected species surveys, where deemed necessary.
- 2.5.2 The Site survey was undertaken in November, outside the optimal botanical survey season, therefore it is possible that some flowering plants may have been under recorded. However, taking into account that species present were readily identifiable and the nature of the Site, it is considered that sufficient information was obtained to undertake an accurate assessment of the Site habitats and provide a robust evaluation of their importance to nature conservation.
- 2.5.3 As the survey was undertaken in November outside the growing season and the Site has recently been cleared in places and fly tipping occurs, it cannot be confirmed that invasive species such as Japanese knotweed *Reynoutria japonica* are absent. It is considered possible that rhizome fragments of invasive species may have been in dormancy and missed during the survey.
- 2.5.4 It was not possible to survey the southern extent of B1 for its bat roost potential on Site due to the building forming the boundary with the adjacent active railway line and presence of dense trees and scrub obscuring the view of this elevation.

### 3. Findings and Evaluation

#### 3.1 Site Description

- 3.1.1 The Site overall comprises c.2.6 ha on a former railway sidings site with a large building, old railway platform and metal track remains in the central part of the Site providing the lasting evidence of this. As identified from historic aerial imagery, the western half of the Site was completely cleared in 2005 with dense/continuous and scattered scrub and ephemeral/short perennial habitats recorded during this survey having established since. These habitats are also present across the wider Site, along with broadleaved semi-natural woodland, scattered trees, hardstanding and bare ground, two buildings (B1 and B2), scattered spoil piles, bracken and tall ruderal habitats.
- 3.1.2 The Site is located on the outskirts of Sheffield city centre, to the south of Attercliffe. The centre of the Site is located at central OS Grid Reference SK 3731 8791. Industrial units are present to the north of the Site, an active railway line runs along part of the southern boundary and between the Site and the railway line also to the south are trees and several buildings. Immediately to the west of the Site is a storage yard for waste collection vehicles.
- 3.1.3 Within the wider landscape, industrial and commercial properties with associated infrastructure surround the Site, the River Don and Sheffield and Tinsley Canal lie to the north (170 m and 100 m respectively), and interspersed amongst built up areas are small areas of greenspace.

#### 3.2 Designated Sites

- 3.2.1 A single statutory designated site, Salmon Pastures Local Nature Reserve (LNR), was identified within 2 km of the Site (215 m to the north) using the MAGIC website. Salmon Pastures LNR, which is also designated as a Local Wildlife Site (LWS), supports range of opportunist plants that recolonised the former industrial site. The new flora in turn supports several types of butterfly and other invertebrates such as dragonflies.
- 3.2.2 A total of 18 non-statutory designated sites were returned by SBRC, all of which are LWS. The River Don flows to the west of the Site and is covered by two LWS designations.
- 3.2.3 Details of non-statutory sites of nature conservation interest are listed in order of their proximity to the Site in Table 1 below.

**Table 1. Non-statutory Designated Sites within 2 km of the Site**

Designated Site	Reason for Designation	Approximate Distance and Direction from Site
<b>Non-Statutory Sites</b>		
Lower Don Valley: Sheffield and Tinsley Canal LWS	Riparian habitats and associated wildlife.	100 m north west
Middle River Don: Hillsborough to City Centre LWS	Riparian habitats and associated wildlife.	170 m north west
River Don: City Centre to Blackburn Meadows LWS.	Riparian habitats and associated wildlife.	170 m north west

Designated Site	Reason for Designation	Approximate Distance and Direction from Site
Nunnery Triangle LWS	Lowland heathland and lowland acid grassland habitats of principal importance.	310 m east
Sheffield Parkway LWS	No site citation provided within the desk study data.	550 m south
Sky Edge LWS	No site citation provided within the desk study data.	700 m south west
Sandersons Mill Race LWS	No site citation provided within the desk study data.	890 m north
Acres Hill – Kirk Bridge Dike LWS	No site citation provided within the desk study data.	1.0 km south east
Petre Street Urban Wildlife Zone LWS	Woodland habitat and greenspace within an urban area.	1.1 km north west
Cattle Dock Sidings LWS	No site citation provided within the desk study data.	1.3 km west
Burngreave Recreation Ground LWS	Calcareous, grassland, amenity grassland, neutral tall grasses and flowering herbs, scrub and woodland.	1.4 km north west
Clay Wood LWS	Broadleaved semi-natural woodland habitat.	1.5 km south west
Footpath of Petre Street LWS	No site citation provided within the desk study data.	1.5 km north
Wood Hill (Smith's Field) LWS	No site citation provided within the desk study data.	1.5 km north
Burngreave Cemetery LWS	Close-mown grassland with trees and occasional beds of ornamental shrubs.	1.6 km north west
Deep Pits LWS	No site citation provided within the desk study data.	1.7 km south
River Sheaf: Archer Road to City Centre LWS	Riparian habitats and associated wildlife.	2 km south west

3.2.4 Statutory sites of nature conservation interest are considered to be of importance at the national level while non-statutory designated sites are considered to be of importance at between the local and county level. The non-statutory designated sites are primarily designated for their habitat features and it is considered that the sites will not experience direct or indirect impacts as a result of the development.

### 3.3 Habitats

3.3.1 Habitats recorded on the Site, their distribution and composition are discussed in order of dominance below. Habitat locations and TN depicting features of ecological interest are annotated on Figure 1 with photographs also displayed in Appendix 1.

#### ***Open Mosaic Habitat on Previously Developed Land***

3.3.2 The broad range of habitats across the Site which are individually described below are consistent with the criteria for open mosaic habitat on previously developed land, a NERC Act 2006 Section 41 priority habitat. The criteria include: habitat being greater than 0.25 ha; the Site having a known history of disturbance; the presence of vegetation, particularly, early successional communities; and, the presence of unvegetated, loose bare substrate and habitats forming a mosaic across the Site.

3.3.3 Whilst not listed as a habitat of importance in the Sheffield LBAP, open mosaic habitat on previously developed land is considered to be of ecological value at a local level due to its NERC Act 2006 Section 41 status.

#### ***Ephemeral/Short Perennial***

3.3.4 Species typical of ephemeral/short perennial habitat have colonised the Site since its clearance in 2005, becoming developed on several spoil piles, hardstanding and also on a hardcore substrate (Appendix 1, Plate 1). The substrate has been applied in a number of places across the Site and is made of a limestone material, which is represented by the species which have colonised it.

3.3.5 Ephemeral/short perennial habitat is of varying structure and stages of growth, and in places is notably grazed by rabbits. Moss occurs abundantly across the Site, particularly close to shaded areas around scrub and spoil piles. Abundant species include ribwort plantain *Plantago lanceolata*, dandelion *Taraxacum sp.*, white stonecrop *Sedum album*, black medick *Medicago lupulina*, cleavers *Galium aparine*, common evening primrose *Oenothera biennis*, perforate St John's wort *Hypericum perforatum*, bent *Agrostis sp.*, and wood sage *Teucrium scorodonia*. Frequent species consist of clover *Trifolium sp.*, birds foot trefoil *Lotus corniculatus*, broadleaf plantain *Plantago major*, Yorkshire fog *Holcus lanatus*, cock's foot *Dactylis glomerata*, false oat grass *Arrhenatherum elatius*, common ragwort *Jacobaea vulgaris*, yellow wort *Blackstonia perfoliata*, thistle *Cirsium sp.*, willowherb *Epilobium sp.*, yarrow *Achillea millefolium*, prickly sow thistle *Sonchus asper*, oxeye daisy *Leucanthemum vulgare*, and Canadian fleabane *Erigeron canadensis*. Occasional herb Robert *Geranium robertianum* (locally abundant in the central part of the Site by the old railway platform) common knapweed *Centaurea nigra*, vetch *Vicia sp.*, weld *Reseda luteola*, wild mignonette *Reseda lutea*, mouse-ear hawkweed *Pilosella officinarum* and wood avens *Geum urbanum* were present and rare colt's foot *Tussilago farfara*, great mullein *Verbascum thapsus*, and poppy *Papaver sp.* were present.

3.3.6 Ephemeral/ short perennial habitat is not listed within the Sheffield LBAP as a habitat of importance and is not a NERC Act 2006 Section 41 priority habitat. As a result of this, along with its overall limited extent across the Site and presence in the similar wider area, in its own right this habitat is considered to be of ecological value at the site level.

#### ***Dense/Continuous and Scattered Scrub***

3.3.7 Dense/continuous and scattered scrub is mainly associated with the Site boundaries (Appendix 1, Plate 2). Both habitats are dominated by bramble *Rubus fruticosus* and interspersed with occasional dog rose *Rosa canina*, self-set young buddleia *Buddleja davidii*, silver birch *Betula pendula* and goat willow *Salix caprea*. Along part of the northern boundary the dense scrub is growing on a small bank of earth.

- 3.3.8 A small area of localised bracken *Pteridium aquilinum* is present in the west of the Site along the northern boundary.
- 3.3.9 Scrub habitat is not listed within the Sheffield LBAP as a habitat of importance and is not a NERC Act 2006 Section 41 priority habitat. Given its limited extent, this habitat is considered to be of ecological value at the site level.

#### ***Bare Ground and Hardstanding***

- 3.3.10 Bare ground is located in parts of the Site where scrub has been cleared and plant species are yet to recolonise (Appendix 1, Plate 3). This habitat is not listed within the Sheffield LBAP as a habitat of importance and is not a NERC Act 2006 Section 41 priority habitat. In its own right, this habitat is considered to be of ecological value at the site level only.
- 3.3.11 Hardstanding is present across the Site, particularly in the eastern half of the Site in association with the remaining two buildings and where former (now-demolished) buildings were located. In a number of places hardstanding has been colonised by early successional plant species such as mosses, discussed above with '*Ephemeral/short perennial*'.
- 3.3.12 As a habitat, hardstanding is not a NERC Act 2006 Section 41 priority habitat or listed within the Sheffield LBAP. It is a manmade and widespread habitat which is simple to replicate, does not support any species and therefore contains negligible intrinsic ecological value. Hardstanding is not discussed further in this report.

#### ***Broadleaved Semi-Natural Woodland***

- 3.3.13 An area of young broadleaved semi-natural woodland which has naturally colonised is present in the western part of the Site (Appendix 1, Plate 4). The woodland primarily consists of abundant silver birch, frequent buddleia and goat willow, with occasional wood sage in the field layer.
- 3.3.14 Several types of woodland are priority habitats listed under Section 41 of the NERC Act 2006 and also listed as a priority habitat in the Sheffield LBAP. The woodland on-site does not match any of the characteristics of the woodlands listed as priority habitats, is self-set, species-poor (particularly with the presence of buddleia), does not contain a varied structure and has no standing deadwood features. As such, woodland on Site is considered to be of importance to nature conservation at no more than a site level.

#### ***Scattered Trees***

- 3.3.15 Along the boundaries of the Site are young and mature broadleaved scattered trees consisting of species including mature white poplar *Populus alba*, young Italian alder *Alnus cordata*, oak *Quercus* sp., mature goat willow and Swedish whitebeam *Sorbus intermedia*. Scattered self-set trees are also growing within the derelict eastern end of B1 where the roof is no longer present, species include goat willow and buddleia.
- 3.3.16 Scattered trees are not a priority habitat listed under Section 41 of the NERC Act 2006 nor are listed as a priority habitat in the Sheffield LBAP. Trees recorded are commonly occurring and/or ornamental species and are considered to be of value as habitats at the site level only. Mature trees are considered of value at up to the local level due to the varied structure they provide within a predominantly urban area.

#### ***Spoil Piles***

- 3.3.17 Spoil piles comprising different materials, including cleared scrub, the remains of an entirely collapsed building (containing asbestos and metal sheeting), brick rubble, fly-tipped material (some of which has been burned), old building materials from the previous occupier, and hardcore material are scattered across the Site (Appendix 1,

Plate 5 and Plate 10). Some of the spoil piles have become partially vegetated.

- 3.3.18 Spoil piles are not a priority habitat listed under Section 41 of the NERC Act 2006 or listed as a priority habitat in the Sheffield LBAP. This along with their dominance of manmade discarded materials, easily replicable nature and presence in the wider urban area mean that spoil piles are considered to be of value at the site level only.

### **Buildings**

- 3.3.19 Two buildings are present on the Site, both located in the eastern half of the Site. Building B1 (Appendix 1, Plate 6 and Plate 7) is a large red brick building which was previously utilised as a railway siding building and is now unoccupied. Building B2 is a small building constructed of concrete-blocks with wooden boarding at eaves level and a felt roof (Appendix 1, Plate 8).
- 3.3.20 Each building is described in further detail and assessed in relation to bats in Section 3.4 of this report. As habitats, the buildings are of ecological value at no greater than the site level as they are manmade structures, easily replicated, support few species and are not listed within the Sheffield LBAP or within Section 41 of the NERC Act 2006.

### **Tall Ruderal**

- 3.3.21 Tall ruderal vegetation was recorded along the margin of the dense scrub habitat in the north of the Site. This habitat comprises abundant fat hen *Chenopodium album* and common nettle *Urtica dioica* with occasional coarse grass species, such as false-oat grass and *Agrostis* species, also noted. Where less rabbit *Oryctolagus cuniculus* grazing has occurred, notable at the edges of scrub, the coarse grasses and species such as vetch, wood sage, yarrow and common knapweed are scattered within the tall ruderal habitat.
- 3.3.22 Tall ruderal is not a priority habitat listed under Section 41 of the NERC Act 2006 or is listed as a priority habitat in the Sheffield LBAP. As a result of this, and due to its limited extent on Site and species-poor nature, in its own right tall ruderal is considered to be of value at the site level only.

## **3.4 Species**

### **Amphibians**

- 3.4.1 A total of 20 records of amphibians were provided by SBRC within 2 km of the Site comprising 14 records of common frog *Rana temporaria*, one record of common toad *Bufo bufo* and five records of smooth newt *Lissotriton vulgaris*. No records pertain to GCN. The closest record dates to 2003 and is of a smooth newt, situated 130 m to the west of the Site associated with the Lower Don Valley: Sheffield and Tinsley Canal LWS. The most recent record dates to 2018 and is of a common frog located 1.7 km to the south west of the Site.
- 3.4.2 No EPS GCN licences were identified within 2 km of the Site using the MAGIC website.
- 3.4.3 No waterbodies are present on Site to support amphibians (including GCN) during the breeding season though scrub and spoil piles on the Site may support common amphibian species during their terrestrial phase. No ponds are located within 500 m of the Site and the closest pond is located approximately 930 m to the east of the Site.
- 3.4.4 Despite being connected by the railway line, it is considered highly unlikely that amphibians, including GCN, would disperse on to the Site from the pond to the east given the built up industrial nature of the area surrounding the Site, and sufficient distance from the Site with suitable habitat surrounding the pond. As such, common amphibians and GCN are discounted as ecological receptors and are not discussed further within the report.

**Badger**

- 3.4.5 A total of 18 records of badger were provided by SBRC dating between 2003 and 2016 within 2 km of the Site. The closest of these records relate to road fatalities along the Sheffield Parkway to the west of the Site and Woodbourn Road to the north east, both beyond 500 m from Site. Records relating to badgers setts were noted over 1.6 km from the Site.
- 3.4.6 No badger setts were observed on Site on the day of the survey and no field signs indicating badger activity on Site were recorded although dense scrub, growing on an earth bank along the northern boundary, has some potential suitability for badger sett creation given the presence of likely suitable substrate for sett building and cover provided by the scrub. The spoil piles across the Site are not considered suitable for sett creation due to the nature of the material and their exposed locations.
- 3.4.7 The Site is isolated within a busy, industrial landscape. While unlikely to completely prevent mammal access, metal fencing and walls surrounding much of the boundary are likely to deter badgers and reduce connectivity with habitats beyond the Site. Given these factors along with few opportunities for potential sett creation outlined above, badgers are not considered to be an ecological receptor and are not be discussed further in this report.

**Bats**

- 3.4.8 In total, 67 records of bats were provided by SBRC for locations within 2 km of the Site during the desk study. The closest record dates to 1999 and relates to a common pipistrelle located approximately 600 m to the south west of the Site. The remaining records are clustered within the city centre and to the south of the city.
- 3.4.9 There are 143 records of bats from data supplied by SYBG. The most relevant to the Site are those located within 250 m of the Site, associated with the Lower Don Valley: Sheffield and Tinsley Canal LWS to the north west. Records in this area, relate to common pipistrelle and Daubenton’s bat foraging activity, all dated between 2014 and 2015.
- 3.4.10 Within 2 km of the Site (1.5 km to the south east), one EPS license dated between 2016 and 2021 and relating to the damage of a breeding site and destruction of a resting place in relation to common pipistrelle and Daubenton’s bat, was identified using the MAGIC website.

Roosting Bats

- 3.4.11 General descriptions of the buildings on Site and an assessment of their bat roosting potential based on external inspection are provided in Table 2 below.

**Table 2. External Building Assessment**

Building Reference	Description/ Features	Bat Roosting Suitability
B1 - Former railway sidings building	<p>Red brick construction with asbestos sheet roof and clear panelled roof at the eastern end, which has collapsed in places. Building open on the northern elevation with large windows (glass missing) and concrete lintels. No roof void and metal beams present as support. One chimney located approximately half way along the building.</p> <p>Multiple cracks/gaps in exterior brick work and a wooden board of approximately 40 m in length along the northern side of the building beneath the asbestos roof provide roosting opportunities for low numbers of bats. A structure on the roof with small horizontal slats may also provide</p>	Moderate

	suitable shelter. These features are however unlikely to lead to further cavities in the wall.	
B2 - Small hut	A single storey concrete block building with a felt roof and wooden boarding below the roof level.  Small area of lifted wooden boarding on western side of building which may provide a roosting space for a low number of bats although is unlikely to present a long-term roosting provision or suitability for a large number of bats (such as a maternity roost).	Low

3.4.12 Based on the above external assessment, B1 is considered to provide moderate suitability for roosting bats due to the presence of multiple potential roost features resulting from various cracks/gaps in brickwork, a 40 m wooden board along the northern side and rooftop structure, while B2 is considered to provide low suitability as the identified feature is likely to only be used by a small number of bats given the limited space and shelter. No evidence of roosting bats was identified during the survey.

3.4.13 No trees displaying features that would typically be associated with roosting bats were noted on Site at the time of survey.

Foraging and Commuting Bats

3.4.14 Overall, potential of the Site for use by foraging and commuting bats is considered to be moderate. This is due to the varied habitat structure on the Site (including the presence of ephemeral/short perennial habitat, trees, including woodland, and scrub), the undisturbed and unlit nature of the Site within an otherwise urban location, and proximity to the Lower Don Valley: Sheffield and Tinsley Canal LWS, River Don (City Centre to Blackburn Meadows) LWS and greenspace in the local area along the railway line adjacent the Site. The boundary habitats on Site have the greatest value for foraging and commuting bats. The wider local area is highly urbanised and well-lit, therefore the Site is most likely to be used by pipistrelle bats which can tolerate these conditions. The Site provides connectivity between pockets of greenspace in the local area which provides a larger overall resource for foraging and commuting bats.

3.4.15 The Site is considered to have potential to be of importance to roosting bats at up to a site level and foraging and commuting bats at a local level.

***Birds***

3.4.16 In 2015, a re-assessment of Birds of Conservation Concern (BoCC) was published by Eaton et al. (2015), which defined rare and threatened bird species on two lists (Red and Amber) describing the level of threat to each species of concern.

3.4.17 “Red” is the highest conservation priority, with species needing urgent action due to either a historical decline in breeding population, severe (>50%) decline in breeding or non-breeding population, or severe decline in breeding range over 50 years or more. “Amber” is the next most critical group, with species qualifying for this status as a result of either recovery from red list criterion, being classed as rare breeders in the UK, moderate (>25%) decline in breeding or non-breeding population or moderate decline in breeding range over 25 years or more. These categories are followed by “Green”, indicating that the species are relatively unthreatened.

3.4.18 A total of 1830 records of birds were provided by SBRC within 2 km of the Site comprising 101 different species. Fourteen of these species are listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), 15 are Red listed BoCC and 21 are Amber listed BoCC. A full list of bird records is detailed in Appendix 2. None of the records originate from the Site itself with the closest pertaining to a singing great

tit *Parus major*, dating from 2013 and located 60 m to the north of the Site.

- 3.4.19 There are 13 historic records of black redstart *Phoenicurus ochruros* within 2 km of the Site, dating to between 1991 and 1997. This species is Red listed and a Schedule 1 bird. While the Site supports habitat suitable for black redstart (the derelict building and abundance of spoil piles which are favoured by this species for foraging) it is considered unlikely that this species will occur in the Site given the historical nature of the records and decline in populations of the species in Sheffield due to redevelopment of the city centre and lower Don Valley (Sheffield Bird Study Group, 2019).
- 3.4.20 A record dating to 2019 of breeding little ringed plover *Charadrius dubius*, located approximately 1.1 km to the north east of the Site within an urban area, was provided by SBRC during the desk study. Little ringed plover are a Schedule 1 listed bird. The Site is considered to provide supporting habitat for little ringed plover which nest of the ground due to the presence of open areas of bare ground with ephemeral plant species and spoil piles. The Site is however considered to be of value at the site level due to similar habitat present in the surrounding area and the species' preference for areas with shallow pools of water nearby. The Site is considered too small to support large numbers of the species.
- 3.4.21 Several bird species were recorded on Site or flying over during the survey, namely blue tit *Cyanistes caeruleus*, bullfinch *Pyrrhula pyrrhula*, carrion crow *Corvus corone*, great spotted woodpecker *Dendrocopos major*, goldfinch *Carduelis carduelis*, long-tailed tit *Aegithalos caudatus*, magpie *Pica pica*, pied wagtail *Motacilla alba*, robin *Erithacus rubecula*, redwing *Turdus iliacus* and woodpigeon *Columba palumbus*. Bullfinch are an Amber listed BoCC and are listed under Section 41 of NERC Act 2006, and redwing are a Red listed BoCC and Schedule 1 listed species. These species were only briefly recorded on Site and the Site is considered to be important to these species at the site level only.
- 3.4.22 The Site is considered to be of value to common bird species at the site level due to the presence of scrub, woodland, scattered trees and buildings which provide potential supporting habitat for common bird species to shelter, nest and forage.

### **Reptiles**

- 3.4.23 There are no records of reptiles within 2 km of the Site within the desk study data retrieved from SBRC.
- 3.4.24 The variety of habitats on Site (ephemeral/short perennial with scrub and scattered spoil piles) provide good habitat structure for basking and sheltering reptiles however there are limited opportunities for foraging. There are no waterbodies or marshy ground on Site and the Site has poor connectivity to habitats in the surrounding area, as it is surrounded by roads and industrial warehouses. A mainline railway passes along the southern part of the Site, and whilst railways are features of good connectivity for reptiles, the railway line overall links to urban habitats in the surrounding area, with small isolated areas of greenspace which are unlikely to be populated by reptiles.
- 3.4.25 Given the lack of supporting habitat, poor connectivity to the surrounding area and lack of desk study records, it is considered that reptiles are not an ecological receptor and will not be discussed further in this report.

### **Riparian Mammals and White-clawed Crayfish**

- 3.4.26 There are no watercourses on Site but the Lower Don Valley: Sheffield and Tinsley Canal LWS and River Don (City Centre to Blackburn Meadows) LWS are located within 100 m and 200 m (respectively) of the north-western boundary of the Site. These watercourses will not be directly impacted by the proposed development.
- 3.4.27 There are 159 records of otter *Lutra lutra* within data provided by SBRC. Records are

associated with the River Don and Sheffield and Tinsley Canal flowing through Sheffield dating between 2005 and 2017. The closest record to Site dates to 2008 and is located 185 m to the north and relates to a field sign (otter jelly secretion) on the riverbank of the Don.

- 3.4.28 Within the data supplied by SBRC, there are 23 records of water vole *Arvicola amphibius* within 2 km of the Site, dating between 1984 and 2001. The closest records to the Site are associated with the River Don, located within 240 m to the north of the Site and date to 1995 and 1999.
- 3.4.29 No records of white-clawed crayfish *Austropotamobius pallipes* were returned in the data provided by SBRC within 2 km of the Site.
- 3.4.30 There are no supporting habitats on Site for otter, water vole or white-clawed crayfish and given the industrial and built up nature of the land surrounding the Site it is considered unlikely that these species would move on to or pass through the Site from the nearby River Don or Sheffield and Tinsley Canal. For this reason and because the nearby watercourses will not be impacted by the development, these species are discounted as ecological receptors and are not discussed further within the report.

### **Other Key and Notable Species**

#### Hedgehog

- 3.4.31 A total of 44 records of hedgehog *Erinaceus europaeus* were provided by SBRC within 2 km of the Site, all of which are beyond 800 m distant from the Site.
- 3.4.32 The scrub and woodland habitats on Site may be utilised by foraging hedgehogs and the spoil piles (notably cleared scrub) may be used for shelter and/or by hibernating hedgehogs during the winter. Despite this, the Site is isolated from other suitable habitats in the wider area by buildings and road infrastructure.
- 3.4.33 There is evidence of rabbit activity on Site (Appendix 1, Plate 11) and whilst the dense scrub prevented full inspection, it is considered likely for rabbit burrows to be located within the dense scrub on the earth bank along the northern part of the Site (Figure 1, TN1). If present, these may be used by hedgehogs for shelter or hibernation. The Site is considered to be of importance to hedgehog at the local level due to the large area of undisturbed foraging habitat within an industrial urban setting.

#### Invertebrates

- 3.4.34 A total of 574 records were provided by SBRC of invertebrates within 2 km of the Site. The records pertain to a range of invertebrates, including butterflies, dragonflies, beetles, moths and bumblebees. The closest record to the Site dates to 2010 and is of a brown hawket *Aeshna grandis* dragonfly, located approximately 100 m to the west of the Site, likely in association with the Lower Don Valley: Sheffield and Tinsley Canal LWS. The remaining records are located within the wider urban area. No records were provided of dingy skipper *Erynnis tages*, which is particularly associated with brownfield land and is a species of principal importance under Section 41 of the NERC Act 2006.
- 3.4.35 Given the presence of ephemeral/short perennial habitats and the Site being open mosaic habitat on previously developed land, it is considered that there is supporting habitat for invertebrate species, however, is likely to be of value at no greater than a site level due to the presence of similar undisturbed brownfield sites within the surrounding Lower Don Valley area around the Site.

## **3.5 Invasive Species**

- 3.5.1 Within the data provided by SBRC, 163 records of invasive non-native species within 2 km of the Site were identified, none of which relate to the Site itself. Species listed

include cherry laurel *Prunus laurocerasus*, *Cotoneaster* sp., Hollyberry cotoneaster *Cotoneaster bullatus*, giant hogweed *Heracleum mantegazzianum*, Japanese knotweed, Japanese rose *Rosa rugosa*, rhododendron *Rhododendron ponticum*, and wall cotoneaster *Cotoneaster horizontalis*. The closest of these are two historic records of Japanese knotweed and cotoneaster sp. (1997 and 1998) within 200 m of the south and east of the Site respectively. The most recent records (2019) are several records of cotoneaster sp. and Japanese knotweed beyond 1 km to the north east of the Site.

- 3.5.2 Three different species of cotoneaster were identified on Site during the survey in two separate locations (Figure 1, TN2 and TN3). These are considered to display characteristics (such as leaf size/shape) of known invasive species of cotoneaster and should be treated as such.

## **4. Impact Assessment, Mitigation and Enhancements**

### **4.1 Proposals**

- 4.1.1 The proposals for the Site have been taken from the Design Team Partnership (DTP) January 2020 “*Sketch plan workshop/offices site layout plan*” (Drawing number: 1202-10), and January 2020 “*Sketch plan workshop/offices site layout plan option B*” (Drawing number: 1202-12), and include a new workshop and waste management area with associated parking and infrastructure.
- 4.1.2 The development will be located in the eastern portion of the Site only at this stage, covering approximately 0.8 ha. Two options have been presented for the exact positioning of the building, however, this is not considered significant for the impact assessment due to the options being very similar. It is understood that the western part of the Site will be developed separately at a currently unknown later date in the future.
- 4.1.3 The following assessment of ecological impacts and recommendations is based on the above proposed layouts. Should more than two years pass before the development of the remainder of the Site, an update survey of the western area should be completed to identify any habitat changes on Site.

### **4.2 Designated Sites**

- 4.2.1 The single statutory site of nature conservation, Salmon Pastures LNR, was identified within 2 km of the Site. The LNR is separated from the Site by industrial land and two large running waterbodies (namely the Lower Don Valley: Sheffield and Tinsley Canal LWS and River Don (City Centre to Blackburn Meadows LWS) therefore there is minimal connectivity between the LNR and the Site. As such, the habitats and species for which the LNR is designated are unlikely to experience any negative impacts associated with the development of the Site.
- 4.2.2 The closest non-statutory designated sites with direct or indirect connectivity to the Site are the River Don (City Centre to Blackburn Meadows LWS (located 170 m to the north west), the Lower Don Valley: Sheffield and Tinsley Canal LWS (located 100m to the north west) and Nunnery Triangle LWS (located 310 m to the east). The remaining non-statutory designated sites lie beyond 550 m from the Site. No negative impacts are anticipated as a result of the proposed development works due to the separation of the LWSs by industrial land and infrastructure, and limit of works to within the Site boundary only.
- 4.2.3 Given the above, no mitigation or compensation measures are proposed in relation to designated sites.

### **4.3 Habitats**

- 4.3.1 Based on the current proposals for development, there will be partial loss of bare ground, hardstanding, dense/continuous and scattered scrub, scattered trees, spoil piles, tall ruderal and ephemeral short perennial habitats which together form the open mosaic habitat on previously developed land. Buildings B1 and B2 on Site will also be lost to the development. Based on the current proposals for the Site, the broad-leaved woodland and bracken habitats will not be impacted.
- 4.3.2 At this stage the loss of habitats/buildings is considered to be a site level impact. This is due to the extent of the current development footprint (only within the east of the Site) and lower value of the habitat associated with this location. The scattered trees to be lost are of commonly occurring species (namely buddleia and goat willow) and growing within the remains of B1 so the loss of these is considered to be of value at the site level.

- 4.3.3 Mature trees surrounding the boundary of the Site should be retained as part of the development where practicable. As there will be partial loss of habitats on Site it is recommended to incorporate areas of soft landscaping within the development on the eastern part of the Site. To protect the habitats, the remainder of the Site should be retained and protected against excessive damage resulting from heavy machinery movements.
- 4.3.4 Given that the habitats display characteristics of open mosaic habitat on previously developed land, recommendations in line with Buglife (2009) are considered to be beneficial, including “*exposed earth banks, areas of sparsely vegetated stony ground ...and patches of bare ground within unmanaged grassland. Areas of wildflower grassland which use native nectar-rich species are also important for wildlife*”. Additional planting of areas of tussocky grassland and native shrubs such as hawthorn *Crataegus monogyna*, spindle *Euonymus europaeus* and cherry *Prunus* sp. will be appropriate for the Site and will also benefit faunal species.

#### 4.4 Species

##### **Bats**

- 4.4.1 All species of bat occurring within the UK are included in Schedule 2 of the Conservation of Habitats and Species Regulations 2017. Under regulation 41 bats are protected from deliberate capture, injury or killing, from deliberate disturbance and from deliberate damage or destruction of a breeding site or resting place (roost).
- 4.4.2 All UK bats are also included on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), however, their protection is limited to certain offences. Under the 1981 Act (as amended) it is an offence to intentionally or recklessly disturb bats while they are occupying a structure or place used for shelter or protection, or to obstruct access to any such place.
- 4.4.3 Barbastelle *Barbastella barbastellus*, Bechstein’s *Myotis bechsteinii*, brown long-eared *Plecotus auritus*, greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *Rhinolophus hipposideros*, noctule *Nyctalus noctula* and soprano pipistrelle *Pipistrellus pygmaeus* bats are included as priority species under Section 41 of the NERC Act 2006. Currently no faunal species are listed within the Sheffield LBAP.

##### Roosting Bats

- 4.4.4 Building B1 has been assessed as having moderate suitability for roosting bats and B2 as having low suitability. As buildings are to be demolished to facilitate the development, it is recommended that further bat survey work should be carried out to determine the presence or likely absence of roosting bats prior to demolition or any building preparation works commencing.
- 4.4.5 In accordance with best practice (Collins, 2016) it is advised that two nocturnal bat surveys are undertaken at B1. Nocturnal bat surveys can either be undertaken at dusk to observe bats emerging or at dawn to observe bats re-entering buildings after a night of foraging. For moderate suitability buildings, a combination of dusk emergence and dawn re-entry surveys (i.e. one of each) should ideally be undertaken, subject to site specific health and safety restrictions and access permissions.
- 4.4.6 Nocturnal surveys should be undertaken during the bat activity survey season (peak season mid-May to August inclusive), by surveyors equipped with ultrasonic bat detectors and recording devices during a period of suitable weather conditions (at least 10°C, little or no rain and low winds). Individual nocturnal surveys on a building should be separated by a minimum period of 14 days.
- 4.4.7 B2 displays low suitability for roosting bats due to the presence of a lifted wooden board on the west elevation of the building. It is recommended that this feature is

subject to a direct endoscopic inspection by a licensed bat ecologist to check for roosting bats. Where no roosting is identified works to B2 can proceed without further ecological input in respect of bats.

- 4.4.8 In the event that further nocturnal bat survey or direct inspection works record roosting bats (or evidence of roosting) in locations where they will be disturbed or their roost will be impacted, works will need to proceed under a Natural England EPS mitigation licence or Bat Mitigation Class Licence (BMCL), as appropriate.
- 4.4.9 In order to obtain a licence, further bat surveys may be required to characterise bat roosting activity and comply with best practice (Collins, 2016).
- 4.4.10 An EPS mitigation licence or BMCL would include the production of a bat mitigation strategy for the Site. The mitigation strategy will detail measures to avoid death or injury to bats during the works. Appropriate working methods will need to be employed under the licence, during Site clearance, and will likely need to include the following outline measures:
- A toolbox talk by a licensed bat ecologist for all Site operatives involved in the works to highlight the potential presence of bats and what to do if they are encountered;
  - Pre-works dawn re-entry surveys immediately prior to demolition to identify bats returning to roosts within the building;
  - ‘Soft’ demolition of bat roosting features (e.g. hand removal of roof tiles or other features) to be directly supervised by a licensed bat ecologist or BMCL consultant, with any bats encountered to be captured and relocated safely; and,
  - Provision of new bat roosting facilities within new buildings or attached to retained trees.
- 4.4.11 The outline mitigation strategy detailed above is indicative only. Full details for mitigation and compensation would need to be determined following the completion of all nocturnal bat survey works of the buildings on Site and finalised within the licence application submitted to Natural England. Using the current information, the overall importance of the Site to roosting bats cannot be confirmed.
- 4.4.12 Any bat licence application can only be completed following receipt of the necessary consents (i.e. planning permission) when all conditions relating to wildlife are discharged (as far as possible). The BMCL route is suitable for buildings which support a small number of common bat species roosts and has a faster turnaround by Natural England than a full EPS mitigation licence application: the appropriate licensing route can only be determined when full details of bat roosting activity associated with the buildings has been characterised.

#### Foraging and Commuting Bats

- 4.4.13 The Site is assessed as having moderate potential to support foraging and commuting bats due to its undisturbed/unlit nature and the presence of trees and scrub. The Site connects small areas of greenspace in the local area to provide a larger overall resource for bats. Based on the current proposals for development of the Site, some dense/continuous and scattered scrub, tall ruderal, bare ground, spoil piles and buildings are likely to be lost although the impact of the loss of foraging habitat is considered to be no greater than at the site level based on current proposals.
- 4.4.14 Further bat activity surveys are not considered to be applicable for this Site due to the relatively small scale of the Site and due to only part of the Site being developed at this stage. The Site is surrounded in the wider area by urban habitats therefore is not considered to be of greater than moderate value to foraging and commuting bats. Boundary habitats at the Site generally exhibit a greater suitability for bats.

- 4.4.15 It is recommended that dense/continuous scrub is retained around the Site boundary or reinstated as native shrub planting (as described in Section 4.3) following the development. New tree planting around the boundary would also be beneficial to provide foraging provision for bats and maintain connectivity within the local area. Planting species of benefit to insects, particularly native fruit bearing and flowering species, would also be beneficial to bats. This will retain some suitable foraging habitat across the Site. This applies to the current proposals and any further development within the wider Site boundary.
- 4.4.16 A sensitive lighting scheme is recommended to be developed to minimise the impact upon foraging and commuting bats. Sensitive lighting should include where possible, low sodium bulbs, lighting directional/downward facing and no higher than eaves height. Light spill should avoid features such as trees and areas of planting within landscaped areas. Further recommendations relating to bats and lighting can be found in the Bat Conservation Trust and Institution of Lighting Professionals “*Bats and artificial lighting in the UK*” 2018 guidance note.

### **Birds**

- 4.4.17 All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended) against destruction of the nest during the bird nesting season, which falls between March and August, inclusive. Bird species as listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), such as black redstart and little ringed plover, receive protection against being injured or killed, or disturbed while building or using a nest. Birds listed under Section 41 of the NERC Act 2006 are considered as being of importance for the purpose of conserving biodiversity. Currently no faunal species (including birds) are listed within the Sheffield LBAP.
- 4.4.18 Given the presence of habitat suitable for ground nesting little ringed plover, it is recommended that a check for little ringed plover is carried out by a suitably qualified ecologist prior to the commencement of works on Site, where this takes place during the breeding bird season, typically March– August (inclusive).
- 4.4.19 The scrub and trees on Site have the potential to provide nesting, sheltering and foraging habitat for a range of common bird species and some of which will be lost as a result of the development (particularly scrub). Without mitigation there is potential for active bird nests to be destroyed during building demolition and vegetation clearance, where this is undertaken during March– August (inclusive).
- 4.4.20 It is recommended that any Site clearance and/or vegetation removal (where required) is undertaken outside of bird breeding season, i.e. between September and February (inclusive). This applies for the current proposals and in the event of development of the wider Site. Where this is not possible to schedule works for these months, a nesting bird check, to be undertaken by a suitably qualified ecologist will be required no more than two days prior to clearance, to check for the presence of active bird nests, including little ringed plover. An active nest would require an exclusion zone to be established and adhered to until chicks had fledged and/or the nest is no longer in use (to be monitored and confirmed by an ecologist). It is also recommended that a check for nesting birds is carried out prior to demolition of buildings on Site, where this takes places during the breeding bird season.
- 4.4.21 Soft landscaping incorporated into the development using native shrubs as previously mentioned (e.g. hawthorn) will provide a shelter/foraging/nesting resource for a range of common bird species.
- 4.4.22 Inclusion of a range of bird nesting provision on the new building where practicable and on retained trees around the margins of the Site is recommended as part of the development. This may be within the current development area and/or the wider Site. Suitable provision will include three bird boxes including general bird boxes (one each

of having a 26 mm and 32 mm entrance hole) and one open fronted nest box suitable for a range of common bird species.

- 4.4.23 Bird boxes will be sited at a minimum height of 3 m on the building and retained trees surrounding the Site. Full southerly aspects, which receive full sun all day during the summer months present a risk of overheating, will be avoided. Following receipt of information of mature trees to be retained on Site, an ecologist will advise on suitable exact locations for new nesting provision.

#### ***Other Key and Notable Species***

##### Hedgehogs

- 4.4.24 Hedgehog is included as a species of principal importance under Section 41 of the NERC Act 2006. Whilst not afforded a high level of protection, hedgehogs have experienced significant declines in the UK population. Taking a best practice approach, avoiding harm to hedgehogs should be taken into consideration during works.
- 4.4.25 Based on the current proposals for the development, there will be some loss of supporting habitat for hedgehog on Site. This will predominantly be boundary scrub, tall ruderal habitat and spoil piles containing previously cleared scrub. Should the wider Site be developed at a later stage, further loss of suitable habitat is also likely to occur.
- 4.4.26 Where removal of scrub, tall ruderal vegetation or spoil piles is required, it is recommended that this is undertaken in a sensitive manner with consideration to the potential for hedgehogs to be present, e.g. with inspection of vegetation in advance of its removal and under supervision of an Ecological Clerk of Works (ECoW). Should any hedgehogs be found they should be located to a suitable and sheltered area outwith the development works.
- 4.4.27 As mitigation for the loss of habitat it is recommended that grassland and shrub planting takes place within landscaped areas, around the Site boundary, to provide continued opportunities for hedgehogs to forage and shelter.

##### Invertebrates

- 4.4.28 The areas of the Site considered to have the greatest value for invertebrates are located within the western half of the Site. This area will not be impacted based on the current proposals though some lower quality supporting habitat for invertebrates will be lost to accommodate the development, however, the loss of this habitat is unlikely to be of value at greater than the site level.
- 4.4.29 Planting recommendations outlined in Section 4.3 will be of benefit to invertebrate populations and provide new areas of suitable habitat, particularly recommendations as outlined by Buglife (2009). This includes native and species-rich wildflower grassland, areas of stony ground and sparsely vegetated areas. Addition of small log piles from the material any felled trees on Site placed within marginal habitats would also be of benefit to invertebrates.

#### **4.5 Invasive Species**

- 4.5.1 Five species of cotoneaster are listed on Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) invasive plant list, namely entire-leaved cotoneaster *Cotoneaster integrifolius*, Himalayan cotoneaster *Cotoneaster simonsii*, hollyberry cotoneaster, small-leaved cotoneaster *Cotoneaster microphyllus* and wall cotoneaster. Whilst the presence of these species does not constitute an offence in itself, planting or causing them to spread in the wild does.
- 4.5.2 No large stands of other invasive species, such as Japanese knotweed, were recorded on the Site however given that the survey was undertaken in November, outside the optimal botanical survey period, the Site has recently been cleared in places and fly

tipping occurs, it is possible that potential rhizome fragments may have been missed. It is recommended that an update survey for invasive species is carried out during the growing season from late spring to further identify the possible presence of invasive species on Site.

- 4.5.3 The removal of cotoneaster at TN2 and TN3 (Figure 1) should be done in accordance with best practice techniques to prevent further spread of this species. Cotoneaster at the highlighted locations should be removed using hand tools, ensuring that all plant material is removed to prevent regrowth. The arisings should be buried on Site at a depth of at least 2 m (Fennel, Jones and Wade, 2018).

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## **Figure 1: Phase 1 Habitat Map**

## **Appendix 1. Site Photographs**

## Appendix 2. Bird Species Records within 2 km of the Site

Common Name	Scientific Name	Status
Fieldfare	<i>Turdus pilaris</i>	Schedule 1, Red
Redwing	<i>Turdus iliacus</i>	Schedule 1, Red
Black redstart	<i>Phoenicurus ochruros</i>	Schedule 1, Red
Kingfisher	<i>Alcedo atthis</i>	Schedule 1, Amber
Greylag Goose	<i>Anser anser</i>	Schedule 1, Amber
Whooper Swan	<i>Cygnus cygnus</i>	Schedule 1, Amber
Greylag goose	<i>Anser anser</i>	Schedule 1, Amber
Bittern	<i>Botaurus stellaris</i>	Schedule 1, Amber
Red Kite	<i>Milvus milvus</i>	Schedule 1, Green
Brambling	<i>Fringilla montifringilla</i>	Schedule 1, Green
Barn Owl	<i>Tyto alba</i>	Schedule 1, Green
Little Ringed Plover	<i>Charadrius dubius</i>	Schedule 1, Green
Peregrine Falcon	<i>Falco peregrinus</i>	Schedule 1, Green
Hobby	<i>Falco subbuteo</i>	Schedule 1, Green
Woodcock	<i>Scolopax rusticola</i>	Red
House Sparrow	<i>Passer domesticus</i>	Red
Starling	<i>Sturnus vulgaris</i>	Red
Grey Wagtail	<i>Motacilla cinerea</i>	Red
Song Thrush	<i>Turdus philomelos</i>	Red
Herring Gull	<i>Larus argentatus</i>	Red
Skylark	<i>Alauda arvensis</i>	Red
Linnet	<i>Carduelis cannabina</i>	Red
Grey Partridge	<i>Perdix perdix</i>	Red
Cuckoo	<i>Cuculus canorus</i>	Red
Mistle Thrush	<i>Turdus viscivorus</i>	Red
Lesser Redpoll	<i>Carduelis cabaret</i>	Red
Lesser Spotted Woodpecker	<i>Dendrocopos minor</i>	Red
Lapwing	<i>Vanellus vanellus</i>	Red
Corn Bunting	<i>Emberiza calandra</i>	Red
Swift	<i>Apus apus</i>	Amber
Lesser Black-Backed Gull	<i>Larus fuscus subsp. graellsii</i>	Amber
Dunnock	<i>Prunella modularis</i>	Amber
Mallard	<i>Anas platyrhynchos</i>	Amber
Willow Warbler	<i>Phylloscopus trochilus</i>	Amber
Dunlin	<i>Calidris alpina</i>	Amber
House Martin	<i>Delichon urbica</i>	Amber
Common Sandpiper	<i>Actitis hypoleucos</i>	Amber
Dipper	<i>Cinclus cinclus</i>	Amber
Stock Dove	<i>Columba oenas</i>	Amber
Black-Headed Gull	<i>Chroicocephalus ridibundus</i>	Amber
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber

Common Name	Scientific Name	Status
Tawny Owl	<i>Strix aluco</i>	Amber
Common (Mealy) Redpoll	<i>Carduelis flammea</i>	Amber
Mute Swan	<i>Cygnus olor</i>	Amber
Great Black-Backed Gull	<i>Larus marinus</i>	Amber
Kestrel	<i>Falco tinnunculus</i>	Amber
Snipe	<i>Gallinago gallinago</i>	Amber
Lesser Black-Backed Gull	<i>Larus fuscus subsp. graellsii</i>	Amber
Storm Petrel	<i>Hydrobates pelagicus</i>	Amber
Meadow Pipit	<i>Anthus pratensis</i>	Amber
Waxwing	<i>Bombycilla garrulus</i>	Green
Goldfinch	<i>Carduelis carduelis</i>	Green
Buzzard	<i>Buteo buteo</i>	Green
Magpie	<i>Pica pica</i>	Green
Carrion Crow	<i>Corvus corone</i>	Green
Goosander	<i>Mergus merganser</i>	Green
Pied Wagtail	<i>Motacilla alba</i>	Green
Greenfinch	<i>Carduelis chloris</i>	Green
Great Tit	<i>Parus major</i>	Green
Wood pigeon	<i>Columba palumbus</i>	Green
Grey Heron	<i>Ardea cinerea</i>	Green
Blackbird	<i>Turdus merula</i>	Green
Sand Martin	<i>Riparia riparia</i>	Green
Jay	<i>Garrulus glandarius</i>	Green
Moorhen	<i>Gallinula chloropus</i>	Green
Blackcap	<i>Sylvia atricapilla</i>	Green
Swallow	<i>Hirundo rustica</i>	Green
Lesser Whitethroat	<i>Sylvia curruca</i>	Green
Whitethroat	<i>Sylvia communis</i>	Green
Blue Tit	<i>Cyanistes caeruleus</i>	Green
Robin	<i>Erithacus rubecula</i>	Green
Long-Tailed Tit	<i>Aegithalos caudatus</i>	Green
Wren	<i>Troglodytes troglodytes</i>	Green
Great Spotted Woodpecker	<i>Dendrocopos major</i>	Green
Little Grebe	<i>Tachybaptus ruficollis</i>	Green
Feral Pigeon	<i>Columba livia feral</i>	Green
Rook	<i>Corvus frugilegus</i>	Green
Chaffinch	<i>Fringilla coelebs</i>	Green
Chiffchaff	<i>Phylloscopus collybita</i>	Green
Collared Dove	<i>Streptopelia decaocto</i>	Green
Treecreeper	<i>Certhia familiaris</i>	Green
Coal Tit	<i>Parus ater</i>	Green
Sparrowhawk	<i>Accipiter nisus</i>	Green
Whitethroat	<i>Sylvia communis</i>	Green

Common Name	Scientific Name	Status
Goldcrest	<i>Regulus regulus</i>	Green
Pied Wagtail	<i>Motacilla alba</i>	Green
Rock Dove	<i>Columba livia</i>	Green
Green Woodpecker	<i>Picus viridis</i>	Green
Garden Warbler	<i>Sylvia borin</i>	Green
Nuthatch	<i>Sitta europaea</i>	Green
Jackdaw	<i>Corvus monedula</i>	Green
Cormorant	<i>Phalacrocorax carbo</i>	Green
Little Egret	<i>Egretta garzetta</i>	Green
Siskin	<i>Carduelis spinus</i>	Green
Coot	<i>Fulica atra</i>	Green
Red-Legged Partridge	<i>Alectoris rufa</i>	Introduced
Ring-Necked Parakeet	<i>Psittacula krameri</i>	Introduced
Pheasant	<i>Phasianus colchicus</i>	Introduced
Little Owl	<i>Athene noctua</i>	Introduced
White Stork	<i>Ciconia ciconia</i>	IUCN Red List
Canada Goose	<i>Branta canadensis</i>	Schedule 9