

Grimethorpe

Preliminary Ecological Appraisal

Yorkshire Water

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Quality Information

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Executive Summary

AECOM was instructed by Yorkshire Water (the 'Client') to carry out a Preliminary Ecological Appraisal (PEA) at Grimethorpe, hereafter referred to as the 'Site'. The Site is an operational wastewater treatment works, located in the Metropolitan Borough of Barnsley, South Yorkshire.

This PEA was commissioned to identify whether there are known or potential ecological features (nature conservation designations and protected and notable habitats and species) that may constrain or influence any future works at the Site. In order to deliver the PEA, a desk study and an extended Phase 1 habitat survey were undertaken by an appropriately experienced ecologist, to identify ecological features associated with the Site and in the wider potential zone of influence.

The constraints outlined here (Table 1) will need to be reassessed once detailed information relating to the proposed works for the Site is available, or if there are any significant changes in the use or management of the land that would affect the habitats and species.

If a planning application or proposed works are made one year or more after the Preliminary Ecological Appraisal (e.g. after June 2021) it is advisable to review and update the survey data.

Table 1 Summary of Ecological Constraints

Receptor	Scale of Constraint	Possible Further Survey and Mitigation Requirements	Driver	When is Action Likely to be Required		
				To Inform Design	Before Planning Application	Pre-construction Onwards
Broad-leaved woodland and hedgerows adjacent to Site	Medium	Retain habitats where possible. If loss cannot be avoided, then mitigation for loss should be undertaken e.g. compensate for woodland loss by new planting. Best practice measures should be implemented.	NERC Act 2006, Barnsley Local Plan 2019	✓	✓	✓
Drain adjacent to Site	Medium	Once detailed information on future works are known and if the watercourse is to be affected, additional surveys (see below) may be required. A Construction Environmental Management Plan may need to be produced to ensure no sensitive areas are impacted by future works or the ongoing function of the development.	NERC Act 2006, the Habitats Regulations, Barnsley Local Plan 2019	✓	✓	✓
Bats	Low	Avoid removal of habitats important for foraging and commuting bats. If vegetation or features suitable for bat roosts within or immediately adjacent to the Site are to be affected by future works, further bat survey work may be required (i.e. bat roost	WCA 1981, NERC Act 2006, the Habitats Regulations, Barnsley Local Plan 2019	✓	✓	✓

Receptor	Scale of Constraint	Possible Further Survey and Mitigation Requirements	Driver	When is Action Likely to be Required		
				To Inform Design	Before Planning Application	Pre-construction Onwards
		suitability surveys and presence/absence surveys)				
Badger	Low	Pre-works check for the presence of badgers should be undertaken. Retain sett building and foraging habitat.	Protection of Badgers Act 1992	✓	✓	✓
Water vole	Medium	Dedicated water vole survey, dependent on scope of works. Avoidance of removal of habitats important for foraging, residing or commuting water vole.	WCA 1981, NERC Act 2006, Barnsley Local Plan 2019	✓	✓	✓
Otter	Medium	Dedicated otter survey, dependent on scope of works. Avoidance of removal of habitats important for foraging, resting or commuting otters.	WCA 1981, the Habitats Regulations, NERC Act 2006, Barnsley Local Plan 2019	✓	✓	✓
Hedgehog	Low	Implementation of precautionary working method statement.	NERC Act 2006, Harrogate District Local Plan 2014-2035			✓
Breeding birds	Low	Where vegetation is to be cleared, this should be done outside of the breeding bird season (March to August inclusive).	WCA 1981, NERC Act 2006, the Habitats Regulations, Barnsley Local Plan 2019	✓	✓	✓
Reptiles	Low	Implementation of Precautionary Working Method Statement and watching brief, without need for preceding presence/absence survey. Dependant on scope of works, possible dedicated reptile surveys may be required.	WCA 1981, NERC Act 2006, Barnsley Local Plan 2019	✓		✓
Great crested newt	Low	Dependant on scope of works. Implementation of Precautionary Working Method Statement and watching brief may be required.				

1. Introduction

1.1 Purpose of Report

AECOM was instructed by Yorkshire Water (the 'Client') to carry out a Preliminary Ecological Appraisal (PEA) at Grimethorpe, hereafter referred to as the 'Site'. The Site is an operational wastewater treatment works, located in the Metropolitan Borough of Barnsley, South Yorkshire. The Site's central Ordnance Survey National Grid Reference (OSNGR) is SE 40214 09506.

This PEA was commissioned to identify whether there are known or potential ecological features (nature conservation designations and protected and notable habitats and species) that may constrain or influence any future development or proposed works at the Site. It is a high level appraisal of the ecological risks and opportunities associated with the Site and includes recommendations for any additional surveys that may be required prior to the commencement of any works, and potential options for the avoidance, mitigation or compensation of the potential impacts of future works on the identified relevant ecological features.

The scope and spatial extent of future works are unknown therefore impacts/pathways cannot be identified in detail and recommendations may be subject to change. It is assumed that all works will be contained within the Site boundary shown on Figure 1, Appendix A.

The approach applied when undertaking this PEA accords with the Guidelines for Preliminary Ecological Appraisal published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017). The PEA takes into account the relevant wildlife legislation and planning policy as summarised in Section 1.2 of this report applicable at the time and is consistent with the requirements of British Standard 42020:2013 Biodiversity, Code of Practice for Planning and Development (British Standards Institution, 2013).

The purpose of the PEA was to:

- Identify and categorise the habitats present within the Site (as shown on the Figure in Appendix A) and any areas immediately outside of the Site where there may be potential for direct or indirect effects (the 'zone of influence');
- Carry out an appraisal of the potential for the habitats recorded to support protected or notable species of fauna and flora;
- Provide advice on any potential ecological constraints in the zone of influence, including the identification (where relevant) of any requirements for follow-up habitat and species surveys and/or requirements for ecological mitigation; and
- Provide a map showing the location of the identified ecological features of relevance.

In order to deliver the PEA, a desk study and an extended Phase 1 habitat survey were undertaken by an appropriately experienced ecologist, to identify ecological features associated with the Site and in the wider potential zone of influence; additional details on the methods followed are provided in Section 2.

1.2 Wildlife Legislation and Planning Policy

Relevant wildlife legislation and policy has been taken into account during preparation of this PEA. Compliance with legislation may require the attainment of relevant protected species licences prior to construction works.

Information on relevant wildlife legislation and policy that has been taken into account is provided in Appendix B.

1.3 Biodiversity Net Gain

Biodiversity net gain requires developers to ensure habitats for wildlife are enhanced and left in a measurably better state than they were prior to development. Where a development has an impact on biodiversity it encourages developers to provide an increase in appropriate natural habitat and ecological

features over and above that being affected, with the aim of halting the current loss of biodiversity through development and restoration of ecological networks.

The process is becoming more mainstream and will soon be a mandatory requirement for planning applications. In such cases, applicants must assess the type of habitat, and habitat condition before submitting plans and then demonstrate biodiversity will be improved. In order for a development to achieve net gain it is important that the principles of the mitigation hierarchy are followed. This process involves first trying to avoid adverse impacts on biodiversity before finding ways to minimise or mitigate effects and as a last resort compensating for any residual impacts.

There are four sequential steps that must be taken throughout the lifecycle of a project:

- Avoidance - actions taken to avoid causing impacts to the environment prior to beginning development (for example, moving the development to a different location);
- Minimisation - measures taken to reduce the duration, intensity, extent and/or likelihood of the unavoidable environmental impacts caused by development (for example, adapting the development design to minimise impacts);
- Restoration or rehabilitation - actions taken to repair environmental degradation or damage following unavoidable impacts caused by development; and
- Offsets - Measures taken to compensate for any adverse environmental impacts caused by development which cannot be avoided, minimised and/or restored (e.g. including habitat creation to offset losses).

Biodiversity metrics provide a measure of overall Biodiversity Value based on habitat type, area, condition and distinctiveness. A metric is a tool that allows the value of a site to be measured pre- and post-development. The change in Biodiversity Units indicates either a net loss or net gain.

2. Methods

2.1 Desk Study

A desk study was carried out to identify nature conservation designations and protected and notable habitats and species potentially relevant to the Site.

A stratified approach was taken when defining the desk study area (the 'Study Area'), based on the likely zone of influence of future works on different ecological features and an understanding of the maximum distances typically considered by statutory consultees. Accordingly, the desk study identified any statutory nature conservation designations within approximately 2 km of the Site; and local non-statutory nature conservation designations, ancient woodland, protected and notable habitats and species and European Protected Species (EPS) licenses within approximately 1 km of the Site.

Searches and examination of aerial photography and Ordnance Survey mapping were also undertaken to identify the presence/potential presence of waterbodies within 250 m of the Site boundary as these could support species of amphibians which could potentially make use of the terrestrial habitats on Site. This follows the Great Crested Newt Mitigation Guidelines (English Nature, 2001) on the distance that great crested newt (*Triturus cristatus*) typically travel between aquatic breeding habitat and terrestrial habitat.

The desk study was carried out using the data sources listed in Table 2.1. All measurements stated in Table 2.1 are approximations. Protected and notable habitats and species include those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act (WCA) 1981 (as amended); Schedules 2 and 5 of Conservation of the Habitats & Species, 2017 (as amended) (the Habitats Regulations); species and habitats of principal importance for nature conservation in England listed under Section 41 (S41) of the Natural Environment and Communities (NERC) Act 2006; and other species that are Nationally Rare, Nationally Scarce or listed in national or local Red Data Lists and the Barnsley Local Biodiversity Action Plan (LBAP) (Barnsley Biodiversity Trust, 2009).

Table 2-1 Desk Study Data Sources

Data Source	Accessed	Data Obtained
Multi-Agency Geographic Information for the Countryside (MAGIC) website	June 2020	- Statutory designations within 2 km - Ancient woodlands and notable habitats within 1 km - European protected species licence applications within 1 km
Provided by Yorkshire Water	June 2020	- Non-statutory designations within 1 km - Protected and notable species records within 1 km (records for the last 10 years (since and including 2009) only)
Ordnance Survey (OS) 1:2500 Pathfinder maps and MAGIC website	July 2020	Waterbodies/potential waterbodies within 250 m

2.2 Field Survey

The field survey comprised an extended Phase 1 habitat survey, during which an appraisal was made of the potential suitability of the habitats present to support protected and notable species. Any observations of such species were noted for inclusion in the results section of this report, along with records of any invasive non-native species observed. The extended Phase 1 habitat survey covered the Site and immediate surrounding habitats where possible, as shown in Appendix A.

2.2.1 Phase 1 Habitat Survey

A Phase 1 habitat survey was undertaken in accordance with the standard survey method (Joint Nature Conservation Committee (JNCC), 2010). A Phase 1 habitat survey is a standard method of environmental audit. It involves categorising different habitat types and habitat features within a survey area. The standard Phase 1 habitat survey method can be 'extended' to record target notes on protected, notable and invasive species.

The survey was undertaken on 8th June 2020 by a suitably experienced AECOM ecologist who recorded and mapped the habitat types present within the survey area, along with any associated relevant ecological features observed.

Where relevant ecological features were present, target notes were recorded and the positions of these are shown on the Phase 1 habitat map presented in Appendix A. The target notes are provided in the results in Section 3.3, and their respective photographs are in Appendix C. Typical and notable plant species were recorded for each habitat type and reflected the conditions at the time of survey. This was not intended to be a detailed inventory of the plant species present in the Survey Area, as this is not required for the purposes of Phase 1 habitat survey.

Photographs were also taken where appropriate to supplement the habitat descriptions and the Phase 1 map (refer to Appendix C).

2.2.2 Appraisal of Potential Suitability of Habitats to Support Protected and Notable Species

An appraisal was made of the potential suitability of the habitats present to support protected and notable species of plants or animals. Field signs, habitat features with potential to support protected species and any sightings or auditory evidence were recorded when encountered. No detailed surveys were carried out for any specific species.

In addition, a note was made of visible instances of invasive non-native plant species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), such as Japanese knotweed (*Reynoutria japonica*) and Indian balsam (*Impatiens glandulifera*), previously known as Himalayan balsam.

Section 4 of this report identifies where further species surveys may be required based on the results of the habitat survey. These surveys should be completed at the appropriate time of year and in advance of any works starting on Site so they can be taken into account by the detailed design, development of a construction method statement and scheme mitigation, and to ensure that the need for any protected species licences is identified.

2.3 Desk Study and Field Survey Limitations

The aim of the desk study was to help characterise the ecological baseline context of the Site and provide valuable background information that would not be captured by a single site survey alone. Information obtained during the course of a desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular habitat or species does not necessarily mean that the habitats or species do not occur in the Study Area. Likewise, the presence of records for particular habitat and species does not automatically mean that these still occur within the area of interest or are relevant in the context of the future development.

All of the Site was accessible and there were no limitations to the survey within the Site boundary. There was limited visual access outside the Site's eastern boundary, however a gap in the vegetation showed this land to be arable cultivation. A drain was also identified through aerial imagery immediately adjacent to the Site's eastern boundary which was both visually and physically inaccessible for assessment during the survey.

Where habitat boundaries coincide with physical boundaries recorded on OS maps, the resolution is as determined by the scale of mapping. Elsewhere, habitat mapping is as estimated in the field and/or recorded by hand-held Global Positioning System (GPS). Where areas of habitat are given, they are approximate and should be verified by measurement on site where required for design or construction. While indicative locations of trees are recorded this does not replace requirements for detailed specialist arboricultural survey to British Standards 5837:2012 Trees in Relation to Design, Demolition and Construction (British Standards Institution, 2012).

3. Results

3.1 Nature Conservation Designations

3.1.1 Statutory and Non-Statutory Designations

Table 3.1 details the statutory nature conservations designated sites identified by the desk study, based on the method given in Section 2 of this report.

Table 3-1 Statutory Designated Sites within 2 km of the Site

Designation	Reason(s) for Designation	Approximate Distance from Site (at closest point)
Carlton Main Brickworks Site of Special Scientific Interest (SSSI)	Geological interest	1200 m south-east

3.1.2 Non-Statutory Designations

The desk study did not identify any non-statutory sites designated for nature conservation within 1 km of the Site.

3.2 Waterbodies

During the desk study, one potential pond was identified within 250 m of the Site. This potential pond is approximately 235 m north of the Site, and it connects to a running drain that runs south from the pond immediately adjacent to the Site's eastern boundary.

Phase 1 Habitat Survey

Habitats recorded during the Phase 1 habitat survey are described below and shown on Figure 1 in Appendix A.

3.2.1 Broadleaved Semi-natural Woodland

Broadleaved semi-natural woodland was recorded immediately adjacent to the Site boundary fencing around the southern-most tip, along the eastern edge and around the north-eastern corner of the Site. In places, this encroached through the boundary fencing (Appendix C, Plate 1). Tree species that present within the woodland and were visible from within the Site include oak (*Quercus* sp.), willow (*Salix* sp.), rose (*Rosa* sp.), elder (*Sambucus nigra*), hazel (*Corylus avellana*), sycamore (*Acer pseudoplatanus*), hawthorn (*Crataegus monogyna*) and ash (*Fraxinus excelsior*), with a largely bramble (*Rubus fruticosus*) and common nettle (*Urtica dioica*) understorey.

3.2.2 Scattered Trees

Along the main hardstanding access track within the Site a line of mature planted poplar (*Populus* sp.) trees approximately 15-20 m tall were recorded (Target note 4, Appendix C, Plate 2). Outside and immediately adjacent to the Site's northern boundary a line of scattered trees was also recorded and comprised predominantly of oak and ash, with an intermittent understorey of bramble and young elder trees (Appendix C, Plate 3).

3.2.3 Semi-improved Grassland

During the survey it was observed that semi-improved grassland had colonised the tops of some of the disused water treatment structures (Target note 2, Appendix C, Plate 4). The semi-improved grassland on

top of these structures comprised predominantly of Yorkshire fog (*Holcus lanatus*), Timothy-grass (*Phleum pratense*), curly dock (*Rumex crispus*) and broad-leaved dock (*Rumex obtusifolius*).

3.2.4 Improved Grassland

Improved grassland was recorded across the entire Site surrounding the hardstanding access paths and buildings/water treatment structures (Appendix C, Plate 5). During the survey it was observed that recent mowing management had been undertaken across the Site, but generally mowing had not occurred closer to the water treatment structures and small tussocks of longer grasses/herbs had been left to grow intermittently across the Site. The improved grassland comprised predominantly of perennial ryegrass (*Lolium perenne*), Yorkshire fog, white clover (*Trifolium repens*) and daisy (*Bellis perennis*), with other scattered herb/forb species including creeping thistle (*Cirsium arvense*), common nettle, creeping buttercup (*Ranunculus repens*), groundsel (*Senecio vulgaris*), ground ivy (*Glechoma hederacea*), hedge mustard (*Sisymbrium officinale*), creeping cinquefoil (*Potentilla reptans*) and broad-leaved dock.

3.2.5 Species-poor Hedgerow

Outside the Site's south-western boundary fencing was a species poor hedgerow adjacent to the A6195 Engine Lane road which was parallel to the Site boundary. The species-poor hedgerow encroached through much of the boundary fencing and comprised rose and hawthorn (Appendix C, Plate 6).

3.2.6 Buildings and Structures

Only one small brick building was recorded on Site adjacent to the Site's main access track, this had no ecological value. The buildings and structures on Site were predominantly wastewater treatment structures of concrete, brick and metal construction (Appendix C, Plate 7). As discussed in Section 3.2.3, three of the circular wastewater treatment structures had been colonised by semi-improved grassland (Target note 2, Appendix C, Plate 4).

Immediately adjacent to the Site's main access track to the north was a medium sized grey brick barn with corrugated metal roofing (which overhangs on its western edge) and wooden panelling (Target Note 1, Appendix C, Plate 8).

3.2.7 Other Habitat

Other habitats on the site included hardstanding which comprised the entrance track and areas around the water treatment structures (Appendix C, Plate 9).

3.3 Protected and Notable Species

3.3.1 Invasive Non-native Species

No invasive non-native species were recorded on the Site during the survey. Data provided by Yorkshire Water returned 1 count of Russian-vine (*Fallopia baldschuanica*) within the Site boundary.

3.3.2 Mammals

3.3.2.1 Bats

The desk study identified two species of bat, common pipistrelle (*Pipistrellus pipistrellus*) and noctule (*Nyctalus noctula*), both of which are Barnsley LBAP species, within 1 km of the Site. No EPS license applications for bats were identified within 1 km of the Site.

The only habitat present within the Site that could be used by commuting or foraging bats is the line of scattered poplar trees adjacent to the Site's main access track. Other than this, no other habitats within the Site offer particularly suitable habitat for commuting, foraging and roosting bats. The woodland immediately adjacent to the Site may offer suitable habitat for bats. Some of the ivy-clad trees outside the Site's eastern edge and a singular dead tree within this eastern edge was identified during the survey to possibly host some bat roost suitability (Target Note 3, Appendix C, Plate 10).

A barn was identified during the survey immediately adjacent to the north of the Site (Section 3.2.6). This building was target noted during the survey due to its potential suitability for roosting bats (and barn owl (*Tyto alba*)), although due to it not being within the Site boundary and on third-party land a detailed inspection was not possible. (Target Note 1, Appendix C, Plate 8).

3.3.2.2 Badger (*Meles meles*)

The desk study did not return any records of badger within 1 km of the Site and no signs of badger activity were observed during the survey. Suitable habitat for sett building and foraging (grassland and woodland) is present immediately adjacent to the Site and within the wider area so it is feasible that badger may use the Site and adjacent habitats.

3.3.2.3 Brown hare (*Lepus europaeus*)

The desk study returned multiple records of brown hare within 1 km of the Site. The habitats within the Site are largely not suitable for brown hare. This species is not considered further in this report.

3.3.2.4 Water vole (*Arvicola amphibius*)

The desk study returned multiple records of water vole/water vole signs within 1 km of the Site. This included two burrows and associated feeding remains which were located in the drain immediately adjacent to the Site's eastern boundary. Water vole is a Barnsley LBAP species. The Site itself is unsuitable for water vole, however there is potential for this species to be using the drain adjacent to the Site. As discussed in the limitations section (section 2.3), this drain was not accessible at the time of the survey.

3.3.2.5 Otter (*Lutra lutra*)

The desk study did not return any records of otter within 1 km of the Site. The habitats present within the Site are unsuitable for otter, however the drain and woodland immediately adjacent to the Site's eastern boundary may offer suitable habitat. As discussed in the limitations section (section 2.3), this drain was not accessible at the time of the survey and therefore it's suitability for otter is currently unknown. Otter is a Barnsley LBAP species.

3.3.2.6 Hedgehog (*Erinaceus europaeus*)

The desk study did not return any records of hedgehog within 1 km of the Site. Hedgehog is a Barnsley LBAP species.

Hedgehogs are generalists with their habitat preferences, and the grassland and scattered trees within the Site would offer suitable habitat for this species.

3.3.3 Birds

The desk study returned multiple records for protected and/or notable birds within 1 km of the Site. These included: skylark (*Alauda arvensis*), grey partridge (*Perdix perdix*), yellowhammer (*Emberiza citrinella*), curlew (*Numenius arquata*), lapwing (*Vanellus vanellus*), house sparrow (*Passer domesticus*), lesser redpoll (*Acanthis cabaret*) and cuckoo (*Cuculus canorus*), all of which are Red listed Birds of Conservation Concern (BoCC) and S41 species under the NERC act. Grey partridge, lapwing and skylark are also Barnsley LBAP species. Records for kingfisher (*Alcedo atthis*), green sandpiper (*Tringa ochropus*), and goldeneye (*Bucephala clangula*), all of which are Amber listed BoCC and listed under Schedule 1 of the WCA, were also returned, as well as fieldfare (*Turdus pilaris*) and redwing (*Turdus iliacus*) which are Red listed BoCC and Schedule 1 species under the WCA. Records for greylag goose (*Anser anser*) and reed bunting (*Emberiza schoeniclus*), both Amber listed BoCC with the latter being listed as a S41 species, were also returned.

There is limited suitable habitat present on Site that is suitable for foraging and breeding birds. However, during the survey, house sparrows were observed on the Site. Black-headed gulls (*Chroicocephalus ridibundus*) and pied wagtails (*Motacilla alba*), both Amber listed BoCC, were also observed utilising some of the wastewater treatment structures for loafing and feeding. The broad-leaved woodland and hedgerows

immediately adjacent to the Site's boundary as well as the wider arable landscape offers suitable habitat for foraging and breeding birds.

A little owl (*Athene noctua*) was observed flying out of the barn immediately adjacent to the Site to the north (Target Note 1, Appendix C, Plate 8) to perch on a hay barrel within the buildings' farmyard. This barn may also provide suitable habitat for roosting or breeding barn owl. As discussed in section 3.3.2.1, due to the barn being located outside the Site boundary a detailed inspection was not required or possible at the time of the survey.

3.3.4 Reptiles

The desk study returned one existing record of reptile, a grass snake (*Natrix helvetica*), within 1 km of the Site.

The habitats on site are sub-optimal for reptiles, given the Site is mainly mown improved grassland and hardstanding/buildings, and because the majority of the surrounding land (on the Site's eastern edge) is under arable cultivation. Given this, it is considered that the Site will not support a site-faithful population of reptiles or be used on a regular basis by reptiles. However, it is not possible to discount an occasional transitory occurrence by individual grass snakes, as this species can range relatively widely to feed and access suitable habitats.

3.3.5 Amphibians

The desk study returned one existing amphibian record, a common toad (*Bufo bufo*) within 1 km of the Site. No EPS applications for great crested newt were identified within 1 km of the Site.

There is no suitable habitat present within the Site boundary for breeding amphibians due to a lack of standing waterbodies, and there is limited habitat for non-breeding amphibians (rough grasslands, scrub and woodland) present within the Site. Suitable habitat is present for amphibians within the wider landscape, and the aforementioned potential pond north of the Site discussed in Section 3.2 may support breeding great crested newt, if present and suitable. It has not been surveyed to inform this PEA, but if it is suitable for great crested newts the Site is close enough to the pond that it could be used as terrestrial habitat especially outside the breeding season.

4. Identification of Ecological Constraints and Requirements for Further Survey

The wildlife legislation and relevant planning policy framework (summarised in Appendix B) specify requirements for the protection of features and species of importance for biodiversity.

Compliance with this legislation and planning policy frameworks requires adherence to the following mitigation hierarchy where there is potential for impacts on relevant ecological receptors:

- Avoid features where possible;
- Minimise impact by design, method of working or other measures (mitigation) e.g. by enhancing existing features; and
- Compensate for significant residual impacts, e.g. by providing suitable habitats elsewhere.

This hierarchy requires the highest level to be applied where possible. Only where this cannot reasonably be adopted should lower levels be considered. In such cases, the rationale for the proposed mitigation and/or compensation should be provided, including sufficient detail to show that these measures are feasible and would be provided.

The likelihood of the relevant ecological features constraining future works has been appraised with reference to the habitats and species present/potentially present as identified during the extended Phase 1 habitat survey and the results of the desk study.

Further ecological surveys would need to be carried out to gain a better understanding of the potential ecological impact of future works on both habitats and species. The results of which, along with what is known to date, should be used to assist in the development of an appropriate design for future works and inform what mitigation could be required.

4.1 Constraints and Requirements for Further Survey: Designations

Carlton Main Brickworks SSSI, which is designated for geological interests as opposed to ecological, is located approximately 1.2 km south of the Site. Due to the distance between the SSSI and the Site boundary and lack of potential pathways no indirect impacts are anticipated as a result of future works.

4.2 Constraints and Requirements for Further Survey: Habitats

The extent of the loss/potential impacts on the habitats would depend on the eventual scale, character and layout of future works at the Site. Planning policy carries the presumption that woodlands and trees would be retained and protected, but if this is not possible then appropriate mitigation or compensation measures would be required. A case would need to be made for how the benefits of the development would outweigh the biodiversity and green infrastructure impact of the required tree or woodland removal.

The scattered trees and semi-improved grassland within the Site, and hedgerows and woodland immediately adjacent to the Site offer ecological value at a local scale and provide potential habitats to support protected/notable species however they are unlikely to represent a constraint to future development. Measures to retain, protect and reinstate these habitats must be implemented as best practice.

The other habitats present within the Site boundary, i.e. hardstanding, improved grassland and some of the buildings/structures are considered to be of limited ecological value and the temporary loss of these areas would not require specific habitat mitigation.

The drain identified during the desk study lies immediately adjacent to the Site boundary. Potential impacts on the drain will need to be assessed further once details of future works are known. As a minimum best-practice measures e.g. pollution prevention measures would be required.

4.3 Constraints and Requirements for Further Survey: Species

4.3.1 Bats

All species of bat in the UK are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). Under this legislation it is illegal to:

- Intentionally or recklessly kill, injure or capture a bat;
- Intentionally or recklessly disturb a bat when it is occupying a roost; and
- Intentionally or recklessly damage, destroy or obstruct access to a bat roost.

A bat roost is defined as being 'any structure or place that is used for shelter or protection', and since bats regularly move roost site throughout the year, a roost is protected whether or not bats are present at the time.

The habitats present on Site are sub-optimal for commuting and foraging bats, apart from the line of scattered poplar trees adjacent to the Site's main access track which could offer commuting and foraging opportunities, however due to the limited suitable habitat on Site, dedicated bat activity surveys are not required.

Trees within the woodland immediately adjacent to the Site and the barn immediately north of the Site (Target Note 1, Appendix C, Plate 8) could potentially provide suitable habitat for roosting bats. Should proposed works be undertaken within 30 m of these habitats then further advice should be sought from an ecologist. The trees and barn located adjacent to the Site may require update assessments of their potential to support roosting bats, with further actions (survey and/or mitigation) possibly required based on the results of these update surveys to ensure compliance with relevant legislation (see below) and planning policy. Any requirement for permanent lighting be specified in accordance with Bat Conservation Trust and Institute of Lighting Professionals (2018) guidance.

4.3.2 Badger

Badgers are protected under the Protection of Badger Act 1992. The Act is based primarily on the need to protect badgers from baiting and deliberate harm or injury. It also contains the following criminal offences that apply more widely:

- To wilfully kill, injure, take, possess or cruelly ill-treat a badger; or
- To attempt to do so; or to intentionally or recklessly interfere with a sett.

Sett interference includes damaging or destroying a sett, obstructing access to a sett and disturbing a badger whilst it is occupying a sett. Where damage or significant disturbance to an active badger sett cannot be avoided, a licence should be sought from Natural England authorising actions that would otherwise amount to an offence. It is not illegal, and therefore a licence is not required, to carry out activities in the vicinity of a sett if the badgers are not disturbed and the sett is not damaged or obstructed.

No setts or badger field signs were identified during the survey, however as discussed in Section 3.3.2.2 suitable habitat for sett building and foraging is present immediately adjacent to the Site. Dependant on the scope of works i.e. if the woodland habitat is to be affected, then it is recommended that a pre-works badger survey is undertaken to ensure that badger setts are not located within or adjacent to (within at least 30 m) the Site prior to works. Development proposals should consider the potential for badgers to use the Site and ensure badger mitigation measures are in place, this may include access ramps being left in any ditches or pits during the night so badgers do not get trapped.

4.3.3 Water Vole

Water voles are fully protected under Schedule 5 of the WCA and is a priority conservation species. Under this legislation it is an offence to:

- Intentionally capture, kill or injure water voles;
- Damage, destroy or block access to their places of shelter or protection (on purpose or by not taking enough care);
- Disturb them in a place of shelter or protection (on purpose or by not taking enough care); and
- Possess, sell, control or transport live or dead water voles or parts of them (not water voles bred in captivity).

There is no habitat suitable for water vole within the Site, however there is possible suitable habitat in association with the drain immediately adjacent to the Site in which water vole presence has previously been confirmed. If the drain and the surrounding vegetation (up to 10 m from the drain) is to be affected by future works, then it is recommended that dedicated water vole surveys are carried out between May – October (peak period of activity for water vole) to search for evidence of water vole. If water vole activity is recorded and their habitat would be affected, an appropriate mitigation strategy would need to be developed.

Current guidance is that two surveys are required; one early in the active season and one late in the active season. However, a reduced survey effort may be sufficient if the required works are minor.

If works are not required within 10 m of the drain then presence/absence surveys for water vole are not required.

4.3.4 Otter

The otter is fully protected as an EPS and is also protected under sections 9 and 11 of the WCA. Under this legislation it is an offence to:

- Capture, kill, disturb or injure otters (on purpose or by not taking enough care);
- Damage or destroy a breeding or resting place (deliberately or by not taking enough care);
- Obstruct access to their resting or sheltering places (deliberately or by not taking enough care); and
- Possess, sell, control or transport live or dead otters, or parts of otters.

The drain immediately adjacent to the Site which is lined with woodland may have potential for otter holts to be present which could be disturbed by future works. The drain and much of the associated woodland were inaccessible during the survey due to the Site's boundary fencing both physically and visually blocking assessment of these areas, as well as much of these habitats being outside the Survey Area. Therefore, it is recommended that a dedicated otter survey is carried out (at any time of year, but ideally in spring when water levels recede) prior to any future works which may impact the drain and adjacent habitat and/or result in disturbance.

If an otter holt is recorded, an appropriate mitigation strategy would need to be developed.

4.3.5 Hedgehogs

The habitats within and immediately adjacent to the Site are considered to offer potential habitat for foraging, sheltering and commuting hedgehogs. This species receives limited legal protection but is listed under Section 41 of the NERC Act 2006 and is also a UK BAP species. As such, precautions are recommended in relation to any future works to ensure this species is not adversely affected during construction through a precautionary working method statement. This should include, for example, searches of all suitable habitats prior to any removal and, ensuring that during construction any open pits/holes should be covered at night or where this is not possible a wooden plank positioned at a 45 degree angle (maximum) from the base to the top of the hole so that mammals that get into the pit/hole can escape.

4.3.6 Breeding Birds

All species of bird are protected under the WCA with additional protection afforded to certain species under Schedule 1 of the act. This legislation makes it an offence to intentionally:

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

Due to the limited amount of suitable habitat present within the Site for foraging and breeding birds, no dedicated breeding bird surveys are required at this stage. However, as discussed in Section 3.3.3 the broadleaved woodland and hedgerows immediately adjacent to the Site offers suitable habitat, and during the survey Amber and Red listed BoCC were observed using buildings/structures within the Site. There is also potential for nesting birds to use the scattered trees and grassland on Site.

To ensure compliance with legislation protecting nesting birds, removal of any habitats (e.g. woodland and hedgerows adjacent to the Site, buildings/structures and scattered trees within the Site) that might be used by nesting birds should be carried out outside the nesting bird season (generally taken to be March to August inclusive). If this is not possible, then an appropriately experienced ecologist will check the areas for nests immediately prior to removal. If nests are found, they must be retained and remain undisturbed until an ecologist has confirmed that the young have fledged.

4.3.7 Reptiles

All common UK reptiles (which may potentially be present within the Survey Area) are partially protected under the WCA. Under this legislation it is an offence to intentionally kill, injure or take any reptile. In addition to the above, the NERC Act 2006 places additional responsibilities on local planning authorities to consider impacts on all reptiles in discharging their planning duty.

Due to the dominance of habitats that are sub-optimal for reptiles (mown improved grassland and hardstanding) no further reptile surveys would be required if future works are constrained to these areas. If future works would extend into areas of suitable habitat adjacent to the Site (i.e. woodland and semi-improved grassland), including those suitable for hibernation, then further survey (reptile presence/absence survey) may be needed. This would depend on the scale and location of future works at the Site

Where impacts are small scale and localised, it may be possible for the relevant works to progress under a Precautionary Working Method Statement supervised by an appropriately experienced ecologist without a need for a preceding presence/absence survey.

4.3.8 Amphibians

Great crested newts are protected under the Wildlife and Conservation Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017.

This legislation makes it an offence to intentionally;

- Capture, kill, disturb or injure great crested newts deliberately;
- Damaging or destroy a breeding or resting place;
- Obstruct access to their resting or sheltering places (deliberately or by not taking enough care);
- Possess, sell, control or transport live or dead newts, or parts of them; or
- Take great crested newt eggs.

There is suitable terrestrial habitat present for great crested newt, albeit limited to the improved grassland and boundary vegetation. There is terrestrial habitat connectivity between a potential pond approximately 235 m from the Site which if present and suitable may support breeding great crested newt. Therefore, the presence of great crested newt within the Site boundary cannot be ruled out. If the disturbance to suitable habitat on Site is minimal and the risk to great crested newt is low, works could be carried out under a precautionary method of working without the need for a licence, which is likely to require an ecological watching brief and appropriate timings of works. The layout/design of the works should seek to minimise the requirement to remove or disturb any potentially suitable great crested newt terrestrial habitat.

If a great crested newt was found during Site clearance or construction activities, then all works would need to stop and the overseeing ecologist would need to be contacted. It may be necessary to apply for a European Protected Species Mitigation Licence from Natural England.

5. References

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Appendix A Phase 1 Habitat Map



Appendix B Legislation and Planning Policy

Conservation of Habitats & Species Regulations, 2017 (as amended)

The original Regulations transposed the EU Directive on Natural Habitats, and Wild Fauna and Flora 9/43/EEC) into domestic legislation. Amendments in 2007 and 2009 addressed a number of gaps and inconsistencies in the original legislation and provided a greater legal certainty and clarity in a number of areas. In April 2010 the Regulations were brought up to date to consolidate changes made since 1994. The Regulations afford a high level of protection to a variety of species that are considered important at a European scale. The Regulations identify European Protected Species (EPS) and various habitats of importance within the European Union, with important sites for these habitats/species or both being designated as special Areas of Conservation (SAC). Any proposed development that may have a significant effect on a SAC or Special Protection Area (SPA) should be assessed in relation to the site's 'conservation objectives', i.e. the reasons for which the Site is designated.

The new Regulations simplified the species protection regime to better reflect the Habitats Directive, providing a clear legal basis for surveillance and monitoring of EPS. The Regulations also amended the WCA, updating Schedules 5 and 8 to consider provisions made by the Habitat Regulations 1994 in relation to the protection of EPS. They also offered further clarification to Part 4 of Section 9 considering "reckless" offences on wild animals, which was previously amended by the CROW Act 2000.

In 2012, the Regulations were further amended to place new duties on public bodies to take measures to preserve, maintain and re-establish habitat for wild birds. They were also amended to ensure certain provision of the Habitats Directive and the Birds Directive were transposed clearly and Section 15 was amended to make clear that Local Nature Reserves can be designated for re-establishing bird habitat.

In December 2018, the Regulations were further amended. Conditions applying to Regulations 2, 3, 4 and 5 were updated as detailed below:

- Regulation 2 amends the Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations") applicable to special development orders, local development orders, neighbourhood development orders, simplified planning zones, enterprise zones and the conversion of footpaths into cycle tracks to incorporate the habitats assessments provisions in regulation 63 of the Habitats Regulations. With the exception of the conversion of footpaths into cycle tracks, this regulation also incorporates regulations 65 and 66 for the review of existing decisions and consents;
- Regulation 2 also amends the Habitats Regulations to allow for the application of regulation 63 to applications for permission in principle;
- Regulation 3 amends the Neighbourhood Planning (General) Regulations 2012 to change the prescribed condition relating to habitats for the purpose of examination of neighbourhood development plans to require that a neighbourhood development plan complies with the provisions applicable to land use plans in Chapter 8 of Part 6 of the Habitats Regulations;
- Regulation 4 amends the Town and Country Planning (Permission in Principle) Order 2017 to change the definition of habitats development (for which a local planning authority may not grant permission in principle) to incorporate the habitats assessment process under regulation 63 of the Habitats Regulations; and
- Regulation 5 amends the Town and Country Planning (Brownfield Land Register) Regulations 2017 to change the definition of habitats development (which a local planning authority may not enter onto Part 2 of the Brownfield Land Register) to incorporate the habitats assessment process under regulation 63 of the Habitats Regulations.

Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 is the major domestic legal instrument for wildlife protection in the UK, and is the primary means by which the following are implemented:

- The Convention on the Conservation of European Wildlife and Natural Habitats ('the Bern Convention'); and
- The Council Directive 79/409/EEC on the Conservation of Wild birds (the 'Bird Directive')

Wild Birds

The Act makes it an offence (with exception to species listed in Schedule 2) to intentionally:

- kill, injure, or take any wild bird,

- take, damage or destroy the nest of any wild bird while that nest is in use or being built (also [take, damage or destroy the nest of a wild bird included in Schedule ZA1] under the Natural Environment and Rural Communities Act 2006), or
- take or destroy an egg of any wild bird.

Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young. The Secretary of State may also designate Special Protection Areas (SPAs) (subject to exceptions) to provide further protection to birds. The Act also prohibits certain methods of killing, injuring, or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

Other Animals

The Act makes it an offence (subject to exceptions) to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Flora, Fungi and Lichens

The Act makes it an offence (subject to exceptions) to intentionally pick, uproot or destroy:

- any wild plant listed in Schedule 8, or
- unless an authorised person, to intentionally uproot any wild plant not included in Schedule 8,
- to sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Non-native Species

The Act 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 in England and Wales. It also provides a mechanism making any of the above offences legal through the granting of licences by the appropriate authorities.

The Protection of Badgers Act, 1992

The Act makes it an offence to take, injure, kill or be cruel towards a badger, or interfere with their setts or to sell, mark possess or ring a badger without a licence.

The Countryside and Rights of Way (CRoW) Act, 2000

Part III of this Act deals specifically with wildlife protection and nature conservation in England and Wales. The CRoW Act strengthened the safeguards afforded to SSSIs.

Natural Environment and Rural Communities (NERC) Act 2006

Section 41 of the NERC Act requires the listing of habitats and species that are considered to be of principle importance for the conservation of biodiversity in England, including habitats and species in England that have been identified as priorities within the UK Biodiversity Action Plan (UKBAP).

The NERC Act requires that the Section 41 list be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the NERC Act 2006 'to have regard' to the conservation of biodiversity in England, when carrying out their normal functions.

The Hedgerow Regulations 1997

The intention of the Act is to protect important countryside hedges from destruction or damage. The Act does not apply where planning permission has been granted. There are various other exemptions under the Act, including:

- To make a new opening in substitution for an existing one that gives access to land. For example, a gate. However, the old opening must be filled in within 8 months;
- To obtain access to land where other means are not available or are only available at disproportionate cost;
- For the proper management of the hedgerow. This means real management, such as coppicing. But if the hedgerow is deliberately 'over-managed' this might qualify as removal.

If the proposed works are not exempt or subject to a current planning permission then the landowner must serve a Hedgerow Removal Notice in writing on their local planning authority. The authority then has 42 days (which period can

be extended if the applicant agrees) to determine whether or not the hedge is considered 'important' under the regulations, and if so, whether or not to issue a Hedgerow Retention Notice. The local authority does not have to issue a Retention Notice, even if the hedgerow counts as important. If they do not issue a notice for an important hedge this is often on condition that certain things are done, e.g. reinstatement or replanting to a certain standard, or creation of an equivalent boundary elsewhere.

The EU Invasive Alien Species Regulations 2014

The EU Invasive Alien Species Regulations sets out to address the problems concerned with invasive alien species (IASs) in order to protect native biodiversity and ecosystem services and minimize and mitigate the human health and/or economic impacts that IASs can have. It sets out rules to prevent and manage the introduction and spread of IASs in the EU through prevention, early detection and rapid eradication, and management.

National Planning Policy Framework

The latest version of the NPPF came into being in June 2019 (Ministry of Housing Communities & Local Government, 2019), relevant sections are as follows:

Section 15 of the NPPF relates specifically to 'Conserving and Enhancing the Natural Environment'. Paragraph 170 states that '*Planning policies and decision should contribute to and enhance the natural and local environment by:*

- *protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- *maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.'*

Paragraph 171 states that '*Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.'*

Paragraph 174 states that '*To protect and enhance biodiversity and geodiversity, plans should:*

- *Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and*
- *promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.'*

Paragraph 175 states that '*When determining planning application, local planning authorities should apply the following principles:*

- *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely*

impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

- *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'*

Paragraph 176 states that '*The following should be given the same protection as habitat sites:*

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

Paragraph 177 states that '*The presumption in favour of sustainable development does not apply where development requiring appropriate assessment because of its potential impact on a habitats site is being planned or determined.'*

Biodiversity Action Plans

In July 2012 the UK Post-2010 Biodiversity Framework was published. This covers the period 2011 - 2020 and forms the UK Government's response to the UN convention on Biological Diversity held in Nagoya in 2010. This contained 5 strategic goals ("Aichi" Goals). The Framework recognised that the Biodiversity Action Plan should now be delivered through strategies for each of the four countries comprising United Kingdom and Northern Ireland. In Wales, the Wales Biodiversity Group has a special role in taking biodiversity commitments forward in partnership with local authorities, Welsh Government Sponsored Bodies, non-governmental organisations, the private sector and local communities. It has issued guidance on the preparation of Local Biodiversity Action Plans (LBAP).

Local Planning Policy

Relevant local planning policies for Harrogate Council are listed in Table B1 (Harrogate Council, 2014). This provides a summary of relevant local planning policies. For the precise wording of the policies please refer back to the source document.

These planning policies have been considered when assessing potential ecological constraints and opportunities identified, and when assessing requirements for further survey, design options and ecological mitigation.

Table B.5-1 Summary of Local Planning Policy for the Proposed Scheme

Document	Planning Policy	Purpose
Barnsley Local Plan Adopted January 2019	Policy BIO1 Biodiversity and Geodiversity	Barnsley Council set out the following measures in the policy BIO1 to conserve and enhance the biodiversity features of the borough; - Developments are expected to; 1. Protect and improve habitats and species with specific regard to designated wildlife sites of international, national and local significance (including those identified via Section 41 of the Natural Environment and Rural Communities Act 2006 and in the Barnsley Biodiversity Act) 2. Conserve and enhance the local character/distinctiveness of the borough's natural habitats such as the river corridors along the Don, the Dearne and Dove as natural floodplains and strategic wildlife corridors. 3. Proposals are expected to follow the national mitigation hierarchy and those which may harm biodiversity features or habitats will not be permitted unless effective mitigation can be ensured. 4. Ancient/veteran trees outside of woodland areas would be expected to be retained within any development proposals. Allocation of developments within Ancient Semi-Natural Woodlands and Plantations on Ancient Woodland Sites could be allowed (if appropriate) subject to mitigation of adverse impacts Developments which adversely impact a European Site will not be permitted unless there is no alternative option and there are imperative reasons of overriding public interest (IROPI). A site of particular European importance within the borough are the South Pennine Moors (a designated Special Area of Conservation) especially in regard to several upland breeding bird species.

Appendix C Photographs

Plate 1 –
Broad-leaved
semi-natural
woodland



	
Plate 2 – Target Note 4 – Scattered poplar trees	

Plate 3 –
Scattered line
of trees



Plate 4 –
Target Note 2
– Semi-
improved
grassland



Plate 5 –
Improved
grassland





Plate 6 –
Species poor
hedgerow



Plate 7 –
Buildings and
structures





Plate 8 –
Target note 1
– Barn with
bat roost and
owl roost
suitability





Plate 9 –
Hardstanding





Plate 10 –
Target Note 3
– Tree with
bat roost
suitability



