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PRELIMINARY ECOLOGICAL APPRAISAL

Inglewood Avenue, Huddersfield
Report Reference: BG17.138
February 2017

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www.brindlegreen.co.uk



Sheffield Office
Brindle & Green Limited
Horizon House
Whiting Street
Sheffield S8 9QR

Barnsley Office
Brindle & Green Limited
Sergeants House
36 Edderthorpe Lane
Barnsley S73 9AT

Head Office
Brindle & Green Limited
Unit 3 Silverhill Court
Radbourne
Derby DE6 4LY
Tel: 01332 224 213

London Office
Brindle & Green Limited
Nutter Lane
Wanstead
London E11 2HZ

Kent Office
Brindle & Green Limited
Sandy Lane
Sevenoaks
Kent TN13 3TP

brindle& green

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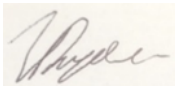
Prepared by	Zoe Dryden		24/02/2017
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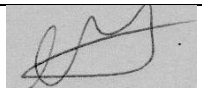
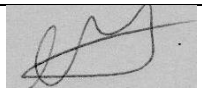
2nd Check by	Emily Major		01/03/2017
Issued by (PDF)	Emily Major		01/03/2017
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Project Details

Project carried out by:

Brindle and Green
Unit 3, Silverhill Court
Radbourne
Derby
DE6 4LY
Head Office: 01332 224 213
Email: info@brindlegreen.co.uk
Website: www.brindlegreen.co.uk

Project carried out for:

TRW Property Limited
11 Inglewood Avenue
Huddersfield
HD2 2DS
Tel: 07875 199228
Email: mm4223@outlook.com

Project site:

11 Inglewood Avenue
Huddersfield
HD2 2DS

Grid Ref. SE 12520 18361

Contents

1 Summary 7
2 Introduction 8
3 Methodology 9
3.1 Desk Study 9
3.2 Surveyors 9
3.3 Survey Conditions 9
3.4 Field Survey 9
3.5 Protected Species 10
3.6 Limitations 14
3.7 Report Lifespan 15
4 Site Context 16
5 Results 18
5.1 Desk Study 18
5.2 Field Survey 18
5.3 Protected Species 19
5.4 Site Photographs 21
6 Evaluation 24
7 Recommendations 27
7.1 Foraging and Commuting Bats 27
7.2 Roosting Bats 27

Appendix 1. General References 28
Appendix 2. Legislation and Guidance Sources 29
Appendix 3. Legislation, Guidance and Methodology in relation to Potential Constraints 30
Appendix 4. Proposed Plans 37
Appendix 5. MAGIC 38
Appendix 6. Ecological Data Search Information 42

1 Summary

1.1 Brindle & Green were commissioned by TRW Property Limited to undertake a Preliminary Ecological Appraisal at 11 Inglewood Avenue, Huddersfield. The purpose of this assessment was to provide an assessment of the ecological value of the site, and to identify key ecological constraints to the proposed development. The survey was undertaken on 27th February 2017.

1.2 The project area is approximately 0.18 ha in extent, although only 0.05 ha will be affected. This affected area incorporates a single residential dwelling and surrounding amenity grassland and hard standing. The site is the subject of a full planning application for the extension of the existing dwelling. Design proposals for the site are presented in Appendix 4 of this report.

1.3 All ecological issues relating to the building and surrounding environment were considered during the survey. A full description of the recommendations can be found within Chapter 7 (Page 27), below is a summary of the ecological issues recommended for further consideration as a result of our initial investigations:

Ecological Consideration	Recommendations (e.g. further survey, mitigation)	Timing
Roosting Bats	Low potential building should be subjected to a single emergence survey	May- September

2 Introduction

2.1 Brindle & Green were commissioned by TRW Property Limited to undertake a Preliminary Ecological Appraisal at 11 Inglewood Avenue, Huddersfield. The purpose of this assessment was to provide a preliminary appraisal of the ecological value of the site and to identify key ecological constraints to the proposed development. The survey provides detail on the need for any additional, more detailed protected species surveys, and will allow the development of likely mitigation, compensation and enhancement measures to be developed.

2.2 Although the project area is approximately 0.18 ha in total, only 0.05 ha of the site will be affected by the proposed development. The contents of this report pertains to the area of impact only. The survey area incorporates the residential dwelling, a small area of amenity grassland to the south of the building, and the current driveway to the east and north-east of the building. The site is located within the north-western outskirts of the town of Huddersfield. Site boundaries to the south, east and west are bordered by residential plots (dwellings and gardens) and the northern boundary is bordered by Inglewood Avenue. The wider environment is dominated by residential housing, with some agricultural fields and woodland approximately 500m north, and 1.3km west of the site. The A629 runs south-east into Huddersfield, passing the site approximately 85m to the south-west, the A640 runs east-south-east approximately 1km south of the site, and the A643 runs north-east, approximately 1.2km north-west of the site. In addition, the M62 runs east, approximately 1.5km north-west of the site. These main roads act as barriers to terrestrial species dispersal. The site is the subject of a full planning application for the extension of the existing dwelling. Design proposals for the site are presented in Appendix 4 of this report.

2.3 The legislation relevant to protected species within the United Kingdom is summarised within Appendix 2.

2.4 Results and recommendations contained within this report have been prepared by an experienced ecologist and are therefore the view of Brindle & Green Limited. The survey is based on information provided by our client, the development proposals, and the results of the desk study and our survey of the site. This report pertains to this information only.

3 Methodology

3.1 Desk Study

Table 1 below lists organisations and/or resources used as part of the desk study process. Data regarding any known statutory or non-statutory sites in addition to any records for protected species were requested from the following sources:

Table 1. Ecological Data Resources

Consultee	Requested Data	Search Radius	Date Requested
MAGIC Maps	National and International Site Designations Granted EPS Development Licences	2km	24/02/2017

3.2 Surveyors

Survey carried out by Zoe Dryden BSc. (Hons.), Ecologist.
The survey was supervised by Chris Needham MSc. MCIEEM (Bat Licensed).

3.3 Survey Conditions

The survey was undertaken at 12:00pm on the 27th February 2017.
The outside temperature was recorded as 5°C, with light rain showers and 7/8 cloud cover.

3.4 Field Survey

The habitats on site were assessed for their suitability to support protected species following standard survey guidance (Appendix 3). It is important to assess the surrounding habitat, as in some cases the legal protection of a protected species extends to the habitat in which it occupies. Any incidental sightings of field signs were noted at the time of survey. Where evidence of, or the confirmed presence of a Protected Species is identified, further, species specific surveys may be recommended to establish with certainty the presence

and extent, or absence of a legally protected species prior to the determination of any planning approval.

3.5 Protected Species

3.5.1 **Breeding Birds**

The building and vegetation to be impacted from the proposed development have been the subject of a search for active or previously used bird nests, and identification of features considered conducive to breeding birds, alongside noting the activity and behaviour of birds on site during the survey. Following standard techniques, as recommended by

Gilbert G, Gibbons DW, Evans J. (1998) *Bird Monitoring Methods: Breeding Bird Survey* (pages 389-393). RSPB.

3.5.2 **Roosting Bats**

3.5.2.1 Structures (Buildings and trees) on site were assessed for their suitability to support roosting bats following Collins, J (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines, (3rd edition), Bat Conservation Trust, London.

During the external and internal (where possible) assessment of the structure features including suitable enclosed spaces such as slipped or missing roof tiles, gaps and cracks in brickwork, enclosed roof voids, gaps along ridge rafters, joints in roof beams and the presence of suitable soffits and fascias were recorded to evaluate the potential suitability of a structure to support roosting bats. Evidence of bat presence was also recorded including feeding remains, bat droppings and staining around potential access points. Bats often use different roosting sites at different times of the year, and the absence of evidence does not always equate to the absence/ or lower suitability of a structure to support a bat roost. The potential suitability of each structure, was categorised following Collins J (2016), and the resulting survey effort to establish confidence in a result is summarised within Table 2.

Table 2. Potential suitability of roosting habitat within structures (Buildings and trees) to be applied to each structure using professional judgement. Adapted from Collins J (2016)

Category	Description of roosting habitat	Number of presence / absence surveys required
No Potential	The building is wholly unsuitable for a bat roost.	None
Negligible Potential	Suitable cavities may exist but these are open to wind, rain or disturbance.	None
Low Potential	This category describes a structure with one or more potential roost sites that could be used by individual bats opportunistically, that less than ideal in some way. For example, the feature may be subject to intermittent disturbance, and does not provide enough shelter, conditions* space and/or suitable surrounding habitat (e.g unlikely to support a maternity or hibernation roost). This category describes a tree of sufficient size and age to support roosting bats, but with no features observed from the ground, or the features only have a limited potential to support roosting bats.	One survey between May and August Trees – No further surveys required
Moderate Potential	This category describes a structure or tree considered to have one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions* and surrounding habitat but are unlikely to support a roost of high conservation status (With regard to roost type only – assessments are made irrespective of species conservation status, which is established after presence is confirmed) Features considered to have adequate potential would include cavities of appropriate dimensions that are generally free from disturbance and free from fluctuations in the weather.	Two surveys between May and September (with at least one survey undertaken between May and August) One Dusk emergence and One Dawn re-entry survey to ideally be undertaken at least two weeks apart

High Potential	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions* and surrounding habitat.	Three surveys between May and September (with at least two surveys undertaken between May and August) One Dusk emergence and One Dawn re-entry survey to be undertaken. The third survey can be either Dusk or Dawn The surveys should ideally be undertaken at least two weeks apart
Confirmed	This category is where positive evidence of bats has been recorded. For example, bats are found; bat droppings may be present at a suitable location for roosting bats; existing bat records may be associated with the structure.	Three surveys between May and September (with at least two surveys undertaken between May and August) One Dusk emergence and One Dawn re-entry survey to be undertaken. The third survey can be either Dusk or Dawn The surveys should ideally be undertaken at least two weeks apart

(* in this context conditions refers to the level of disturbance, light, height above ground, temperature, and humidity etc)

3.5.2.2 If bats are discovered emerging or re-entering any structure, the survey schedule should be appropriately adjusted to increase the survey effort so that sufficient information for roost characterisation can be collected to advise the planning application or EPS development license.

3.5.3 **Foraging and Commuting bats**

Habitat features on site were assessed for their suitability to support foraging and commuting bat populations. This assessment was independent from the suitability of the site to support roosting bats, and provides information on the likeness of bat foraging activity within the local environment, and the dependence of individuals on these features for commuting to alternative roosting sites, foraging and migration. The suitability of the sites commuting and foraging habitat was assessed and evaluated against the proposed impacts to the site and Table 3 (below) to allow categorisation of the habitat.

Table 3. Potential suitability of foraging and commuting habitat within an application boundary. Features should be assessed following this guide and professional judgement. Adapted from Collins J (2016).

Category	Description of commuting and foraging habitat	Survey effort to establish the value of commuting and foraging habitat**
Negligible Potential	Negligible habitat features on site likely to be used by commuting or foraging bats	None
Low Potential	Habitat which could be used by low numbers of commuting bats such as an isolated gappy hedgerow, or an unvegetated stream unconnected to suitable habitat in the wider environment. Suitable, yet isolated habitat that could be used by foraging bats such as individual trees, or a patch of scrub.	**Transect /spot count/ timed search survey:** One survey visit per season: Spring- April/ May Summer- June/July/ Aug Autumn – Sept/ Oct In weather conditions conducive to finding bats **AND** **Static automated surveys:** One location per transect, over a five-night period, per season: Spring- April/ May Summer- June/July/ Aug Autumn – Sept/ Oct In weather conditions conducive to finding bats *Further survey may be required if surveys reveal higher activity than predicted from habitat alone*
Moderate Potential	Continuous habitat connected to the wider landscape that could be used by commuting bats, notably tree lines, hedgerows or linked back gardens. Habitat that is connected to the wider landscape which could be used by bats for foraging such as trees, open water, scrub or grassland.	**Transect /spot count/ timed search survey** One survey visit per month (April to October) In weather conditions conducive to finding bats At least one survey should comprise dusk and pre-dawn (or dusk to

		dawn) within one 24-hour period. **AND** **Static automated surveys:** Two locations per transect, over a five-night period, per month (April to October) In weather conditions conducive to finding bats
High Potential	Continuous, High-quality habitat that is well connected to the wider landscape which is considered to be highly conducive to commuting bats including river valleys, stream, hedgerows, and woodland edge High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree lined watercourses, and grazed parkland. Site is close to and connected to known roosts.	Transect /spot count/ timed search survey Up to two survey visit per month (April to October) In weather conditions conducive to finding bats At least one survey should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period. **AND** **Static automated surveys:** Three locations per transect, over a five-night period, per month (April to October) In weather conditions conducive to finding bats

*(** This is only a guide for survey effort required, the complexity of the site and the proposed disturbance / loss of features will determine the extent of works required on a site by site basis).*

3.6 Limitations

3.6.1 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment. The protected and notable species assessment provides a preliminary view of the likelihood of these species occurring on site, based upon the suitability of the habitats, know distribution of the species is the local area and any direct evidence on site. It should not be taken as providing a full and definitive survey of any protected species group.

3.6.2 Access into the building was not provided by the client and as such an internal assessment of the roof void was not completed during the ecological appraisal.

3.7 Report Lifespan

Given the transient nature of the subject we would consider the survey results contained to be accurate for 2 years.

4 Site Context

4.1 Site Description

The application site can be found at: Grid Ref. SE 12520 18361. The site is located on a residential street of detached properties, within the north-western outskirts of the town of Huddersfield. Site boundaries to the south, east and west are bordered by residential plots (dwellings and gardens) and the northern boundary is bordered by Inglewood Avenue. The wider environment is generally dominated by residential housing, with some agricultural fields and woodland approximately 500m north, and 1.3km west of the site. The A629 runs south-east into Huddersfield, passing the site approximately 85m to the south-west, the A640 runs east-south-east approximately 1km south of the site, and the A643 runs north-east, approximately 1.2km north-west of the site. In addition, the M62 runs east, approximately 1.5km north-west of the site. These main roads act as barriers to terrestrial species dispersal. However, despite being surrounded by residential development, a network of gardens and mature treelines provide connectivity to the surrounding environment.

4.2 Zone of Influence

The zone of influence is used to describe the geographic extent of potential impacts of a proposed development in relation to the target species, in this case bats and breeding birds. Due to the scale and nature of the proposals, it is not considered that the impacts of the proposed works would extend beyond the scheme footprint and its immediate surroundings.

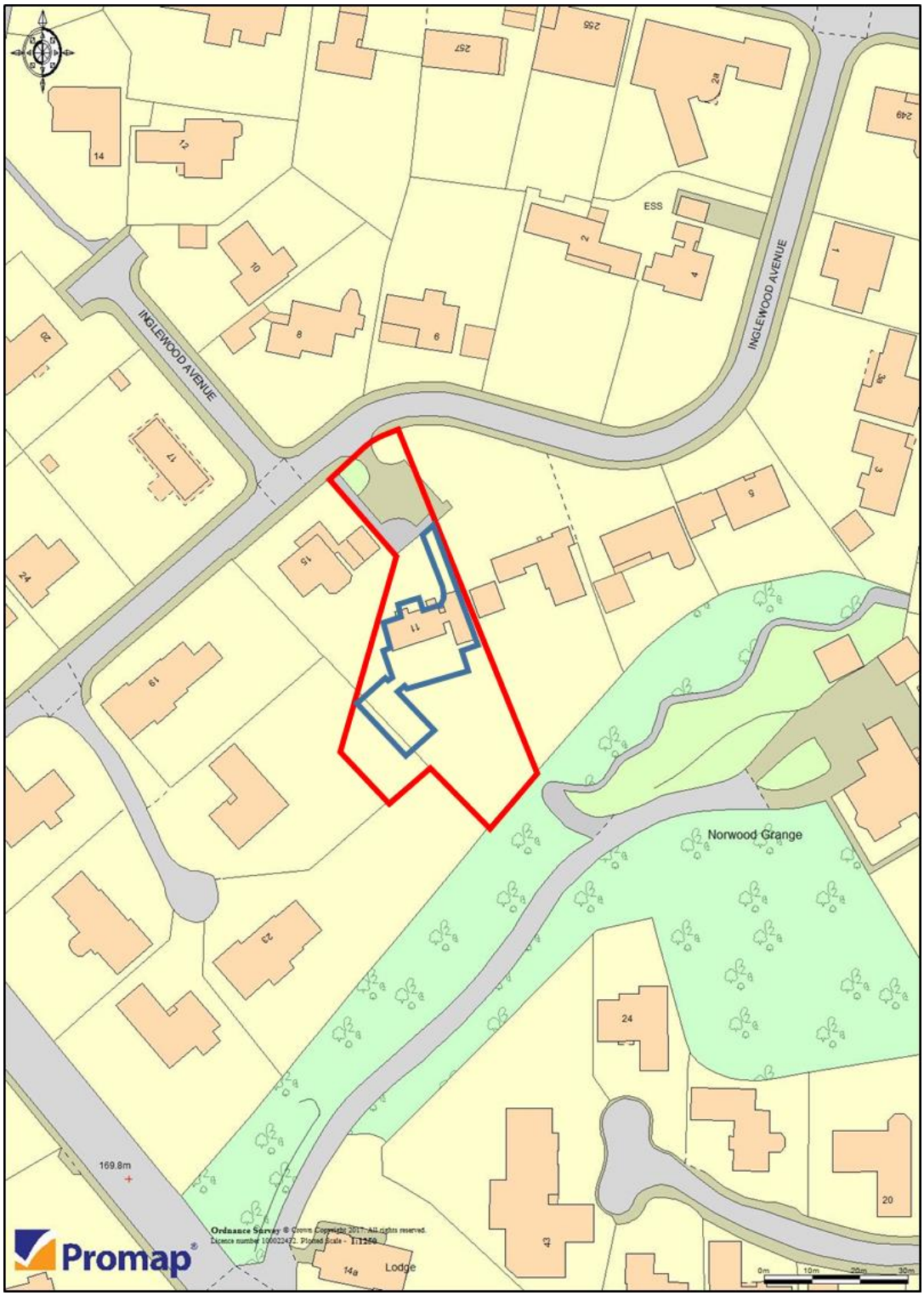


Figure 1. OS Map of the project site and surrounding area.

Red line boundary depicts application site. Blue line boundary depicts the area affected by development and thus, the area surveyed.

5 Results

5.1 Desk Study

5.1.1 Designated Sites

The site was subjected to a search for designated sites within a 2km radius of the site using data supplied the online desk based resource MAGIC (Appendix 5).

Table 4. Summary of Designated Sites with a 2km radius of the application site

Site Name	Grid Ref	Status	Approximate distance from the project site
Gledholt Wood	SE 134165	LNR	1.6km SE
Elland Bypass Cutting	SE 118 202	SSSI	1.8km NW

5.1.2 Protected Species Assessment

A search of Magic Maps found two granted European Protected Species development licences for common pipistrelle (*Pipistrellus pipistrellus*) within 2km of the site. The first licence expired in 2011 and the second expired in 2014. Both licences pertain to roosts approximately 1km to the south-west.

5.2 Field Survey

The redline application boundary for the proposed extension was restricted to within the current footprint of 11 Inglewood Avenue, a hardstanding driveway to the north and a small area of amenity grassland to the south and south-west of the current building (Appendix 4). Amenity grassland will be the only habitat affected by the development, and at the time of survey this area was covered with construction materials and debris including wood chipping and log piles. Although no further habitats on site will be affected by the planning application, the impact of the redevelopment on protected species which may be present within associated habitats such as gardens, and trees in close proximity of the works have been considered.

5.3 Protected Species

5.3.1 Breeding Birds

5.3.1.1 There was no evidence to suggest that breeding birds had previously occupied the building during the external inspection. The assessment was undertaken outside of the breeding bird season, however there were no features or suitable access points for birds on the building.

5.3.1.2 Ornamental shrubs were recorded within a landscaped garden area to the north of the current building. A number of common garden birds were recorded within the ornamental shrubs on site and in trees within neighbouring gardens during the building appraisal including blue tit (*Cyanistes caeruleus*), blackbird (*Turdus merula*), magpie (*Pica pica*) and carrion crow (*Corvus corone*).

5.3.2 Foraging and Commuting Bats

Ornamental shrubs were recorded to the north of the building on site, providing negligible foraging habitat for bats. Although mature trees were recorded within adjacent residential gardens, there were no mature trees within the application site boundary at the time of survey. The only linear feature present on site which has the potential to be a low value commuting line to bats, is the current building. Overall, the site was deemed to hold negligible habitat for foraging and commuting bats.

5.3.3 Roosting Bats

The building was assessed to have low potential to support roosting bats. However it was not possible to enter the building at the time of survey. The main structural features of the building, and their suitability for supporting roosting bats are summarised below, and associated figures can be found with Section 5.4.

External Walls Considerations: *age / storey height of building / building material / enclosed building / wall space / gable ends / suitable cavities free from weather / any evidence found / photographs taken around all the building*
The application site comprised a two storey brick and stone building, with wood panelling between modern fitted windows and wooden soffits on the northern, eastern and western elevations. The brickwork, stonework and mortar were in good condition, containing no access points for roosting bats. The southern elevation of the building supported the bare structure of a two storey extension, which at the time of survey consisted of a breezeblock structure. The windows on the building were modern and well-sealed on all elevations, providing no crevices suitable to support roosting bats. **No evidence found. Photographs taken.**
External Roof Considerations*: shape / roof material / gable ends / roof ridge / suitable cavities free from weather / any evidence found / photographs taken around all the roof*
Pitched tiled roof was almost entirely intact with gable ends on the eastern and western building elevations. Both chimney stacks were in good condition. Missing mortar under a lifted ridge tile to the west of the western chimney stack provided a small sheltered crevice. It was not clear as to whether this lead to the building's interior. All other ridge tiles were well secured. Several roof tiles either side of the chimney stacks were slightly lifted, providing roosting points for crevice dwelling species. Additional lifted tiles were present at both ends of the southern elevation roofline where the breezeblock extension had been secured to the wall and roof of the main building. Anecdotal evidence suggests that this extension begun in November 2016. **No evidence found. Photographs taken**.
Soffit and Fascia Board Considerations: *in place / suitable cavities / any evidence found / photographs taken*
Soffits were present on the western, southern and eastern elevations of the building. All were constructed from wood, with gaps between soffits and brick/stonework providing access points for roosting bats. **No evidence found. Photographs taken**.
Interior Considerations: *use of building* ***/*** *wall space / suitable cavities / is there a suitable cellar / any evidence found / photographs taken*
N/A. It was not possible to enter the building at the time of survey.
Interior Roof Considerations: *roof space e.g. loft / lighting / use of roof space / ability to find bat dropping in interior space / material of roof support / if wooden what size / suitable joints in wooden beams / water proof lining / suitable cavities / photographs taken*
N/A. It was not possible to enter the building at the time of survey.
Category and Reason for that Category
Low Potential. It was not possible to enter the building at the time of survey. The building supported a number of gaps between stone walls and soffits on the northern, eastern and western elevations, features which could be utilised by crevice dwelling species. In addition, lifted roof tiles and a single ridge tile provide roosting features and possible entry into the internal roof space. This cannot be confirmed, as the building could not be entered at the time of survey.

5.4 Site Photographs

Photographs were taken to provide evidence of the survey findings and support the classification of a buildings potential to support protected species.

Northern and Eastern Elevations Brickwork was intact, windows were modern and tightly fitted and wood panelling between windows was intact. None of these features provided any roosting opportunities for bats.	
Eastern Elevation Gaps between the stonework and soffits at either end of the roofline on the eastern elevation provided roosting opportunities for crevice dwelling species.	
Northern Elevation Lifted roof tiles either side of the chimney stacks and missing mortar underneath a single ridge tile (see red circles) all provide roosting opportunities for a small number of crevice dwelling bats.	

Northern Elevation A narrow gap, varying in width at different points, was present between the soffits and stonework. In places this gap may have been wide enough to support bats.	
Western Elevation Brickwork and stonework was intact, windows were modern and tightly fitted, wood panelling between windows was intact and edge roof tiles were in place, providing no roosting opportunities for bats, except for the gap between the soffits and brick/stonework (see below photographs).	
Western Elevation Gaps between the soffits and stone/brickwork provided roosting opportunities for crevice dwelling bat species. It is not clear as to whether access points into the building were present behind the soffit boards, as it was not possible to enter the building at the time of survey.	 

Southern Elevation Brickwork was intact and all windows were modern and tightly fitted, providing no roosting opportunities for bats. Roof tiles were generally intact, except for two lifted tiles either side of the chimney stack (see below photograph).	
Southern Elevation A slightly lifted ridge tile to the west of the chimney stack and a lifted roof tile to the east of the chimney stack provide roosting opportunity for one or two bats, and may provide an access point into the building.	
Southern Elevation Lifted roof tiles were present where the breezeblocks of the extension had been built into the southern elevation of the building. During this process, tiles at the edge of the roof line had been removed and replaced following the process of adjoining the extension. Anecdotal evidence suggests that this process was not started until November – December 2016, suggesting that these potential roost features have only recently been created, and are therefore unlikely to have been inhabited by bats.	 

6 Evaluation

6.1 Development Proposals

The site is the subject of a full planning application for the extension of the existing dwelling. Design proposals for the site are presented in Appendix 4 of this report.

6.2 Desk Study Impacts

Direct impacts on nearby designated sites as a result of the proposed development are considered unlikely. Elland Bypass Cutting SSSI and Gledholt Woods Local Nature Reserve (LNR) are located over 1.5km from the application site. Gledholt Wood designations are related to the unusual composition of fungi within the woodland and the presence of white clawed crayfish within a pond on site. The main habitat within Elland Bypass Cutting SSSI is earth heritage rather than the assemblage of fauna. As there are no perceived pathways of impact to the designated sites and the extent of the development is to be contained within the application boundary, the likelihood of indirect impacts is considered negligible.

6.3 Breeding Birds

6.3.1 All wild birds, their eggs and nests are protected under the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure, or take any wild bird whilst nesting, or take, damage or destroy the nest of any such bird while in use or being built. In addition, species listed on Schedule 1 of the Wildlife and Countryside Act 1981 or their dependant young are afforded additional protection from disturbance whilst they are at their nests.

6.3.2 The building on site did not support any evidence to suggest that birds have recently, or are currently breeding within the building. The survey was undertaken outside of the breeding season, however no features on the building were considered suitable to support nesting birds. Common garden bird species were recorded foraging within the ornamental shrubs located to the north of the building. These shrubs could provide suitable breeding habitat for birds. As these shrubs are to be retained, it is highly unlikely that the development will have any direct or indirect impacts upon breeding bird populations.

6.4 **Foraging and Commuting Bats**

6.4.1 All bat species are protected under the Wildlife and Countryside Act (1981) and Habitat Regulations (2010) making it an offence to, intentionally kill, injure, or take any species of bat, intentionally or recklessly disturb bats, intentionally or recklessly damage destroy or obstruct access to bat roosts.

6.4.2 A small number of ornamental shrubs within the landscaped garden to the north of the building provide negligible habitat for foraging bats. The current residential building provides linear features which could be utilised by commuting bats. As both the ornamental shrubs and the current building's linear features are to be retained as part of the development, it is unlikely that local bat populations will be negatively impacted by the proposed extension. In addition, supplementary planting proposed within the southern end of the application site will improve the quality of the habitat on site for foraging and commuting bats. However, despite the retention of linear features on site, the addition of artificial lighting post development could have a detrimental impact on the use of post-development planting and adjacent residential gardens by local bat populations. Chapter 7 of this document sets out important recommendations to safeguard habitats used by bats upon completion of the works.

6.5 **Roosting Bats**

6.5.1 The building was assessed to have low potential to support roosting bats, following the identification of potential roost features (PRFs) on the northern, eastern and western elevations of the building. The proposed plans show the development of a two storey extension on the southern elevation of the building and the conversion of the current building's roof space into a third storey. Continuation of the extension to the southern elevation is likely to prevent bats from beginning, or continuing, to roost within the recorded PRFs during the active season, due to disturbance caused by noise and vibration. However, the lack of roosting features on the southern building elevation means that continuation of the extension is unlikely to have a direct impact upon local bat populations.

6.5.2 It is possible that the conversion of the loft space could directly impact local bat populations by destruction of the PRFs on the external elevations of the building. The conversion of this loft space could also cause direct injury or harm

to individual bats. The recommendations section of this report sets out important guidance on measures to avoid impacts on this species and measures to support its conservation status through ecological enhancement.

7 Recommendations

As with all development sites; efforts should be made to support National and Local Biodiversity Action Plans, and seek opportunities to incorporate ecological enhancement schemes within the proposed development. Such site enhancements should be viewed positively in light of the NPPF (2012) which seeks biodiversity enhancements and net gain through the planning process.

7.1 Foraging and Commuting Bats

Foraging and commuting bats	Timing
Recommendations	
Although the habitat on site is considered to have negligible suitability to support foraging and commuting bats, artificial lighting could negatively impact bats utilising the mature trees in residential plots to the south, east and west of the site. The extent of disturbance should be reduced where possible by employing a sensitive lighting scheme during construction works, and artificial security lighting should not be installed post construction; particularly along the southern, eastern and western elevations to prevent the obstruction of commuting lines and foraging habitat.	During and Post Construction

7.2 Roosting bats

Roosting Bats	Timing
Recommendations	
The building was assessed to provide low potential roosting habitat for crevice dwelling bat species because it contained PRFs within the external construction. According to BCT Guidelines, this means that a single dusk emergence or dawn re-entry survey should be undertaken during the peak activity season. This information is required to understand the implications of the development works on local bat populations, and potentially develop appropriate mitigation and enhancement.	Single survey to be undertaken during the peak activity season, May - August.
Enhancement Prescriptions	
In light of the need for additional surveys, enhancement prescriptions would be set out within a Bat Emergence Survey Report as a separate document.	

Appendix 1. General References

Bat Conservation Trust's '*Good Practice Survey Guidelines*' (Rev 2012).

Bell, S. McGillivary, D. (2006) *Environmental Law*. 6th ed. Oxford University Press.

Byron, H (2000) *Biodiversity and Environmental Impact Assessment: A Good Practice Guide for Road Schemes*. The RSPB, WWF-UK, English Nature and the Wildlife Trusts, Sandy.

Collins, J (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines, (3rd edition), Bat Conservation Trust, London

Gilbert G, Gibbons DW, Evans J. (1998) *Bird Monitoring Methods: Breeding Bird Survey* (pages 389-393). RSPB.

Harris S, Cresswell P and Jefferies D (1989). *Surveying Badgers*.

Mitchell-Jones A.J. McLeish, A.P. (2004) *Bat Workers Manual* (3rd Edition). Joint Nature Conservation Committee.

Mitchell-Jones A.J. *Bat Mitigation Guidelines* 2004. English Nature.

Sutherland, W.J. (1996) *Ecological Census Techniques*. Cambridge University Press.

Treweek, J. (1999) *Ecological Impact Assessment*. Blackwell Science.

Williams, C. (2010) *Biodiversity for Low and Zero Carbon Buildings, A Technical Guide for New Build*. Riba Publishing.

Appendix 2. Legislation and Guidance Sources

Articles of British wildlife and countryside legislation, policy guidance and both Local and National Biodiversity Action Plans (BAPs) are referred to. The articles of legislation are:

- The Wildlife and Countryside Act 1981 (as amended)
- The Conservation of Habitats and Species Regulations 2010 (as amended)
- Department for Communities and Local Government. National Planning Policy Framework. March 2012
- EC Council Directive on the Conservation of Wild Birds 79/409/EEC
- National Parks and Access to the Countryside Act 1949
- The Protection of Badgers Act 1992
- Land Drainage Act 1991
- The Countryside and Rights of Way Act 2000
- The Natural Environment and Rural Communities Act 2006
- The United Kingdom Biodiversity Action Plan 2006
- Hedgerow Regulations 1997
- Town and Country Planning Act 1990
- Local Biodiversity Action Plan (LBAP).

Appendix 3. Legislation, Guidance and Methodology in relation to Potential Constraints

Legislation, Guidance and Methodology

Birds
All nesting birds are protected under the Wildlife and Countryside Act 1981, which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition, for species listed on Schedule 1 of the Wildlife and Countryside Act 1981 it is an offence to intentionally or recklessly cause disturbance at, on or near an 'active' nest.

The bird breeding season is typically accepted to start in February and continue through until August, however breeding birds can be found all year round depending on the given species and climatic conditions.

A sites habitat composition, locality, association to designated sites as well as current usage and management are all considered in the decision as to whether further bird related surveys are required. In addition, surveys may be recommended based on incidental bird records collected during a Preliminary Ecological Appraisal, species identified within an ecological data search or target species listed within a local biodiversity action plan.

Bird surveys are carried out in accordance with:
Gilbert G, Gibbons DW, Evans J. (1998) *Bird Monitoring Methods*. RSPB.

Survey Timing
Breeding Bird surveys (BBS): Four visits, evenly spaced between mid-April and mid-June. The standard BBS methodology may require amendment based on climate and weather conditions, the complexity of habitats within a site, the perceived ecological interest of a site and the extent of the survey area.

Wintering Bird surveys (WBS): Four visits, evenly spaced between October and February. The standard WBS methodology may require amendment based on climate and weather conditions, the complexity of habitats within a site, the perceived ecological interest of a site and the extent of the survey area.

Species Specific Surveys: Certain species owing to their migration patterns, habitat requirements, nocturnal habits and other ecological behaviours should be surveyed as per their given methodologies stated within Gilbert, G. et al (1998).

Roosting Bats
All bats in the United Kingdom and their habitats are fully protected under the Wildlife and Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations 2010 (as amended).

It is an offence to damage or destroy any bat roost, intentionally or recklessly obstruct a bat roost, deliberately, intentionally or recklessly disturb a bat or intentionally kill, injure or take any bat.
Areas of concern; can be encountered in many types of structure and care should therefore be taken when undertaking maintenance or demolition of suitable structures and trees.

Site assessments of buildings, commuting and foraging habitat and trees are undertaken in accordance with:

Collins, J (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines, (3rd edition), Bat Conservation Trust, London

Preliminary Ecological Surveys look for evidence of bat presence such as feeding remains, bat droppings, roosting individuals and staining around potential access points.

The suitability of site features were also assessed because absence of bat evidence, is not confirmation of a negative result. Within buildings these features include suitable enclosed spaces such as slipped or missing roof tiles, gaps and cracks in brickwork, enclosed roof voids, accessibility into wall spaces, gaps along ridge rafters, joints in roof beams and the presence of suitable soffits and fascias.

Within tree features searched for include; natural holes, woodpecker holes, cracks/splits in major limbs, loose bark, hollows, and dense cover of ivy over the tree.

If evidence is found, or a building supports features conducive to supporting roosting bats then further presence / absence bat surveys and/or roost characterisation surveys are recommended.

Survey Timing:
Preliminary Ecological Appraisals can be undertaken throughout the year.

Presence /absence surveys and roost characterisation surveys are undertaken during the bat activity season between **May and September** (Specific timings are relative to the suitability of a structure for supporting protected species and weather dependent)

Bat Activity Transect surveys are carried out between **April and October (**weather dependent)

Hibernation surveys are carried out from **November to March**.

Guideline for assessing the suitability of a structure to support roosting habitat (Buildings and Trees), amended from Collins, J (2016).

Category	Description of roosting habitat	Number of presence / absence surveys required
No Potential	The building is wholly unsuitable for a bat roost.	None

Negligible Potential	Suitable cavities may exist but these are open to wind, rain or disturbance.	None
Low Potential	This category describes a structure with one or more potential roost sites that could be used by individual bats opportunistically, that less than ideal in some way. For example, the feature may be subject to intermittent disturbance, and does not provide enough shelter, conditions* space and/or suitable surrounding habitat (e.g unlikely to support a maternity or hibernation roost). This category described a tree of sufficient size and age to support rooting bats, but with no features observed from the ground, or the features only have a limited potential to support roosting bats.	One survey between May and August Trees – No further surveys required
Moderate Potential	This category describes a structure or tree considered to have one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions* and surrounding habitat but are unlikely to support a roost of high conservation status (With regard to roost type only – assessments are made irrespective of species conservation status, which is established after presence is confirmed) Features considered to have adequate potential would include cavities of appropriate dimensions that are generally free from disturbance and free from fluctuations in the weather.	Two surveys between May and September (with at least one survey undertaken between May and August) One Dusk emergence and One Dawn re-entry survey to be ideally undertaken at least two weeks apart.
High Potential	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions* and surrounding habitat.	Three surveys between May and September (with at least two surveys undertaken between May and August) One Dusk emergence and One Dawn re-entry survey to be undertaken. The third survey can be either Dusk or Dawn. The surveys should ideally be undertaken at least two weeks apart.

Confirmed	This category is where positive evidence of bats has been recorded. For example, bats are found; bat droppings may be present at a suitable location for roosting bats; existing bat records may be associated with the structure.	Three surveys between May and September (with at least two surveys undertaken between May and August) One Dusk emergence and One Dawn re-entry survey to be undertaken. The third survey can be either Dusk or Dawn. The surveys should be undertaken at least two weeks apart.

(in this context conditions refers to the level of disturbance, light, height above ground, temperature, and humidity etc)*

If bats are discovered emerging or re-entering any structure, the survey schedule should be appropriately adjusted to increase the survey effort so that sufficient information for roost characterisation can be collected to advise the planning application or EPS development license.

Foraging and Commuting bats

Habitat features on site were assessed for their suitability to support foraging and commuting bat populations. This assessment was independent from the suitability of the site to support roosting bats, and provides information on the likeness of bat foraging activity within the local environment, and the dependence of individuals on these features for commuting to alternative roosting sites, foraging and migration..

Potential suitability of foraging and commuting habitat within an application boundary. Features should be assessed following this guide and professional judgement. Adapted from Collins J (2016)

Category	Description of commuting and foraging habitat	Survey effort to establish the value of commuting and foraging habitat**
Negligible Potential	Negligible habitat features on site likely to be used by commuting or foraging bats	None
Low Potential	Habitat which could be used by low numbers of commuting bats such as an isolated gappy hedgerow, or an unvegetated stream unconnected to suitable habitat in the wider environment. Suitable, yet isolated habitat that could be used by foraging bats such as individual trees, or a patch of scrub.	**Transect /spot count/ timed search survey:** One survey visit per season: Spring- April/ May Summer- June/July/ Aug Autumn – Sept/ Oct In weather conditions conducive to finding bats **AND**

		Static automated surveys: One location per transect, over a five-night period, per season: Spring- April/ May Summer- June/July/ Aug Autumn – Sept/ Oct In weather conditions conducive to finding bats *Further survey may be required if surveys reveal higher activity than predicted from habitat alone*
Moderate Potential	Continuous habitat connected to the wider landscape that could be used by commuting bats, notably tree lines, hedgerows or linked back gardens. Habitat that is connected to the wider landscape which could be used by bats for foraging such as trees, open water, scrub or grassland.	**Transect /spot count/ timed search survey** One survey visit per month (April to October) In weather conditions conducive to finding bats At least one survey should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period. **AND** **Static automated surveys:** Two locations per transect, over a five-night period, per month (April to October) In weather conditions conducive to finding bats
High Potential	Continuous, High-quality habitat that is well connected to the wider landscape which is considered to be highly conducive to commuting bats including river valleys, stream, hedgerows, and woodland edge High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland,	Transect /spot count/ timed search survey Up to two survey visit per month (April to October) In weather conditions conducive to finding bats At least one survey should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period.

	tree lined watercourses, and grazed parkland. Site is close to and connected to known roosts.	**AND** **Static automated surveys:** Three locations per transect, over a five-night period, per month (April to October) In weather conditions conducive to finding bats

*(** This is only a guide for survey effort required, the complexity of the site and the proposed disturbance / loss of features will determine the extent of works required on a site by site basis).*

Noxious Weeds

Japanese Knotweed (*Fallopia japonica*) and Giant Hogweed (*Heracleum mantegazzianum*) are classified as noxious weeds under Part II of Schedule 9 of the Wildlife and Countryside act 1981. Any person who causes these species to grow or spread in the wild by dumping or other means is guilty of an offence. The plant and the soil these species are found growing in are classified as waste material and should be treated as such. Ragwort (*Senicio jacobaea*) is another species which requires control along with other weeds such as Spear thistle (*Cirsium vulgare*),
Creeping or field thistle *(Cirsium arvense*), Curled dock (*Rumex crispus*), Broad leaved dock (*Rumex obtusifolius*).
These species are usually found on disturbed sites such as river banks and derelict sites.
A simple walk over survey of the site to determine if these species are present is carried out during the Ecological Appraisal.

Ecological Enhancement

In March 2012 the Department for Communities and Local Government published the National Planning Policy Framework. This sets out planning policies on protection of biodiversity through the planning system. The document states - *opportunities to incorporate biodiversity in and around developments should be encouraged*.
Usually when reviewing how ecological enhancements can be implemented the Local Biodiversity Action Plan for the area is considered.

For new buildings guidance such as in the following will be used:
Williams, C. (2010) *Biodiversity for Low and Zero Carbon Buildings, A Technical Guide for New Build*. Riba Publishing.

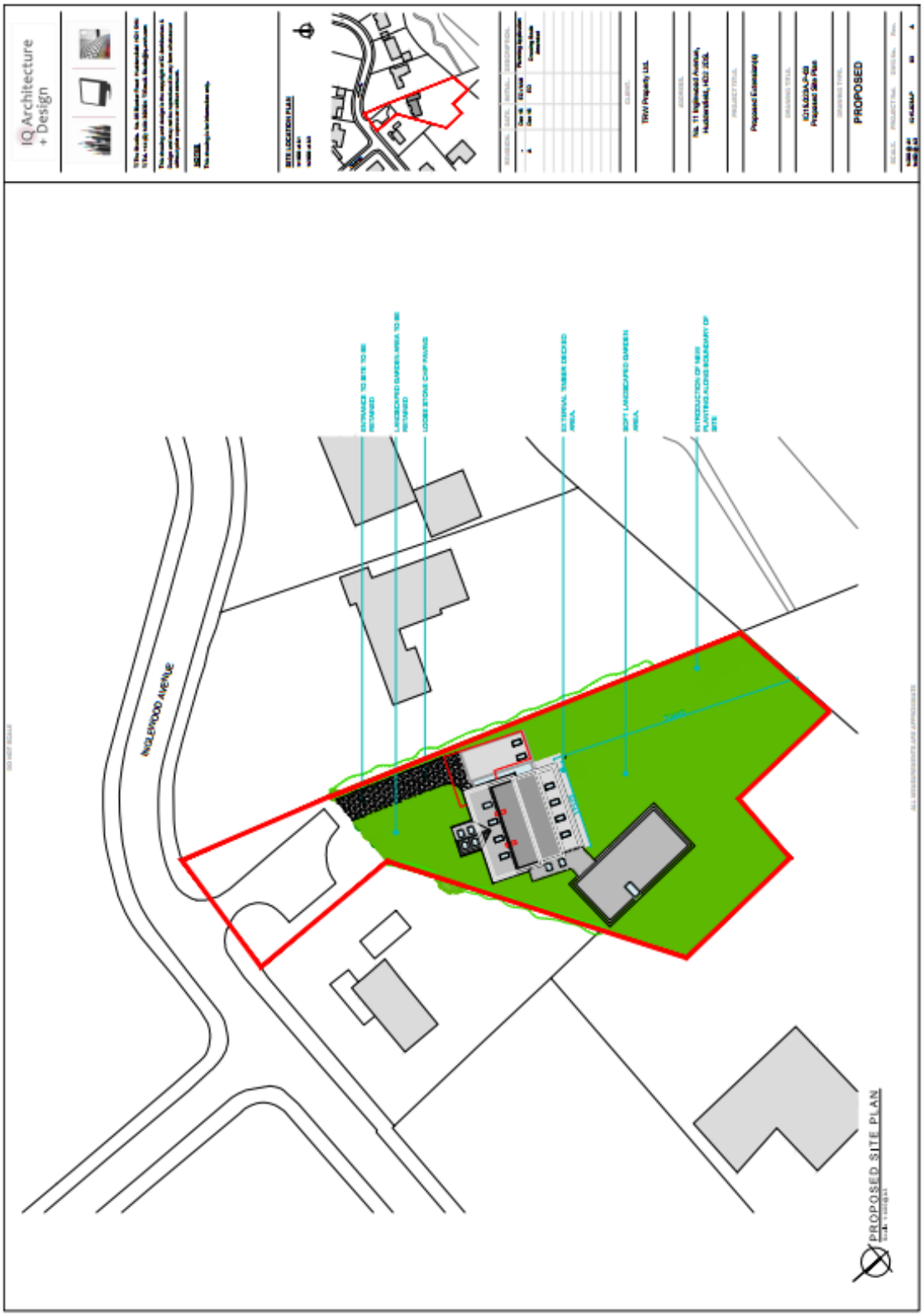
Designated Protected Areas

Designated areas are Sites of Special Scientific Interest (SSSI) while others have been designated as having European protection status. Local authorities can also

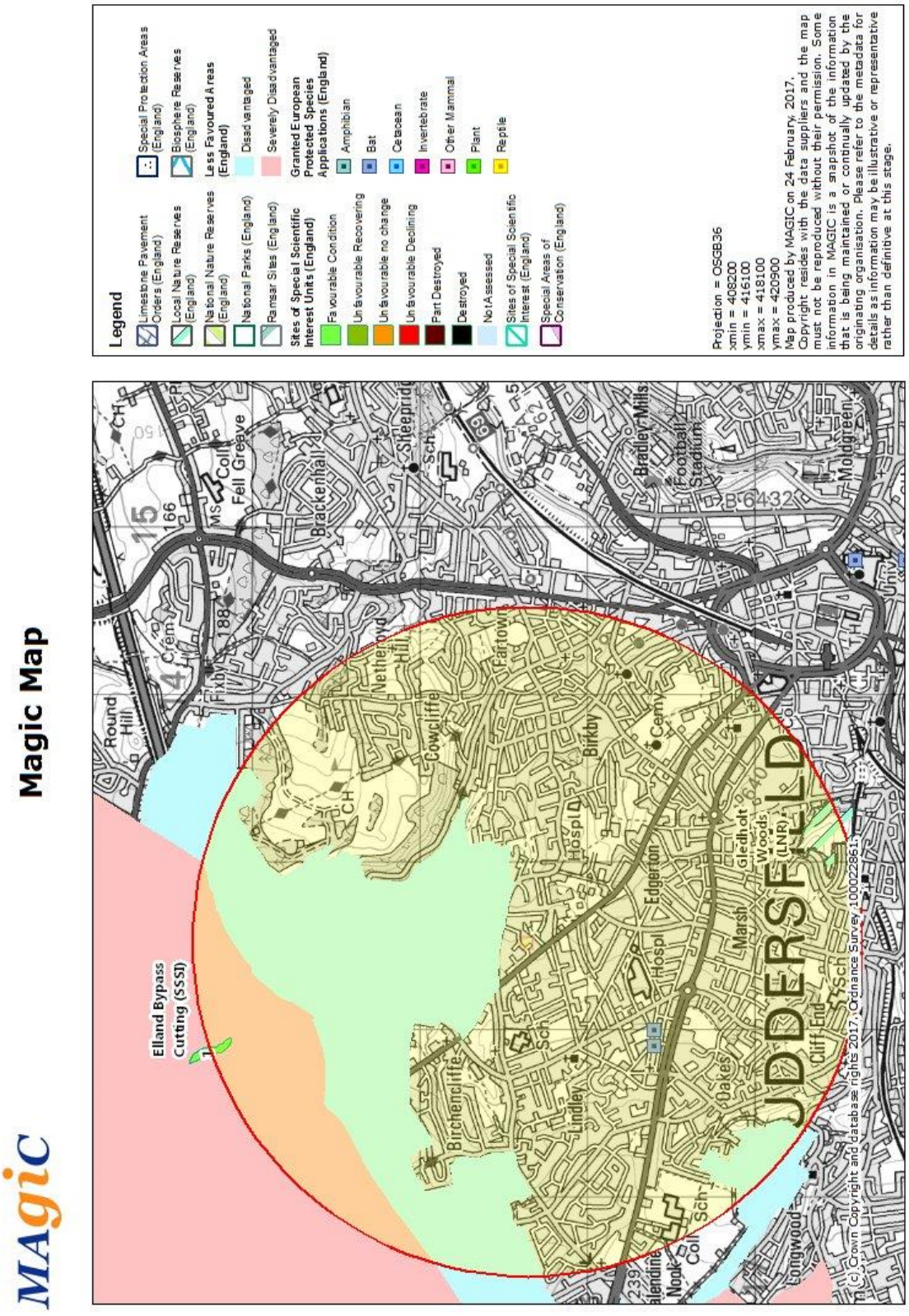
designate areas for nature conservation and in doing so may impose local authority byelaws to support local nature conservation objectives.
European designated status includes Special Protection Areas (SPAs) that preserve areas for birds and Special Areas of Conservation (SACs) which provides protection for habitats and the species which these habitats supports. Laws stipulate that SSSIs, SPAs and SACs have to be maintained in a 'favourable condition' which requires efforts to preventing any potential impacts to these sites.

Information of Designated Protected Areas is received through Ecological Data Searches and Magic Map searches.

Appendix 4. Proposed Plans



Appendix 5. MAGIC



Site Check Report Report generated on Fri Feb 24 2017
You selected the location: Centroid Grid Ref: SE125183
The following features have been found in your search area:
Granted European Protected Species Applications (England)
Case reference of granted application
EPSM2012-5292
Species group to which licence relates
Bat
Species on the licence
C-PIP
Site county of licence
South Yorkshire
Licence Start Date
02/01/2013
Licence End Date
01/12/2014
Does licence impact on a breeding site
N
Does licence allow damage of breeding site
Does licence allow damage of a resting place
Does licence allow destruction of breeding site
N
Does licence allow destruction of a resting place
Y
Does licence impact on a hibernation site
Unknown
NERC agreement reference
Unknown
Case reference of granted application
EPSM2009-1162
Species group to which licence relates
Bat
Species on the licence
C-PIP
Site county of licence
West Yorkshire
Licence Start Date
18/09/2009
Licence End Date
17/09/2011
Does licence impact on a breeding site
N
Does licence allow damage of breeding site
Does licence allow damage of a resting place
Does licence allow destruction of breeding site
N
Does licence allow destruction of a resting place
Y
Does licence impact on a hibernation site
Unknown
NERC agreement reference
Unknown
Local Nature Reserves (England) - points
Reference
1421558
Name
GLEDHOLT WOODS
Hectares
9.44
Hyperlink
http://www.lnr.naturalengland.org.uk/special/lnr/lnr_details.asp?themeid=1421558
Local Nature Reserves (England)
Reference
1421558
Name
GLEDHOLT WOODS
Hectares

9.44
Hyperlink
http://www.lnr.naturalengland.org.uk/special/lnr/lnr_details.asp?themeid=1421558
Sites of Special Scientific Interest Units (England) - points
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ELLAND BYPASS CUTTING
Reference
1044237
Site Unit Condition
FAVOURABLE
Citation
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Hectares
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Hyperlink
http://designatedsites.naturalengland.org.uk/UnitDetail.aspx?UnitId=1001171
Sites of Special Scientific Interest Units (England)
Name
ELLAND BYPASS CUTTING
Reference
1044237
Site Unit Condition
FAVOURABLE
Citation
1001171
Hectares
1.09
Hyperlink
http://designatedsites.naturalengland.org.uk/UnitDetail.aspx?UnitId=1001171
Sites of Special Scientific Interest (England) - points
Name
Elland Bypass Cutting SSSI
Reference
1004051
Natural England Contact
ANDREW BRIDGE
Natural England Phone Number
0845 600 3078
Hectares
1.09
Citation
1003352
Hyperlink
http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1003352
Sites of Special Scientific Interest (England)
Name
Elland Bypass Cutting SSSI
Reference
1004051
Natural England Contact
ANDREW BRIDGE
Natural England Phone Number
0845 600 3078
Hectares
1.09
Citation
1003352
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http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1003352
Less Favoured Areas (England)
Reference
S
Hectares
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Type
Severely Disadvantaged
Reference

D
Hectares
31.8453
Type
Disadvantaged
Reference
D
Hectares
303.6088
Type
Disadvantaged
Areas of Outstanding Natural Beauty (England)
No Features found
Limestone Pavement Orders (England)
No Features found
National Nature Reserves (England) - points
No Features found
National Nature Reserves (England)
No Features found
National Parks (England)
No Features found
Ramsar Sites (England) - points
No Features found
Ramsar Sites (England)
No Features found
Special Areas of Conservation (England) - points
No Features found
Special Areas of Conservation (England)
No Features found
Special Protection Areas (England) - points
No Features found
Special Protection Areas (England)
No Features found
Biosphere Reserves (England) - points
No Features found
Biosphere Reserves (England)
No Features found

Appendix 6. Ecological Data Search Information

A data search of local records was not requested for this project.