Thurnscoe Housing Renewal

Thurnscoe, Barnsley

Ecological Impact Assessment

October 2009

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1.0 INTRODUCTION

SLR Consulting Limited (SLR) has been commissioned by Keepmoat Housing Ltd to undertake an ecological impact assessment (EclA) of a proposed housing development site at Thurnscoe, Barnsley to accompany a planning application.

This report describes the ecological conditions at the application site and the surrounding area. It assesses the potential impacts that the proposed development could have upon the flora and fauna and details appropriate mitigation measures required to reduce, compensate or avoid these impacts.

The approach to the ecological assessment has been undertaken as follows:

- definition of the existing ecological conditions of the application site and the surrounding area, including a review of the application site and the area in its local and regional ecological context;
- determination of the existing ecological value of the application site and surrounding areas;

- identification of the potential ecological effects of the development;
- identification of mitigation measures for any adverse ecological effects;
- demonstration that these activities will meet the legal requirements relating to species and habitats; and

- assessment of the significance of any residual ecological effects, *i.e.* those still remaining following mitigation.

In assessing the effects of any development it is necessary to define the areas of land cover and the species that need to be considered. This needs to have been determined after careful consideration of the direct and indirect impacts associated with the proposed development and the potential effects on flora and fauna that may be associated with these impacts. The focus of an ecological assessment should be those species (or communities of species) that are considered 'important'.

1.1 Area of Study

An extended Phase I habitat survey was undertaken for the entire area within the application site boundary and the immediate surrounding area. The boundary for the application site is illustrated on Drawing 1.

2.0 METHODS

2.1 Guidance and Industry Good Practice

The ecological impact assessment will be completed in accordance with the *Guidelines for Baseline Ecological Assessment* (IEA 1995), and the *Guidelines for Ecological Impact Assessment in the UK* (IEEM 2006)[1]. The assessment will only assess the effects of the ecological impacts identified upon the identified ecological receptors. All other impacts are not considered to be significant.

2.2 Desk Top Data Search

Information on statutory and non-statutory sites and the presence of protected species within and near the application site has been obtained from Natural England's 'Nature on the map' website[2]. Information pertaining to the presence of protected and notable species in and around the application site was sought from the National Biodiversity Network (NBN)[3] online search engine. Designated sites are shown on Drawing 2.

2.3 Extended Phase I Habitat Survey

An extended Phase I habitat survey of the application site was undertaken on 15th October 2009. The application site and adjacent habitats were also inspected for their value for protected or rare species, including those species protected under UK[4] and European legislation[5]. The collection of baseline data, evaluation of species and habitats and assessment of impacts follows those guidelines set out by the Institute of Ecology and Environmental Management (IEEM)[6].

2.4 Bat Survey

A limited level of bat survey was carried out at the application site, in accordance with the recently published guidelines from the Bat Conservation Trust (BCT)[7]. The remaining houses in the application site were subject to daylight external assessment to evaluate their potential to support roosting bats and to record any field signs which would indicate the presence of roosting bats, such as droppings, urine staining, greasy marks from fur or scratch marks around roost access points. In addition, features which would be suitable to support roosting bats at each of the buildings were also identified and recorded, such as hanging tiles, lead flashing, lifted or missing tiles, soffit boxes, over hanging eaves etc.

All trees with a diameter at breast height (DBH) were surveyed for evidence of use by bats. Field signs indicating the presence of bats were searched for from the ground using high-powered binoculars. The features and field signs within trees that can support or are characteristic of bat roosts include cracks and splits, loose bark, woodpecker holes, bat droppings, urine staining and staining around entry points.

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[1] Institute of Ecology and Environmental Management (2006) *Guidelines for Ecological Impact Assessment*

[2] www.natureonthemap.org.uk

[3] www.nbn.org.uk

[4] i.e. protected under the Wildlife and Countryside Act 1981 (as amended), the Badgers Act 1992, the Countryside and Rights of Way Act (CROW) 2000

[5] i.e. protected by the Conservation (Natural Habitats &c.) Regulations 1994

[6] Institute of Ecology and Environmental Management (2006) *Guidelines for Ecological Impact Assessment in the United Kingdom*

[7] Bat Conservation Trust *'Bat Surveys Good Practice Guidelines'*. 2007. Bat Conservation Trust, London

Following survey, each tree was categorised according to its potential to support roosting bats using Bat Conservation Trusts guidelines[8], into one of four categories; 1 – confirmed bat roost, 2a – high potential to support bats, 2b – some potential to support bats and 3 – low potential to support bats.

2.5 Ecological Impact Assessment

The information obtained has been used in undertaking an assessment of the value of ecological features or receptors within the zone of influence of the application site. Once these receptors have been assigned a value, further assessments are made to identify the range of potential impacts that may arise and the magnitude of these impacts. Following guidelines set out by the IEEM (2006), the significance of the impacts are evaluated through careful consideration of the magnitude of the impacts and the sensitivity and value of a site subject of those impacts.

2.6 Constraints to the Ecological Survey

The survey did not seek to identify all species of flora within the application site and as such, this report does not provide an exhaustive list of flora found within the application site. However, it is considered that the survey results are representative of the habitats and flora of the application site, and include the dominant and characteristic species.

Lack of evidence of a protected species does not necessarily preclude their being present at a later date. Specific faunal surveys were not undertaken and only a brief assessment of habitats and their suitability to support protected and notable species was undertaken.

The above limitations are considered to be minor and it is unlikely that additional baseline survey of the site would materially alter the conclusions of this assessment based on the layout of the development as currently proposed.

[8] Bat Conservation Trust (2007). *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust, London. Page 65.

3.0 BASELINE CONDITIONS

Drawing 2 shows the distribution of habitats within the application site, summaries of which are provided below. Detailed descriptions, in the form of target notes, are shown in Appendix 1.

3.1 Habitats

The application site is dominated in the north by an arable field and in the south by a partially demolished housing estate. The area of arable field within the application site is part of a much larger arable field which extends to the north and west. The eastern boundary of the application site is marked by a railway line which connects Rotherham with Pontefract. To the south of the application site is residential development.

The arable field has recently been sown with a winter crop (TN1). The crop extends almost to the edges of the field boundary with no features such as cereal field margins, hedgerows or banks present. In the south west corner of the arable field an area of rough grassland has established and remains unmanaged, dominated by a rank sward of arable grasses such as perennial rye grass (*Lolium perenne*). Along the western and southern boundaries of the field are drainage ditches which were largely dry and clogged with ruderal and scrub vegetation as well as fly tipped waste (TN2 & TN4). The very eastern end of the ditch along the southern boundary was holding water at the time of survey, but also was clogged with fly tipped waste.

The southern section of the application site comprises a housing estate which has largely been demolished (TN7). Approximately 5 of the houses left standing are currently occupied, whilst the remainder of standing houses have been boarded up. In areas where the houses have been cleared, the ground is either bare or has recolonised with ruderal vegetation including nettle (*Urtica dioica*), spearthistle (*Cirsium vulgare*), hedge mustard (*Sisymbrium officinale*), clover (*Trifolium repens*) and smooth sow thistle (*Sonchus oleraceus*) or rank grassland dominated by cock's-foot (*Dactylus glomerata*) or false oat grass (*Arrhenatherum elatium*). A small area where blocks of flats formerly stood appears to have been seeded with a garden flower mix and supports cultivars of poppy (*Papaver* sp.), cornflower (*Leucanthemum* sp.) and Asteraceae (TN6). East of the housing estate is an area of overgrown species poor semi-improved grassland (TN5), which is dominated in places by ruderal vegetation including oil seed rape (*Brassica napus* var *Oleifera*) and butterfly bush (*Buddleja davidii*).

3.2 Flora

No notable, rare or legally protected species were recorded from the application site during the extended Phase I survey.

No pest species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (WCA 1981), were recorded from within the application site during the extended Phase I survey.

3.3 Fauna

Habitats within the application site have the potential to support certain faunal groups, including protected and notable species, which are discussed in more detail below.

3.3.1 Mammals

Bats

No records for any bat species from within the site or a 2km search area around the site exist on the NBN gateway. Daubenton's (*Myotis daubentoni*), common pipistrelle (*Pipistrellus pipistrellus*) and Leislers (*Nyctalus leisleri*) have all been recorded within the 10km grid square in which the application site is situated.

No bats or evidence of the presence of bats was recorded from the buildings or trees within the application site during the surveys.

The buildings within the application site are all residential properties in varying stages of disrepair. These buildings all have clay tiled pitched roofs which contain an enclosed loft void. All houses had some tiles which were lifted or slipped and the soffits at the gable ends of all properties had gaps behind between the soffit and the walls. Some vacated and boarded properties have been subject to vandalism and the thefts of lead flashing from the roofs has created large gaps where roofing tiles have slipped. Those properties which are still occupied are likely to be heated.

All trees within the application site were categorised as cat 3 trees, meaning that they supported little or no features suitable for roosting bats. Generally the trees present within the site were planted formerly for amenity values and comprise of Leyland Cypress, bird cherry and silver birch, all of which are in good health and are generally not fully mature.

The application site supports short stretches of trees and hedgerows at the western and southern edges of the arable field, although these stretches of mature vegetation are not continuous. There are no well defined habitat linkages across this application site. The railway line to the east of the application site supports dense scrub vegetation on both sides of the track along the entire length of the railway line at the eastern boundary, which could be used by commuting bats.

Badger

Badger (*Meles meles*) has been recorded within the 10km grid square in which the application site is situated, with reference to the records held by the NBN gateway.

No signs of badgers were recorded during the survey. With the exception of the short stretches of hedgerow habitat, there are no habitats within the site which would typically be associated with badgers. No evidence, such as well worn paths, latrines, snuffle holes or setts, was found within the site during the survey. No access was possible to the banks adjacent to the railway line for survey. These banks are heavily fenced along the entire eastern boundary of the application site. No push through's under this fence line are present into the application site.

Water Vole

Water vole (*Arvicola terrestris*) has been recorded approximately 3km to the south of the application site, according to records held by the NBN gateway. The location of this record is south of a large area of residential development in the south of Thurnscoe and as such is well separated from the site.

No evidence of the presence of water voles was recorded within the application site during the survey. The ditches present within the site are agricultural drainage ditches and are heavily clogged with vegetation and fly tipped waste.

Other Mammals

Otter (*Lutra lutra*) has been recorded 9km to the west of the application site, according to records held by the NBN gateway. The application site does not support any habitats typically associated with otter, nor are there any suitable habitats within 100m of the boundary of the application site.

No evidence of any other protected or notable mammals was observed within the application site during the survey.

Brown rat (*Rattus norvegicus*) was recorded foraging on the southern edge of the arable field at TN2.

3.3.2 Birds

No specific records for nesting birds were obtained from the NBN gateway.

Flocks of up to 50 crows (*Corvus corone corone*) and 100 starling (*Sturnus vulgaris*) were recorded from the arable field at TN1. Blue tit (*Parus caerulus*), wren (*Troglodytes troglodytes*) and magpie (*Pica pica*) were recorded from the vegetation along the southern edge of the arable field (TN2).

Vegetation suitable for nesting within the site is limited to the hedgerows and trees on the western and southern boundaries of the arable field and the trees at the southern boundary of the grassland area at TN5.

3.3.3 Amphibians

A single record of a great crested newt located 4km south east of the site exists within the records held by the NBN gateway.

No great crested newts or other amphibians were recorded within the application site during the survey. A single area which held water at the time of survey, located at the very eastern end of the arable drainage ditch was present within the application site. The water in this ditch is heavily clogged with fly tipped waste, with a dense covering of duckweed (*Lemna minor*). No other waterbodies are present within the application site, nor within the surrounding land (with reference to aerial photographs).

3.3.4 Reptiles

A single record for grass snake (*Natrix natrix*) located 1km south of the application site, according to records held by the NBN gateway.

No reptiles were recorded within the application site. The grassland habitat present at TN5 is rank and varied in structure, with scrub patches and open areas of ground which could be utilised by reptiles if they are present in the local area.

3.3.5 Other Fauna

There was no evidence of the presence of any other protected or notable species within the application site other than those mentioned above.

3.4 Baseline Conditions – Designated Sites

No statutory or non-statutory designated sites are present within 2km of the application site. The closest Site Special Scientific Interest (SSSI) is Bilham Sand Pits located 2.1km to the

east of the application site, although this site is designated for its geological value. The closest statutory site designated for is biodiversity interests is Denaby Ings SSSI located 5km to the south east of the application site. This site supports extensive areas of water meadows, reed swamp and neutral grassland and is notable for supporting breeding birds and a wide range of invertebrates. The closest non-statutory site is West Haigh Wood Local Nature Reserve (LNR), located 5km north-west of the application site, which is an area of ancient birch and sessile oak woodland.

A single site recognised for is nature conservation value is present within 2km of the site. Phoenix Park Country Park is located 500m to the south east and is a community park managed by the Forestry Commission. The park comprises largely of open grassland and woodland planted on the site of a former colliery slag heap. This site is notable for its amenity value and educational use.

No other non-statutory designated sites are known to occur within the vicinity of the application site.

3.5 Predicted Trends

In the absence of the proposed development, it is considered likely that the present management would continue and the communities present would be unlikely to change. However, if land management was to cease, it is predicted that the application site would continue to develop through natural succession into climax vegetation communities typical of the prevailing local geological, climatic and hydrological conditions and the buildings within the housing estate would continue to fall into greater states of disrepair.

4.0 NATURE CONSERVATION EVALUATION

To evaluate the significance of impacts from a development it is important to establish the value, or sensitivity, of the site or ecological feature upon which the effect is to occur.

4.1 Criteria

4.1.1 Geographic Frame of Reference

Recent IEEM guidelines suggest that to ensure a consistency of approach, ecological features are valued in accordance with the following scale:

- International;
- UK;
- National (i.e. England, Wales);
- Regional (e.g. North-west);
- County or Metropolitan (e.g. London, South Yorkshire);
- District (or Unitary Authority, City or Borough);
- Parish (of value in the local area);
- within immediate zone of influence only (Site value); and/or
- Less than Site value.

These categories have been applied to the features identified in the baseline surveys described previously. A further explanation of these criteria is provided in IEEM (2006).

Separate valuations are provided for designated sites, non-designated sites and species of ecological importance.

4.1.2 Designated Sites

Natural England designates sites that are of international, UK or national importance for nature conservation, such as Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites and Sites of Special Scientific Interest (SSSIs). Barnsley Metropolitan Borough Council designates sites at a county level as Local Nature Reserves (LNR).

4.1.3 Non-Designated Sites

For features that have not been designated in such a way, SLR has undertaken an evaluation based upon those guidelines suggested by the IEEM. In this way the features being evaluated are considered in the context of the site and locality and it is possible to provide a more accurate assessment of the impacts of the proposed development on these features.

4.1.4 Species

Species are evaluated based on their rarity, population size and whether they are especially important to the functioning of an ecosystem. Though they may not be protected or particularly rare, consideration is also given to those species listed in national and local BAPs.

The criteria used to determine the biodiversity value of a species or features that may support a species include the following general considerations:

- rarity at a geographical level (international, national or local);

- endemism and locally distinct varieties or sub-species;
- species on the edge of geographic range;
- size of populations in the local geographical context;
- species-rich assemblages of a larger taxonomic grouping, *e.g.* herpetofauna or wintering birds;
- plant communities, ecosystems or habitat mosaics/associations that provide habitat for any of the above species or assemblages; and
- populations of species considered as significant in a Yorkshire context, as described in the Natural Area profile, Barnsley BAP, or other relevant documents.

Legal protection of certain species is considered in a later sub-section and does not specifically form part of the biodiversity evaluation.

Tables 1 and 2 list the sites and species of ecological value within the zone of influence of the site. For the purpose of this evaluation, the zone of influence is set at 10km from the centre of the site with regards to the presence of designated sites of international importance, 2km with regards to designated sites of national, regional and county importance, and within the site and its immediate surroundings[9] for non-designated sites and species.

Table 1 - Designated features within Zone of Influence of the Application Site

Geographical Frame of Reference	Site / Feature at this Value	Location	Reason for Importance
International	None	N/A	N/A
National	None	N/A	N/A
Regional	None	N/A	N/A
County	Phoenix Park Country Park	500m SE of application site	Former colliery slag heap restored and managed for nature conservation, supporting open grassland and semi-mature woodland. Managed by Forestry Commission and used as an educational site.
Parish	None	N/A	N/A
Less than Parish	Arable field (TN1), semi *improved grassland* (TN5)	Within *application* site	Species-poor, modified fields in agricultural use with low biodiversity value. Abundance of habitat in vicinity.

[9] Within 200m of the site or 500m downstream of the site.

	Dry & wet ditches (TN2, TN4); ruderal, disturbed ground, cleared housing (TN7) and recolonising ground	Within site	Ditches with partial hedgerows, scattered scrub or ruderal vegetation are typically species-poor within limited habitat structure.

Table 2 - Rare, Protected and Notable Species within Zone of Influence of the Application Site

Geographical Frame of Reference	Site / Feature at this Value	Location	Reason for Importance
Parish	Bats (TBC)	Within application site at TN7	Potential for the remaining buildings within the application site to support roosting bats.
	Reptiles (TBC)	Within application site at TN5	Grassland habitat of suitable structure to support common species of reptiles
	Breeding birds	Within application site	Hedgerow, scrub, grassland and tree habitats within the application site with potential to support nesting birds.

4.2 Sites for Nature Conservation

A single site notable for its nature conservation interest, Phoenix Park Country Park is present 500m to the south east of the application site. This site is more widely recognised for its amenity and educational value. This site is separated from the application site by a main road, residential development and the railway line.

4.3 Habitats and Flora

Habitats within the application site comprise derelict and occupied housing, hardstanding cleared ground, arable fields, semi-improved species poor grassland, ruderal vegetation, scrub, mature trees, partial hedgerows, dry ditches and a small section of wet ditch.

The arable habitats within the site have no features such as maintained ditches or cereal field margins associated with them and therefore support a limited floral species diversity, save for ruderal weeds. The habitats within the areas of former housing are heavily disturbed as a result of the building clearance and the grassland and recolonising vegetation present in these areas reflects this with a dominance of ruderal opportunistic weeds of limited ecological value. The houses and associated gardens which remain present within the site support little in the way of semi natural habitats and flora.

The ditches, partial hedgerows and mature trees present at the boundaries of the arable field and semi improved grassland field are unmanaged and clogged with common ruderal and scrub vegetation as well as fly tipped waste.

All of the habitats within the application site are therefore considered to be of less than parish ecological significance.

4.4 Fauna

Habitats within the application site have the potential to support roosting bats. The remaining houses within the application site, although in a poor state of repair have some potential to support this faunal group, within the enclosed loft spaces of each house, under tiles and lead flashing and behind the soffits at each gable end. The application site itself supports little in the way of linear features for commuting bats or sheltered areas for foraging bats, although the railway line is well vegetated and sheltered along each side and could provide a commuting route to and from the application site. Overall it is considered that the application site as a whole supports features suitable for roosting bats and is likely to support this faunal group, although the lack of suitable linked habitats and commuting features and foraging habitats render the site to being only of up to parish value.

The grassland present at TN5 is of a sward density and structure suitable to support common species of reptile, such as grass snake and common lizard. Whilst no evidence of the presence of reptiles was recorded from this area, the grassland present suitable foraging habitat, as well as open areas suitable for basking and areas suitable for shelter including rubble piles and the base of mature trees and hedgerows species, particularly in the south of this area. The potential presence of reptiles in this area is considered to be an ecological *feature of up to parish value.*

Scrub, mature tree, hedgerow and rough grassland habitats within the application site afford suitable habitat for breeding birds. In addition, agricultural grassland provides foraging opportunities for species, such as magpie and crow. A limited number of common species have been recorded in the vicinity of the site, and it is likely that the application site is up to parish value to breeding birds.

Although standing water is present within the application site at TN4, it is considered that the high level of fly-tipped waste and lack of suitable egg laying material, as well as this waterbodies relative isolation from other similar habitats make it sub optimal to support great crested newts and it is not considered that this species is present within the application site at the present time.

No other protected or notable fauna has been recorded within the site and it is considered unlikely that this application site is important or critical for any other faunal species or groups.

4.5 Evaluation Summary

Designated sites that have been identified as potential ecological receptors within the zone of influence of the application site are outlined in Table 1. This comprises of Phoenix Park Country Park, 500m to the south east.

The principal non-designated ecological receptors that have been identified through survey within the application site are:

- bats;
- reptiles; and
- the breeding bird assemblage.

5.0 ECOLOGICAL IMPACT ASSESSMENT

5.1 Background

This section assesses the impacts arising from the proposed development of the application site at Thurnscoe, Barnsley. It describes how these impacts may adversely or positively *affect the flora and fauna of the proposed development area and its surrounding area.*

The assessment of ecological impacts follows the process described by the *IEEM (2006)*, which can be summarised as:

- identification of the range of potential impacts that may arise resulting from the proposed development;
- consideration of the systems and processes in place to avoid, reduce or mitigate the possible effects of these impacts;
- identification of the opportunity for ecological enhancement associated with the proposals;
- assessment of the residual impacts, following consideration of the success of avoidance, mitigation and enhancement measures; and
- where necessary, identification of compensation required to offset any significant residual effects.

As highlighted earlier in this section, the significance of residual impacts is assessed on three separate levels. These can be summarised as:

- impacts upon biodiversity resources;
- the consequences in terms of national and local nature conservation planning policy; and
- the legal requirements relating to species and habitats.

To assess the effects of a proposed development it is essential that the range of potential impacts that could arise is identified. The range of impacts that require consideration in the ecological impact assessment are based upon knowledge of the proposed development and knowledge of the receptors (features of ecological sensitivity). This can only be undertaken with a thorough understanding of ecological processes and how flora and fauna react to the range of impacts that could occur.

This section also outlines the mitigation and compensation measures that have been incorporated into the scheme and, where appropriate, it provides details of further mitigation or compensation measures to further reduce impacts or the effects of impacts. The final part of this section analyses the significance of the effects of this scheme following mitigation, *i.e.* the residual impacts. The significance of the residual impacts of the proposed scheme is analysed using methods outlined by the IEEM (2006).

5.2 Development

It is proposed to develop the application site into residential housing, in three distinct phases. The application site is identified within the Barnsley Unitary Development Plan as areas for 'housing proposal', with the application site identified as Housing proposal area DE1 on the proposal map for the 'Dearne Community Area'.

5.3 Identification of Potential Impacts

The following potential impacts have been identified and are discussed below:

- habitat loss, fragmentation and isolation through land-take;
- direct and indirect effects upon fauna through habitat loss, fragmentation and isolation, including effects upon protected and notable species;
- noise and visual disturbance;
- dust;
- indirect construction impacts on designated sites within the zone of influence.

5.3.1 Habitat Loss, Fragmentation and Isolation through Land-take

Habitat loss involves the direct destruction or physical take-up of vegetation, or other structures of conservation interest, such as aquatic habitats, grasslands or bare ground. Habitat loss may also occur as a result of a change in land or water management, for instance the drying-up of ditches or successional events leading to a change in habitat type.

Habitat loss can result in the direct loss of individuals or populations of plant or animal species. It may also cause other populations to become demographically unstable or unsustainable, due to loss of prey species or habitat niches.

The proposed development at Thurnscoe would result in habitat loss within the site during the site clearance. The application site measures 20ha in size, of which 10ha is arable field, 4ha is species poor semi improved grassland and 6ha is standing and demolished housing estate. All of the habitats within the site are considered to be less than parish value and therefore, removal of these habitats would constitute a negative impact on features of less than parish value.

5.3.2 Direct and Indirect Effects upon Fauna through Habitat Loss, Fragmentation & Isolation

Fragmented and isolated habitats are likely to be more vulnerable to external factors that may have a negative effect upon them *e.g.* disturbance, and may be less resilient to changes in climate and management, for example, than connected habitats because colonising species may be unable to reach the habitat.

Loss of habitat within the proposed development area comprises predominantly of disturbed and cleared buildings and hardstanding, arable fields species poor grassland. These habitats are all receptors of less than parish Value. However, these habitats have the potential to support roosting bats, reptiles and breeding birds.

The remaining houses at the application site have the potential to support roosting bats. If this faunal group is present, the loss of these houses to the development would constitute a negative impact upon a feature of up to parish value.

The semi-improved grassland at TN5 has the potential to support reptiles. If this faunal group is present, the loss of this grassland habitat to the development would constitute a negative impact upon a feature of up to parish value.

The grassland at TN5, along with the hedgerows and trees at TN2 and TN4 and the scrub at TN8 has the potential to support breeding birds and therefore the loss of these habitats would be considered to have a negative impact upon a feature of up to parish value.

The application site does not support any optimal linear features through the site which would be likely to be used by foraging and commuting bats. The sheltered, scrub lined corridor along the eastern boundary of the railway line would be unaffected by the proposed development and therefore would remain *in situ* and available for use by commuting bats, as well as reptiles and breeding birds throughout the development of the application site and this would therefore have a negligible impact upon features of up to parish value.

5.3.3 Noise and Visual Disturbance

Increased levels of noise during the development of the proposed development have the potential to adversely affect the existing wildlife within and surrounding the application site. Sensitive species, notably birds and bats, are the most likely to be affected by noise and visual disturbance. However, it is likely that wildlife within the vicinity of the site has adapted to some degree to the levels of noise and visual disturbance associated with residential development.

Some species of bird are likely to be more vulnerable to noise and visual disturbance than others. For example, an analysis of the responses of certain bird species to disturbance found that a passive, low-level and continuous disturbance is likely to lead to habituation and active, high level and continuous disturbance is likely to lead to the displacement of many bird species from the disturbed area, leaving only very tolerant species[10]. Birds will be most sensitive to noise during the breeding season (March-September). However, it is likely that the majority of birds which continue to nest within retained habitats within the site would habituate to most construction and operational disturbance.

The potential exists for roosting bats to be resident within the application site. In addition, the railway line to the east of the application site has the potential for use by commuting bats. Bats seek a low incidence of human disturbance, and noise and particularly artificial lighting could adversely affect the use of roosting places and commuting routes at the site. Artificial lighting during the construction stage will be centred on the area of construction, which would be unlikely to support roosting bats at that stage of development. In addition, no additional lighting is proposed for the railway line corridor.

Noise and visual disturbance as a result of development and construction at the site is unlikely to have a significant negative effect on ecological receptors.

5.3.4 Dust

Though dust suppression methods significantly reduce the deposition of dust in the locality they cannot eliminate it. Fugitive dust from development sites is typically deposited within 100-200m of the source; the greatest proportion of which comprise larger particles (greater than 30 microns) deposited within 100m[11]. Where large amounts of dust are deposited on

[10] Hill, D., Hockin, D., Price, D., Tucker, G., Morris, R. and Treweek, J. (1997) 'Bird Disturbance: Improving the Quality and Utility of Disturbance Research'. *Journal of Applied Ecology*, 34 (2), 275-288.

[11] Department of the Environment (1995) *The Environmental Effects of Dust from Surface Mineral Workings. Volume 1: Summary Report & Best Practice Guides.* HMSO.

vegetation over a long time scale (a full growing season for example) there may be some adverse effects upon the plants' photosynthesis, respiration and transpiration. The overall effect would be a decline in plant productivity, which may then have indirect effects on fauna. The amounts of dust deposited and its effects are also dependent upon weather conditions, as in wet weather less dust will be generated and that which has been deposited upon foliage is likely to be washed off.

The habitats currently supported by the application site comprise arable fields, heavily disturbed areas which have been cleared of housing and species poor grassland. The application site is already subject to certain levels of dust as a result of the agricultural and demolition influences at the application site.

Due to the nature and duration of the construction of the proposed development and the types of habitat present within the application site it is considered that the quantities of dust that would be generated would be insufficient to have a significant negative effect upon the surrounding vegetation.

5.3.5 Indirect Impacts to Designated Sites within the Zone of Influence

A single site of conservation value is located within 2km of the application site. Phoenix Park Country Park is well separated from the application site by residential development, a main road and the main railway line. No potential impacts have been identified and *therefore, a neutral impact on a receptor of county value is predicted.*

5.4 Identification of Predicted Impacts – Post - Construction

The following predicted post-construction impacts have been identified and are discussed in the following section:

- Noise and visual disturbance;
- Human and domestic animals;
- Pollution; and
- Habitat creation

5.4.1 Noise and Visual Disturbance

Post-construction, it is possible that the density of breeding birds may be reduced in the immediate vicinity of the site, as a result of noise and lighting disturbance in combination with other effects, e.g. habitat change. However, the level of disturbance is likely to be low level and continuous and as such, many bird species will habituate to this type of disturbance. The creation of domestic gardens and landscape planting around the development away from areas of greatest noise and visual disturbance production (ie roads) may represent an increase in nesting and foraging opportunities within the application site, which would likely result in a minor positive effect on a receptor of parish value.

5.4.2 Effects associated with human and domestic animals

Post construction, the new human residential population may have an impact, through trampling, disturbance or persecution on the flora and fauna that utilise existing semi-natural habitats. Increases in the use of the site by domestic pets, notably cats and dogs, could potentially have a negative effect upon populations of nesting birds, resident small mammals and amphibians. This could potentially be a negative effect on receptors of up to parish value. However, the application site is bordered to the west and south by residential development and as such may already be subject to the outlined effects. The development of the application site is unlikely to cause a marked increase in the magnitude of these

predicted effects and therefore no significant impacts are predicted as a result of these proposals.

5.4.3 Pollution

Following the construction of a residential development, potential pollution problems that could be encountered are largely connected to the residential occupation of the site and include nuisance tipping within the site, domestic animal faeces and accidental spillages. The application site is already subject to unauthorised fly-tipping, predominantly garden and household waste. Fly-tipping green waste may lead to the accidental importation of noxious weeds which could have a negative ecological effect. It is considered that the change in use to more intensive residential development is likely to lessen the risk of this type of pollution occurring. Post-construction, the prevention of pollution resulting from the residential use of the site is outside the control of developer and is controlled by specific legislation.

5.4.4 Habitat Creation

The re-development of the application site includes proposals to create areas of public open space as well as areas of green space. Both types of open space have the potential to provide habitats suitable for use by nesting birds, as well as sheltered commuting routes and foraging areas for bats and reptiles. Sensitive ecological led design of these areas would lead to a positive impact upon faunal species of up to parish value. The ecological led design of such areas would also likely lead to an increase in the ecological value of the habitats at the site.

6.0 MITIGATION

This sub-section outlines the measures, including avoidance, compensation and mitigation to be incorporated into the proposed development.

6.1 Mitigation and Avoidance for Protected and Notable Species

6.1.1 Bats

The potential exists for the remaining houses at the application site to be used by roosting bats. The removal of these buildings would constitute a negative impact upon this faunal group if found to be present and therefore it is recommended that these properties be subject to bat survey to recognised best practice guidelines[7] to fully evaluate the likelihood of the presence of roosting bats prior to the demolition of these buildings.

Should roosting bats be identified within the site, it may be necessary to obtain an European Protected Species (EPS) licence from Natural England, which sets out mitigation methods to safeguard this faunal group and ensure that the status of the population at the application site is maintained throughout and post development. Such a licence would be required prior to the demolition of any structures confirmed as supporting roosting bats.

6.1.2 Reptiles

The potential presence of reptiles within the grassland at TN5 has been identified. The majority of the grassland area is suitable for this faunal group, although a greater number of features suitable for basking and shelter are present in the southern part of this grassland, in proximity to the residential properties and rear gardens outside of the southern boundary of the application site. This faunal group has not been identified during the extended Phase I Habitat survey although no specific surveys for this faunal group have been carried out. If present, the removal of this habitat would constitute a negative impact upon this faunal group and therefore it is recommended that either a survey for this faunal group is carried out of this grassland prior to development, or that a suite of reasonable avoidance measures are put in place prior to the clearance of this grassland habitat, in order to safeguard any reptiles which may be present. Reasonable avoidance measures would include strimming of grassland vegetation and hand searching of rubble piles, undertaken or supervised by suitably qualified ecologists.

6.1.3 Breeding Birds

It is likely that a number of birds nest within the scrub and hedgerow habitats within the application site. Ground-nesting birds may also attempt to breed within arable land at TN1 and semi-improved grassland at TN5. The removal of such habitats whilst nesting birds are present would constitute a negative impact upon an ecological receptor of up to parish value.

To avoid destruction of any wild bird nests, any scrub, hedgerow, arable and grassland habitat would be removed outside of the breeding season (1st March to 31st July) where possible. If active bird nests are observed in any habitat scheduled for destruction, operations within that area would cease immediately and would not recommence until the breeding attempt has concluded to avoid committing an offence.

6.2 Potential Additional Enhancement Measures

This section proposes measures to enhance the biodiversity value of the application site during and post construction.

To provide additional roosting opportunities for bats and birds, it is recommended that bat and bird boxes are incorporated into the houses within the proposed development. Bat boxes or tubes should be sited in areas away from artificial lighting, ideally along the eastern boundary of the application site, at least 3m from the ground and ideally have a south or south-east-facing entrance. A variety of bird boxes could be installed around the site, preferably in areas adjacent to public open space and in locations which would not create a public nuisance as a result of bird droppings. Boxes for eaves nesting birds including house martins and swifts, sparrow terraces and small boxes for typically urban nesting species such as blue tit and wren could be erected throughout the development.

The design of the public open spaces, proposed for the eastern edge of Phase I and the central area which divides Phases 2 and 3 should be ecologically led and comprise planting schedules of native and insect attracting plants, of local provenance. The introduction of a waterbody in these areas, be it a pond or network of ditches or sections of a wider Sustainable Urban Drainage System (SUDs) through the application site, as well as mosaic of grassland, scrub and trees, would provide an additional habitat resources beneficial to invertebrates, birds, small mammals, reptiles and amphibians in the local area.

Implementation of any of these proposed enhancement measures would constitute a positive effect on ecological receptors of up to parish value within the application site. The management measures suggested here, and the installation of bat and bird boxes, may provide additional educational and local social benefits if a local community organisation is able to co-ordinate the implementation of these measures after the statutory aftercare period. These measures may also provide a positive benefit towards targets for the local biodiversity action plan (BAP).

7.0 LEGAL AND POLICY IMPLICATIONS FOR VALUED ECOLOGICAL RECEPTORS

7.1 National Policy

Guidance on national policy for nature conservation is provided by the Department of the Environment Planning Policy Statement note 9 (PPS9), published in August 2005[12]. PPS9 confirms the Government's commitment to the conservation of the natural heritage. It is mainly concerned with the protection of statutorily designated sites, including Special Areas of Conservation (SACs); National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs), but also addresses development and wildlife issues outside these statutory designations.

Planning Policy Statement 9 Biodiversity and Geological Conservation (PPS9) states that:

> *'Networks of natural habitats provide a valuable resource. They can link sites of biodiversity importance and provide routes or stepping stones for the migration, dispersal and genetic exchange of species in the wider environment. ..... Such networks should be protected from development, and, where possible strengthened by or integrated within it.'*

It also states that:

> *'The presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat...'*
>
> and
>
> *'It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted...The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted...Developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development.'*

7.2 Local Policy

Planning Policy at the local level relevant to the proposed development is provided by 'Barnsley Unitary Development Plan', (BUDP) adopted in December 2000.

Within BUDP, Policies GS15, GS16 and GS18A have direct relevance to the ecology of the proposed development of the application site.

Policy GS15 states:

> *'The council will seek to safeguard important habitats and species from any activities which would cause disturbance, pollution or other damage. All development proposals should, where appropriate, include measures to conserve*

[12] PPS9 – Planning Policy Statement 9 – Biodiversity and Geological Conservation. Office of the Deputy Prime Minster. August 2005.

and enhance existing features of nature conservation interest and to create new nature conservation areas.'

Policy GS16 States

'Development likely to have an adverse effect, either directly or indirectly, on the conservation value of a national nature reserve or site of special scientific interest or any habitat or species protected by law, will only be permitted if it can be demonstrated that other material considerations outweigh the special interest of the site'.

Policy GS18a states:

'Where the council considers development may have an adverse effect on nature conservation interests it may require the applicant to provide an appropriate evaluation of the impact of the development prior to any planning decision.'

7.3 Discussion of Planning Policy

No potential impacts upon statutory designations have been identified and therefore these policies are not considered in any further detail.

The habitats present within the application site are all considered to be of less than parish value. No habitats of nature conservation value or defined wildlife corridors are currently present within the site and therefore there are no such features to be lost to this development. The development proposals include provision of open green space which links through the development to create a green corridor through the development. In addition, the eastern boundary of the application site would be subject to additional tree planting to strengthen this corridor. The development proposals therefore seek to enhance and create wildlife corridors though the application site, in line with national and local planning policy.

The potential presence of bats and reptiles within the application site has been identified and further survey and mitigation recommended for these species, along with mitigation measures for the presence of nesting birds within the site have been recommended. This assessment has not identified any potentially significant adverse impacts on protected or notable species provided implementation of appropriate mitigation and avoidance measures, where required, are undertaken to ensure that any potential adverse effects are minimised. Further survey work for bats and potentially for reptiles has been recommended in line with Policy G18a of local planning policy and national planning policy.

7.4 Legal Implications for Protected Species and Sites

No impacts upon any protected sites have been identified as a result of the proposed development at the site and therefore there are no legal implications in relation to protected sites.

With the exception of nesting birds, no other specially protected species were recorded within the proposed development area during the Phase I survey.

Information relating to bats and reptiles is included here for information, should such species be recorded within the application site as a result of future surveys, alongside the legal information pertaining to nesting birds.

7.4.1 Bats

All species of bat within the UK are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation (habitats &c.) Regulations 1994 (as amended). As such it is an offence to deliberately kill, injure or take a bat; deliberately disturb a bat in such a way as to be likely significantly to affect the ability of any significant group of bats to survive, breed, or rear or nurture their young, or the local distribution or abundance of that species; damage or destroy a breeding or resting site of a bat; intentionally or recklessly damage, destroy or obstruct access to a place that bats use for shelter or protection; and intentionally or recklessly disturb a bat whilst it is occupying a place which it uses for shelter or protection.

7.4.2 Reptiles

All UK native reptiles are afforded protection under Section 9(1) and 9(5) of the Wildlife & Countryside Act 1981 (as amended by the CROW Act 2000) and as such it is an offence to intentionally kill or injure native species of reptile or sell or transport for sale etc. any native species of reptile.

7.4.3 Nesting Birds

Section 1, Part I of the WCA 1981 makes it an offence (with certain limited exceptions and in the absence of a licence) intentionally to kill, injure or take any wild bird, or intentionally to damage, take or destroy its nest whilst it is being built or is in use, or to take or destroy its eggs. It is also an offence to possess any live or dead wild bird or egg, or anything derived from a wild bird or egg. Further, the Act affords additional protection to specific species of birds listed in Schedule 1 of the Act, including peregrine. These species are also protected from disturbance whilst breeding.

Under section 16 of the Wildlife and Countryside Act 1981, licences may be issued, providing certain conditions are met, derogating from the protection afforded to bird species for listed reasons, such as public health and safety or protection of agricultural land or products. There are no provisions for licences to be granted for the purposes of development.

7.5 Summary

Mitigation measures for bats, reptiles and nesting birds are discussed earlier and are not repeated here. The mitigation measures are considered meet the legal requirement with respect to bats, reptiles and nesting birds and as such are considered to be sufficient to ensure the protection of any bats, reptiles or nesting birds within and around the application site.

8.0 MAGNITUDE AND SIGNIFICANCE OF RESIDUAL IMPACTS

The predicted impacts of the proposed development, following mitigation, *i.e.* the residual impacts, are assessed using the following criteria, based upon recent guidance provided by the IEEM. In order to provide an objective assessment of the nature of each impact, descriptors set out in Table 3 are used.

To fully evaluate the effects of a predicted impact upon valued ecological receptors it is necessary to assess the significance of the impact upon that feature. Significance is assessed at the geographical scale at which the feature is considered important. For instance, the loss of the majority of a hedgerow resource within a site, assessed as being of local value, could be significant at the local scale. The loss of a small area of a nationally designated site; may not be significant at a national level if the loss did not affect the integrity[13] of the site. However, the loss may be significant at the county or local scale, if the features lost were rare in that geographical context. In most cases, the range of levels of significance is determined by careful consideration of factors such as the existing baseline, ecological context of proposed development area, predicted trends, background level of impacts, predictability of effects occurring and the likely effectiveness of the proposed mitigation measures.

Significance of residual effects is also considered in terms of their legal and policy framework. Legal and policy aspects of this application are discussed in more detail in an earlier section.

Residual effects are only considered for those ecological features assessed as being of Parish or greater value. Features of less than *Parish* value are excluded from the assessment.

Table 4 shows the predicted residual effects of the application site. It is considered that no significant residual effects will occur as a result of the proposed development if the mitigation measures outlined above are implemented, with some minor positive impacts being predicted overall.

Table 3 - Key Considerations when Characterising Impacts

	Descriptor	Definition[4]
I	Direction of impact	Positive or negative impact
II	Probability of occurring	Broadly defined on 3 levels: Certain, Probable or Unlikely
III	Complexity	Direct, Indirect or Cumulative
IV	Extent and Context	Area/number affected and % of total
V	Magnitude	Describe severity of effect in words
VI	Duration	Permanent or Temporary in ecological terms (e.g. within the lifetime of the species affected)
VII	Reversibility	Whether or not the effect can be reversed in an ecological timescale

[13] Integrity can be defined as: *"the coherence of its ecological structure and function, across the whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it is classified"* PPG9 Box C10

[4] Definitions for these terms and further information relating the methods of assessment are given in Guidelines for Ecological Impact Assessment (IEEM, 2005)

Table 4 - Residual Effects of the Proposed Development

Important Ecological Feature	Description of potential Impact	Characterisation of Impact	Ecological Significance of Impact if left unmitigated	Mitigation and Compensation Proposals	Residual Impact after Mitigation
Bats	Demolition of 28 residential buildings resulting in potential roosts	I Negative II Certain III Direct IV Up to 100% site bat assemblage V High VI Permanent VII Irreversible	*Negative at parish level*	Prior to demolition, undertake bat survey of all properties to BCT standard guidelines. Obtain EPS licence if bats found to be present *Implement mitigation to protect any* populations found to be present and maintain population status at the site. Include enhancements for bats within development proposals, including bat boxes and insect attracting planting in wildlife corridors	*Neutral – minor positive*
	Noise and visual disturbance	I Negative II Probable III Indirect IV Up to 100% site bat assemblage V Low VI Temporary VIII Reversible	Negative at parish level	Ensure artificial lighting during construction focused only on construction area. Site bat habitats away form areas of artificial lighting. Create wildlife corridors which have limited levels of artificial lighting.	Neutral

Important Ecological Feature	Description of potential Impact	Characterisation of Impact	Ecological Significance of Impact if left unmitigated	Mitigation and Compensation Proposals	Residual Impact after Mitigation
Potential population of Reptiles	Loss of 4ha of suitable habitat – at TN5	I Negative II Certain III Direct IV Up to 100% reptiles at site V High VI Permanent VII Irreversible	Negative at parish level	Faunal specific surveys OR Reasonable avoidance measures to remove habitat sensitively to avoid individual reptiles. AND Ecologically led planting in public open spaces to include scrub and grassland structure suitable for use by reptiles.	Neutral
Nesting Birds	Loss of scrub and tree nesting habitat at TN2, TN4	I Negative II Certain III Direct IV Up to 50% nesting habitat available in and around site V High VI Permanent VII Irreversible	Negative at parish level	Vegetation clearance outside of the nesting season. AND Ecologically lead planting in public open spaces to include scrub, grassland and tree mosaics to provide nesting and foraging opportunities. Inclusion of bird boxes within the built development	Neutral – minor positive

Important Ecological Feature	Description of potential Impact	Characterisation of Impact	Ecological Significance of Impact if left unmitigated	Mitigation and Compensation Proposals	Residual Impact after Mitigation
	Noise and visual *disturbance*	I Negative II Certain III Direct IV Up to 100% bird assemblage V High VI Permanent VII Reversible	Neutral at parish level	None required	Neutral

9.0 CONCLUSIONS AND SUMMARY

This Section presents an ecological impact assessment, following guidelines published by IEEM (2006), on the likely effects upon flora and fauna for the proposed development of Thurnscoe Housing Renewal site, Thurnscoe, Barnsley.

In October 2009, SLR Consulting Ltd undertook an ecological survey of the proposed development site in Thurnscoe and land immediately surrounding this application site. The application site was surveyed using the extended Phase I methodology, as recommended by the former IEA and IEEM.

The application site comprises an arable field, an area of species poor semi improved grassland and a partially demolished housing estate.

The proposed development comprises the redevelopment of the application site into three phases of residential development. The development proposals also include the creation of public open space/village green habitats.

Ecological evaluation has identified the following receptors of ecological importance within the site:

- bats;
- reptiles; and
- the breeding bird assemblage.

The habitats at the site have all be assessed as being of less than parish ecological value.

Preliminary impact assessment has identified a range of potential hazards, *i.e.* habitat loss, fragmentation, dust, noise and visual impacts; that could result from the development of the site and potential hazards such as pollution and noise and visual disturbance associated with the occupation of the residential site. . The ecological receptors have been assessed against these hazards to identify the likelihood of significant ecological effects.

Ecological impact assessment has not identified any adverse effects upon statutory or non-statutory designated sites.

Further survey work for bats, as well as survey or reasonable avoidance measures for reptiles has been recommended. Specific mitigation and avoidance measures have been outlined for breeding birds to ensure that there are no adverse effects upon these species during vegetation clearance.

The development proposals have the potential to increase the nature conservation value of the application site. Specific recommendations for the integration of bat and bird boxes, as well as ecologically led planting within the public open spaces/village green areas has been recommended, so as to provide a diversity of semi-natural habitats and species.

Appendix A Phase 1 Target Notes

No	Photo	Description
1		**Arable field** The southern part of a much larger arable field. Seeded with a winter crop of grasses, this field undulates, sloping generally north to south with a gradual gradient. A valley also runs from the central northern area of the field to the south west corner. There are no field margins or banks on the periphery of this field.
2	 	**West and South Field Boundaries** The western boundary of the field abuts the rear gardens of the adjacent properties, the end of which is formed from a mixture of hedgerows, scrub and fences. A drainage ditch/channel runs the entire length of the western boundary and was dry at the time of survey. The ditch is clogged in places by dense ruderal and scrub vegetation, principally nettle (*Urtica dioica*), bramble (*Rubus fruticosus* agg.) and cock's-foot grass (*Dactylus glomerata*). The hedgerow is gappy along the entire length and is dominated by hawthorn (*Crataegus monogyna*), Leyland cypress (X *Cupressocyparis leylandii*), silver birch (*Betula pendula*), cherry (*Prunus* sp.), elder (*Sambucus nigra*) and garden privet (*Lingustrum ovalifolium*). A drainage ditch continues along the southern boundary of the site where it joins with the ditch at TN4. The ditch is heavily clogged with nettle, bramble and rank grasses and was dry at the time of survey. The southern boundary marks the northern edge of the partly demolished housing estate and has mature trees, including silver birch, hawthorn and bird cherry scattered along the boundary.

3

Rough Species Poor Semi-Improved Grassland

A narrow strip of grassland which is unmanaged and dominated by perennial rye grass (*Lolium perenne*), cock's-foot, great willowherb (*Epilobium hirsutum*), American willowherb (*Epilobium ciliatum*), early wintercress (*Barbarea intermedia*) and cleavers (*Galium aparine).*

4

Public Footpath

A tarmac'd footpath which separates the arable field (TN1) and the semi-improved grassland field (TN5). Adjacent to the northern boundary of the path is a dry ditch which is colonised with rank grasses including perennial rye grass, cock's-foot, tufted hair grass (*Deschampsia cespitosa*), ragwort (*Senecio jacobaea*), dandelion (*Taraxicum officinalis*) and nettle. The ditch is largely dry, save for the very eastern end which holds approximately 15cm of water. The water supports duckweed (*Lemna minor)* but no other aquatic plants. This area of ditch is heavily fly tipped.

The ditch along the southern edge of the footpath is dominated by tufted hair grass with occasional stands of hawthorn. The entire length of this ditch is dry.

5

Species Poor Semi-improved Grassland

A rectangular field which is unmanaged and colonised by rank species poor grassland, dominated in patches by ruderal species. The grassland sward is made up generally of cock's-foot, perennial ryegrass, tufted hair grass, false oat grass (*Arrhenatherum elatium*) and rough meadow grass (*Poa trivialis*). In patches, species such as oil seed rape (*Brassica napus* var.*oleifera*), butterfly bush (*Buddleja davidii*), great willowherb and nettle dominate, with other frequent herbs including broad leaved plantain (*Plantago major*), broad leaved dock (*Rumex obtusifolius*), mugwort (*Artemesia vulgaris*) and ragwort also present throughout.

6

Amenity Planting

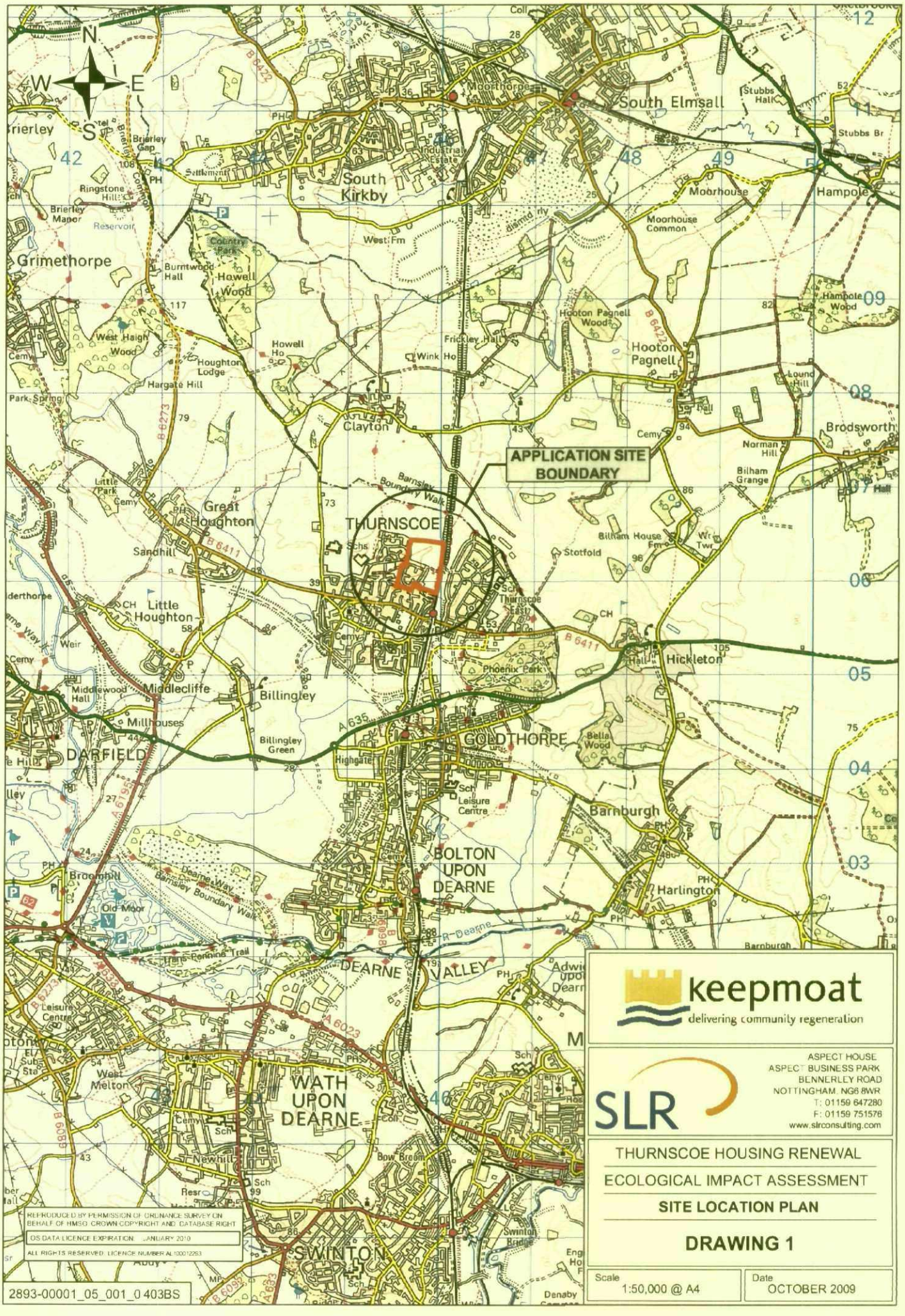
On the site of a demolished block of flats, an area of wildflower seeding has established, with garden varieties of poppy (*Papaver* sp.) and cornflower (*Centaurea* sp.) present along with a number of cultivars of umbelifers and asteraceae.

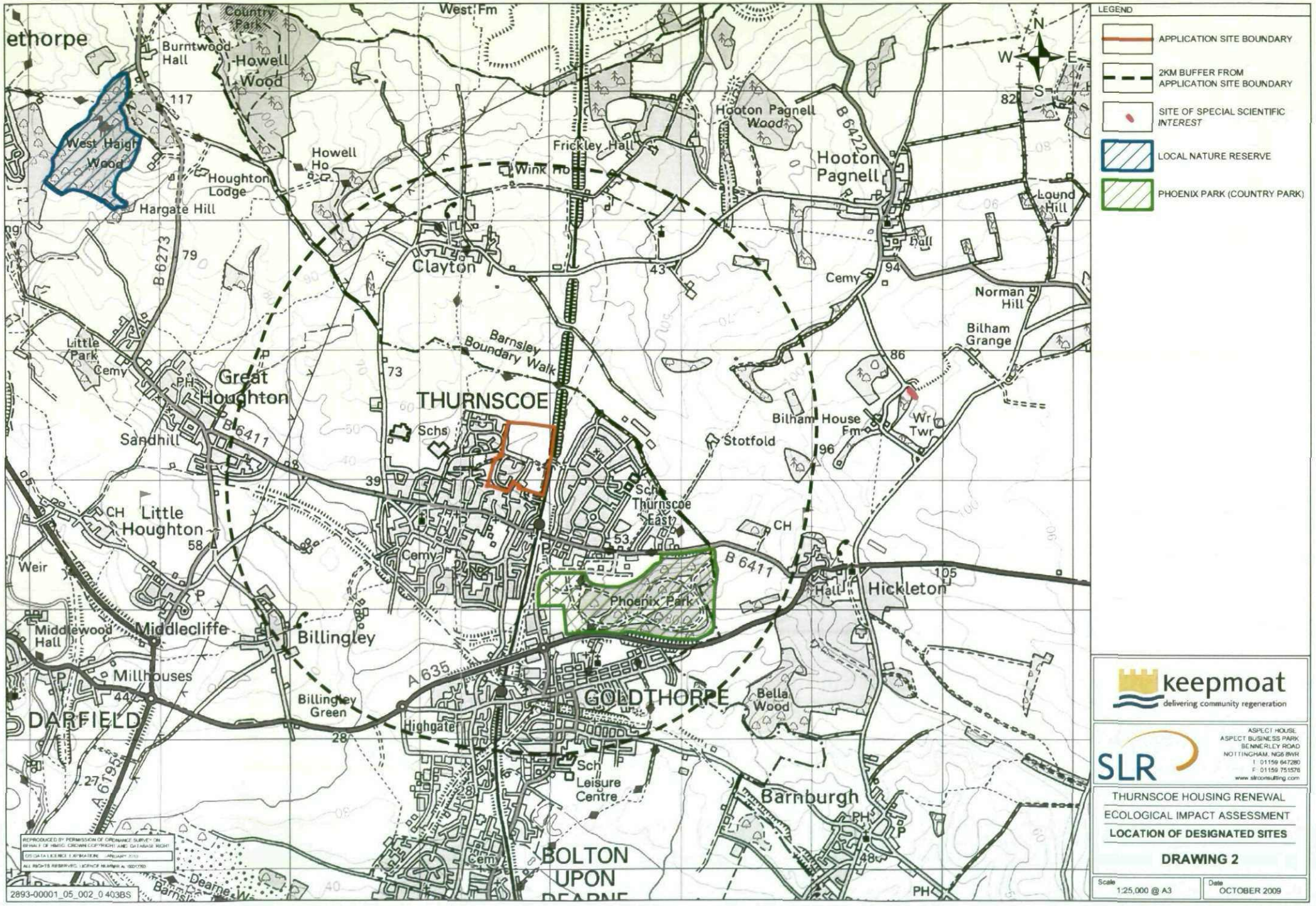
7

Partly Demolished Housing Estate.

The south-western section of the application site comprises a housing estate which has been almost demolished. Some of the properties are still occupied, although the majority which are still standing are boarded up. Where properties have been demolished, the ground has been cleared and is largely bare. In paces the cleared ground has started to colonise with ruderal weeds such as smooth sow thistle (*Sonchus oleraceus*), dandelion, bittercress (*Cardamine* sp.)and nettle. The areas of amenity grassland and rear gardens which bordered these properties have become overgrown and unmanaged. Large areas of hardstanding remain in tact.

The houses are typically semi detached with a pitched, clay tiled roof. The houses are either brick built, or more commonly constructed from concrete slotted on a main frame, which are rendered and pebble dashed. The remaining houses are in a poor state of repair and have been subject to some levels of vandalism.




LEGEND
APPLICATION SITE BOUNDARY
2KM BUFFER FROM APPLICATION SITE BOUNDARY
SITE OF SPECIAL SCIENTIFIC INTEREST
LOCAL NATURE RESERVE
PHOENIX PARK (COUNTRY PARK)
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Burntwood Hall
Howell Wood
West Haigh Wood
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Houghton Lodge
Hargate Hill
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Frickley Hall
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Hall
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Norman Hill
Bilham Grange
B 6273
Clayton
Barnsley Boundary Walk
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Great Houghton
THURNSCOE
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Sandhill
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Bilham House Fm
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Little Houghton
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Phoenix Park
Hickleton
Middlewood Hall
Middlecliffe
Billingley
Millhouses
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GOLDTHORPE
Bella Wood
DARFIELD
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Highgate
Sch Leisure Centre
Barnburgh
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THURNSCOE HOUSING RENEWAL
ECOLOGICAL IMPACT ASSESSMENT
LOCATION OF DESIGNATED SITES
DRAWING 2
Scale 1:25,000 @ A3
Date OCTOBER 2009
2893-00001_05_002_0 403BS


N
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LEGEND
APPLICATION SITE BOUNDARY
ARABLE GRASSLAND
AMENITY GRASSLAND
AMENITY GARDEN PLANTING
POOR SEMI-IMPROVED GRASSLAND
RUDERAL DOMINATED SEMI-IMPROVED GRASSLAND
DENSE SCRUB
TALL RUDERAL/RUDERAL
DRY DITCH
STANDING WATER
BUILDINGS
HARDSTANDING
BARE GROUND (CLEARED HOUSING)
TREELINE & HEDGEROW (GAPPY)
TREE
TARGET NOTES
keepmoat
delivering community regeneration
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ECOLOGICAL IMPACT ASSESSMENT
PHASE 1 HABITAT SURVEY
DRAWING 3
Scale
1:2,500 @ A3
Date
OCTOBER 2009
2893-00001_05_003_0 403BS

KEY

- Green Space
- LEAP Play Area
- Equipped Play Area
- Application Boundary
- Site Boundaries
- Proposed New Development (FRONTS / REARS)
- Mews court
- Parking courts
- Pavement
- Road
- Visitor Parking
- Soft Landscape
- Trees

Scale: 1:1250 @ A1

keepmoat SLR

Thurnscoe - Development Masterplan
Drg No. 3835 - OLP - 003 - (Oct -2009)