

7. Ecology and Biodiversity

7.1. Introduction

7.1.1. This chapter of the ES was prepared by FPCR and presents an assessment of the likely significant effects of the Proposed Development on Ecology and Biodiversity during construction and operation. Mitigation measures are identified, where appropriate, to avoid, reduce or offset any significant adverse effects identified and/or enhance likely beneficial effects. The nature and significance of the likely residual and cumulative effects are reported.

7.1.2. The chapter is supported by the following appendices:

- **Appendix 7.1:** Ecological Appraisal
- **Appendix 7.2:** Biodiversity Net Gain Assessment
- **Appendix 7.3:** Bird Report
- **Appendix 7.4:** Arboricultural Impact Assessment

7.1.3. The following figures are referred to within this chapter:

- **Figure 7.1:** Consultation Plan – Designated Sites
- **Figure 7.2:** Consultation Plan – Protected and Notable Species Records
- **Figure 7.3:** Baseline Habitat Plan

7.2. Assessment Approach

Desktop Study Methodology

7.2.1. To compile existing baseline information, relevant ecological information The Desk Study completed for this application involved collating biodiversity information from the following sources:

- Nottinghamshire Biological and Geological Record Centre (NBGRC);
- Derbyshire Biological Records Centre (DBRC) at the Derbyshire Wildlife Trust; and
- Multi-Agency Geographic Information for the Countryside (MAGIC) website.

7.2.2. The search areas were related to the significance of sites and their potential zones of influence, as follows:

- 15km around the Site for sites of International Importance (e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites);
- 2km around the Site for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs));

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- 2km for European protected species records (e.g. The Conservation of Habitats and Species Regulations 2017, SCHEDULE 2);
- 1km around the Site for sites of Local or County Importance or statutory sites such as Local Nature Reserves (LNRs); and
- 1km other species records (e.g. protected, or Section 41 NERC species of principal importance and notable species).

7.2.3. Further inspection, using colour 1:25,000 OS base maps and aerial photographs from Bing and Google were also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.

Field Survey Methodology

7.2.4. During appropriate survey periods in 2022 / 2023 breeding and wintering bird surveys were completed across the Site. Also an assessment and aquatic surveys of waterbodies offering potential great crested newt habitat was conducted in 2023. The Zone of Influence (Zol) for great crested newts, was extended to include all waterbodies within 500m of the Site boundary.

7.2.5. An Extended Phase 1 Habitat Survey for this application was undertaken across the Site in August 2024 which involved classification of the broad habitat types present using the system published by the UK Joint Nature Conservation Committee¹. This comprised a walkover of the Site, mapping and broadly describing the principal habitat types and identifying the dominant plant species present within each habitat type and any invasive weeds (where present).

7.2.6. Habitats were also identified and mapped broadly following the UKHab 2.0 classification system² and assessed for their condition using methodology as detailed within the Statutory Biodiversity Metric Technical Annex 1: Condition Assessment Sheets and Methodology (July 2024)³. Biodiversity Net Gain calculations and methodology are discussed in a separate report.

7.2.7. Assessment of the Site for its potential to support badger, roosting bats, water vole and reptiles was also completed. The Zol for badgers and therefore the extent of survey for this species extended to all publicly accessible land within 30m.

7.2.8. Wintering bird surveys were updated between November 2024 and February 2025.

7.2.9. Full methodologies for all of the above-mentioned faunal surveys are detailed in **Appendices 7.1 and 7.3**.

7.2.10. On the basis of the desk study and initial Phase 1 Habitat Survey which identified limitations and suitability of the habitats present to support invertebrates, this group was scoped out of further survey.

7.2.11. The assessment methodology broadly follows that set out by the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK

¹ JNCC 2010. Handbook for Phase 1 habitat survey – a technique for environmental audit, ISBN 0 86139 636 7

² UKHab Ltd (2023). UK Habitat Classification Version 2.0 (Available at: <http://www.ukhab.org>)

³ DEFRA (2024). Statutory Biodiversity Metric Technical Annex 1: Condition Assessment Sheets and Methodology v1.0.2 (Available at <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>)

and Ireland⁴. This assessment follows the second edition of the CIEEM Guidelines. The guidelines are endorsed by statutory consultees and other concerned organisations including the Association of Local Government Ecologists (ALGE), Institute of Environmental Management and Assessment (IEMA) and the Wildlife Trusts.

7.2.12. The assessment involves the following key stages:

- Identify the Zol (referred to as the study area) arising from the whole lifespan of the Proposed Development;
- Undertake a background data search to obtain archival records of sites and species, and to gain information to focus the field surveys;
- Identify ecological features through field surveys;
- Determine the importance of ecological features affected;
- Identify the potential impacts and assessment of impacts on the integrity or conservation status of the ecological features;
- Identify cumulative impacts;
- Incorporate ecological enhancement and mitigation measures to avoid or reduce impacts, and compensation measures to balance any unavoidable significant impacts; and
- Assess the significance of any residual ecological impacts remaining after the implementation of mitigation and compensation measures.

Identification of Study Area

7.2.13. In determining a study area, the CIEEM guidelines first consider 'important ecological features' (IEFs), defined as those warranting detailed assessment (thus excluding any that are 'widespread, unthreatened and resilient to project impacts and will remain viable and sustainable'). They are to be expressed geographically (international, national, regional, county, local or below local) and to be identified on the basis of expert judgement, including published information (for example designations, guidelines and scientific literature) and also – especially at the local level – that of experienced professionals (ecological facilitators and specialist consultees).

7.2.14. The study area for the assessment (the area within which IEFs may be affected) was determined with reference to IEFs on or around the Site (including designated sites), the extent and nature of activities arising from the proposed Development that may give rise to potentially significant impacts, any incidence of mobile or migratory species, seasonality of ecological features, and ecosystem functioning including interdependencies between ecological features.

7.2.15. On this basis the study area includes:

- The land within the Site;

⁴ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

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- IEFs adjacent to the Site boundaries (e.g. adjacent features or designated nature conservation sites) or close by (at distances increasing with their likely sensitivity to likely impacts);
- IEFs at moderate distances from the Site but within normal ranging distances for certain animal species (e.g. ponds suitable for great crested newts *Triturus cristatus* within 500m); and
- Sites at greater distances if they are important for species that might also depend on the Site.

- 7.2.16. Information gathered in the background data search, especially in respect of designated sites that may be remote from the Site fed into the scope of the study area. Many designated sites were scoped out from the study area at an early stage, owing to the implausibility of effects on the ecological features for which they are designated (which ruled them out as important ecological features requiring detailed consideration, e.g. geological SSSIs). The study area can therefore be inferred from the Site mapping in **Figure 7.1** and as set out in para 7.2.2.
- 7.2.17. A summary of all surveys undertaken to inform this assessment is provided in **Table 7.1**, with full methods contained within **Appendix 7.1**.

Table 7.1: Survey Methodology

Survey	Summary
Ecological Background Data Search	Data search of records from the local record centre, and freely available data. A 15km search area was used for internationally designated sites, 2km search area was used for statutory designated sites and European Protected species and 1km for non-statutory designated sites and other protected species records.
Phase 1 / UKHab Habitat Survey and assessment of habitat for protected animals	Identification of broad habitat types and habitat suitability for protected species following the JNCC methodology for Phase 1 Habitat Survey and CIEEM Preliminary Ecological Assessment methods. Habitats were identified and mapped broadly following the UKHab 2.0 classification system ⁵ and assessed for their condition using methodology as detailed within the Statutory Biodiversity Metric Technical Annex 1: Condition Assessment Sheets and Methodology (July 2024) ⁶ .
Amphibians	Waterbodies within a 500m radius were identified using OS maps and aerial satellite imagery. Environmental DNA (eDNA) sampling was undertaken at pond P1 in 2023 to determine the presence/absence of GCN in accordance with the Technical Advice Note for field and laboratory sampling of GCN eDNA ⁷ .

⁵ UKHab Ltd (2023). UK Habitat Classification Version 2.0

⁶ DEFRA (2024). Statutory Biodiversity Metric Technical Annex 1: Condition Assessment Sheets and Methodology v1.0.2

⁷ Biggs J, et al. 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

Survey	Summary
Badger	Habitat assessment of the Site for its suitability for badgers. Methodology employed followed that outlined by Harris and Creswell and Jefferies ⁸ .
Bat Activity	Transect and static surveys were undertaken seasonally in August and September 2024. All surveys were in accordance with recognised survey guidelines at the time of survey ⁹ . An additional survey shall be completed in May 2025 to complete this data set.
Reptiles	Habitats present within the Site were considered for their potential suitability to support reptile populations. This assessment was based on the methodology detailed in the Herpetofauna Workers Manual ¹⁰ and the Froglife Advice Sheet ¹¹ .
Water vole	Habitats present within the Site were considered for their potential suitability to support water vole. This assessment was based on the methodology detailed in The Water Vole Mitigation Handbook ¹² .
Birds	Habitats underwent three breeding bird surveys in May / June 2022 and four wintering bird surveys between Nov 2022 and February 2023. Wintering bird surveys were updated between November 2024 and February 2025. All surveys were based on methods used by the British Trust for Ornithology (BTO) Common Bird Census (CBC) ¹³ .

Assessment of Significance

- 7.2.18. Having established the baseline ecology within the Site and surrounding study area, the Important Ecological Features (IEFs) are identified, i.e., those considered to be both potentially affected and important. It is not necessary to carry out detailed assessment of features that are potentially unaffected because they are widespread, unthreatened and resilient to impacts, and will remain viable and sustainable. Importance may relate, for example, to the quality or extent of designated sites or habitats, to habitat/species rarity, to the extent to which they are threatened throughout their range, or to their rate of decline.
- 7.2.19. The importance level of any existing designations (e.g. SSSI, LWS, Red Data species), provides the starting point for identifying IEFs, since such designations embody a wide range of established knowledge and reflect consensus views about what is important.
- 7.2.20. CIEEM Guidance states that *“Ecologists may identify ecological features that are not included in lists of important sites or features, but considered important on the basis of expert judgment e.g. because of their local rarity or because they enable effective conservation of other important features.”* A wide range of properties of IEFs may contribute to such judgements e.g.

⁸ Harris, S., Creswell, P. & Jefferies, D. 1989. Surveying for Badgers. Occasional Publication of the Mammal Society No.9. Mammal Society, Bristol.

⁹ Collins, J. 2024. Bat Conservation Trust Bat Surveys for Professional Ecologists – Good Practice Guidelines (4th edition).

¹⁰ Gent, A.H. & Gibson, S.D., eds., 1998. Herpetofauna Workers' Manual. Peterborough, Joint Nature Conservation Committee.

¹¹ Froglife, 1999. Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

¹² Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) The Water Vole Mitigation Handbook (Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. Mammal Society, London.

¹³ Bibby, C.J., N.D. Burgess & D.A. Hill, 2000: Bird Census Techniques: 2nd Edition. London: Academic Press

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habitat connectivity issues, information on the distribution of species (e.g., from county Floras), restriction to ancient features of the countryside that cannot easily be re-created, dependencies between one species and another etc.

- 7.2.21. The IEFs that may be affected by such activities have been evaluated within a geographical framework, which is based expert judgement and a wide range of legislation and governmental guidance. An assessment of the nature conservation importance of features has been made following the criteria suggested in CIEEM (see **Table 7.2**) as follows; International, National, Regional, County and Local. Features with a value of Local or above were considered to represent IEFs. Features not meeting the criteria for IEFs are those that have been classified as having either less than Local or Negligible ecological importance.

Table 7.2 Categories of Ecological Value

Value	Criteria	Examples
International	Site, habitat or populations of species, of international importance. Includes designated sites but may also include off-site ecological receptors on which the qualifying population(s) or habitat(s) of designated site are considered, from the best available evidence, to depend.	International designated Sites: SPAs and SACs; Potential (p)SPAs and candidate (c)SACs; and Ramsar wetlands. Significant numbers of a designated population outside the designated site.
National (i.e. England)	Site, habitat or populations of species, of national importance. Includes designated sites but may also include off-Site ecological receptors on which the qualifying population(s) or habitat(s) of designated sites are considered, from the best available evidence, to depend.	NNRs and SSSIs (designated for biological features); and Nationally important population/assemblage of an European Protected Species (EPS), Schedule 1 and/or Schedule 5 species.
Regional	Site, habitat or population of species, of regional importance. Includes high quality undesignated and designated sites, e.g. where a County-designated site is below SSSI standard but still recognised as being significant in the context of the wider region.	Regionally important population/area of a species and habitat of Principal Importance; Regionally important population/assemblage of an EPS, or species listed on Schedules 1, 5 and/or 8 of the Wildlife and Countryside Act (WCA); and Regionally important assemblages of other species.
County (Nottinghamshire)	Site, habitat or species, of importance in the context of the county.	Local Wildlife Sites (LWSs); Potential Local Wildlife Sites (pLWSs);

Value	Criteria	Examples
		County important population/area of a priority species and habitat or Local Biodiversity Action Plan (LBAP) habitat and species; County-important population/assemblage of an EPS, Schedule 1 and/or Schedule 5 species; and County-important assemblages of other species.
Local (Broxtowe)	Site, habitat or species, of importance in the context of the local, district or borough Council or Unitary Authority administrative area.	A breeding population of a species or a viable area of a habitat that is listed in a Local BAP because of its rarity in the locality; All breeding populations of an EPS, Schedule 1 and/or Schedule 5 species that have not been captured in higher categories; and Assemblages of other species of importance in the context of the local authority area.
Less than local level / Site level	Unremarkable habitat/common species that is of little/no intrinsic nature conservation value.	Common, widespread, modified and/or impoverished habitats; and Species of Least Concern which are widespread and/or common locally.

7.2.22. The likelihood that a change / activity will occur as predicted has a degree of confidence assigned (i.e. certain, near certain, probable, unlikely, extremely unlikely). Where there is an impact on an important ecological feature, the change / activity can result in a positive or negative impact.

7.2.23. The magnitude of the effect relates to the size, amount, intensity, and volume of the impact. This is expressed quantitatively where possible, and the magnitude of change of an ecological receptor is defined in terms of 'High', 'Medium', 'Low', 'Negligible' or 'None'. Other parameters used to describe an impact upon an ecological structure or function are the extent, size, duration, reversibility and frequency of the affect. The CIEEM Guideline state in broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution). Consideration of the above criteria feeds into a comprehensive assessment of ecological significance, allowing a final judgement as to whether the effect is significant or not.

7.2.24. An ecologically significant effect positively or negatively alters the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area. In all cases, the evaluation of receptor sensitivity or value, impact magnitude and

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significance of effect has been informed by professional judgement and is underpinned by narrative to explain the conclusions reached.

7.2.25. The importance of a feature that will be significantly affected is then used to identify the geographical scale at which the impact is significant. The importance relates directly to the consequences in terms of legislation, policy and/or development control at the appropriate level. For this assessment, the following descriptive thresholds have been used:

- **Substantial:** only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with ecological features of international, national or regional importance that are likely to suffer a most damaging impact and loss of significance;
- **Moderate:** these beneficial or adverse effects may be important but are not likely to be key decision-making factors (i.e. 'notable'). The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a particular feature or group of features.
- **Minor:** an effect that will be noticed, but is unlikely to be relevant to the decision process but may be important in enhancing the subsequent design of the project; and
- **Negligible:** no effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

7.2.26. For Ecological Impact Assessment (EclIA), impacts on valued ecological receptors are initially assessed without mitigation in place. Mitigation or compensation is given for significant impacts on features of nature conservation importance. In line with current CIEEM guidelines, the Proposed Development should aim to:

- Avoid significant adverse ecological impacts;
- Reduce adverse impacts that cannot be avoided (i.e. mitigate);
- Compensate for residual significant ecological impacts; and
- Seek to provide net benefits for biodiversity over and above the requirements for avoidance, mitigation or compensation (i.e. enhancement).

7.2.27. Priority will be given to the avoidance of impacts, where possible, through the design of the Proposed Development (often referred to as 'inherent' or 'embedded' measures) and/or regulation through aspects such as timing, storage of materials etc. (often termed 'actionable' measures). Where this is not possible, opportunities are sought to reduce the impacts as much as is feasible. If significant impacts cannot be avoided through mitigation, then compensation that is considered appropriate to offset the adverse impacts of the Proposed Development should be outlined. In addition, enhancement measures to provide biodiversity gain will be delivered where feasible.

7.2.28. Cumulative impacts are the collective effects of changes that may be insignificant individually but in combination, often over time, have the potential to be significant. Intra project ("in combination") cumulative effects (i.e. cumulative effects on the same receptor from different aspects of the Proposed Development are assessed for example bats could be affected by noise, and lighting; and so are intra-project effects – i.e. minor effects on a receptor from several projects.

Legislative and Policy Framework

National Planning Policy

- 7.2.29. National policy is set out within the National Planning Policy Framework (NPPF) 2024¹⁴. The key element of the NPPF is that there should be 'a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking' (paragraph 11). Chapter 15 'Conserving and Enhancing the Natural Environment' includes policies in respect of 'Habitats and Biodiversity'.
- 7.2.30. Paragraph 187 sets out the key biodiversity objective to be applied to planning decisions:
- "Planning policies and decisions should contribute to and enhance the natural and local environment by:*
- (a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- and;*
- (d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;"*
- 7.2.31. Paragraph 193 (a) sets out the key biodiversity test to be applied to planning applications, which is that:
- "(a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;"*
- 7.2.32. Paragraph 193 (b) seeks to prevent adverse effects on SSSIs:
- "(b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;"*
- 7.2.33. Paragraph 193 (c) seeks to preserve irreplaceable habitats:
- "(c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁶⁷ and a suitable compensation strategy exists;"*
- 7.2.34. Paragraph 193 (d) also encourages opportunities to be taken up to incorporate biodiversity benefits into developments especially where this can secure net gains for biodiversity:

¹⁴ Ministry of Housing, Communities & Local Government. December 2024. National Planning Policy Framework.

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“(d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.”

- 7.2.35. Paragraph 195 disappplies a presumption in favour of sustainable development where development is likely to have

“a significant effect of a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.”

Local Planning Policy

Broxtowe Local Plan

- 7.2.36. Part 1 of the Broxtowe Local Plan: Core Strategy¹⁵ was adopted on the 17th September 2014. The document provides an Aligned Core Strategy covering Broxtowe Borough, Gedling Borough and Nottingham City, and sets out the vision, objectives, spatial strategy and the strategic policies for the Borough up to 2028.

- 7.2.37. Policy 17 covers biodiversity objectives.

“1. Biodiversity will be increased over the plan period by:

a) protecting, restoring, expanding and enhancing existing areas of biodiversity interest, including areas and networks of habitats and species listed in the UK and Nottinghamshire Biodiversity Action Plans;

b) ensuring that fragmentation of the Green Infrastructure network is avoided wherever possible and improvements to the network benefit biodiversity, including at a landscape scale, through the incorporation of existing habitats and the creation of new habitats;

c) seeking to ensure new development provides new biodiversity features, and improves existing biodiversity features wherever appropriate;

d) supporting the need for the appropriate management and maintenance of existing and created habitats through the use of planning conditions, planning obligations and management agreements; and

e) ensuring that where harm to biodiversity is unavoidable, and it has been demonstrated that no alternative sites or scheme designs are suitable, development should as a minimum firstly mitigate and if not possible, compensate at a level equivalent to the biodiversity value of the habitat lost.

2. Designated international, national and local sites of biological or geological importance for nature conservation will be protected in line with the established hierarchy of designations and further sites will be designated where they meet the relevant national or local criteria.

¹⁵ Broxtowe Borough Gedling Borough Nottingham City. 2014. Aligned Core Strategies Part 1 Local Plan.

3. Development on or affecting other non-designated sites or wildlife corridors with biodiversity value will only be permitted where it can be demonstrated that the need for the development outweighs any harm caused by the development and that adequate mitigation measures are put in place."

7.2.38. Part 2 of the Broxtowe Local Plan 2018-2028¹⁶ was adopted on the 16th October 2019. The document includes specific site allocations to meet the housing need as set out in the Core Strategy, as well as the policies against which planning applications will be assessed.

7.2.39. Policy 28 covers development proposals which are likely to lead to increased use of specifically identified Green Infrastructure Assets. This includes two features local to the Site; the Erewash Valley Trail recreational route and the Burnt Hill prominent area. Point 2 of this policy states in relation to identified features that:

"permission will not be granted for development that results in any harm or loss to the Green Infrastructure Asset, unless the benefits of development are clearly shown to outweigh the harm."

7.2.40. Policy 31 expands on the provision set out in Policy 17 in regard to biodiversity assets.

"1. All development proposals should seek to deliver a net gain in biodiversity and geodiversity and contribute to the Borough's ecological network. Permission will not be granted for development which would cause significant harm to sites and habitats of nature conservation or geological value, together with species that are protected or under threat. Support will be given to the enhancement and increase in the number of sites and habitats of nature conservation value, and in particular to meeting objectives and targets identified in the Nottinghamshire Biodiversity Action Plan.

2. Development proposals which are likely to lead to the increased use of any of the Biodiversity Assets listed below, as shown on the Policies Map, will be required to take reasonable opportunities to enhance the Asset(s). These Biodiversity Assets are;

a) Sites of Special Scientific Interest, Local Wildlife Sites or Local Geological Sites (including those listed in Appendices 8, 9 and 10 and shown on the Policies Map); or

b) Protected and priority habitats and species (including those identified in the Nottinghamshire Local Biodiversity Action Plan, section 4.5 of the Green Infrastructure Strategy and section 41 of the Natural Environment and Rural Communities (NERC) Act 2006); or

c) Trees which are the subject of Tree Preservation Orders; or

d) Aged or veteran trees; or

e) Ancient Woodland (as shown on the Policies Map); or

f) Hedgerows which are important according to the criteria of the Hedgerow Regulations 1997; or

g) Other trees and hedgerows which are important to the local environment.

¹⁶ Broxtowe Borough Council. 2019. Part 2 Local Plan 2018-2028

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3. In all cases permission will not be granted for development that results in any significant harm or loss to the Biodiversity Asset, unless the benefits of development are clearly shown to outweigh the harm."

Chetwynd: Toton and Chilwell Neighbourhood Plan (2020 – 2040)

7.2.41. Particularly Policy ENVO2– Natural Environment as follows:

1. Development should have no significant adverse impact on, and take opportunities to enhance and augment, habitats and biodiversity.

2. Major development [I] which increases the use of existing blue and green infrastructure will be expected to contribute to the protection and enhancement of habitats and biodiversity in its design and layout, based on up-to-date assessments.

3. Proposals to remove mature trees [I], including those that are veteran [I] and ancient [I], will not be supported except in exceptional circumstances, where:

A. the retention of trees is outweighed by benefits arising from major development [I]; and

B. they are replaced by equivalent or better provision in close proximity to their original position.

Legislation

7.2.42. In addition to the context provided by national and local policy, the nature conservation legislation that has been used to inform this assessment is provided in **Table 7.3**.

Table 7.3: Legislative Context

Legislation	Summary
WCA 1981 (as amended)	The principal legislation for wildlife protection in the UK. It was originally aimed at consolidating and amending previous legislation to implement the requirements of the Bern Convention 1979 and the Birds Directive 1979. Under the WCA, nature conservation site protection measure in the UK (i.e. the statutory designation of Sites of Special Scientific Interest (SSSI)) is established. It also provides a range of protection relating to wild birds, other animals, and plants.
The Protection of Badgers Act 1992	Specifies criminal offenses of taking, injuring or killing badgers, cruelly ill-treating a badger and interfering with badger setts. Licences can be obtained under the Act to carry out certain acts which would otherwise be forbidden by the Act, including for the purpose of development.

Legislation	Summary
The Hedgerow Regulation 1997	These regulations, enforced under the Environment Act 1995, restrict the removal of important agricultural hedgerows, or parts of them which are over 20m in length. The regulations include criteria for identifying “important” hedgerows where notice must be given for their removal. Exemptions to this include the carrying out of planning permission.
Natural Environment and Rural Communities (NERC) Act 2006	Section 41 of the NERC Act requires that the Secretary of State should produce a list of ‘habitats and species of principal importance for conservation of biodiversity’. The list guides decision makers in having regard to the conservation of biodiversity when carrying out their normal functions.
Conservation of Habitats and Species Regulations 2017 (as amended)	The Regulations consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. The Regulations provide for the designation and protection of ‘European sites’, the protection of ‘European protected species’, and the adaptation of planning and other controls for the protection of European Sites.
Environment Act 2021	In England, Biodiversity Net Gain (BNG) is mandatory from 12th February 2024 under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021). Developers must deliver a minimum BNG of 10% relative to the pre-development biodiversity value of all onsite habitats.

Scoping Criteria

Consultation

- 7.2.43. As set out in Chapter 2 of this ES, EIA Scoping is not a statutory requirement, when committing a scheme to EIA. The Applicants have not requested a formal Scoping Opinion in relation to the Proposed Development; however, have instead followed the scope of that agreed in relation to the larger, separate ‘Toton North’ scheme, which lies to the east of the Site. Given the primary reason for undertaking an EIA is in relation to the potential significant cumulative effects that could occur with Toton North (and other potential schemes), this is considered appropriate and robust.

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7.2.44. As part of the formal EIA Scoping Opinion adopted for the 'Land at Toton North' scheme (under planning application reference 24/00617/EIA), the Wildlife Trust advised that the following resources should be taken into account during the EIA of that scheme:

- The Toton and Chilwell Neighbourhood Plan;
- The Broxtowe Green Infrastructure Strategy and Biodiversity Opportunity Map;
- The emerging Nottinghamshire Local Nature Recovery Strategy; and
- Natural England Green Infrastructure Guidance.

Effects Not Considered within the Scope of this ES Chapter

7.2.45. A number of common and widespread invertebrate species have been recorded within the local area. Further survey work for these species was not considered proportional with regards to the nature of habitats identified on the Site, and further consideration of these species has been scoped out of this ES.

7.2.46. Ditches within the Site were not considered suitable to support otters and no local records were identified. Therefore further consideration of this species has been scoped out of this ES.

Limitations to the Assessment

7.2.47. Other than in relation to bird assemblages for which some data was gathered in 2022 / 23, the current Site assessment commenced in August 2024. Therefore, at the time of writing, Spring data for bats and birds was still pending.

7.3. Baseline Conditions

Ecological Background Data Search

7.3.1. No sites of international conservation importance are located within a 15km radius and no sites of national conservation importance are located within a 2km radius of the Site; Attenborough Gravel Pits SSSI is located 2.2km south of the Site. One LNR lies within 1km of the Site; Toton Fields sits directly adjacent to the southern boundary of the Site and is of **County** Significance.

7.3.2. Twelve non-statutory designated Local Wildlife Sites (LWS) occur within 1km of the Site. Toton Sidings LWS sits immediately adjacent to the western boundary of the Site and comprises grassland and woodland habitats. The other eleven LWS are at least 300m from the Site. All of these sites are of **Local** Significance. Locations are provided at **Figure 7.1**.

7.3.3. Faunal records identified during the background data search were plentiful in the surrounding 2km and full details are provided at **Figure 7.2** and in **Appendix 7.1**, however with the exception of some smooth newt (common and widespread amphibian species) and common pipistrelle records close to the north of the Site, no other records corresponded to the Site. The majority of records corresponded to the LWS to the west of the Site.

Baseline Survey Information

Field Study

Habitats

- 7.3.4. Habitats are mapped on **Figure 7.3**.
- 7.3.5. The majority of the Site comprises an arable field parcel with very narrow margins that supported common and widespread field edge species. This habitat is considered to be of **Negligible** significance.
- 7.3.6. There was a very small area of woodland in the southeast corner of the Site (see **Appendix 7.4**, part of G11). Canopy species included sycamore *Acer pseudoplatanus*, two mature lime *Tilia* sp. trees and some ash samplings. Ground flora was very disturbed with sparse and ivy *Hedera helix*, common nettle *Urtica dioica* and bramble *Rubus fruticosus* agg.. This does not meet criteria as a Nottinghamshire Biodiversity Action Plan (BAP) Priority Habitat and though it is recognised as an area of existing woodland within the Broxtowe Green Infrastructure Strategy, it is not identified as opportunity area. However woodland and trees have an intrinsic value offering connectivity of structural vegetation, which is otherwise limited to perimeter hedgerows across the Site and is therefore considered to be of **less than local** significance.
- 7.3.7. There are two very small areas of grassland recorded onsite; one in the east including species such as ragwort *Senecio jacobaea*, rough meadow grass *Poa trivialis*, false oat grass *Arrhenatherum elatius*, and red clover *Trifolium pratense*, and one on the southern boundary including species such as ribwort plantain *Plantago lanceolata*, white clover *Trifolium repens*, Yorkshire fog *Holcus lanatus* and field bindweed *Convolvulus arvensis*. Both areas were very limited in extent and did not meet local BAP Priority Habitat or any other designating value so was therefore considered to be of **less than local** significance.
- 7.3.8. An area of bramble scrub was recorded in the east of the Site meeting Stapleford Lane. Two areas of mixed scrub were also noted; one comprised bramble with sycamore *Acer pseudoplatanus* saplings with hawthorn *Crataegus monogyna* and elder *Sambucus nigra* and the other was more dense including ash, hawthorn, wild cherry *Prunus avium*, crab apple *Malus sylvestris*, laurel *Prunus Laurocerasus* and butterfly bush *Buddleia davidii*. All onsite scrub habitats were considered to be of **less than local** significance.
- 7.3.9. A cluster of five semi mature ash trees were recorded in the east of the Site (see **Appendix 7.4**, G13). Though not mature trees, these offered intrinsic value as structural vegetation in an otherwise arable context and offered potential future value therefore were considered to be of **less than local** significance.
- 7.3.10. Hedgerows and tree lines surrounded the field compartment, several of which were also residential boundaries to adjacent properties. Hedgerows were all relatively species poor and none qualified as 'important' under *The Hedgerow Regulations 1997*. Hedgerows with the exception of H1, H1a and H2a which were predominantly non-native, classified as Habitats of Principal Importance and Local BAP Priority Habitat and are therefore considered to be of **Local** significance.

Fauna

- 7.3.11. Faunal survey work conducted did not identify any evidence of badger to be present within the Site during the 2024 survey. Some limited evidence of badger was recorded >30m from the Site,

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so it is assumed that badger may use the Site opportunistically as part of a larger foraging territory and the Site offers a **less than local** significance for this species.

- 7.3.12. No buildings, trees or other features that offered potential for roosting bats occurred within the Site.
- 7.3.13. During bat activity surveys an assemblage of at least five bats were recorded using the Site. Common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long eared bat *Plecotus auritus*, noctule *Nyctalus noctula* were identified to be using the Site for foraging / commuting. Unspecified *Myotis* and *Nyctalus* species were also recorded. No obvious concentrations of bat activity were identified and the bat assemblage using the Site is considered to be typical of intensively managed, urban edge land and is of **Local** significance.
- 7.3.14. A total of 30 bird species were recorded across the three breeding bird survey occasions in 2022, of which 11 were interacting with habitats within the survey area and were considered 'notable' species. Hedgerows and the vegetated ditch across the eastern half of the Site hosted several resident and migratory breeding species comprising mostly common and widespread taxa including common thrush, tit, warbler, and finch species as well as more notable species such as whitethroat, wren, song thrush and house sparrow. The cropping regime of the arable component of the Site resulted in it providing a limited resource for birds. Overall the species from this assemblage were relatively limited and none of the constituent species' populations are significant in number or scarcity at larger spatial scales. However, due to presence of some notable species and the limited extent of arable habitats locally, it is considered that the relative importance of the Site in a local context is greater and therefore considered that some breeding birds present within the Site are of **Local** significance.
- 7.3.15. A total of 24 bird species were recorded across the three wintering bird survey occasions in 2022/23, of which 10 were interacting with survey area and were considered 'notable' species with the rest being common and widespread generalists of low conservation concern. In 2024/25 this was a total of 23 species, 9 of which were interacting and 'notable'. The actively cropped arable fields supported a very limited assemblage of wintering birds. Notable species were restricted to moderate numbers of woodpigeon (peak count of 156), in addition to more occasional use by small flocks of redwing and a single starling. Other species of low conservation utilising these habitats where carrion crow and magpie both in small numbers. The hedgerows and the vegetated ditch supported the majority of the recorded species overwintering at the Site, but these were generally in small numbers with a slightly more noteworthy number of fieldfare. On balance, given limited extent of arable habitats locally which increases the relative importance of the Site in a local context, the wintering bird assemblage associated with the arable habitats on-site is therefore considered **Local** significance in the wintering season.
- 7.3.16. There is no suitable aquatic habitat for GCN breeding within the Site. No ponds occur within 250m of the Site. Ten ponds were acknowledged in the 250–500m zone from the Site, but all were assessed as unsuitable to support GCN and / or physically separated from the Site by physical barriers. Therefore, GCN are not considered present and therefore the Site is of **Negligible** significance for this species.
- 7.3.17. There is some poor-quality habitat, potentially suitable habitat for reptiles on the Site, though this is limited to the field boundaries. Records of grass snake were identified within 1km of the Site with potentially suitable habitat for this species connecting along the western boundary of the Site. It is feasible that grass snake may occasionally utilise the boundary hedgerow/tree line habitats as part of a wider territory, as this is a very mobile species. However, the narrow field margins and high levels of disturbance from agricultural management mean that reptiles are

considered unlikely to be migrate into the Site in significant numbers. The Site therefore offers a **less than local** significance for this species.

- 7.3.18. The ditch through the site was dry and did not offer adequate foraging or cover to support water vole. As such, the Site is of **negligible** significance for this species.
- 7.3.19. The grassland, hedgerow and tree base at the perimeters of the Site are likely to provide sheltering and foraging opportunities for small numbers hedgehog. These species were considered less sensitive due to being afforded lesser policy protection and / or the potential habitat being less extensive, they were considered **less than Local** significance.
- 7.3.20. Habitats present within the Site were not identified as suitable to support other notable or protected fauna.

7.4. Assessment of Likely Significant Effects

Construction

- 7.4.1. Attenborough Gravel Pit SSSI is cited as supporting important populations and assemblages of wetland birds in particular, and is 2.2km to the south of the Site and separated by existing built form. Habitats present within the Site are of negligible suitability to support species of the SSSI given the absence of open water or other wetland habitats. Therefore, change of land use within the Site would have a **negligible** effect on the SSSI.
- 7.4.2. Toton Fields LNR abuts part of the southern boundary of the Site and is designated for its wet grassland and young woodland habitats. A network of twelve LWS's lie along the River Erewash corridor within 1km of the Site. The nearest of these is Toton Sidings LWS which lies immediately adjacent the west of the Site and is designated for its mosaic of grassland, scrub and developing woodland habitats. Due to the proximity of these designations to the Site there would be an unmitigated potential for direct adverse effects through accidental incursion and indirect adverse effects arising from noise, dust, sediment runoff and accidental pollution events. As such, there is potential for the Proposed Development to have a **moderate adverse County** level effect on Toton Fields LNR and a **moderate adverse Local** level effect on Toton Sidings LWS.
- 7.4.3. The remaining eleven other LWS that occur within 1km of the Site are physically separated from the Site by distance and intervening major roads and/or residential areas such that no direct effects would be feasible and indirect construction effects such as noise, dust, pollution would be dispersed nearer to source and would therefore be very unlikely / **negligible**.

Habitats

- 7.4.4. Loss of habitats such as the small areas of grassland and areas of bramble and mixed scrub (0.256ha) and cluster of 5 semi-mature trees, which are of limited nature conservation value, will have a permanent but low magnitude, **minor adverse Below-Local** level effect. Culverting a small section of the dry ditch to enable construction of the road over this feature will have a permanent but low magnitude, **minor adverse Below-Local** level effect.
- 7.4.5. Hedgerows including associated ditches and mature trees and features mapped as tree-lines are to be retained wherever possible. The only loss to hedgerow is anticipated to be a very small section of H4 for a pedestrian link to the offsite footpath network. A section of vegetation is to be removed to enable access and allow for the required visibility splays. The introduction of construction activities onto the Site, in the absence of mitigation, increases likelihood for

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accidental incursion and root compaction of retained hedgerow, tree and woodland, potentially resulting in failure of specimens. Hedgerows and tree-lines are of intrinsic value offering connectivity of structural vegetation across the Site. The unmitigated effects of loss or damage to retained vegetation will result in a permanent low magnitude, **minor adverse Local** level effect.

Fauna

- 7.4.6. Badgers are known to be present in the wider landscape and could opportunistically use the Site as part of a wider foraging territory. Construction could impose hazards to this species commuting through the Site, by creating barriers or means to become entrapped such as deep excavations. Such effects would be temporary, direct of low magnitude and **minor adverse** at a **less than local** level.
- 7.4.7. No bat roosts have been identified. No buildings or trees presenting potential roost features are present within the Site. An assemblage of at least five bats were recorded using the Site, though these are common and widespread species typical of intensively managed, urban edge land. Nocturnal light spill onto bat flightlines such as retained hedgerows, tree-lines and woodland may reduce the available routes for some foraging and commuting bats locally, potentially fragmenting available habitat resources for light sensitive bat species. The majority of contacts recorded were pipistrelle bats that are notoriously adaptable to urban environments and lighting. Retaining existing hedgerows will maintain commuting and foraging opportunities across the Site. Nevertheless, some loss of connective features will be incurred in order to facilitate development together with the potential effect of lighting which could cause some limited fragmentation resulting in a permanent, low magnitude, **minor adverse Local** level effect on commuting and foraging bats.
- 7.4.8. The cropping regime of the arable component of the Site resulted in it providing a limited resource for birds. However, though the relative isolation of arable habitats is somewhat offset by the limited number of species reliant on these habitat, overall, it is considered to have a **minor adverse Local** effect for the farmland bird assemblage.
- 7.4.9. The unmitigated removal of a short section (c.45m) of hedgerow, , 5 individual trees and 0.256ha of bramble and mixed scrub as habitats of potential nesting bird habitat, if undertaken during nesting season (March – August inclusive) would potentially kill and injure wild birds as well as likely damage or destroy the nest and / eggs of wild birds thus breaching legislation. The disturbance from noise, light and vibration during construction activities also has the potential to disturb and displace some birds resulting in nest desertion. Therefore, unmitigated construction has the potential to have a low magnitude, **minor adverse Local** effect on the local farmland bird assemblage.
- 7.4.10. There are limited areas of the Site that offer some opportunities for reptiles and hedgehogs and these species are recorded in the wider landscape. Habitat clearance works will result in the loss of resting/hibernation places such as hedges, scrub and margins, and suitable foraging habitats in the form of arable margins. The effect of the works will be permanent, direct of low magnitude, and **minor adverse** at a **less than Local** level.

Operation

- 7.4.11. Although Attenborough Gravel Pits SSSI is located 2.2km south of the Site, given the scale of the Proposed Development, the context of the Site (residential/urban), the intervening distance and that the SSSI is actively managed to receive visitors, it is not considered to experience any discernable effects from the Proposed Development during its operation. No significant effects are anticipated.

- 7.4.12. Toton Fields LNR and Toton Sidings LWS are located adjacent to the Site and onsite pedestrian routes are designed to link directly into the existing footpath network through these designated sites. As such, residents from the Proposed Development are likely to utilise these designated sites regularly for their daily recreational activities such as dog walking, commuting and exercise. There are however already other existing residential areas to the north, south and west of the Site that also likely exert similar pressure with equally convenient access to these sites and there are existing strategies and management in place to manage visitors. Nevertheless, some increase in that pressure is likely to arise from the increase of population with direct pedestrian access to these sites and therefore there is potential for a **minor adverse County** level effect on Toton Fields LNR and a **minor adverse Local** level effect on Toton Sidings LWS.
- 7.4.13. Locally designated sites that are physically separated from the Site by greater distances and indirect access, are considered likely to experience a lesser number of regular recreational visitors as they disperse away from the Site. Given the scale of the Proposed Development, the context of the Site (residential/urban) and the intervening distance, proposals are not anticipated to exert any discernable indirect recreational effects on the conservation interest of other locally designated sites during its operation. No significant effects are anticipated.
- 7.4.14. Retained hedgerows, scrub, ditch and trees within the context of the Proposed Development could potentially experience polluted runoff from areas of hardstanding (houses, drives etc), littering into the features and damage through informal footfall through/or adjacent the feature. The effect of the Proposed Development will be permanent, low magnitude, **minor adverse Local** level effect on hedgerows and tree-lines and **minor adverse less than Local** level effect on retained scrub and ditch habitats.
- 7.4.15. The Proposed Development would be permeable to the local badger population during its operational phase. Evidence indicates the Site is occasionally and opportunistically utilised and there are more major roads in the surroundings that present barriers and hazards to their movement but the minor roads within the Site are not considered to impose any discernable operational effects on this species.
- 7.4.16. Retained hedgerows, scrub and trees within the context of the Proposed Development would continue to provide foraging and commuting routes for bats. Insensitive lighting of the Site during its operation would decrease the value of these retained features foraging and commuting bats across the Site resulting in a reduced feeding resources. In the worst case this could result in severance or disruption to connectivity of territory. This would constitute a permanent low magnitude **minor adverse** effect at a **Local** level.
- 7.4.17. Due to the extent of habitats loss during the construction phase the effects to birds during the operational phase will be limited to disturbance to birds during management and maintenance of the Green Infrastructure comprising the Proposed Development. This would include appropriate management such as trimming of hedges trees and woody vegetation within nesting bird season which would affect the viability of local populations. This would constitute a permanent low magnitude **minor adverse Below Local** level effect.
- 7.4.18. Nesting birds could also be subject to disturbance due to the proximity of built development through new dog walkers, littering, and light spill. The disturbance could in turn could affect the viability of populations and breeding rates resulting in a permanent low magnitude **minor adverse less than Local** level effect.
- 7.4.19. The creation of gardens and any other green infrastructure through the Site would change the resources available to local fauna. Through the change of land use from an arable landscape to an urban area the resources would be more disturbed by human activity in terms of light, noise,

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vehicles, barriers etc., however the gardens would offer greater diversity of microclimates across the Site in place of the homogeneous arable crop.

7.5. Mitigation, Enhancement and Residual Effects

Mitigation by Design

- 7.5.1. The design of the Proposed Development seeks to minimise the loss of structural vegetation and has located development within the existing field boundary framework. By development being located predominantly within arable habitat of less than local level value, this avoids more severe effects and the removal of perimeter vegetation is minimized as much as is feasible whilst delivering safe and functional access into the Site.
- 7.5.2. Faunal surveys undertaken have demonstrated that there are locally important assemblages of commuting and foraging bats that utilise hedgerows, trees and woodland within the Site, and farmland specialist birds, while that the site provides less than local value to badger, generalist birds, reptiles and hedgehog, which too would utilise hedges, the vegetated ditch and perimeter habitats that the design has sought to retain.
- 7.5.3. The design involves the creation of green space, most notably in the west of the Site which provides a buffer and separation from the built form from the more sensitive designated sites to the west of the Site that are acknowledged to be of County and Local significance. This green space will include creation of complementary habitats to those offsite habitats and will include grassland, woody planting and a SuDS feature. This area may offer more intensively managed habitats closer to the development edge including a play space, which would grade to less formal open space closer to the perimeter habitat and would include wildflower grassland including native species rich meadow grassland mixes, structural native scrub planting and individual native tree planting. Other smaller areas of green space will predominantly be functional amenity space along the road network through the Proposed Development. Other specific features of the proposed habitat creation that provide benefits to flora and fauna include the following:
- The layout is designed to maximise green space that is accessible for management and does not border private gardens where it would be at risk of inappropriate management or removal.
 - Grassland will comprise species rich native species mixes to encourage bees, butterflies and other pollinators.
 - Structural woody planting will include native, fruit bearing species of local origin to provide an optimal foraging resource for a range of invertebrates, small mammals and bird species and be complementary to offsite habitat.
 - The SuDS attenuation feature will be created and seeded with native species wetland species. This will aim to retain water and be designed with a variety of aspects and angles on the banks to increase microclimates for invertebrates and other fauna and support aquatic marginal native vegetation.
- 7.5.4. By maximising hedgerow, tree and woodland retention and designing the green infrastructure of the Proposed Development to buffer and complement the adjacent designated sites of nature conservation interest, this will serve to buffer the offsite LWS / LNR, maintain habitat diversity and offer new permanent grassland, wetland and scrub habitats providing opportunities for bats, birds and other wildlife.

Additional Mitigation.

- 7.5.5. A Construction Environmental Management Plan (CEMP) will be secured via planning condition. The CEMP will include roles and responsibilities during the construction phase to ensure that habitat protection measures are implemented and monitored effectively. Best practice documents will be adhered to from the Pollution Prevention Guidelines (PPG) and Guidance for Pollution Prevention (GPP) to ensure retained habitats are preserved during the construction phase and that soils and water sources are not contaminated to ensure their long-term habitat value.
- 7.5.6. Retained hedgerows, trees and dry ditch along with the green infrastructure strategy comprising buffering on designated sites to the west of the site including the SuDS wetland features, structural planting and meadow grassland, will be entered into sensitive long-term Landscape Environmental Management Plan (LEMP) to ensure an increase in the overall habitat diversity within the Site. By ensuring appropriate management of the retained and created habitats, they will prevail and be capable of supporting a greater range of invertebrate (including removal of agricultural practice and use of any pesticides) biodiversity which in turn will provide prey for common and widespread fauna including bats, birds and small mammals to enhance foraging and commuting habitat for these groups.
- 7.5.7. Within the LEMP, a range of new bat roost and bird nesting features will be secured which will include integrated boxes within buildings and tree mounted boxes on retained trees in the hedgerows and tree lines to increase overall nesting and roost provision within the Site.
- 7.5.8. The drainage strategy (see Appendix 12.1) will seek to ensure a sustained water level within the created SuDS features to support additional emergent vegetation, instigated through the detailed landscape design to increase biodiversity.
- 7.5.9. Best practice and industry standards will be applied to the Proposed Development, so as to ensure an appropriate lighting scheme is created through it, particularly around sensitive habitats, so that potential lighting impacts are reduced to a **negligible** level. The lighting strategy will include the following:
- The avoidance of direct lighting on existing trees/treelines and hedgerows, or proposed areas of habitat creation/landscape planting.
 - Unnecessary light spill will be controlled through a combination of directional lighting, low lighting columns, hooded / shielded luminaires or strategic planting.
 - Public Rights of Way such as bridleways and footpaths should use low level bollards or lighting set within the pathways where at all possible.
 - Where appropriate, luminaires on the Site boundary will be fitted with light baffles to prevent light spill and create dark corridors around site.
- 7.5.10. With the implementation of the mitigation proposed above, residual effects on potential commuting/foraging routes will be limited and any disturbance likely to be caused by lighting on the local bat population is likely to be minimised.

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Table 7.4: Mitigation

Ref	Measure to avoid, reduce or manage any adverse effects and/or to deliver beneficial effects	How measure would be secured		
		By Design	By S.106	By Condition
1	GI layout of site including buffering of retained habitats and offsite designated sites and new areas of semi-natural habitat suitable for range of wildlife.	X		
2	Provision of CEMP document and associated best practice.			X
3	Provision of Biodiversity Protection Zones (BPZ) around ecologically sensitive features (Detail provided within the CEMP).			X
4	Removal of woody vegetation outside bird nesting season			X
5	Provision of bat and bird boxes within new scheme			X
6	Provision of LEMP document and associated best practice and management.			X
7	Good practice lighting scheme to prevent light spill (for bats, and range of fauna)			X

Enhancements.

- 7.5.11. The proposed green infrastructure shall retain the existing hedgerow network, tree-lines and dry ditch in green corridors that will be managed appropriately. By removing the agricultural practice from the hedge / base and ditch bank top and replacing that with permanent grassland will improve the condition of these features. Hedges along the southern boundary shall be enhanced with supplementary native species rich planting. The ditch will be extended creating c.50m more ditch than existing. Proposals will provide additional grassland, wetland and structural planting (predominantly in the west of the site) as well as street trees, verges and garden habitat, maintaining and creating a variety of microclimates, enhancing foraging, commuting and sheltering opportunities to a range of wildlife over and above the existing landscape that currently provides relatively homogeneous arable habitat. Complementary habitat creation ensures that the Proposed Development is in line with National and Local environmental and biodiversity policies and following the principles of the Broxtowe Green Infrastructure Strategy.
- 7.5.12. The availability of potential bird nesting features within the Site will also be significantly enhanced, not only through the planting additional structural planting (mixed native scrub and trees) but also through the provision of a selection of nest boxes integrated into buildings and mounted to retained mature trees to provide nesting opportunities.

- 7.5.13. Currently no potential bat roost features occur onsite therefore provision of a range of new bat roost features will include integrated boxes within buildings to offer enhanced roost provision across the Site.
- 7.5.14. It is recommended that on plot fencing contains hedgehog holes (13 x 13cm holes in closed board fencing) to enable hedgehog to move through gardens to ensure the entire Site remains permeable to hedgehog.

Residual Effects

- 7.5.15. Through a combination of retention of hedgerow, tree and ditch habitats together with the implementation of the CEMP will ensure best practice measures are adopted to protect retained habitats and reduce risk of accidental incursion, such that potential adverse effects will be negated. Green infrastructure proposed including native grassland, scrub and SuDS creation that will also buffer offsite designated sites (LNR and LWS) to the west and south of the Site will deliver an overall minor beneficial effect on the majority of receptors during both the construction and operational phases. With the exception of badger, bats, bird (disturbance during nesting) which are anticipated to have a residual negligible effect during construction, and the loss of foraging / resting for birds considered to have a residual minor adverse effect (not significant). Once operational the residual effect on Toton Fields LNR, Toton Sidings LWS, hedgerows and trees, bat and birds are considered negligible and not significant.
- 7.5.16. Provision of habitats that are complementary to retained onsite and offsite features and the surrounding landscape will create meaningful green infrastructure connectivity in the long term in line with National and Local policy and following the principles of the Broxtowe Green Infrastructure Strategy.

7.6. Cumulative and In-Combination Effects

- 7.6.1. The cumulative effects of relevant developments, as set out in Chapter 2 of this ES have been considered. These include the following:
- 24/00066/FUL: Southfields Farm, Common Lane, Bramcote relates to construction and operation of Battery Energy Storage Systems (BESS) facilities located 1.4km northeast of the Proposed Development. This application intends to deliver minor positive residual impacts at a local level and exceed 10% BNG. As such, minor positive in combination effects would occur.
 - Land at Toton North (application yet to be submitted at time of writing) is located approximately 300m northeast to the Site and relates to construction of 880 dwellings, link road (means of access only), local centre, country park, education provision (forest school) and associated infrastructure' ('the Proposed Development'). The type and location of the application is such it potentially impacts the same bat and bird assemblages in a similar manner as the Proposed Development, though the farmland bird assemblage which is represented as lesser value at Toton West due to differing cropping and management of the onsite habitats. Otherwise, the nature of effects and mitigation required onsite would expect to largely deliver positive residual effects at a local scale and meet BNG obligations. Toton West does not support notable farmland birds in the same way that Toton North does however for the value that Toton West offers to a small number of yellowhammer and winter thrushes there would be a **non significant minor adverse** in combination effect on this receptor.

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- Land at Toton East (application yet to be submitted at time of writing) is located on the opposite site of Stapleford Lane to the east of the Site, which relates to construction of 155 dwellings and associated open space and infrastructure. Again, given the type and location of the application is such it potentially impacts the same faunal assemblages with the exception of the farmland bird assemblage. For the same reasons as Toton North (above), there would be no more than a **non significant minor adverse** in combination effects on specialist farmland birds,.
- 20/00478/FUL: Site of The Magpie Toton Lane, Stapleford is located approximately 350m north of the Site and relates to construction of a 78-bed residential care home with associated parking located. This site is of limited extent and poorly connected to the Site, surrounded by residential land use. Therefore no in combination effects are expected.

7.6.2. Other applications in the surrounding area are more distant (all over 1.5km) from Site with the residential areas of Stapleford and Bramcote as well as the A52 in the intervening distance. The potential effects are such that they would affect different clans, populations, assemblages of species. It is therefore concluded that there would be **no or negligible cumulative effects from these cumulative schemes**.

7.7. Summary

Introduction

7.7.1. This chapter presents an assessment of the likely significant effects of the Proposed Development on Ecology and Biodiversity during construction and operation. Baseline information was gathered from desk-based resources and field surveys.

Baseline Conditions

7.7.2. No sites of international conservation importance are located within a 15km radius of the Site. No sites of national conservation importance are located within a 2km radius of the Site but Attenborough Gravel Pits SSSI is located 2.2km south of the Site. Toton Fields LNR Site and Toton Sidings LWS lie adjacent to the Site. Eleven other non-statutory designated LWS lie within 1km, though all are beyond 300m from the Site.

7.7.3. The Site is predominantly arable with hedgerows with trees at the boundaries of the existing field compartments which represent features of greater ecological value within the Site which were recognized as Local significance. A small area of other neutral grassland, a dry ditch, a very small area of woodland, some scrub and a cluster of young trees also occur within the Site, which were recognized as less than local significance. The trees do however offer intrinsic conservation value as they represent mature structural vegetation and potential value to fauna.

7.7.4. Bat and bird assemblages within the Site were considered to be typical of the habitats present; intensively managed arable, urban edge land. No bat roosts or features suitable to support roosting bats were identified. Five species of bat were recorded utilising the Site for commuting and foraging. Due to their greater level of protection, the bat assemblage was considered to be of local level significance. Overall the bird assemblage was considered less than local significance with arable specialist species considered locally significant due to limited extent of arable habitat locally. The Site supports moderate numbers of foraging woodpigeon, though these are an adaptable species. Limited opportunities for badger, hedgehog and reptile were present on site and no evidence of presence of these species within the Site was confirmed but

they are recognised as being locally present in the surrounding area and therefore they were considered less than local significance to the Proposed Development.

Likely Significant Effects

- 7.7.5. The Proposed Development has the potential to remove or damage locally important habitat features, kill or disturb breeding birds, disrupt and reduce foraging resources for fauna and impose pollutants, light spill and other anthropomorphic impacts such as littering and trampling on the flora and fauna of the Site. These would have minor adverse effects at a Local level prior to mitigation. Where this has potential to impact on offsite habitats on the adjacent Toton Fields LNR, this would have a moderate adverse effect at a County level and a moderate adverse effect at a Local level on the Toton Sidings LWS. The creation of gardens and other green infrastructure through the Site would change the resources available to local fauna, offering greater diversity of microclimates than the current homogeneous arable crop.

Mitigation and Enhancement

- 7.7.6. The majority of the footprint of the Proposed Development is designed to sit within the existing arable land, which is of significantly lower ecological value as a habitat and maximise retention of hedgerow, tree and woodland assets of higher value. Control measures to deliver overall beneficial effects on the local habitat network and faunal assemblages will be secured through design detail and the delivery of a robust CEMP and LEMP. Detailed drainage and landscaping will ensure introduction of additional habitat not currently present such as wetland and species rich grassland. The design involves the creation of green space to expand on the retained features and to buffer and complement offsite designated habitats within the LNR and LWS. Habitat creation will include meadow grassland, wetland and areas of structural woody planting. A range of new bat roost and bird nesting features will be secured and features such as hedgehog holes in fences to deliver further enhancements. These measures will result in an overall **Minor Beneficial** impact upon habitats and faunal assemblages in the long-term.

Conclusion

- 7.7.7. Through a combination of maximising retention of existing habitats of value and creation of green space, the provision of habitats including medium or greater distinctiveness habitat that will improve upon the existing network of habitats to support and improve connectivity for local fauna having a minor beneficial effect on many receptors.
- 7.7.8. **Table 7.5** provides a summary of effects, mitigation and residual effects.

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Table 7.5: Summary of Effects, Mitigation and Residual Effect

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation Enhancement Measures	Residual Effects
Construction								
Toton Fields LNR	Damage to designating features through accidental incursion or pollution event or indirectly from noise, dust, sediment runoff.	Permanent / Direct and Indirect			County	Moderate adverse	Adhere to CEMP. Compliance with all relevant PPG and GPP.	Negligible (not significant)
Toton Sidings LWS	Damage to designating features through accidental incursion or pollution event or indirectly from noise, dust, sediment runoff.	Permanent / Direct and Indirect			Local	Moderate adverse	Adhere to CEMP. Compliance with all relevant PPG and GPP.	Negligible (not significant)
Grassland, woodland scrub	Removal of 0.141ha of other neutral grassland, 0.256ha of bramble / mixed scrub and .036ha of woodland.	Permanent/ Direct	Low	Low	Below Local	Minor adverse	Creation of larger areas of grassland, woodland and scrub within GI	Minor Beneficial (not significant)

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation Enhancement Measures	Residual Effects
Dry ditch	Culverting of c.10m of dry ditch	Permanent/ Direct	Low	Low	Below Local	Minor adverse	Removal of agricultural practice and conversion of bank top habitat from arable to grassland. Additional sections of ditch created (c.50m).	Minor Beneficial (not significant)
Hedgerows, trees and tree lines	Removal of 5 individual trees and a short section (c.45m) of hedge	Permanent / Direct	Low	Low	Local	Minor adverse	Areas of woodland planting, individual trees, also in association with hedgerows within GI. Enhanced retained hedge.	Minor Beneficial (not significant)
	Disturbance/ accidental damage /pollution to retained hedge and trees as well as offsite woodland during construction	Permanent / direct	Low	Low	Local	Minor adverse	Retain and buffer according to RPAs. Appropriate PPG/ GPP followed during construction. Buffer planting and additional areas of woodland, hedge and ditch creatin within GI	Minor Beneficial (not significant)

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Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation Enhancement Measures	Residual Effects
Badger	Reduced or obstructed foraging habitat and potential increased hazards	Temporary / Direct	Low	Low	Below Local	Minor Adverse	Adherence to CEMP including good working practice, covering excavations at night etc.	Negligible (not significant)
Bats	Partial fragmentation of dispersal corridors/hedgerows and foraging habitat	Permanent / Direct	Low	Low	Local	Minor adverse	Adherence to CEMP, protection measures to prevent light spill on adj habitats Habitat creation providing enhanced foraging habitat	Negligible (not significant)
Birds	Loss of foraging/resting habitat for generalist birds	Permanent / Direct	Low	Low	Below Local	Minor adverse	Habitat creation providing enhanced foraging habitat and nest boxes.	Minor Beneficial (not significant)
	Disturbance during nesting	Temporary / Direct	Low	Low	Below Local	Minor adverse	Adherence to CEMP, protection measures, pre-commencement nesting bird checks	Negligible (not significant)

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation Enhancement Measures	Residual Effects
	Loss of foraging/resting habitat for farmland specialist birds	Permanent / Direct	Low	Low	Local	Minor adverse		Minor Adverse (not significant)
Reptiles / hedgehog	Loss of resting/hibernation places and foraging/connective habitats.	Permanent / Direct	Low	Low	Local	Minor adverse	Precautionary measures in CEMP. Habitat creation providing enhanced foraging habitat	Minor Beneficial (not significant)
	Disturbance to other connective habitats such as hedges and woodland.	Temporary / Direct	Low	Low	Local	Minor adverse	Adherence to CEMP, protection measures such as implementation of BPZs.	Negligible (not significant)
Operation								

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Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation Enhancement Measures	Residual Effects
Toton Fields LNR	Damage to designating features through runoff from scheme and anthropomorphic impacts such as littering and trampling.				County	Minor adverse	Adhere to LEMP and carefully designed drainage systems. Bins provided at access point LNR.	Negligible (not significant)
Toton Sidings LWS	Damage to designating features through runoff from scheme and anthropomorphic impacts such as littering and trampling.	Permanent Indirect			Local	Minor adverse	Adhere to LEMP and carefully designed drainage systems.	Negligible (not significant)
Habitat creation	Increased diversity of habitats including grassland, wetland and gardens.	Permanent / Direct	Low	Low	Below Local	Minor beneficial	Appropriate landscape design and drainage scheme.	Minor Beneficial (not significant)
Hedgerows and trees	Damage to feature through impacts such as root compaction, runoff from scheme	Permanent / Direct	Low	Low	Local	Minor adverse	Adhere to LEMP and carefully designed drainage systems.	Negligible (not significant)

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation Enhancement Measures	Residual Effects
	and anthropomorphic impacts such as littering.							
Bats	Light spill onto retained habitats of value (foraging/roosting habitats) damaging the effectiveness for foraging and severing connectivity.	Permanent / Direct	Low	Low	Local	Minor adverse	Buffer planting. Good practice lighting design to be implemented	Negligible (not significant)
Birds	Disturbance to retained/existing habitats of nesting value and foraging habitat through anthropomorphic impacts such as littering and dog walkers and inappropriate management.	Permanent / Direct	Low	Low	Local	Minor adverse	Adhere to LEMP. Provision of bins.	Negligible (not significant)

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Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation Enhancement Measures	Residual Effects
Reptiles / hedgehog	Loss of forging/connective habitats.	Permanent / Direct	Low	Low	Local	Minor adverse	On plot fencing contains hedgehog holes.	Minor Beneficial (not significant)
Cumulative and In-Combination								
Toton East / Toton North Applications	Cumulative effect on specialist farmland birds as increased competition for suitable habitat on the remaining open arable land.	Permanent / Direct	Low	Low	Local	Minor adverse	N/A	Minor adverse (not significant)