

IDI Gazeley UK Ltd
Magna Park Extension: Hybrid Application

ES Chapter 12 – Ecology and Nature
Conservation

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Brookfield Logistics Properties

12 Technical ES Chapter

12.1 Introduction

- 12.1.1 Delta-Simons was commissioned by IDI-Gazeley to undertake an Ecological Assessment of the Proposed Development Site comprising the Magna Park Extension: Hybrid Application. This chapter of the Environmental Statement (ES) addresses the potential effects of the Proposed Development on Ecology and Nature Conservation, having due regard to both the physical proposals, recommended avoidance, mitigation and compensation measures, and ecological enhancements included within the scheme design proposals.
- 12.1.2 The application site (the 'Site') comprises approximately 227 ha of land in two zones and is centred at Ordnance Survey (OS) grid reference SP 5004 8606. Together, the two zones form the Site of the hybrid planning application.
- 12.1.3 Zone 1
- 12.1.4 Zone 1, is an approximately 220 ha triangular parcel of predominantly agricultural land to the north and north-west of Magna Park, Lutterworth. Zone 1 is linked to and extends Magna Park. Its boundaries are created by the A5 to the south and west, Mere Lane to the east and the ridgeline hedgerows that follow the parish boundary to the north.
- 12.1.5 It comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.
- 12.1.6 Zone 2
- 12.1.7 Zone 2, a 6.7 ha rectangular parcel of former agricultural land is situated approximately 1.0 km to the south-east of Zone 1, and to the rear of the George headquarters building on the A4303 near the junction with the A5. Zone 2 consists of two grassland fields separated by a drain, with encroaching scrub, whilst bounding the zone to the east and to its southern extent are mature trees and a brook. Along the northern boundary is hedgerow, scrub and tall ruderals, whilst there is a continuation of grassland habitat bounding the Site to the west. Beyond Zone 2 to the south and east is open farmland.

Proposed Development

Zone 1

- 12.1.8 An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m², Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

Zone 2

- 12.1.9 Zone 2 is the site of the detailed proposals for the dedicated Magna Park railfreight shuttle terminal and HGV parking facility. It benefits from an extant planning permission for a Heavy Goods Vehicle (HGV) parking facility (reference 12/00851/FUL granted by Harborough District Council in November 2012: Change of use of land to provide HGV and car parking; formation of hard standing; erection of vehicle maintenance unit building; administration building; fuel island and vehicle washing facility; and associated landscaping (revised scheme of 11/01757/FUL), Land South of and Adjacent to Asda George Headquarters, A4303 Magna Park, Lutterworth). The Client is in the process of discharging the pre-commencement planning conditions relating to the approved HGV parking scheme and will commence development once the requisite approvals have been secured. The existing access arrangements for both the main Magna Park access and Zone 2 access will benefit from improvements and upgrading works associated with the proposed DHL Supply Chain project, currently the subject of a planning application (ref: 15/00919/FUL) and the extant planning permission for the HGV parking facility.

Policy and Guidance

- 12.1.10 Planning guidelines, international commitments, legislation and planning policies relevant to the protection, conservation and enhancement of nature conservation interests are detailed below.

Legislation

- 12.1.11 The Wildlife and Countryside Act (WCA) 1981 (as amended). This is the primary domestic legislation which protects animals, plants and certain habitats. It has numerous parts and supplementary lists and schedules many of which have been amended since publication. It incorporates the implementation into national law of the Convention on European Wildlife and Natural Habitats (the "Bern Convention") and the European Union Directive on the Conservation of Wild Birds (Directive 2009/147/EC) ("the Wild Birds Directive")
- 12.1.12 Conservation of Habitats and Species Regulations 2010 (as amended). This legislation consolidates all the amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales. The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of

natural habitats and of wild fauna and flora (EC Habitats Directive) into national law. The 2010 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. They set out the requirements for undertaking assessment of impacts on "European sites" through the Habitat Regulations Assessment process.

- 12.1.13 The Protection of Badgers Act 1992. This legislation protects badgers and their setts and makes it illegal to kill, injure or take badgers or to interfere with a badger sett.
- 12.1.14 The Hedgerow Regulations 1997. Under the Hedgerows Regulations it is against the law to remove or destroy certain hedgerows without permission from the local planning authority. Various criteria specified in the Regulations are used to identify "important" hedgerows for wildlife, landscape or historical reasons.
- 12.1.15 The Countryside and Rights of Way Act 2000. The Act provides for public access on foot to certain types of land, amends the law relating to public rights of way, increases measures for the management and protection for Sites of Special Scientific Interest (SSSI) and strengthens wildlife enforcement legislation, and provides for better management of Areas of Outstanding Natural Beauty (AONB).
- 12.1.16 The Natural Environment and Rural Communities Act (NERC, 2006). Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biological biodiversity in England. The S41 list updates and supersedes the list provided for in s74 of the Countryside and Rights of Way Act 2000. The s41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.
- 12.1.17 The NERC Act established Natural England in 2006 as an independent body responsible for conserving, enhancing and managing England's natural environment for the benefit of current and future generations. The NERC Act sets out Natural England's statutory purpose: 'to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development'. One of Natural England's powers under the NERC Act is to enter into management agreements with people who have an interest in land.
- 12.1.18 The Environmental Protection Act 1990 (as amended). The Act provides the fundamental structure and authority for waste management and control of emissions into the environment in the United Kingdom, including through a system of environmental permits for certain activities. The Act is supported by a series of subordinate legislation including the Environmental Permitting (England and Wales) Regulations 2010.
- 12.1.19 The Environmental Damage (Prevention and Remediation) Regulations 2009. The 2009 Regulations apply in relation to prevention and remediation of environmental damage to land, surface or ground water, species and habitats protected under the Wild Birds Directive or the EC Habitats Directive and Sites of Special Scientific Interest. In the case of damage to species and habitats, remediation measures that may be required include primary remediation (cleaning up), complementary remediation (such as cleaning an alternative site if the damaged site cannot be fully restored) and compensatory remediation (to compensate for the time the damaged site remained in its damaged state).

- 12.1.20 UK Biodiversity Action Plan (BAP) / England Biodiversity Priority Species (EBP). The UK BAP describes the biological resources of the UK and provides detailed plans for conservation of these resources. Action plans for the most threatened species and habitats are set out to aid recovery, and national reports, produced every three- to five-years, show how the UK BAP is contributing to the UK's progress towards the significant reduction of biodiversity loss. UK BAP priority species were those that were identified as being the most threatened and requiring conservation action under the UK Biodiversity Action Plan (UK BAP). As a result of devolution, and new country-level and international drivers and requirements, much of the work previously carried out by the UK BAP is now focussed at a country-level rather than a UK-level, and the UK BAP was succeeded by the 'UK Post-2010 Biodiversity Framework' in July 2012. The UK list of priority species, however, remains an important reference source and has been used to help draw up statutory lists of priority species in England. UK BAP Priority Species and Habitats continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.
- 12.1.21 Leicestershire and Rutland Local BAP. Modelled on the National plan, the Leicestershire and Rutland BAP concentrates on species and habitats of local conservation concern.

NPPF

- 12.1.22 National planning policy relating to the protection of biodiversity is contained within the National Planning Policy Framework (NPPF) and the National Planning Policy Guidance (NPPG). The framework advises that "*development proposals where the primary objective is to conserve or enhance biodiversity should be permitted*" and, "*opportunities to incorporate biodiversity in and around developments should be encouraged*" (paragraph 118).
- 12.1.23 Section 11 (Conserving and Enhancing the Natural Environment) advises that the planning system should contribute to and enhance the natural and local environment through a number of means, including:
- i. Recognising the wider benefits of ecosystem services; and
 - ii. Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures
- 12.1.24 Paragraph 118 sets out that when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:
- i. "*If significant harm 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;*
 - ii. "*Proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have 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;*

iii. Development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;

iv. Opportunities to incorporate biodiversity in and around developments should be encouraged;

v. Planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and

vi. The following wildlife sites should be given the same protection as European sites:

- *Potential Special Protection Areas and possible Special Areas of Conservation;*
- *Listed or proposed Ramsar sites; and*
- *Sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites”.*

PPG

12.1.25 Paragraph 12 of the NPPG states that local designated sites (which include ‘Local Wildlife Sites’ and ‘Local Geological Sites’) make an important contribution to ecological networks and are overseen by Local Sites systems, which encompass both biodiversity and geological conservation.

12.1.26 Paragraph 17 of the NPPG states that biodiversity enhancement in and around development should be led by a local understanding of ecological networks, and should seek to include:

- i. Habitat restoration, re-creation and expansion;
- ii. Improved links between existing sites;
- iii. Buffering of existing important sites;
- iv. New biodiversity features within development; and
- v. Securing management for long term enhancement.

12.1.27 Office of the Deputy Prime Minister Circular 06/2005. This provides guidance on the application of the law on planning and nature conservation as it applies in England, including the need to undertake ecology surveys before a planning application is submitted, such that only in exceptional circumstances should they be left to coverage under planning conditions. The circular complements the NPPF and NPPG.

Core Strategy

12.1.28 At a local level the current policy framework for Harborough District Council (HDC) is Harborough District Local Development Framework Core Strategy 2006-2028, adopted in November 2011. The principle planning policy relating to nature conservation is reflected in Spatial Objective 5, which states ‘To protect and enhance the Districts distinctive rural landscape, settlement pattern, historic assets natural environment and biodiversity’.

- 12.1.29 CS1 Objective N is concerned with the development of green infrastructure asset of the district as a resource for biodiversity, conservation and enhancement, habitat restoration, low key recreation, tree and woodland creation and flood mitigation.
- 12.1.30 CS8: Protecting and Enhancing Green Infrastructure. Seeks to secure a high quality, accessible and multi-functional green infrastructure network across both rural and urban areas of Harborough district, which contributes to healthy lifestyles and a rich, diverse natural environment. Opportunities to maximise the potential value of existing and new greenspace will be encouraged through the promotion of recreation, tourism, public access, education, biodiversity, geo-diversity and water management; the protection and enhancement of heritage assets and local landscape (including protection of and proposals which increase tree and woodland cover); and the mitigation of climate change. Improvements to links between green assets within and extending beyond the District will be a priority.
- 12.1.31 Through the systems of development control, grant aid, management agreement and positive initiatives, the Council and its partners are committed to:
- i) Protect, manage and enhance the District's biodiversity and geo-diversity based on a network of international, national and local designated sites (statutory and non-statutory);
 - ii) Contribute to the achievement of Leicester, Leicestershire and Rutland Biodiversity Action Plan targets for species and habitats and respond to changing conservation priorities as they emerge;
 - ii) Identify and protect priority habitats through the creation of buffer zones;
 - iv) Encourage the restoration of fragmented habitats;
 - v) Promote the management of biodiversity, encouraging the maintenance of wildlife corridors, ecological networks and stepping stones at the local level that contribute to the Strategic Green Infrastructure Network across sub-region and neighbouring local authorities;
 - vi) Avoid demonstrable harm to habitats or species which are protected or which are of importance to biodiversity;
 - vii) Safeguard the biodiversity value of previously developed land where significant;
 - viii) Require proposed new development to incorporate beneficial features for biodiversity as part of good design and sustainable development;
 - ix) Seek to secure the designation of additional Local Nature Reserves where appropriate. The designation of a Local Nature Reserve as part of new development in Market Harborough will be a priority;
 - x) Support measures aimed at allowing the District's flora and fauna to adapt to climate change; and
 - xi) Support the protection of features and areas of geo-diversity value and support their enhancement for amenity use and education.

Saved LP Policies

- 12.1.32 The Harborough District Local Development Framework Core Strategy 2006-2028 replaces the majority of Local Plan Policies with no saved policies relating to nature conservation.

12.2 Assessment Method

12.2.1 This methodology follows the principles set out within the Guidelines for Ecological Impact Assessment (EclA) in the UK and Ireland; Terrestrial, Freshwater and Coastal published by the Chartered Institute of Ecology and Environmental Management (CIEEM) in 2016. The baseline for the EclA has been established through a combination of desk study, field survey and consultation. In 2014, Delta-Simons commissioned a biological data search from Leicestershire and Rutland Environmental Records Centre (LRERC), Warwickshire Biological Records Centre (WBRC) and Leicestershire and Rutland Badger Group (LRBG). In addition, a search was undertaken on the Multi-Agency Geographic Information for the Countryside (MAGIC) website. The following information has been obtained from these resources:

- Statutorily designated sites within 3 kilometres (km) of the centre of Zone 1 of the Site, and within 1 km of Zone 2 of the Site;
- Non-statutorily designated sites within a 3 km radius of the centre of Zone 1 of the Site, and within 1 km of Zone 2 of the Site;
- Protected or notable species of flora and fauna within a 3 km radius of the centre of the Site and within 1 km of Zone 2 of the Site; and
- Badger records within a 3 km radius of the centre of Zone 1 of the Site.

12.2.2 In 2014, and updated in 2015, Delta-Simons undertook an Extended Phase 1 Habitat Survey of Zone 1 of the Site. Whilst Zone 2 has an extant planning permission, an Extended Phase 1 Habitat Survey of this Site was undertaken on 23rd July 2015 to update the previous survey report (Ecological Assessment of land behind ASDA George building, Arnott & Mann Consulting Ecologists, June 2012). Where access permitted, adjacent habitats were also considered to assess the Site within its wider context, and to provide information with which to assess the possible effects of the Proposed Development This survey followed the methodology set out by the Joint Nature Conservation Council (JNCC), updated in 2010. The aims of the survey were to:

- i. Identify habitat types on the site using the standardised Phase 1 Habitat Survey technique;
- ii. Identify areas of potential for protected species/species of conservation concern within the Application Site;
- iii. Identify areas of potential for protected species/species of conservation concern immediately outside the Application Site;
- iv. Prepare a Phase 1 Habitat Survey Plan of the Application Site; and where necessary,
- v. Propose recommendations for further surveys.

- 12.2.3 The Extended Phase 1 Habitat Survey Reports for Zone 1 and Zone 2 are included as Appendices I.1 and I.2, respectively.
- 12.2.4 Following the results of the Extended Phase 1 Habitat Survey, further faunal surveys were undertaken of Zone 1. The following England Priority habitats and species have been recorded on, or near to, the Site and have, therefore, been considered in addition to UK and European protected species:
- hedgerows;
 - ponds;
 - brown hare; and
 - common toad.
- 12.2.5 A Bat Habitat Assessment was completed during September 2014 – February 2015. This included an evaluation of the suitability of habitats on-Site for foraging and commuting bats and also a Bat Roost Potential (BRP) Survey, of all the semi-mature and mature trees, and all of the buildings on Zone 1 of the Site. An internal and external scoping survey was undertaken of 24 buildings at the Site and an assessment was made of three tunnels that pass beneath the dismantled Midland Counties railway line. The trees associated with Zone 2 were assessed for their BRP as part of the initial Extended Phase 1 Habitat Survey, no buildings are present within Zone 2. The BRP was undertaken by a Natural England bat licenced ecologist to search for potential roosting features for bats, and for signs of bats and bat activity, to indicate the presence of roosting bats. It followed guidance set out by the Bat Conservation Trust (Hundt 2012); and within Natural England's Bat Mitigation Guidelines (Natural England, 2004). Results of the Bat Habitat Assessment for Zone 1 are provided as Appendix I.3. Results of the tree assessment for Zone 2 are provided in Appendix I.2.
- 12.2.6 A series of monthly Bat Transect Surveys across the different habitats within Zone 1 at the Site were completed between September 2014 and August 2015 to determine the species and numbers of bats utilising the Site, and how it is used. The survey works have followed the guidance set out by the Bat Conservation Trust (Hundt 2012) and comprised a total of nine transect routes in order to cover all areas of the Site. Results of the Bat Transect Surveys are provided as Appendix I.4.
- 12.2.7 Nocturnal bat surveys were undertaken of the buildings, trees and structures within Zone 1 assessed as having a low, medium or high BRP. The surveys were carried out with reference to Natural England's Bat Mitigation Guidelines (Natural England, 2004) and the Bat Conservation Trust (BCT) Guidelines (Hundt, 2012). In addition, SM2BAT static detectors were set out in locations identified as confirmed bats roosts during the initial BRP assessment, at possible hibernation sites, and also at potential roost sites that were observed during the activity Transects. Results of the Surveys are provided as Appendix I.5.
- 12.2.8 Wintering Bird Surveys (WBS) were completed across Zone 1 at the Site between October 2014 and February 2015, with two Site visits completed per month. The field survey methodology was based upon, and adapted from generic wintering bird monitoring methods given in Gilbert et al (1998). During each visit, a transect route was walked, and all birds seen or heard within the survey area were identified and recorded. Results of the WBS are provided as Appendix I.6.
- 12.2.9 A Badger Survey of Zone 1 and surrounding land, where access permitted, was completed in January 2015 following the standard methodology (Harris et al. 2001). This involved a systematic search of suitable habitat for sett entrances and other signs associated with badger activity, including spoil heaps, bedding

material, runs, footprints, hairs, scratching posts and feeding signs. Each sett found was recorded and assigned to one of four sett categories (main, annexe, subsidiary and outlying). Whether or not the sett was classified as 'active' or 'disused' was determined in accordance with the latest guidance on 'Current Use' in the definition of a badger sett (Natural England, June 2009). Results of the badger survey are provided in a separate report as a Confidential Appendix to this ES (Appendix I.7).

- 12.2.10 Where access allowed, Habitat Suitability Index (HSI) calculations were completed for all ponds on-Site, and within 500 m of Zone 1, that have connectivity to it for GCNs, with reference to Oldham et al (2000). This allowed each pond to be assessed for its suitability to support breeding GCNs, and to help to determine the requirement for aquatic GCN surveys, alongside a review of previous GCN aquatic survey reports for sites within the surrounding area.
- 12.2.11 As part of ongoing maintenance and improvement works to the Magna Park Lutterworth (MPL) service farm to the east of the Application Site, Middlemarch Environmental Ltd were commissioned to complete GCN Aquatic Surveys of all ponds within 500 m of the service farm that were considered suitable to support GCNs. The survey results have been supplied to Delta-Simons to inform their report.
- 12.2.12 Four Aquatic GCN Survey visits have been undertaken of those ponds on Zone 1, or within 500 m of Zone 1 of the Site that were assessed as having an 'Average' or above likelihood of supporting GCNs, and of those ponds that had a 'Below Average' or lower suitability to support GCNs but from previous reports were known to have supported this species in recent years. Two further surveys were undertaken where GCN presence was confirmed in order to determine a population estimate. These survey visits were undertaken by at least one Natural England licenced surveyor and followed the guidance set out by the GCN Mitigation Guidelines (English Nature, 2001). As such three visits were undertaken between mid-April and mid-May 2015, and all visits were completed between mid-March and mid-June 2015, during suitable weather conditions. At least three of four possible survey techniques were employed at each pond that include bottle trapping, egg search, torching and netting. Results of the Aquatic GCN Surveys are included as Appendix I.8.
- 12.2.13 A Riparian Mammal Survey was undertaken of Mere Lane Lagoon and the watercourses on Zone 1 of the Site in April 2015, with the main stream within the centre of Zone 1 surveyed in August 2015. The methodology for the water vole survey followed that of Strachan, Moorhouse & Gelling (2011), and involved entering the water in order to undertake a fingertip search of the banks to at least 2 m from the water's edge. This allowed for the identification of any field signs associated with this species, including any burrow entrances, lawns, prints, latrines, droppings, mammal runs and feeding stations that may be present. The methodology for the otter survey followed Lenton et al. (1980), such that field signs such as spraints, runs, sightings and footprints were searched for. These field signs can indicate the presence of resting areas (couches) or holts, and are often found along with scratch marks, rubbing and hair around their entrances. Results of the Survey are provided as Appendix I.9.
- 12.2.14 Breeding Bird Surveys (BBS) were completed of Zone 1 at the Site between March 2015 and June 2015, with two Site visits completed per month. The survey methodology was broadly based on that of territory mapping⁴ as used for the British Trust for Ornithology (BTO) Common Bird Census (CBC). During each visit, a transect was walked and all birds seen or heard within the survey area were identified and recorded. Results of the Survey are provided as Appendix I.10.

12.2.15 Reptile Surveys were undertaken of suitable habitat at the Site, including the rough grassland surrounding Mere Lane Lagoon and the adjacent immature woodland plantation of Zone 1. Survey methodologies followed recommendations in the Herpetofauna Workers' Manual (Gent & Gibson 2003) and comprised the placement and seven checks of artificial refugia within areas of suitable reptile habitat at the Site. A total of 70 artificial refugia were placed at the Site in order to ensure a minimum density of 10 refugia per hectare as recommended by the Herpetofauna Groups of Britain and Ireland (HGBI, 1998). These comprised a mixture of corrugated bitumen roofing sheets, corrugated metal sheeting and roofing felt tiles, each measuring 0.5 m x 0.5 m. After allowing 14 days for the artificial refugia to settle into the sward they were all checked, above and below, on seven separate occasions for reptiles. In addition to checking artificial refugia, a cold search of natural refugia and on-Site debris was also undertaken during each check. This involved any rocks or debris being overturned to check for reptiles. Any reptiles found were identified and where possible a rough age category and sex was determined. The location of any reptiles found was recorded in order to determine the general usage of the Site by reptile species. The survey was undertaken by a suitably qualified ecologist during appropriate weather conditions between 28th May 2015 and 9th July 2015. A viable survey was considered to be within a temperature range of between 10 - 20 °C (Edgar et al., 2010) with no heavy rain or considerable overnight frost. Results of the Survey are provided as Appendix I.11.

12.2.16 A Biodiversity Assessment (Appendix I.12) was undertaken of MPL. This involved a review of the success of the Magna Park development in terms of its nature conservation/ biodiversity value, as well as identifying potential improvements to these aspects that could be carried forward within the proposed extension of Magna Park. The aim being to increase the biodiversity value of the Site in order to benefit the local environment.

Significance Criteria

12.2.17 The methodology for the EclA was guided by CIEEM and comprises a staged approach to assessing the potential impacts resulting from the Proposed Development on the ecological features within the zone of influence.

12.2.18 The EclA has entailed the following stages:

- i. Definition of baseline conditions and identification of 'important' ecological features;
- ii. Prediction of potential impacts;
- iii. Definition of applicable avoidance, mitigation, compensation and enhancement measures;
- iv. Assessment of residual effects;
- v. Cumulative impact assessment; and
- vi. Statement of significance.

12.2.19 'Important ecological features' have been determined based on existing statutory, policy and conservation objectives on an international, national, county and local level.

12.2.20 The integrity of a site is defined in Government Guidance as, "*the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or levels of populations of the species for which it was classified*". This acceptable definition applies easily to designated sites, but for sites which have not been designated, ecological judgment and background information is required to provide the context. The assessment of the significance of the impact requires consideration of the ecological value/

significance and the magnitude of impact. If significant impacts are identified then appropriate mitigation should be proposed.

12.2.21 The CIEEM Guidelines encourage an approach to evaluation that involves taking apart the different values that can be attached to ecological features, whilst acknowledging that their attempt to produce guidance on defining how habitats and species could be assigned to different levels of value was unworkable. Therefore, instead, and in accordance with the CIEEM Guidelines the value or potential value of an ecological resource will be determined within a defined geographical context and assigned a value as set out below:

- i. International and European;
- ii. National;
- iii. Regional;
- iv. Metropolitan, County, vice-county or other local authority-wide area; and
- v. Local

12.2.22 Legislative protection does not form part of the evaluation of habitats or species. For example, the presence of a small population of great crested newt (GCN) *Triturus cristatus* (an European Protected Species) on a site would not by default afford the site international importance (and thus analogous with a Special Area of Conservation (SAC)). However, reflecting the conservation status of GCNs, it is reasonable to value the local population as important at, perhaps, the County level.

12.2.23 In addition to outlining the importance of the ecological features identified, the magnitude of predicted potential ecological impacts prior to any mitigation are evaluated. This is done by assessing the potential impacts on each of the identified ecological features based on available information including the background survey / reporting prepared by Delta- Simons, and available information on existing conservation status.

12.2.24 The likely effects of potential impacts on ecological receptors largely depend upon their sensitivity, whilst the level of certainty that an impact will occur as predicted is based on professional judgment. The following parameters may affect ecological features:

- i. Magnitude – i.e. the size of an impact in quantitative terms where possible;
- ii. Extent – i.e. the area over which an impact occurs;
- iii. Duration – i.e. the time for which an impact is expected to last;
- iv. Reversibility – i.e. is the impact permanent or temporary; and
- v. Timing and frequency – e.g. related to breeding seasons.

12.2.25 In accordance with the CIEEM guidelines, “*an ecologically significant effect is an effect that either supports or undermines the biodiversity conservation objectives for ‘important ecological features’ or for biodiversity*”. The value of any feature that will be significantly affected is then used to determine the geographical scale at which the impact is significant.

12.2.26 As stated in the CIEEM guidelines “*a significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project*”. As such, using an approach to valuing impacts that involves professional judgement and reference to available conservation objectives, neutral and minor effects are considered to be not significant, while moderate and major effects are assessed to be significant. Table 12.1 below provides a comparison of the terms used.

Table 12.1 Significance Effect Criteria

Effect Significance	Level of Impact	Equivalent CIEEM Assessment
Significant	Major Beneficial	Significant Positive Impact on biodiversity conservation objectives at given geographical context
	Moderate Beneficial	Positive Impact on biodiversity conservation objectives at given geographical context
Non-significant	Minor Beneficial	Limited Positive Impact on biodiversity conservation objectives at given geographical context
Neutral	Negligible	No Significant Impact on biodiversity conservation objectives at given geographical context
Non-significant	Minor Adverse	Limited Adverse Impact on biodiversity conservation objectives at given geographical context
Significant	Moderate Adverse	Adverse Impact on biodiversity conservation objectives at given geographical context
	Major Adverse	Significant Adverse Impact on biodiversity conservation objectives at given geographical context

12.3 Baseline Conditions

12.3.1 The following section describes the baseline ecological conditions at the Proposed Development Site outlining the results of the desk study and field survey findings. It is anticipated that there will be minimal delay between the cessation of agricultural practices at the Site and commencement of the proposed development. Current management will remain unchanged up until development and, therefore, baseline conditions at the time of writing this Report are anticipated to reflect those at the commencement of the proposed development. The conservation importance of the features identified is then evaluated using the geographical scale outlined in the previous section.

Statutory Designated Sites

12.3.2 The results of the MAGIC data search and the LRERC and WBRC desk search indicate that there are no statutory designated sites within 3 km of the centre of Zone 1, nor within 1 km of the centre of Zone 2. These statutory designated sites are considered to be outside the zone of influence for the development and, therefore, this receptor is not considered further within this assessment.

Non-Statutory Designated Sites

12.3.3 The LRERC data search indicates four Local Wildlife Sites (LWS) are present within 3 km of the centre of the Site, the closest being Old Manor Reedbed LWS

situated approximately 800 m to the north of Zone 1. The geographical level of value of this site is considered to be County value.

- 12.3.4 The records centre also indicated two candidate LWS between 1.5 km and 2 km from the Site and a Potential LWS associated with the hedgerow (row of scattered broadleaved trees) along the southern Site boundary of Zone 2. Numerous Parish, District and County sites have been identified within the search area, including two associated with the stream that bisects Zone 1 and a pond approximately 30 m to the south-east of Zone 1. Given the criteria associated with these designations, the geographical level of value of these sites is considered to be Local value.
- 12.3.5 The WBRC desk search indicates 14 EcoSites are present within 3 km of the centre of the Site, which are sites of nature conservation importance that have either been identified as potential LWS or are currently ungraded. The closest site is the disused railway line to the south of the A5, adjacent to the south-western Site boundary of Zone 1. This is identified as being a valuable linear habitat, supporting a range of plant species, including black spleenwort *Asplenium adiantrum-nigrum*, lady fern *Athyrium filix-femina*, polypody *Polypodium interjectum*, harts-tongue fern *Phyllitis scolopendrium* and large thyme *Thymus pulegioides*, all of which are rare in the county. A good range of mosses, lichens and liverworts have also been recorded. There are records for a range of invertebrates, including grizzled skipper *Pyrgus malvae* and dingy skipper *Erynnis tages*. Badgers have also been recorded there, and the site is considered suitable for GCNs. The geographical level of value of this site is considered to be Local value.

Habitats

- 12.3.6 The following habitat/vegetation types were identified within the Proposed Development Site (Zones 1 and 2):
- broadleaved plantation woodland;
 - scattered broadleaved trees;
 - scattered coniferous trees;
 - marshy grassland;
 - poor semi-improved grassland;
 - improved grassland;
 - tall ruderal;
 - standing water;
 - running water;
 - arable;
 - intact hedgerow – species poor;
 - defunct hedgerow – species poor;
 - dry ditch;
 - dense scrub;
 - scattered scrub;
 - buildings; and
 - hard standing.
- 12.3.7 Each habitat is discussed in turn below with the key floral species within each habitat and any observation of current faunal use. The location of these habitats is shown in Figure 2 of Appendix I.1 and Figure 2 of Appendix I.2. The nature conservation value has been included for each habitat type following the habitat description. Without the Proposed Development it is considered that the existing land use and associated management at the Site would continue and the range and status of the habitats would remain largely unchanged.

Broadleaved Plantation Woodland

12.3.8 Zone 1 - Immature broadleaved woodland was recorded within the northern, central and eastern extents of Zone 1 and within land surrounding the MPL service farm to the east of Mere Lane. The woodlands were dense, and since planting, additional self-seeded saplings had grown. They lacked a dominant species, and supported a combination of the following frequently occurring species: Pedunculate oak *Quercus robur*, silver birch *Betula pendula*, beech *Fagus sylvaticus*, ash *Fraxinus excelsior*, field maple *Acer campestre*, alder *Alnus glutinosa*, wild cherry *Prunus avium*, hazel *Corylus avellana* and sycamore *Acer pseudoplatanus*. Occasional spindle *Euromymous europeaus*, apple *Malus pumlia*, grey willow *Salix cinerea*, Norway maple *Acer platanoides* and common lime *Tilia x europaea* were also present. The woodland habitat provides bird nesting opportunities within trees of adequate stature, as well as foraging opportunities and shelter for a range of faunal and amphibian species. The majority of woodland trees were assessed as having negligible BRP, however, a total of 12 semi-mature and mature woodland edge trees were identified to support features such as storm damage, rot holes, lifted bark and ivy *Hedera helix* growth suitable to support roosting bats and were assessed as having low – medium BRP. Nocturnal surveys of 7 of the trees together with the results from the bat activity transects have identified two individual common pipistrelle roosts within T5 and T19, respectively, and a further potential roost within T16 identified during a transect survey (See Figure 5 of Appendix I.3). Woodlands and copses of these sizes, structure and species composition are widespread throughout the local area and, although this habitat may provide opportunities for faunal species, they are considered to be of Local value, representing a small proportion of suitable habitat within the local area.

Scattered Broadleaved Trees

12.3.9 Zone 1 - Scattered trees within Zone 1 were confined to the field boundary hedgerows. The trees were mature or semi-mature in age and comprised a combination of pedunculate oak, ash, English elm *Ulmus procera*, Norway maple and field maple. Occasional black-poplar *Populus nigra*, grey willow, goat willow and white willow *Salix alba* were also present. A total of 30 trees were identified to support features, such as storm damage, rot holes, lifted bark and ivy growth suitable to support roosting bats and were assessed as having low – medium BRP. Two of the scattered trees at the Site were identified to support potential small common pipistrelle roosts, identified from transect surveys and static bat detector recordings (T41 and T45 – See Figure 5, Appendix I.3). Evidence of previous bird nesting activity was also recorded within the trees at the Site.

12.3.10 Zone 2 – Scattered trees within Zone 2 were present predominately along the southern Site boundary, and comprised ash, oak, hawthorn, alder, silver birch, elder, willow *Salix* spp and sycamore. The majority of the trees lacked any features suitable to support roosting bats, however, an oak tree and an ash tree on the southern Site boundary were assessed as having low BRP due to a branch wound and ivy growth, respectively.

12.3.11 Scattered broadleaved trees of the species recorded on-Site are widespread throughout the local area and, although this habitat may provide opportunities for faunal species, they are considered to be of Local value, representing a small proportion of suitable habitat within the local area.

Scattered Coniferous Trees

12.3.12 Zone 1 - A row of semi-mature *Leylandii* trees were present within the southern extent of Zone 1 along the edge of the A5. Whilst these provide suitable bird

nesting habitat, they were not considered suitable to support roosting bats. This habitat is considered to be of Local value.

Marshy Grassland

12.3.13 Zone 1 - A single field adjacent to the northern boundary of Zone 1 comprised marshy grassland. Ruderal species frequently occurring included spear thistle *Cirsium vulgare* and broadleaved dock *Rumex obtusifolius*, whilst common knapweed *Centaurea nigra* was also commonly found. Frequently occurring grassland species included cock's foot *Dactylis glomerata*, annual meadow grass *Poa annua*, Yorkshire fog *Holcus lanatus* and perennial ryegrass *Lolium perenne*. A number of scrapes had been created within the damper areas. At the time of the Extended Phase 1 Habitat survey in September 2014 these were dry, however, the presence of reed mace *Typha latifolia* and soft rush *Juncus effusus* indicated that these were seasonally wet, and during the GCN aquatic surveys limited standing water was observed during the early survey visits (April 2015). The marshy grassland was considered to support a limited floral diversity and provides limited opportunities for faunal species. This habitat is considered to be of Local value.

Poor Semi-Improved Grassland

12.3.14 Zone 1 - In the central region of Zone 1 were several fields of poor semi-improved grassland, which were being grazed by sheep at the time of the survey. The grassland had a short sward and was dominated by perennial ryegrass *Lolium perenne*, with frequent creeping buttercup *Ranunculus repens*, dandelion *Taraxacum* sp, creeping thistle *Cirsium arvense*, broadleaved dock and occasional lesser burdock *Artium minus*.

12.3.15 An 8 m wide strip of semi-improved grassland was present along the top of the dismantled Midland Counties railway embankment running north-south across Zone 1. Occasional glades were also present and appeared to be managed, with the grassland supporting a sward height of approximately 30-50 cm at the time of the Extended Phase 1 Habitat survey. Species recorded include perennial ryegrass, cock's foot, creeping buttercup, creeping thistle, common knapweed, wild carrot, lady's bedstraw *Gallium verum*, black medic *Medicago lupulina*, bird's-foot trefoil *Lotus corniculatus*, yarrow *Achillea millefolium* and lady's mantle *Alchemilla vulgaris*, with occasional chicory *Cichorium intybus*.

12.3.16 The arable fields within Zone 1 were surrounded by poor semi-improved grassland margins. The field margins varied between 2-6 m wide and were managed, with the grassland supporting a short sward to a height of approximately 5-10 cm at the time of the Extended Phase 1 Habitat survey. They were dominated by perennial ryegrass, with frequently occurring cock's foot *Dactylis glomerata*, creeping buttercup, creeping thistle and broadleaved dock. Poor semi-improved grassland, of a similar species composition, was also situated to the east of Mere Lane and along the grassland verges of the A5.

12.3.17 Zone 2 – The majority of Zone 2 comprised poor semi-improved grassland. Yorkshire Fog *Holcus lanatus*, common bent *Agrostis capillaris*, creeping bent *Agrostis stolonifera*, cock's foot *Dactylis glomerata* and perennial rye grass *Lolium perenne* were all abundant, with occasional tufted hair grass *Deschampsia cespitosa*, meadow foxtail *Alopecurus pratensis*, Timothy *Phleum pratense*, false oat grass *Arrhenatherum elatius*, creeping soft grass *Holcus mollis* and wavy hair grass *Deschampsia flexuosa*. Patches of creeping thistle *Cirsium arvense* and common ragwort *Jacobaea vulgaris* were noted within the grassland and occasional broadleaved dock *Rumex obtusifolius*, hogweed *Heracleum sphondylium*, spear thistle *Cirsium vulgare*, meadowsweet *Filipendula ulmaria*, dandelion *Taraxacum officinale*, yarrow *Achillea millefolium*, red clover *Trifolium*

pratense, white clover *Trifolium repens*, common sorrel *Rumex acetosa*, creeping buttercup *Ranunculus repens* and common vetch *Vicia sativa* were also recorded.

12.3.18 This habitat is widespread within the local area. This habitat is considered to be of Local value.

Tall Ruderal

12.3.19 Zone 1 - Commonly occurring ruderals were common nettle, creeping thistle and spear thistle, which were found either in small patches or strips at the base of hedgerows, and beneath mature trees where the ground was heavily shaded. An area of land bordering the northern extent of the Site that appeared to have been left fallow had been colonised predominantly by creeping and spear thistle and broadleaved dock, with occasional hard rush *Juncus inflexus*, great willowherb *Epilobium hirsutum* and Alexander's *Smyrniololium olusatrum*.

12.3.20 Zone 2 - An earth bank within the northern extent of Zone 2 was dominated by a combination of common ragwort, spear thistle, creeping thistle, common nettle, rosebay willowherb and brambles. Further occasional mostly non-ruderal species including broadleaved dock, self-heal *Prunella vulgaris*, creeping buttercup, ribwort plantain, greater plantain, hedge bindweed *Calystegia sepium*, sweet vernal grass *Anthoxanthum odoratum*, Yorkshire Fog, rough meadow grass *Poa trivialis*, white clover and scarlet pimpernel *Anagallis arvensis* were also recorded along the bank.

12.3.21 This habitat is widespread within the local area and is considered to be of Local value.

Standing Water

12.3.22 Zone 1 - Four ponds were identified within Zone 1. Pond 1 is situated within the southern extent of Zone 1, at OS grid reference SP 5027 8529. The pond measured approximately 1240 m² and was situated within an area of semi-improved grassland. At the time of the HSI assessment the water quality was assessed to be moderate and the pond supported occasional submerged and emergent vegetation. No fish were observed, however, their presence was considered possible. The pond was unshaded and surrounded by moderate terrestrial habitat with good connectivity to additional waterbodies and terrestrial resources. Pond 1 was assessed to have a HSI score of 0.77 indicating a 'good' likelihood of supporting GCNs, however, no evidence of GCNs was recorded during the aquatic surveys. A small population of smooth newt were identified to be breeding in Pond 1, whilst a peak count of 70 common toad were recorded at the pond.

12.3.23 Pond 2 is situated to the south-west of Pond 1 at OS grid reference SP 5008 8517. Pond 2 is located within the grounds of a residential property, with amenity grassland lawns. There was no aquatic vegetation and the turbidity of the water was high due to the presence of domesticated geese and a dense population of crucian carp *Carassius carassius* within the pond, whilst willow surrounded the pond. Pond 2 was assessed to have a HSI score of 0.25, indicating a 'poor' suitability of supporting GCNs. No further surveys were undertaken of the pond.

12.3.24 Mere Lane Lagoon (Pond 3) is situated towards the eastern corner of Zone 1 at OS grid reference SP 5104 8589. This large open waterbody measures approximately 7800 m² and features open water and dense marginal vegetation. Water quality was assessed to be moderate, and the pond was recorded to support occasional submerged and emergent vegetation. During Site visits and specific WBS, mute swan *Cygnus olor*, mallard *Anas platyrhynchos*, grey heron *Ardea cinerea*, coot *Fulica atra*, snipe *Gallinago gallinago*, tufted duck *Aythya fuligula* and black-

headed gull *Chroicocephalus ridibundus* were recorded either on the pond or within the surrounding vegetation. In addition, coot, little grebe *Tachybaptus ruficollis* and mute swan were recorded at the pond during the BBS. Pond 3 was assessed as having a HSI score of 0.33, indicating a 'poor' suitability of supporting GCNs, however, due to its connectivity with ponds previously recorded to support GCNs, including those within Magna Park Conservation Area, aquatic surveys were undertaken. No GCNs were recorded within Pond 3. A small population of smooth newt was recorded and a peak count of 144 common toad were recorded at the waterbody.

12.3.25 Pond 4 is situated within a semi-improved grassland field towards the north of Zone 1, at OS grid reference SP 4987 8652. The field featured several shallow scrapes, one of which supported standing water during the Site visits. Pond 4 measured approximately 50 m², although the water retention is considered to vary, and the pond is considered to dry out annually. Reed mace *Typha latifolia* was present and the water quality was assessed as moderate. Due to the fluctuating water levels, the presence of fish is considered to be unlikely, and no waterfowl were recorded with close proximity to the pond during the survey, nor was evidence found to indicate that they use the waterbody. Pond 4 was assessed as having a HSI score of 0.56 indicating a 'below average' likelihood of supporting GCNs. Due to the fluctuating water level during the survey visits, the pond is not considered suitable to support breeding amphibians.

12.3.26 The ponds and their vegetated banks provide suitable habitat for breeding and wintering wetland bird species, whilst Ponds 1 and 3 support medium-large populations of breeding common toad, an EBP species. This habitat is considered to be of Local value.

Running Water

12.3.27 Zone 1 - A stream supporting slow-flowing water (Drain 5) bisects Zone 1, flowing south to north across the centre. The majority of the stream was heavily shaded by adjacent hedgerow vegetation and was obscured from view during the Extended Phase 1 Habitat Survey. In open areas occasional marginal vegetation including stinking iris *Iris foetidissima* and brooklime *Veronica beccabunga* were present. The banks supported bramble, common nettle and rosebay willowherb *Chamerion angustifolium*. No evidence of water vole activity was recorded to be associated with the stream in August 2015. However an otter spraint was recorded at the northern extent of the stream during the Extended Phase 1 Habitat Survey (September 2014), and a further spraint was identified at the southern extent of the stream within the culvert that runs beneath the A5, during the Riparian mammal Survey in August 2015.

12.3.28 A drain within the east of Zone 1 (Drain 3), fed in part by Mere Lane Lagoon, supported a section of running water. The ditch supported limited slow flowing water with no aquatic vegetation. Common nettle and bramble had colonised the banks. Two further drains (Drains 1 and 2) within the southern extent of the Site support limited water, fed by surrounding drainage systems and ponds. No evidence of water vole or otter were recorded in the drains in 2015.

12.3.29 Zone 2 - A drain flows north to south through Zone 2 which at the time of the Extended Phase 1 habitat Survey was slow flowing with a low water level. The banks were steep and densely vegetated with scrub and grasses, and were approximately 3 m deep, whilst the ditch was approximately 5 m wide. A brook flows off-Site parallel to the southern boundary. This had a narrow channel with slow flowing, shallow water, although visibility and access was limited due to the densely vegetated banks and shading from the trees. Both watercourses at the Site were assessed as being unsuitable for water vole, with shallow water and

heavily shaded banks, whilst in combination with the habitats on-Site, they were considered to offer at most potential commuting corridors for otter, although no signs of this species were recorded at the time of the survey.

12.3.30 Drainage ditches are widespread across the local agricultural land. This habitat is, therefore, considered to be of Local value.

Arable

12.3.31 Zone 1 - The arable land supporting a monoculture offers limited opportunities for faunal species, although bird species, including fieldfare and redwing which are listed on Schedule 1 of the WCA (1981, as amended) and finches, were recorded to utilise the arable landscape during the WBS. In addition, 56 species of bird were recorded in Zone 1 during the BBS. Two Schedule 1 species were identified, although these are considered to be winter migrant species which were recorded during the first of the BBS. Of the species observed 27 either appear on the RSPB BoCC as declining (Red or Amber lists) and/ or are identified as priority species for nature conservation under S41 of the NERC Act. The majority of bird activity within the arable landscape was located within the boundary hedgerows and field margins.

12.3.32 Arable land is widespread within the local area, and is, therefore, considered to be of Local value.

Intact Hedgerow – Species Poor

12.3.33 Zone 1 - The majority of the boundary and bisecting hedgerows within Zone 1 were recorded to be intact. The hedgerows were assessed as being species-poor, as they were dominated by blackthorn *Prunus spinosa* and hawthorn *Crataegus monogyna* with occasional elder *Sambucus nigra*, dog rose *Rosa canina*, field maple and standard trees of oak, elm and ash. The hedgerows were largely managed and a number had been recently mechanically cut at the time of the Extended Phase 1 Habitat survey. The hedgerows were not assessed as being 'Important' against the Hedgerow Regulations criteria (1997).

12.3.34 Zone 2 – An intact unmanaged hedgerow defines the northern and eastern boundary of Zone 2 and comprises predominately hawthorn and blackthorn, with dense bramble scrub along the base.

12.3.35 The hedgerows provide connectivity throughout the Site, creating suitable habitat for nesting birds, as well as foraging opportunities and commuting corridors for a range of faunal species, including bats. Hedgerows are widespread within the countryside, and the hedgerows at the Site support a limited number of commonly occurring woody species. The BBS revealed the breeding bird assemblage to be of Site value due to its relatively low diversity and numbers of birds, many of which were associated with the hedgerows and field boundaries.

12.3.36 Intact hedgerow is considered to be of Local value for nature conservation.

Defunct Hedgerow – Species Poor

12.3.37 Zone 1 - A defunct hawthorn and blackthorn hedgerow was present within the central area of Zone 1. The hedgerow was largely unmanaged with occasional gaps and leggy sections.

12.3.38 This habitat is considered to be of Local value for nature conservation.

Dry Ditch

12.3.39 Zone 1 - Two sections of ditch occur within the southern extent of Zone 1, at the base of field boundary hedgerows and within a small section of woodland habitat (Drains 6 and 7). At the time of the Extended Phase 1 Habitat survey, the ditches did not support any water, and did not appear to have supported any recent standing water, since there was no aquatic or emergent vegetation present. This habitat is, therefore, considered to be of Local value.

Dense and Scattered Scrub

12.3.40 Zone 1 - Scattered bramble and hawthorn scrub had colonised an unmanaged area of grassland to the east of Mere Lane.

12.3.41 Zone 2 – Dense bramble scrub extended around the base of the hedgerow in the north-east of Zone 2. In addition, young ash, hawthorn, blackthorn and bramble extended along the banks of the ditch.

12.3.42 Scrub vegetation is widespread within the local area. The scrub vegetation is considered to provide nesting opportunities for small passerine birds, particularly when left unmanaged. This habitat is considered to be of Local value.

Buildings and Structures

12.3.43 Zone 1 - A total of 24 individual buildings are present within Zone 1 including those associated with Bittesby House, Bittesby Farm, Lodge Cottage and Emmanuel Cottage.

12.3.44 Bittesby House is situated within the southern extent of Zone 1. At the time of the assessment this was actively used as offices. The building comprised a two storey brick house built pre 19th century. It was refurbished in 2004 such that the brickwork was in a good condition. The roof is pitched with slate tiles. Potential bat roosting features recorded included lifted roof tiles, gaps in between window frames and brick work, gaps under lead flashing and under fascia boards. Internally the main roof void is divided into three separate rooms. A number of recent and old bat droppings (pipistrelle species) were recorded on top of a bookshelf directly below a wooden beam. Also bat droppings were recorded scattered throughout the roof void in small numbers, indicating bats had flown within these areas. The building also supports a cellar. No evidence of bat activity was recorded within the cellar and due to the boiler system located in this area, temperature gradient is considered to fluctuate. Bittesby House was assessed as having a high BRP due to the evidence of bat activity within the roof void. No bat activity was recorded to be associated with Bittesby House during the nocturnal surveys, however, due to the previous occupation of bats and the potential for the building to support a roost in the future, the building is considered to have a County value.

12.3.45 Situated adjacent to Bittesby House, The Cottage comprises a two storey brick-building with a small lean-to and a pitched tiled roof. A combination of slate and pan tiles was recorded on the roof. Several lifted tiles and missing mortar from the ridge tiles, gaps in brick work under the guttering all allowing access to the roof void. Lifted lead flashing was also recorded in several locations in particular at the base of the chimney on the eastern aspect and may provide opportunities for roosting bats. The northern aspect is covered in dense vegetation, with approximately 85 % being ivy-clad. Old bat droppings were recorded on an external glass window pane. Internally the enclosed roof void is divided into three separate rooms. A large amount of cobwebs and dust was recorded throughout during the assessment. Roofing felt on the southern aspect, provided potential for bats to access the tiles and sit behind the felting. On the northern aspect the tiles were exposed with gaps evident, therefore,

allowing bats access to the roof void. The Cottage was assessed as having a medium BRP, however, no bats were recorded to roost within it during the nocturnal bat surveys. This building is considered to have a Local value.

- 12.3.46 Three single-storey garage buildings are associated with Bittesby House. These are brick built and adjoin the northern aspect of The Cottage. The roof is pitched and tiled with several lifted tiles. Gaps above doors and in brick work to allow access to one of the garages. Internally old and new butterfly wings indicative of a potential Brown Long-Eared (BLE) foraging perch and/ or possible roosting site were found within the first and third garages, but no bat droppings were recorded. The third garage had wooden panels attached to the interior brick walls with gaps underneath allowing access into the void. Boarding is present within the first roof void allowing bats to crawl in between the roofing felt and the boarding. The garages were assessed as having a medium BRP. No evidence of bat activity was recorded to be associated with the garages during the nocturnal surveys and the building is, therefore, considered as having Local value.
- 12.3.47 A mixture of single and two storey buildings, The Stables has been converted into offices. The brickwork was well sealed although some gaps were recorded where the roof meets the brick work on the two storey extension. Occasional cracked, lifted and missing roof tiles may provide potential bat roosting features. Internally the building was recently (post 2007) refurbished with no enclosed roof void. The Stables were assessed as having medium BRP, although no roosting activity was recorded to be associated with the building during nocturnal bat surveys. This building is considered to have a Local value.
- 12.3.48 Adjoining the converted stables on the northern side, a series of old stables comprise a long two-storey building with lifted and broken roof tiles, gaps within the brickwork and internal access via open doors. Cracks within the internal brickwork and access to an enclosed roof void also provide opportunities for roosting bats. The Old Stables were assessed as having medium BRP. No bat activity was recorded to be associated with this building during the nocturnal bat surveys. The Old Stables are considered to have a Local conservation value.
- 12.3.49 A group of small brick stables were attached to the large modern barn. The walls were constructed from brick and appear to have a number of cracks in the mortar providing roosting opportunities for individual crevice dwelling bat species. The roof is pitched and tiled with some missing and lifted tiles allowing internal access. Only the building adjoining the barn could be accessed internally at the time of the inspection. The hole in the roof had created damp conditions internally and natural light throughout. The small buildings were assessed as having medium BRP, however, no bat activity was recorded to be associated with these structures during nocturnal surveys. The small buildings are considered to have a Local conservation value.
- 12.3.50 A small brick shed was situated adjacent to Bittersby House. Internal access was not available at the time of the inspection, however, it appeared to be in good condition with no gaps between tiles or missing mortar from the brickwork. The building was assessed as having low BRP, although no bat activity was recorded to be associated with the building during nocturnal surveys. The outbuilding is considered to have a Local conservation value.
- 12.3.51 A modern barn of breeze block and metal panel construction, and a bike shelter were assessed as having negligible BRP and are considered to have negligible conservation value.
- 12.3.52 Bittesby Cottages are situated within the south-eastern extent of the Site. The property was occupied at the time of the Site surveys. The building comprised a brick-built two storey property with a pitched tiled roof and an enclosed roof void. The brick

work was assessed to be in good condition, although several gaps were noted beneath roof tiles and around the soffit boxes. No evidence of roosting bats was identified within the roof void, however, under felting would allow bats to roost beneath loose roof tiles without evidence showing internally. Bittesby Cottages were assessed as having medium BRP. No bat roosting activity was recorded to be associated with the Cottages, however, due to the potential of the building to support bats in the future, the building was considered to have Local value.

- 12.3.53 Within the rear garden of Bittesby Cottages is a single storey brick outbuilding with a pitched tiled roof. The storage shed was assessed as having low BRP due to potential roosting features beneath roof tiles and around the doors, however, no bat activity was recorded to be associated with the shed during the nocturnal bat surveys. This building was considered to have a Local value.
- 12.3.54 Buildings associated with Bittesby Farm include a reception block, office, prefabricated office and four barns. The reception comprises a converted brick barn. The pitched tiled roof featured several lifted tiles and possible bat access points for bats. Internally the roof void was not considered accessible to bats due to thick insulation. A single bat dropping was identified on the external wall below the south-eastern soffit box. The building was assessed as having medium BRP and during nocturnal bat surveys a single common pipistrelle bat was recorded to emerge from a roost site behind the soffit box. The Reception is considered to have a County value.
- 12.3.55 An office building comprising a converted hay barn with a pitched suspected asbestos sheet roof was assessed as having low BRP due to gaps beneath ridge tiles, missing mortar and gaps beneath barge boards. During the nocturnal surveys a possible single common pipistrelle roost was identified to be associated with the building due to the time it was first recorded, and was observed in proximity to the building, however, a second survey was unable to confirm the presence and exact location of the roost. The building is, therefore, considered to have a County value.
- 12.3.56 A second prefabricated office building was assessed as having negligible BRP and was considered to have negligible conservation value.
- 12.3.57 Four barns are associated with Bittesby Farm, each constructed from a combination of brick and suspected asbestos cement sheeting. The barns had limited opportunities for roosting bats, with any potential for crevice dwelling species between gaps in the overlapping sheeting. The barns were assessed as having low BRP, however, no bat activity was recorded to be associated with these buildings during the nocturnal surveys. The barns are considered to have Local value.
- 12.3.58 Lodge Cottage is situated adjacent to the A5, to the south-west of the Site. This building comprised a two storey semi-detached brick-built property converted into one residence. The building was under refurbishment at the time of the BRP inspection such that the brickwork had been recently pointed. The pitched tiled roof appeared to be in good condition, however, some gaps under ridge tiles were noted and also under the eaves. The windows were uPVC and supported no gaps behind the frames for potential crevice-dwelling bats to roost. Internally the main roof void was divided into two separate areas by a brick wall. A number of recent and old pipistrelle and BLE bat droppings were recorded on top of the loft insulation, directly below wooden beams and also at the base of the brickwork. Scattered bat droppings of both species were also recorded throughout the roof void in small numbers, indicating bats had flown within these areas. A possible BLE foraging perch was recorded due to the large deposit of insect wings and droppings located in a specific location below the wall. There was roofing felt within the roof void, therefore, a possibility for bats to access the tiles and roost behind the felting, whilst several gaps and tears in the roof felting, enabled bats to access the void from outside.

- 12.3.59 Lodge Cottage was recorded to have previously supported a confirmed bat roost of small numbers of at least two widespread species and was assessed as having a high BRP. During the nocturnal surveys a single common pipistrelle bat was recorded to return to a roost at the north-eastern gable apex. Results obtained using static bat detectors indicated the presence of a possible Myotis bat species roost and BLE roost at, or within close proximity to, Lodge Cottage, however, since these species were not recorded during dusk emergence and dawn re-entry surveys it is considered likely that they comprise occasional individual roosting bats. The identified bat roosts within Lodge Cottage are, therefore, considered to be of County value.
- 12.3.60 Emmanuel Cottage comprised a two storey semi-detached brick-built property converted into one residence that was occupied at the time of the BRP assessment. The pitched tiled roof appeared to be in good condition, however, some gaps under ridge tiles and eaves were noted. The windows were uPVC and supported no gaps behind the frames for potential crevice-dwelling bats to roost. Internally the main roof void was divided into two separate areas by a brick wall. No evidence of bats was recorded as the wooden flooring and the loft insulation was clean. A large amount of cobwebs were noted on some of the beams indicating no recent disturbance. The roof was under felted and no access holes were observed, however there is potential for bats to roost between the tiles and felting. Emmanuel Cottage was assessed as having low BRP, however, no evidence of bat roosting activity was recorded during the nocturnal bat surveys. Emmanuel Cottage was considered to be of Local value.
- 12.3.61 A small number of outbuildings associated with Lodge Cottage and Emmanuel Cottage were assessed for their suitability to support roosting bats. These buildings included a wooden shed, metal barn, summer house and work shed. Each was of varied construction and differed in the suitable structural and environmental conditions to support roosting bats. The summer house and wooden shed were assessed as having low BRP, whilst the work shed and metal barn were assessed as having negligible BRP. No evidence of bat roosting activity was recorded to be associated with these buildings during the nocturnal bat surveys. The summer house and wooden shed are, therefore, considered to be of Local value, whilst the remaining outbuildings are considered to have negligible conservation value.
- 12.3.62 In addition, three tunnels pass beneath the dismantled Midland County railway line embankment within Zone 1. One allowing vehicular access, a second associated with the bisecting stream (Drain 5), and the third with a blockage in the centre of the tunnel. All three were assessed as having medium BRP due to cracks and gaps in the brickwork, whilst tunnels two and three were considered suitable to support hibernating bats. No evidence of roosting or hibernation was recorded during the inspection or nocturnal surveys, which included the use of static bat recorders left immediately outside of, or within, the tunnels, however, regular foraging and commuting activity was recorded to be associated with Tunnel 1. The tunnels are considered to have Local value.

Hard Standing

- 12.3.63 Zone 1 - Sections of Mere Lane and the A5 are included within the Application Site boundary and comprise tarmacadam hard standing. This habitat did not support any significant vegetation at the time of the Site visits and provides negligible potential to support faunal species. The hard standing habitat is considered to have Negligible Value.

Habitats Surrounding the Site

- 12.3.64 The Site is situated within a semi-rural setting, with further arable land, broadleaved plantation woodland and MPL surrounding both Zone1 and 2.

- 12.3.65 A total of 29 ponds have been identified on and within 500 m of Zone 1 that have connectivity to the Site for GCNs (Figure 4, Appendix I.1). Of the off-Site ponds, Pond 19 was found to be dry, no access was gained to Pond 20, Pond 22 could not be accessed due to being surrounded by dense vegetation, and Pond 23 did not support any open water. Therefore, no further assessment was completed of those ponds. Ponds 2 and 13 were found to support dense populations of fish such that aquatic surveys were deemed unnecessary, whilst all other ponds were surveyed by Delta-Simons, other than the Magna Park Service Farm ponds since survey works were completed by Middlemarch Environmental Ltd.
- 12.3.66 Of the ponds assessed, 14 were considered to have a HSI score of 0.6 or above, indicating an 'Average' or above likelihood of supporting GCNs. Aquatic surveys were undertaken of these ponds, and those with lower HSI scores that were known to have previously supported GCNs, in March – June 2015, such that a total of 16 ponds were surveyed. GCNs were confirmed within 10 of the off-Site ponds, six of which have been confirmed as breeding ponds. The highest count of GCN was recorded at Pond 26 at MPL, within 100 m of the Site boundary, with a total of 48 adults observed during a torch survey. Pond 21, located to the north of the Site at a distance of 410 m from the Site boundary, had the second highest count of 33 adults. Overall, the survey results indicate that the local area supports a medium meta-population of GCNs.
- 12.3.67 Zone 2 did not support any standing water. A total of 5 ponds were identified within 500 m of Zone 2, however, given the dispersal barriers in between the ponds and the Site, there are not considered to be any constraints with regards to GCNs within Zone 2.

Species

- 12.3.68 Species records obtained from the local biological data centres as part of the 2014/15 Extended Phase 1 Habitat Surveys, Wintering Bird Survey, Badger Survey and Bat Habitat Assessment to support the Baseline Assessment are summarised below together with data gathered from the field surveys.

Birds

- 12.3.69 Both the LRERC and WBRC data searches included records of protected and notable bird species within the local area, including barn owl *Tyto alba*, marsh harrier *Circus aeruginosus*, hen harrier *Circus cyaneus*, quail *Coturnix coturnix*, hobby *Falco subbuteo*, fieldfare *Turdus pilaris*, brambling *Fringilla montifringilla* and red kite *Milvus milvus* which are all listed on Schedule 1 of the WCA (1981, as amended).
- 12.3.70 During the Extended Phase 1 Habitat Survey visits, in September and October 2014, a total of 27 species of bird were recorded at the Site. Of these, five are England Biodiversity Priority Species (EBP) (previously UK Biodiversity Action Plan (UKBAP) species), including dunnock *Prunella modularis*, song thrush *Turdus philomelos*, linnets *Carduelis cannabina*, reed bunting *Emberiza schoeniclus* and corn bunting *Miliaria calandra*.
- 12.3.71 WBS have been completed of Zone 1, twice a month between October 2014 and February 2015, inclusive. A total of 49 species of bird have been recorded. A total of ten Red list Bird (species) of Conservation Concern (BoCC, see Eaton et al 2009), eight of which are EBP species, were recorded during the ten surveys, including grey partridge *Perdix perdix*, lapwing *Vanellus vanellus*, skylark *Alauda arvensis*, fieldfare, song thrush, redwing *Turdus iliacus*, starling *Sturnus vulgaris*, tree sparrow *Passer montanus*, linnets *Carduelis cannabina* and yellowhammer *Emberiza citrinella* associated with farmland and hedgerow habitats. Thirteen amber list species were recorded on Site, including very high number of mallard *Anas platyrhynchos* – more than 140 individuals were recorded on Mere Lane Lagoon within the north-eastern

extent of Zone 1 during the survey undertaken in November 2014, which coincided with a cold spell in the weather.

12.3.72 Fieldfare and redwing, recorded on Zone 1, are listed on Schedule 1 of the WCA (1981, as amended). These species are highly mobile and it appeared that once their food source of hedgerow berries was exhausted, they were only recorded at the Site in low numbers and infrequently. The Site is, therefore, not considered to support a significant numbers of these wintering birds, nor is it considered to provide a significant proportion of their foraging habitat within the local area.

12.3.73 Zone 1 is occasionally used by dog walkers, and as a result is subject to generally low levels of disturbance, particularly along the farm tracks and field margins that generally run adjacent to hedgerow habitats. Overall, the wintering birds assemblage recorded during the surveys is considered to be of Site (Local) value in terms of its importance due to the relatively low diversity of species and numbers of birds recorded, and the fact that the Site is likely to be used in combination with other similar habitats in the surrounding area. Most species recorded are both commonly occurring locally and widespread within the county.

12.3.74 BBS have been completed of Zone 1 twice a month between March 2015 and June 2015, inclusive. A total of 56 species of bird have been recorded. Of the species observed 27 either appear on the RSPB's BoCC as declining (Red or Amber lists) and/ or are identified as priority species for nature conservation under S41 of the NERC Act. Of the species recorded, five were confirmed as breeding: Mute swan, little grebe, coot, long-tailed tit *Aegithalos caudatus* and blue tit *Cyanistes caeruleus*. A further 21 species were considered probable breeders, whilst the remaining 30 species were considered possible breeders or non-breeders. The main habitats on Site of potential value to breeding birds included wetland, grassland field margins, arable farmland, hedgerows and trees.

12.3.75 Overall, the Site provides a limited number of habitat types which offer opportunities for breeding birds. The reed beds associated with Mere Lane Lagoon, hedgerows and trees, in particular, are considered to be the habitats of greatest value on Site for breeding birds. The grassland field margins and arable habitat are considered to offer little value for breeding birds, which was reflected in the lack of registrations here during the breeding season. No significant numbers, or flocks of notable species, were recorded during the surveys and the breeding bird assemblage on Site is recognised as being of no more than Site value.

12.3.76 The geographical level of value of this species group is, therefore, considered to be Local value.

Amphibians

12.3.77 The LRERC data search revealed that common frog *Rana temporaria*, common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris* have been recorded at several locations within the local area, including within a waterbody immediately adjacent to the Site in 2011. LRERC holds numerous records of GCNs from across the Ullesthorpe area, with the closest record approximately 1.8 km from the Site. The WBRC does not hold any records for the area of the County that falls within a 3 km radius of the Site centre.

12.3.78 Previous GCN surveys have been undertaken at MPL to the east of the Site as part of mitigation monitoring for an EPSL for GCNs (Ecosulis, November 2010). These surveys were undertaken between 2002 and 2010 and reported that GCNs were present within eight of the nine ponds present at MPL in 2010, with four ponds supporting a small GCN population, and four supporting a medium population,

furthermore, it was concluded that the favourable conservation status of GCNs at the Site has been maintained through the monitoring period.

12.3.79 Aquatic surveys were undertaken in 2011 of six of the ponds to the north-east of the Site as part of a planning application for a single wind turbine (Wild Frontier Ecology, May 2011). These surveys indicated the presence of a small breeding population of GCNs in one pond approximately 350 m to the north-east of the Site boundary, and a lone male in one other pond.

12.3.80 The majority of the Site comprises arable land and managed grassland which are not considered ideal terrestrial habitat to support GCNs. Zone 2 is not considered suitable to support GCNs due to dispersal barriers, including the A5 and A4303, Coventry Road, and flowing water, between off-Site ponds and the Site. However, the network of boundary hedgerows and woodland within Zone 1 may provide opportunities for foraging, sheltering and hibernating GCNs, as well as connectivity between potential off-Site breeding ponds and suitable terrestrial habitats. Zone 1 supports four waterbodies, whilst a review of OS maps and aerial photographs revealed a further 25 ponds within 500 m of the boundary. Of these off-Site ponds, Pond 19 was found to be dry, no access was gained to Pond 20, Pond 22 could not be accessed due to being surrounded by dense vegetation, and Pond 23 did not support any open water. In addition, amendment of the red line boundary has meant that there is a further pond situated within 500 m of the Site. Located approximately 440 m from the north-eastern extent of the Site, this pond was not assessed at the time of the surveys. Of the ponds assessed, 14 were considered to have an 'Average' or above likelihood of supporting GCNs and, together with those ponds assessed as being 'Below Average' to support GCNs but known to support them in recent years, they were all the subject of aquatic surveys between mid-March to mid-June 2015.

12.3.81 Six ponds associated with the MPL service farm were surveyed during the 2015 season by Middlemarch Environmental Ltd to support a planning application for management and improvement works. One pond was found to have a poor suitability to support GCNs, however, further aquatic surveys were undertaken due to the proximity of other ponds. The remaining five ponds were assessed as having 'Average' or above likelihood of supporting GCNs, three of which were subjected to aquatic surveys with dense vegetation and low water levels preventing further surveys of the remaining two.. GCNs were recorded in three of the waterbodies with a combined peak count on a single visit of 72 individuals, indicating a medium meta-population.

12.3.82 Of the remaining off-Site waterbodies surveyed by Delta-Simons in 2015, seven were recorded to support GCNs, six of which were confirmed breeding ponds. Two of the ponds (Pond 9 and 21) supported a medium population, whilst the remaining five were recorded to support a small population of GCNs. It is, therefore, considered that a medium meta-population is present within the local area.

12.3.83 The geographical level of value of this species is considered to be County value. Common toad are considered to be of Local value.

Bats

12.3.84 A review of the data search revealed that there are no statutory designated sites for bats within 10 km of the Site. The closest record of roosting bats is of common pipistrelle and an unidentified bat that are 300 m to the north of the Site. Field records have also been recorded of BLE bats, whiskered bat *Myotis mystacinus*, noctule *Nyctalus noctula* and Natterer's bat *Myotis nattereri*.

- 12.3.85 Whilst the arable fields which make up the majority of the Site provide sub-optimal foraging habitat for widespread species such as common pipistrelle and soprano pipistrelle (Hundt, 2012), the Site was initially assessed as providing medium value to bats given the quality of potential commuting, foraging and roosting habitats present at the Site. The main bat foraging habitat present at the Site was assessed to be the network of hedgerows and drainage ditches, which connect the agricultural land, woodland and waterbodies to buildings at Bittesby House and Bittesby Farm, but also on-Site features to the wider area, and potential roost sites within off-Site local farmsteads and buildings within surrounding hamlets and villages. The hedgerows, drainage ditches and small plantation woodlands were considered to provide good foraging and commuting habitat due to their linear nature, the shelter they offer, and abundance of invertebrates that are attracted to the plants and/ or water present. Furthermore, there is little artificial lighting across the Site with only minor light spill at the eastern Site boundary from the adjacent MPL, and street lighting along the A5.
- 12.3.86 A total of 44 trees have been identified within Zone 1 as having features suitable to support roosting bats. These include 26 assessed as having medium BRP and 18 with low BRP, supporting features such as dense ivy cover, woodpecker holes, broken limbs and trunk fissures. In addition, two trees within Zone 2 were assessed as having low BRP.
- 12.3.87 Thirty-five trees with low to medium BRP within Zone 1 were subject to detailed dusk / dawn bat activity surveys. The remaining trees will not be directly impacted upon by the proposed development, such that they are considered to be at an adequate distance from any proposed infrastructure or buildings that they will not be disturbed during either the construction or operational phases. During the nocturnal bat survey works, two common pipistrelle roosts were identified within trees (T5 and T19), with a further three suspected tree roosts (T16, T41 and T45). These roosts supported a low number of common pipistrelle bats (1-2 individuals) and are, therefore, considered to be roosts of lone males or non-breeding females.
- 12.3.88 A total of 18 buildings with a BRP rating of low to high were subject to detailed dusk / dawn surveys. Two buildings, Lodge Cottage and the Reception, were confirmed to support bat roosts, with a third suspected roost within the Office. The roosts were those of single common pipistrelle bats, with Lodge Cottage also observed to support an individual BLE, and a suspected roost of an individual *Myotis* species bat. No roosting activity was observed at Bittesby House, despite pipistrelle bat droppings being found in the initial BRP, nor was any evidence of BLE roosting found within with garages and old stables despite there being evidence of BLE feeding remains during the initial Bat Habitat Assessment. The roosts recorded were of lone male or lone non-breeding females.
- 12.3.89 No roosting activity or hibernating activity was recorded within any of the tunnels (S1-S3). However, S1 does provide optimal foraging and commuting habitat for bats, as high levels of activity by low numbers of bats was recorded within the tunnel during the dusk and dawn surveys.
- 12.3.90 Within Zone 1 are a large amount of potential roost locations within buildings, trees and the tunnel structures, however, overall roosting on Zone 1 was low, and limited to individual or low numbers of bats of widespread species. Overall bat activity across Zone 1 was recorded to be low. The nocturnal surveys and activity transects revealed intermittent foraging of predominately common pipistrelle bats, with occasional soprano pipistrelle, noctule, BLE bats and *Myotis* sp. Activity was generally associated with the hedgerows and waterbodies throughout the Site. Heightened foraging activity was recorded around the avenue of lime trees up to Bittesby House and also along the Midland Counties dismantled railway, whilst the dismantled railway was found to be a regularly used commuting corridor.

12.3.91 The geographical level of value of this species group is considered to be County value.

Badgers

12.3.92 The LRERC provided five recent (within the last ten years) records of badger setts within 3 km of the centre of Zone 1. The LRBG provided eight recent records of badger activity within 3 km of the centre of Zone 1. A main sett comprising 12 entrance holes has been recorded within 400 m of one of the boundaries of the Site, with an additional six setts recorded within 3 km of the centre of the Site recorded between 2005 and 2015.

12.3.93 A badger survey undertaken of Zone 1 in January/February 2015 revealed four disused badger setts within the arable land at the Site. Sett 1, within the western extent of Zone 1 comprised of seven entrances with no new badger activity although badger dung was recorded in front of one of the entrances, indicating that it is still within the territory of a badger group ('clan'). Sett 2, to the north of Sett 1, featured another seven entrance badger sett with evidence of rabbit occupancy. Setts 3 and 4 towards the central and southern extents of Zone 1, respectively, comprised outlier setts of single entrance holes with no evidence of recent use. Sett 5, to the south-east of Zone 1, and immediately off-Site comprised a five entrance subsidiary badger sett that was recorded to be active at the time of the survey.

12.3.94 During the Extended Phase 1 Habitat survey (September 2014), the badger survey (January/February 2015), and during other Site visits (October 2014 –August 2015) evidence of badger activity has been recorded throughout the Site, including dung and snuffle holes, which have largely been confined to the field margins, however, in 2015 no active badger setts have been recorded on-Site.

12.3.95 The heavily used A5 dual carriageway to the west of Zone 1, and MPL to the south-east, are considered to discourage dispersal of this species from beyond these areas onto Zone 1. No evidence was identified within Zone 2 to indicate badgers were using or inhabiting it, however, widespread badger activity was recorded across the Site by Arnott and Mann in 2011 during their survey works. It was concluded that there is the potential for this species to venture onto the Site since it is known to occur in the local area.

12.3.96 Based on the results of the survey this species is considered to be of Local value.

Reptiles

12.3.97 Neither records centre holds any records of reptiles for the area within a 3 km radius of the Site centre of Zone 1, nor within a 1 km radius of the centre of Zone 2, which was not considered suitable to support these species. The majority of Zone 1 comprises arable land and managed grassland which are not considered to provide the mosaic of habitats, and shelter suitable to support reptile species. However, Mere Lane Lagoon is surrounded by dense marginal vegetation, grassland, woodland and hedgerow habitat, providing opportunities for reptile species. The Midland Counties dismantled railway also supports a mosaic of habitats suitable to support reptile species including woodland, scrub and open areas of tussocky grassland. Whilst a reptile survey was completed of the area surrounding the Lagoon, the embankment was not surveyed since it will not be adversely impacted upon by the proposed development. No evidence of reptiles was recorded around the Lagoon during the reptile survey undertaken in May to July 2015. Given the likely absence of reptiles at the Site, this receptor is not considered further within this assessment.

Water Vole and Otter

- 12.3.98 Neither records centre holds any records of water vole or otter within a 3 km radius of the Zone 1, nor within a 1 km radius of the centre of Zone 2.
- 12.3.99 A total of eight drains were assessed for their suitability to support water vole and otter within Zone 1, as well as Pond 3 within the north-eastern extent of the Site. All of the drains within Zone 1 were recorded to support a combination of the following characteristics including overshadowing from overhanging trees, scrub and ruderals, low water levels or seasonal drying, a lack of aquatic, marginal and bankside vegetation to provide cover, and a lack of suitable foraging habitat, which made them unsuitable to support water voles. Whilst Pond 3 supports suitable habitat for water voles, this species if present off-Site in the local area cannot access it as there is no connectivity along watercourses to it. No evidence of water vole activity was recorded with Zone 1 during the surveys. The two ditches situated within Zone 2 were also assessed to be unsuitable to support water vole due to poor water quality, heavy shading and lack of foraging opportunities. Given the likely absence of water vole at the Site, this receptor is not considered further within this assessment.
- 12.3.100 Evidence of otter was identified at two locations on Drain 5 which bisects Zone 1. An old spraint was found in the culvert under the A5 on the western Site boundary, and a second old spraint was found on the northern Site boundary. There was no evidence of otter along any of the other drains. The majority of the drains did not offer foraging opportunities, and only limited shelter was present. Pond 3 offered foraging opportunities in the form of fish, waterfowl and amphibians but the disturbance level is anticipated to be high due to the pond being regularly frequented by dog walkers. Furthermore, there is no large dense scrub patch or other places of refuge for otter to shelter on-Site. No evidence of otter activity was recorded to be associated with Zone 2, however, the on-Site drain was considered a suitable commuting corridor for this species.
- 12.3.101 Based on the results of the surveys otter are considered to be of Local value.

Brown Hare

- 12.3.102 A single brown hare has been recorded at the Site as an incidental sighting during a BBS. The arable land at the Site and within the immediate surrounding area was considered suitable habitat for brown hare. Suitable habitat is widespread within the local area and, therefore, the geographical level of value of this species is considered to be Local value.

12.4 Construction Effects and Mitigation

- 12.4.1 This section reviews the proposed Development characteristics and assesses the likely effects on flora and fauna arising during the construction phases without mitigation. Effects are only assessed in detail for features that are of adequate value such that effects upon them may be significant in EIA terms and features that are potentially vulnerable to significant effects from the Proposed Development. For the purposes of this assessment, neutral and minor effects are considered to be not significant, while moderate and major effects are assessed to be significant.
- 12.4.2 The construction phase will include warehouse and infrastructure development with associated landscaping as described in Chapter 2: The Proposed Development of this ES. The section below identifies the effects likely to arise from the Proposed Development upon designated and non-designated sites, habitats and species.
- 12.4.3 The principle effects likely to arise during the construction phase are disturbances during Site preparation works, including loss of habitat, and noise and vibration of

machinery during vegetation clearance. Such effects have the potential to disturb/destroy ecological features and habitat.

- 12.4.4 The actual loss of habitats and any associated faunal effect which would occur during the Site preparation works for the construction phase (but may also be felt throughout the operational phase) are covered within the construction phase assessment, rather than in the section that follows in the operational phase.

Potential Impacts/Issues

Non-Statutory Designated Sites

- 12.4.5 Due to the localised nature of the potential construction effects, it is considered highly unlikely that the Proposed Development will have any direct effect on the majority of the non-statutory designated sites that have been identified. The closest LWS to the Site at a distance of 800 m to the north of Zone 1, Old Manor Reedbed, is considered to be of a sufficient distance from the Site such that the proposed development is not anticipated to have any adverse impact. Any impact will be negligible and, therefore, neutral.

- 12.4.6 The Proposed Development has the potential to cause direct and indirect impacts to the three Parish Sites identified by LRERC, two associated with the stream which bisects Zone 1 and a third 30 m to the south-east of Zone 1. There is the potential for these three non-statutory sites to be adversely impacted upon by pollution events and raised water levels. The construction of the Proposed Development has the potential to cause a change in water volume within the waterbodies, either, permanently or temporarily changing the conditions for aquatic and marginal vegetation and associated faunal species. In addition, the construction phase has the potential to adversely impact on water quality, with possible pollution events occurring. This would affect the survival of both floral and faunal species occurring within the waterbody, as well as the quality of the habitat as a whole. The designated site associated with the stream in the southern extent is to be partially culverted in order to allow the construction of a vehicular access road. This will have a direct and permanent impact upon the habitat associated with the banks of the stream, however, water flow is anticipated to remain unchanged.

- 12.4.7 Although the EcoSite identified by WBRC is situated adjacent to the south-western corner of Zone 1, any impact due to noise or vibrations during the construction phase is considered to be minimal given the already busy nature of the A5 and the location of the works proposed. The temporary indirect effect from increased disturbance as a result of lighting, noise and vibration will be negligible.

- 12.4.8 These impacts will have a minor adverse effect that is, therefore, non-significant.

Habitats

- 12.4.9 All of the habitats present on the Site are widespread both on a local and national level, and none of them are considered to be rare. Impacts upon Site habitats are considered below.

Broadleaved Plantation Woodland

- 12.5.6 The majority of the existing broadleaved plantation woodland is to be retained following the development. The plantation woodland associated with the disused railway line and extending to the east and west, the woodland to the north of Pond 3, as well as along the northern boundary of Zone 1 is to be retained. In addition,

the screening planting along Mere Lane at the eastern boundary of Zone 1 and around the existing sewage farm, will be largely retained with only minor felling to facilitate access and the installation of a roundabout.

12.5.7 Of the three trees within the woodland habitat identified as supporting a bat roost, it is understood that T16 will require felling in order to facilitate the development, whilst T19 is likely to be removed due to its dead nature, resulting in the loss of two small common pipistrelle bat roosts. Furthermore, works within close proximity to retained roosts have the potential to cause temporary disturbance through increased noise and vibration. The legal status of a bat roost will be dealt with separately.

12.4.10 Any construction works within close proximity to the retained woodland habitat, has the potential to cause damage to the structure, roots and health of the trees.

12.4.11 Taking into consideration the extent of woodland loss, the impacts will cause a minor adverse effect that is, therefore, non-significant, but it will be direct and permanent in nature.

Scattered Broadleaved Trees

12.5.8 The majority of the scattered broadleaved trees have been identified within the field boundary hedgerows. Those which lie on the Site boundaries are to be largely retained following the Proposed Development. A number of scattered trees within the centre of Zone 1, particularly along the access track leading up to Bittesby house, and on the northern boundary of Zone 2 are to be felled in order to facilitate the Proposed Development, whilst any other trees to be felled have been selected by an arboriculturalist for removal because they are in poor condition. These trees are immature and semi-mature in stature and comprise widespread species.

12.5.9 It is likely that T45 will require felling in order to facilitate the development, and has been confirmed to support a small common pipistrelle bat roost. A further 16 trees have also been identified as potentially requiring felling which were assessed as having BRP, although no current roost was recorded. These trees are considered to provide a small proportion of the available bat tree roosting opportunities within the local area, and their loss is unlikely to have a significant impact upon the favourable conservation status of bats. . The legal status of a bat roost, will be dealt with separately.

12.5.10 Any construction works within close proximity to the retained trees, have the potential to cause damage to the structure, roots and health of the trees.

12.5.11 These impacts will cause a minor adverse effect that is, therefore, non-significant, and will be direct and permanent in nature.

Scattered Coniferous Trees

12.4.12 The majority of the conifer trees at the Site will be retained following the development. Any trees removed will result in a direct reduction of this habitat at the Site. Furthermore, any construction works within close proximity to the retained trees, has the potential to cause damage to the structure, roots and health of the trees.

12.4.13 Given the low value of this habitat at a local level, the impact will cause a minor adverse effect that is, therefore, non-significant, and will be direct and permanent in nature.

Marshy Grassland

12.4.14 Whilst no infrastructure is proposed within the area of marshy grassland, it is anticipated that construction activities and the movement of equipment and machinery will result in the loss of this habitat. In addition, the area of the Site currently supporting marshy grassland is proposed for the creation of SUDs and wetland habitat, resulting in the permanent change in conditions, and the direct permanent loss of this habitat and the habitat currently present will be permanently lost as such as a result of the infrastructure and landscaping works. Given the limited value of the marshy grassland, the impacts of the construction phase are considered to have a minor adverse effect that is non-significant.

Poor Semi-Improved Grassland

12.4.15 The construction of the Proposed Development will result in the loss of the majority of the poor semi-improved grassland habitat at the Site. This includes all the grassland within Zone 2, the arable field margins of Zone 1, as well as partial loss of grassland surrounding the Lagoon within the northern-eastern extent of Zone 1. The grassland has been assessed to be species-poor, supporting few species that are widespread and, due to the current management regime, provides limited opportunities for faunal species. Taking into consideration the extent of grassland loss and the low value of habitat, the impacts are considered to have a minor adverse effect that is, therefore, non-significant. The effects will be direct and permanent in nature.

Tall Ruderals

12.5.12 All tall ruderal habitat present in Zone 2 is to be lost in order to facilitate the Proposed Development, resulting in the direct permanent loss of habitat. Given the limited value of this habitat, the impacts of the construction phase are considered to have a minor adverse effect that is non-significant.

Standing Water

12.5.13 Ponds 1, 2 and 4, situated within the southern and northern extents of Zone 1 are to be lost in order to facilitate the Proposed Development, resulting in the direct permanent loss of habitat. These ponds were not recorded to support GCNs and are considered to have limited value to other faunal species, apart from a peak count of 77 common toad (an EBP species) recorded in Pond 1. The ponds all support limited floral diversity.

12.5.14 Mere Lane Lagoon (Pond 3) is to be retained following the development. The construction of the Proposed Development has the potential to cause a change in water level within the pond, either, permanently or temporarily changing the conditions for aquatic and marginal vegetation and associated faunal species. In addition, the construction phase has the potential to impact on the water quality, with possible pollution events occurring. This would affect the survival of both floral and faunal species occurring within the standing water, as well as the quality of the habitat as a whole.

12.5.15 Given the low value of this habitat in a wider geographical context, the impacts are considered to have a minor adverse effect that is, therefore, non-significant. The effects will be direct and permanent in nature.

Running Water

12.5.16 The stream which bisects Zone 1 (Drain 5) is to be largely retained following the development, along with the drain (Drain 3) in the eastern extent of Zone 1. Drain 5 will be partially culverted at its western extent in order to allow installation of an access road across the Site, causing an adverse impact to this immediate area. In addition, the construction phase has the potential to cause a change in water level within the

watercourses, either, permanently or temporarily changing the conditions for aquatic and marginal vegetation and associated faunal species. In addition, the construction phase has the potential to impact on water quality, with possible pollution events occurring. This would adversely affect the survival of both floral and faunal species occurring within the running water, as well as the quality of the habitat as a whole.

12.5.17 Two lengths of drainage ditch (Drain(s) 1 and 2) within the southern extent of Zone 1 support limited water, fed by surrounding drainage systems and ponds. These ditches will be adversely impacted upon by the installation of a road since a stretch will be culverted to facilitate access.

12.5.18 The drain which bisects Zone 2 will be re-routed around the Site in order to facilitate the Proposed Development.

12.5.19 These direct impacts will have a minor adverse effect that is, therefore, non-significant.

Arable

12.5.20 All arable land at the Site is to be lost in order to facilitate the Proposed Development, resulting in the direct permanent loss of habitat. Given the extent of this habitat within the local area, the limited value of the arable land to fauna, and its low floral value, the impacts of the construction phase are considered to have a minor adverse effect that is non-significant.

Intact Hedgerow – Species Poor

12.5.21 Of approximately 9.6 km of hedgerow on the Site, approximately 4.4 km, predominately that which bisects the central area of arable land within Zone 1 and along the boundary of Zone 2, will be removed to facilitate the Proposed Development, whilst the rest will be retained. This includes the majority of the northern and eastern boundary hedgerows within Zone 1, with minor removal to facilitate access routes and installation of a roundabout at the south-eastern corner of the Site. These hedgerows offer commuting and foraging corridors for wildlife, shelter, and bird nesting opportunities.

12.5.22 Any construction works within close proximity to the retained hedgerows have the potential to cause damage to the structure, roots and health of the bushes. This impact will be direct and permanent and is considered to have a minor adverse effect that is, therefore, non-significant.

Defunct Hedgerow – Species Poor

12.5.23 Approximately 600 m of defunct hedgerow within the centre of Zone 1 is to be retained. However, any construction works within close proximity to the retained hedgerow have the potential to cause damage to the structure, roots and health of the shrubs. This impact will be direct and permanent and is considered to have a minor adverse effect that is, therefore, non-significant.

Dry Ditch

12.5.24 A ditch within the southern extent of Zone 1 that was dry at the time of the Site survey, is to be lost in order to facilitate the development. Given the lack of water and limited value of the ditch to fauna, and its low floral diversity, the loss of the ditch is not considered to be significant. Should the remaining dry ditches support seasonal standing water at any point during the construction phase, there is the potential for the construction of the Proposed Development to adversely impact on water quality. No works are proposed to the structure of the ditches, or their banks, however, pollution

events may adversely affect the ditches at the Site. The potential temporary impact of pollution runoff into the ditches is considered to have a minor adverse effect that is, therefore, non-significant.

Dense and Scattered Scrub

12.5.25 All scrub at the Site is to be lost in order to facilitate the Proposed Development, resulting in the direct permanent loss of this habitat. Given its limited ecological value and local abundance, the impacts of the construction phase are considered to have a minor adverse effect upon scrub that is, therefore, non-significant.

Buildings and Structures

12.5.26 All 24 buildings at the Site are to be demolished. This will result in the direct permanent loss of habitat and the loss of confirmed bat roosts within Lodge Cottage, the Reception and the Office at Bittesby Farm, as well as previously occupied roosts within Bittesby House, and feeding perches or possible roost sites within the garages and the old stables. In addition potential roosting features within the buildings assessed as having medium and low BRP will be lost. The legal status of a bat roost, will be dealt with separately.

12.5.27 The three tunnels (S1-S3) are to be retained following the development, such that they will not be directly impacted upon by the works, and although no roosting bats were found to utilise them, S1 was used by foraging and commuting bats such that the temporary impacts anticipated from any increased noise, vibration and lighting to the west and south during the construction phase of works may result in disturbance and alteration to their foraging and commuting behaviour.

12.5.28 Taking into consideration the presence of roosting bats and their associated conservation objectives, the loss/ disturbance of the buildings is considered to have a moderate adverse effect that is, therefore, significant at a County level.

Species

Birds

12.5.29 The construction phase will include the removal of hedgerow, trees, woodland, scrub and arable land, all of which is suitable to support nesting birds. There is, therefore, potential for direct adverse effects on nesting birds that are permanent in nature as a result of such clearance. Under the WCA (1981, as amended) it is an offence to disturb nesting bird habitat during the nesting bird season (March-August, inclusive).

12.5.30 In addition, construction works being carried out within proximity to nesting birds may affect them indirectly, depending on the works being carried out, and the species of bird affected. Noise and vibration disturbance effects may result in birds being repeatedly flushed off nests, causing disruption to feeding activity, or even abandonment of nests. This is considered to be a temporary impact.

12.5.31 Further to the potential direct effects on birds whilst they are actively nesting, the removal of suitable vegetation will result in the direct loss of available bird nesting habitat, as well as a loss of foraging opportunities, connectivity, shelter and cover from predators.

12.5.32 Since the majority of woodland is to be retained at the Site following the development, the impacts upon the species assemblage associated with this habitat due to woodland felling are considered to be minimal. The results of the BBS revealed greater numbers of birds associated with the hedgerows and field margins compared

to the open arable land. The loss of arable land that covers the majority of Zone 1 is, therefore, considered to have only minor adverse impacts upon those typical farmland bird species that were infrequently recorded at the Site. Furthermore, the wetland habitat associated with the Lagoon was found to be favoured by a range of bird species, including three species that were confirmed to be breeding there. This habitat will not be impacted upon by the Proposed Development.

12.5.33 The potential adverse impact to nesting birds is considered to have a minor adverse effect that is, therefore, non-significant.

GCNs

12.5.34 The four ponds at the Site were not recorded to support GCNs during the 2015 aquatic surveys. However, ten of the off-Site ponds within 500 m of Zone 1 were found to support GCN, with nine confirmed breeding ponds. It is considered that a medium meta-population occurs in the local area. There is, therefore, the potential for GCNs to venture onto suitable terrestrial habitats within Zone 1 during the construction phase. Zone 2 was not considered suitable to support this species.

12.5.35 The majority of suitable terrestrial habitat is to be retained at the Site, however, the direct loss of sections of hedgerow, woodland and grassland may result in the loss of suitable terrestrial habitat for GCNs and, therefore, limit the proportion of the Site used for foraging and hibernating GCNs. Loss of these habitat may also result in a loss of connectivity between suitable habitats at the Site and within the wider area, including between off-Site breeding ponds, resulting in limited GCN dispersal that would lead to genetic impoverishment.

12.5.36 The construction phase, including habitat removal, stockpiling of materials, and movement of machinery in and around suitable terrestrial habitat has the potential to have a direct adverse impact on GCNs through potential injuries or fatalities, which would constitute an offence under European Law.

12.5.37 There is also the direct risk of harm to this species and other amphibians should they fall into pits or trenches left open overnight during the works. Should GCNs become trapping they may be at greater risk of predation, starvation and susceptibility to adverse weather conditions.

12.5.38 These impacts have the potential to result in a breach of relevant legislation.

12.5.39 Given the medium meta-population within the local area, the potential impacts are considered to have a moderate adverse effect, which is significant at a County level.

Bats

12.5.40 Five tree roosts were identified within the trees surveyed within Zone 1. Two confirmed (T5 and T19) and three suspected (T16, T41 and T45). All were lone male or non-breeding female common pipistrelle roosts. It is anticipated that T16, T19 and T45 will require felling in order to facilitate the proposed development, resulting in the direct permanent loss of three bat roosts which is an offence under European law.

12.5.41 In addition, five roosts were identified within three of the on-Site buildings. Three confirmed (Lodge Cottage and the Reception) and two suspected (the Office and Lodge Cottage). Two separate roosts were recorded at Lodge Cottage, comprising common pipistrelle and BLE, and a possible third, a Myotis species identified using a static bat detector. The roosts supported lone male or non-breeding female bats. All buildings are to be demolished at the Site in order to facilitate the proposed development, resulting in the direct permanent loss of at least three bat roosts as well as the potential to kill or injure individual bats if present.

- 12.5.42 The demolition of buildings at the Site as well as removal of trees with suitable features, even if they do not currently support roosting bats, will reduce the available roosting sites for bats. The direct loss of hedgerows, woodland and scattered trees may also result in the loss of favoured foraging and commuting corridors for bats and, therefore, limit the proportion of the Site used for foraging and commuting. Furthermore, important corridors of connectivity could be lost in between roosting sites off-Site and important foraging grounds.
- 12.5.43 The construction phase has the potential to result in temporary disturbance to bats through increased noise and vibration, both within close proximity to roosting sites, and on foraging and commuting corridors. Anticipated construction working hours are 07:30 to 18:30 Monday to Friday, and between the hours of 8:30 and 14:30 on Saturdays. It is anticipated that during the main active bat season (April-October, inclusive), construction works will generally cease, or be winding down before dusk when bats emerge and will not begin before dawn when bats return to roosts. Therefore, generally artificial lighting will not be required, and there are not anticipated to be any negative effects upon bat foraging and commuting behaviour from noise across the Site since construction works will not coincide with the timing of bat activity.
- 12.5.44 In certain circumstances, for example, in late autumn or early spring when daylight hours are limited but weather conditions may be suitable for bats to be active, there may be a brief overlap between bat activity and on-Site construction works. During this period lighting may be required to enable the construction works to progress, and this along with any associated noise, may temporarily alter bats foraging and commuting activity across an area of the Application Site. However, the combined effects of lighting and noise from construction works during these occasional circumstances would only be a temporary deterrent to foraging and commuting bats in a concentrated area, and not across the wider Site and this is not anticipated to have any adverse impact upon bats.
- 12.5.45 Retention of features which are known to support a bat roost or which are considered to have BRP, including retained trees and the tunnel structures, will be subject to temporary increased noise and vibration from adjacent construction works during daylight hours. This could result in an adverse impact on bat activity and could cause the abandonment of the roost.
- 12.5.46 These impacts have the potential to result in a breach of relevant legislation.
- 12.5.47 Taking into consideration the International, National and County level conservation objectives for bats, the potential impacts are considered to have a moderate adverse effect that are, therefore, significant at a County level.

Badgers

- 12.5.48 Evidence of badger activity was recorded throughout the Site, indicating that the Site is both within a badger clan's territory and is used for commuting between different areas of habitat. There is, therefore, the potential for this species to venture onto Site during the construction phase and there is the direct risk of harm to them should they fall into pits or trenches left open overnight during the works. Furthermore loss of arable land and grassland at the Site will reduce the available foraging habitat and connectivity between different areas of habitat for badgers.
- 12.5.49 An active subsidiary badger sett is situated within immediate proximity to the Application Site boundary to the south-east of the Site. Vegetation clearance works within this area have the potential to cause temporary disturbance to any badgers occupying the sett at that time. Since it is assessed to be a subsidiary sett and not used year-round, it is anticipated that disturbance through noise and vibration may

cause the badger(s) to temporarily abandon this sett and instead utilise another within its territory.

12.5.50 Should any excavation works be required to this area of the Site, there is the potential for direct impacts on the sett, causing damage or destruction of the tunnels depending on both their direction and the extent of the sett below ground. These works would constitute an offence under English Law.

12.5.51 Given the extent of suitable habitat within the local landscape, the potential impacts to badgers are considered to have a minor adverse effect such that they are non-significant.

Otter

12.5.52 Mere Lane Lagoon within Zone 1 has potential to provide foraging opportunities for otter. Furthermore, the drains supporting running water within Zone 1, may provide suitable connective habitat for this species. Old otter spraint was recorded on two occasions at either end of Drain 5. Since no further evidence was recorded it is considered that the species commutes through the Site on occasion. There is, therefore, the potential for otter to venture onto Site during the construction phase.

12.5.53 No habitat suitable to support an otter holt or resting place has been identified at the Site. The noise and vibration disturbance of the construction works are, therefore, unlikely to affect otters during daylight hours. Otters are naturally inquisitive animals and, therefore, there is the potential for this species to venture onto Site during the construction phase and to become trapped within any temporary excavations and trenches created as part of the works and left open overnight.

12.5.54 Both Mere Lane Lagoon and Drain 5 are to be retained following the development. However, the construction phase has the potential to adversely impact upon water levels as well as create pollution events. Changes in water levels may affect the otter's ability to forage and impact upon prey availability. Spillages may have acute short-term impacts but can also cause long-term chronic damage to productivity and diversity of the habitat, adversely affecting otters through the loss of prey and bioaccumulation of contaminants. Pollutants such as oil or petrol would also reduce waterproofing properties of the otter's fur.

12.5.55 Installation of a culvert within the southern extent of Drain 5 as well as Drain 1 will also result in a direct impact to the bankside habitat, and has the potential to disturb or sever commuting routes.

12.5.56 The potential impacts upon this species are considered to have a minor adverse effect and, therefore, be non-significant.

Brown Hare

12.5.57 The habitats at the Site, particularly within Zone 1, are considered suitable to support this species. The loss of arable land will result in the direct loss of habitat suitable to support brown hare on the Site, however, they are highly mobile and, if present, will disperse to suitable off Site habitats. The noise and vibration disturbance of the construction works will cause brown hare to disperse if present at the Site. The effect of the construction works on hares as a result of noise and vibration disturbance will be indirect and temporary in nature. The impacts to brown hare are considered to have a minor adverse effect and, therefore, be non-significant.

Common Toad

- 12.5.58 Ponds 1 and 3 at the Site provide suitable habitat for breeding common toad, with the surrounding terrestrial habitat, including grassland, woodland and hedgerows, providing opportunities for foraging and hibernation. During GCN surveys a peak count of 144 common toads have been recorded in and around Pond 3, with 77 around Pond 1. In addition, further incidental records of common toad were gathered during the reptile survey within the habitats surrounding Pond 3.
- 12.5.59 Pond 3 is to be retained following the development along with terrestrial habitat immediately surrounding the pond. This will continue to provide opportunities for common toad within the eastern extent of the Site. However, Pond 1 will be lost in order to facilitate the proposed development, resulting in the direct permanent loss of breeding habitat and the potential to kill or injure individuals.
- 12.5.60 The majority of suitable terrestrial habitat is to be retained at the Site, however, the direct loss of sections of hedgerow, woodland and grassland may result in the loss of favoured terrestrial habitat for common toad and, therefore, limit the proportion of the Site used for foraging and hibernation. Loss of these habitats may also result in reduced connectivity between suitable habitats at the Site and to other breeding ponds within the wider area, resulting in disruption to dispersal.
- 12.5.61 The construction phase has the potential to cause a change in water level within the retained pond, either, permanently or temporarily changing the conditions for aquatic and marginal vegetation and, therefore, the suitability for it to support common toad. In addition, the construction phase has the potential to impact on the water quality, through the occurrence of pollution events. This would adversely affect the survival of both floral and faunal species occurring within the standing water, as well as the quality of the habitat as a whole.
- 12.5.62 The construction phase, including habitat removal and movement of machinery in and around suitable terrestrial habitat has the potential to result in a direct adverse effect on common toad, with potential injury or fatalities.
- 12.5.63 There is also the direct risk of harm to this species should they fall into pits or trenches left open overnight during the works. Should common toads become trapping they may be at greater risk of predation, starvation and susceptibility to extreme weather conditions.
- 12.5.64 The potential impact to common toads is considered to have a minor adverse effect which is, therefore, non-significant.

Significance of Predicted Effects

12.4.16 An assessment of the significance for the predicted effects are shown in the Table 12.2 below.

Table 12.2 Significance of Predicted Effects

Ecological Feature (Geographic Value)	Nature of Effect	Duration of Impact	Significance of Effect
Non-statutory designated sites (Local Value)	Habitat loss - Culvert Noise, light and vibration Pollution events and change in water levels	Permanent and Temporary	Minor Adverse – Not Significant

Broadleaved plantation woodland (Local Value)	Habitat loss Damage to habitat, especially roots	Permanent	Minor adverse – Not significant
Scattered broadleaved trees (Local Value)	Habitat loss Damage to habitat, especially roots	Permanent	Minor adverse – Not significant
Scattered coniferous trees (Local Value)	Habitat loss Damage to habitat, especially roots	Permanent	Minor adverse – Not significant
Marshy grassland (Local Value)	Habitat loss	Permanent	Minor adverse – Not significant
Poor semi-improved grassland (Local Value)	Habitat Loss	Permanent	Minor adverse – Not significant
Tall Ruderal (Local Value)	Habitat Loss	Permanent	Minor adverse – Not significant
Standing water (Local Value)	Habitat loss Change in water levels Pollution events	Permanent	Minor adverse – Not significant
Running water (Local Value)	Habitat loss - culvert Change in water levels Pollution events	Permanent	Minor adverse – not significant
Arable (Local Value)	Habitat loss	Permanent	Minor adverse – not significant
Intact hedgerow – species poor (Local Value)	Habitat loss Damage to habitat	Permanent	Minor adverse – not significant
Defunct hedgerow – species poor (Local Value)	Habitat loss Damage to habitat	Permanent	Minor adverse – not significant
Dry ditch (Local Value)	Habitat loss Changes to water levels Pollution events	Temporary and Permanent	Minor adverse – not significant

Dense and Scattered scrub (Local Value)	Habitat loss	Permanent	Minor adverse – not significant
Buildings and Structures (County Value)	Habitat loss	Permanent	Moderate adverse – significant at a County level
Birds (Local Value)	Habitat loss Nest destruction/disturbance Noise and vibration	Permanent and temporary	Minor adverse – not significant
GCNs (County Value)	Habitat loss Kill/injure Change in water level Pollution event	Permanent and temporary	Moderate adverse – significant at a County level
Bats (County Value)	Habitat loss Kill/injure Noise, light and vibration	Permanent and temporary	Moderate adverse – significant at a County level
Badgers (Local Value)	Habitat loss Noise and vibration Sett damage/destruction	Permanent and temporary	Minor adverse – not significant
Otter (Local Value)	Habitat loss Change in water levels Pollution events	Permanent	Minor adverse – not significant
Brown hare (Local Value)	Habitat loss Noise and vibration	Permanent and temporary	Minor adverse – not significant
Common Toad (Local Value)	Habitat loss Kill/injure Change in water level Pollution event	Permanent and temporary	Minor adverse – not significant

Proposed Mitigation

12.4.17 Avoidance measures have been implemented, with significant areas of habitat to be retained and timing of works scheduled to avoid impacts, where possible. Where avoidance measures are not appropriate mitigation and compensation measures have been applied.

12.4.18 During the construction period the Applicant has indicated that all construction works will be carefully controlled in terms of their potential environmental impacts through implementation of best practice methodology. A Construction Management Plan will be followed in order to reduce potential environmental impacts. The main contractor will comply with The Control of Pollution Act 1974, Part III Environmental Protection Act 1990, The Noise at Works Regulations 1989 and BS5228 Noise Control on Construction and Open Sites 1984. In addition, standard construction practices will be utilised to manage the use, storage and release of hydrocarbons and chemicals. Adherence to these best practise methodologies will minimise the impact of noise and the risk of pollution events on the designated sites.

12.4.19 Furthermore, in order to reduce the impact of changing water levels through increased sediment, water run-off and work adjacent to water course, appropriate mitigation will be implemented (see Chapter 8:Hydrology and Flood Risk).

Non-Statutory Designated Sites

12.4.20 Adherence to best practice methodology with regards to noise, pollution and impacts on water courses, as described above, will minimise the potential impacts on the non-statutory designated sites on and within close proximity to the Application Site.

12.4.21 Appropriate measures will be implemented during culverting of a section of Drain 5 in order to minimise disturbance to water levels and flow, and to reduce the risk of pollution events occurring. The culvert is situated within proximity to, but not adjacent to, the existing culvert beneath the A5 and, therefore, it is not considered to significantly impact upon the continuation of the stream habitat, despite causing minor habitat loss.

12.4.22 The potential impact post-mitigation is considered to be negligible and, therefore, not significant.

Habitats

12.4.23 Trees and hedgerows to be retained following the development will receive appropriate protection during the construction phase, including the use of tree root protection zones and barriers in accordance with BS5837: 2012 Trees in relation to design, demolition and construction.

12.4.24 The landscape proposals for the Site include habitat enhancements in order to strengthen retained features as well as providing additional biodiversity gains. The proposed development incorporates additional native woodland and hedgerow planting as well as species-rich grassland, wet woodland, wetland grassland and SUDs features.

Species

Nesting Birds

12.4.25 Where practicable, removal of the existing vegetation from the Site will be undertaken outside of the main nesting bird period (i.e. only within the months September to February, inclusive). If these works cannot be restricted to within this period, an Ecological Watching Brief will be maintained during the main bird breeding season to ensure that no nesting birds are adversely affected. This will entail checking all suitable habitat for nesting birds due to be removed, and a buffer of at least 10 m beyond that area by a suitably qualified ecologist prior to the commencement of works. If, during the Ecological Watching Brief, birds are found to be within the area due to be cleared or the buffer zone, measures to prevent any disturbance to breeding

birds, including the cessation of tree and vegetation clearance, or construction works in areas close to breeding sites until the birds have completed breeding, will be put in place until the chicks have fledged. The potential impacts of the construction phase post-mitigation are expected to have a minor adverse effect and, therefore, non-significant.

GCNs

12.4.26 A European Protected Species Licence (EPSL) will be sought from Natural England to facilitate the proposed development works. A mitigation strategy will be prepared once the detailed site layout plans and construction schedule is available. The location of one or more temporary receptor sites will be agreed with Natural England (currently proposed to the south of Pond 3), depending on how the Proposed Development will be phased, and temporary amphibian fencing will be installed around this area, whilst all other areas of the Site within 250 m of identified GCN ponds considered suitable to support GCNs during their terrestrial phase will be fenced and trapped out during suitable weather conditions. The GCNs will remain within the temporary receptor area until the construction phase of works is complete. Compensatory habitat will be created on Site through landscaping works, and enhancement of habitats to be retained. The potential impacts of the construction phase post-mitigation are expected to have a minor adverse effect and, therefore, non-significant.

Bats

12.4.27 An EPSL will be sought from Natural England to facilitate the proposed demolition works of the buildings on Site that support bat roosts and trees that are due to be felled that support bat roosts. A mitigation strategy will be prepared once the detailed Site layout plans and construction schedule is available. Compensatory bat roosts will be created at the Site before any demolition works commence. They will include a series of bat boxes that would be installed on trees to be retained as part of the proposals. Works to demolish the buildings/ fell trees supporting bat roosts would be completed under a Method Statement that includes timing constraints so that the most sensitive periods for bats are avoided; check surveys immediately prior to demolition; supervision of works by licenced bat ecologist; and use of soft demolition/ felling techniques.

12.4.28 As a precautionary measure any removal of/ works to semi-mature and mature trees within the hedgerows identified as having potential to support roosting bats will be undertaken following an inspection, and where necessary a dawn return survey by a licenced bat ecologist. In the unlikely event that any roosting bats are identified then Natural England would be consulted, and where necessary any works undertaken under licence.

12.4.29 Habitat corridors will be maintained within land immediately surrounding the retained bat roosts in order to provide continued connectivity and foraging corridors.

12.4.30 New habitats, enhancements to existing habitats and landscape planting, in particular within the western and northern areas of the Site will offer enhanced opportunities for foraging as part of the Proposed Development, whilst new tree planting will ensure commuting corridors are retained. In addition, management works to the ends of the tunnels S2 and S3 will be undertaken in order to provide better access for roosting bats. Bat boxes will be installed within the tunnels in order to enhance the Site for roosting and hibernation. The potential impacts of the construction phase post-mitigation are expected to have a minor adverse effect that is non-significant.

Badgers

- 12.4.31 Prior to the commencement of vegetation clearance to facilitate the Proposed Development, a suitably qualified ecologist should undertake a check for badger setts on the Site and land within 20 m of the Application Site boundary. In the event that a new badger sett is identified or excavations are required within 20 m of the existing off-Site sett (Sett 5), appropriate surveys and monitoring will be undertaken in order to establish the status of the sett. Where necessary, a watching brief will be maintained and/ or a licence obtained from Natural England to allow the disturbance or closure of the sett.
- 12.4.32 Furthermore, during the construction phase no open trenches or pits will be left uncovered or alternatively without a mammal ramp in overnight to prevent badgers becoming trapped.
- 12.4.33 The potential impacts on badger post-mitigation are expected to be minor adverse and, therefore, non-significant.

Otter

- 12.4.34 Immediately prior to the commencement of construction works at the Site, a suitably qualified ecologist should resurvey the drains and Pond 3 to ensure that if the Site is found to be within an otter's territory, an appropriate mitigation strategy can be prepared to ensure that this species is not disturbed by the works.
- 12.4.35 During the construction phase no open trenches or pits should be left uncovered or alternatively without a mammal ramp in overnight to prevent otters becoming trapped. Best practice measures (as discussed above) will minimise the risk of pollution events and changes in water level to the existing pond and ditches during the construction phase. The potential impacts on otter post-mitigation are expected to be negligible and, therefore, non-significant.

Brown Hare

- 12.4.36 During the construction phase no open trenches or pits should be left uncovered or alternatively without a mammal ramp in overnight to prevent brown hare becoming trapped. The resulting impact to this species is, therefore, considered to be negligible.

Common Toad

- 12.4.37 Mitigation for the impacts on common toad will be linked to those indicated for GCNs as above. In addition, prior to works undertaken in and around Pond 1, a suitably qualified ecologist will first check the surrounding habitats in order to capture and move any toads present. Furthermore, a suitably qualified ecologist will be present during the drain down of the pond. Should a toad be discovered during the works, it should be moved (with damp hands) to an area of suitable vegetation such as rough grassland a safe distance away from the working area. Best practice measures (as discussed above) will minimise the risk of pollution events and changes in water level to the existing pond and ditches during the construction phase.
- 12.4.38 These mitigation measures are expected to reduce the likelihood of common toad being harmed during the construction phase, and the resulting impact is considered to have a minor adverse effect that is non-significant.

12.5 Operational Effects and Mitigation

- 12.5.1 The principle effects during the operational phase of the development are expected to be long-term changes in habitat types and the resultant increased disturbance

from people, vehicular movements, lighting and noise. The effect of potential pollution events to the existing and waterbodies are also considered in relation to ecology below and in more detail in Chapter 8:Hydrology and Flood Risk.

Potential Impacts/Issues

Non-Statutory Designated Sites

- 12.5.2 The Proposed Development has the potential to cause direct and indirect impacts to the three Parish Sites identified by LRERC, located closest to the Site. Situated on and within close proximity to the Application Site boundary, there is the potential for these three non-statutory Sites to be affected by pollution events during the operational phase, impacting upon water quality and the survival of both floral and faunal species.
- 12.5.3 The increased noise and anthropogenic activity may also adversely impact upon the existing ecological features of the designated sites including disturbance to both floral and faunal species.
- 12.5.4 Given the magnitude, frequency and extent of the potential impacts on the existing ecological features, these impacts will have a minor adverse effect.

Habitats

- 12.5.5 The terrestrial habitats to be retained at the Site, including woodland, hedgerow, drains and Mere Lane Lagoon, will receive appropriate management following the development in order to maintain their ecological value.
- 12.5.6 The proposals for the Site include a range of habitat enhancement measures in order to strengthen existing features and to increase ecological value and diversity of the Site. SUDs features are proposed for Zone 1, including Norfolk reed beds, alder carr, wet woodland and open water, which comprise UK BAP Priority Habitats.
- 12.5.7 The Proposed Development also incorporates additional native woodland planting across the Site, replacement hedgerow planting, particularly along the A5, and the provision of species-rich wildflower grass within the centre of Zone 1, with a smaller section to the north-east. Species-rich grassland suitable for wetland conditions are also proposed around SUDs features, as well as an orchard within the central northern extent of Zone 1. These habitat enhancements are also anticipated to support a greater diversity of fauna than currently occurs at the Application Site.
- 12.5.8 It is proposed to undertake management works along the dismantled Midland Counties railway embankment in order to thin out the trees and grade the edges which will help reduce encroachment, and help in increasing floral and faunal diversity in particular wild flowers such as birdsfoot trefoil for green hairstreak butterflies (England Biodiversity Priority Species (EBP) (previously UK Biodiversity Action Plan (UKBAP) species), a species which from anecdotal evidence is understood to be present.
- 12.5.9 Overall the habitat management, enhancements and new habitat creation works are considered to result in a gain in the biodiversity value of the Site, in line with national and local conservation policies, and is, therefore, considered to be minor beneficial.

- 12.5.10 The permissive bridleways within the eastern extent of Zone 1 and along the railway embankment are to be retained following the development, with additional linkage along the former Mere Lane and the provision of a visitor's car park within the north-eastern corner of Zone 1. Whilst increased disturbance may occur as a result of pedestrians and dog walkers, it is anticipated that members of the public will utilise the permissive bridleway rather than more wildlife friendly habitats, such that disturbance will be limited in sensitive areas of habitat.
- 12.5.11 The operational phase of the development has the potential to impact on the water quality of Mere Lane Lagoon and the retained drains, with possible pollution events occurring. This would affect the survival of both floral and faunal species occurring within the standing water, as well as the quality of the habitat as a whole.
- 12.5.12 Given their magnitude, frequency and extent, these direct impacts will have a minor adverse effect that is non-significant.

Species

Birds

- 12.5.13 It is anticipated that foraging, sheltering and nesting opportunities for birds will be retained at the Site through the retention of existing hedgerow and woodland habitat as well as additional landscape planting throughout the Site. The woodland strip along the edge of Mere Lane is to be strengthened with additional native woodland plantation, creating a wider vegetation buffer and greater opportunities for nesting and foraging birds. Additional native planting is also proposed within the north, west and south of Zone 1, and within the south of Zone 2, creating connective corridors, landscape buffers and additional woodland habitat. In addition, bird nest boxes will be installed in appropriate places throughout the Site, whilst ecological enhancement such as wildflower grassland and SUDS systems will provide additional opportunities for nesting, sheltering and foraging birds.
- 12.5.14 It is anticipated that a minor change in bird communities will occur across the Site, with those species associated with hedgerows and woodland becoming more prevalent, and typical farmland bird species locating elsewhere. This could result in a decrease in farmland bird numbers, or the population becoming restricted to Site-edge habitat such as the retained hedgerows. The retention of Pond 3, and the retention and enhancement of a number of the Drains at the Site, with the addition of SUDS, will provide further opportunities for birds associated with wetland habitats.
- 12.5.15 Although there will be increased lighting on the Site as a result of the Proposed Development, areas of ecological enhancement and landscaping particularly within the northern area of the Site will remain unlit. Lighting at the Site will be fully LED, reducing upward light and glow and creating more targeted illumination. The increased cover from planting will counteract any potential negative impacts, providing dark corridors, such that it will have no adverse impact on birds at the Site.
- 12.5.16 It is anticipated that the change in habitat composition at the Site will benefit some bird species, whilst causing displacement of a low number of other species. The potential impacts of the operational phase of the development on birds overall are, therefore, considered to have a negligible impact.

GCNs

- 12.5.17 GCNs will be released from the receptor area and allowed back into the wider Site as appropriate during the phased development. Enhanced habitats and newly

created habitats will be incorporated into the proposed development, including both aquatic and terrestrial habitats. A series of SUDs features are proposed across the Site. These include wet woodland, reed beds, alder carr, wetland and open water which will provide a range of opportunities for foraging, sheltering, breeding and hibernating GCNs. Species-rich wildflower grassland and marshy grassland proposed for the central and eastern extents of Zone 1, and additional woodland and hedgerow planting will provide suitable habitat for foraging and hibernating GCNs as well as retaining and increasing connectivity within the Site and between existing off-Site ponds. Habitats at the Site will receive appropriate management following the development in order to maintain their ecological value and suitability to support this species. Habitat piles are proposed at appropriate locations around the Site in order to provide refuge and hibernation opportunities for GCNs.

- 12.5.18 The operational phase has the potential to impact on the water quality of waterbodies on Site, with possible pollution events occurring. This would affect the survival of both floral and faunal species occurring within the standing water, as well as the quality of the habitat as a whole.
- 12.5.19 Increased traffic volume at the Site, following the creation of new access routes across the Site has the potential to directly impact upon the GCN population through road fatalities. There is also the direct risk of harm to this species and other amphibians should they fall into roadside gulley pots within the Application Site.
- 12.5.20 Whilst it is anticipated that the majority of the general public will remain on the permissive bridleway/ paths around Mere Lane Lagoon, increased anthropogenic disturbance within proximity of the receptor area has the potential to adversely impact upon the GCN population occurring at the Site through the introduction of fish species into breeding ponds, non-native plants, or through disturbance by allowing dogs in the ponds.
- 12.5.21 The potential impacts on GCNs are considered to have a moderate adverse effect that is significant at a County level.

Bats

- 12.5.22 It is anticipated that the enhancement of existing habitats at the Site and creation of new habitats including wet woodland, wetland areas, species-rich grassland and the SUDs will increase the availability of invertebrate prey for bats and increase commuting corridors and sheltered foraging areas, whilst the addition of bat boxes on retained trees and within the tunnels beneath the dismantled railway will increase roosting and hibernation opportunities for bats at the Site.
- 12.5.23 Whilst areas of ecological enhancement are due to be left unlit and will support compensatory roosting sites, inappropriate positioning of lighting elsewhere at the Site could adversely impact upon the use of other potential foraging areas and commuting corridors by bats.
- 12.5.24 The potential impacts of the operational phase for bats are considered to be minor adverse and, therefore, non-significant.

Badgers

- 12.5.25 All arable land at the Site is to be lost in order to facilitate the proposed development, however, proposed planting of species-rich grassland and wetland grassland within the northern extents of Zone 1 will provide continued opportunities for foraging badger.

- 12.5.26 Increased anthropogenic activity is considered likely to discourage badger activity from certain areas of the Site, concentrating activity within the ecological enhancement areas to the north of Zone 1. However, since most anthropogenic activity is anticipated to occur during daylight hours, the impact from disturbance is considered to be negligible.
- 12.5.27 The operational phase has the potential to cause direct harm to this species through road casualties due to increased traffic volume on Site, especially along the new access route across Zone 1.
- 12.5.28 The potential impacts to badgers are considered to have a minor adverse effect that is, therefore, non-significant.

Otters

- 12.5.29 Mere Lane Lagoon and Drain 5 within Zone 1 are to be retained following the development and will receive appropriate management in order to maintain its ecological value. Proposed planting of woodland and hedgerow habitat will strengthen existing features and provide additional connectivity across the Site. Although the operational phase will result in increased light levels within certain areas of the Site, the use of only LEDs will ensure this is directional and light spill onto the ecological enhancements will be limited.
- 12.5.30 Whilst anthropogenic activity will increase at the Site during the operational phase, this is considered likely to be concentrated in and around the developed area within the western and southern areas of Zone 1 outside daylight hours and, therefore, the impact of disturbance on drains and wetland areas is considered to be limited.
- 12.5.31 The operational phase has the potential to affect water levels within the Lagoon and drains as well as create pollution events. Spillages may have acute short term impacts but can also cause long term chronic damage to productivity and diversity of the habitat, adversely affecting otters through the loss of prey and bioaccumulation of contaminants. Pollutants such as oil or petrol would also reduce waterproofing properties of the otter's fur.
- 12.5.32 The potential impacts to otter are considered to have a minor adverse effect that is, therefore, non-significant.

Common Toad

- 12.5.33 Mere Lane Lagoon at the Site is to be retained following the development along with terrestrial habitat immediately surrounding the pond. This will continue to provide opportunities for common toad within the north-eastern extent of Zone 1.
- 12.5.34 In addition, further opportunities for common toads are to be incorporated into the proposed development, including both aquatic and terrestrial habitats. A series of SUDs features are proposed across Zone 1, including wet woodland, reed beds, alder carr, wetland and open water. Species-rich wildflower grassland and marshy grassland proposed within the centre of the Site and the surrounding SUDs features, along with additional woodland and hedgerow planting, will provide suitable habitat for foraging and hibernating amphibians as well as maintaining connectivity within the Site and between existing off-Site ponds. Habitats at the Site will receive appropriate management following the development in order to maintain their ecological value and suitability to support this species. Habitat piles are proposed at appropriate locations around the Site in order to provide further opportunities for common toads.

12.5.35 The operational phase has the potential to impact on the water quality of waterbodies on-Site, with possible pollution events occurring. This would affect the survival of both floral and faunal species, including any breeding toads or their tadpoles occurring within the standing water, as well as the quality of the habitat as a whole.

12.5.36 Increased traffic volume along the new access route into the Site and route across it has the potential to directly impact upon the common toad population through road fatalities. There is also the direct risk of harm to this species and other amphibians should they fall into roadside gulley pots within the Application Site.

12.5.37 The potential impacts on common toad are considered to have a minor adverse effect that is, therefore, non-significant.

Significance of Predicted Effects

12.5.38 An assessment of the significance for the predicted effects is shown in the Table 12.3 below.

Table 12.3 Significance of Predicted Effects

Ecological Feature (Value)	Nature of Effect	Duration of Impact	Significance of Effect
Non-statutory designated sites (Local Value)	Noise and light Pollution events	Temporary	Minor adverse – not significant
Habitats (Local Value)	Enhancement planting and management Pollution events	Permanent Temporary	Minor Beneficial – not significant Minor Adverse – not-significant
Birds (Local Value)	Change in habitat composition	Permanent	Negligible - Neutral
GCNs (County Value)	Habitat enhancement Pollution events Increased road traffic Roadside gulley pots	Permanent and temporary	Moderate adverse – significant at a County level
Bats (County Value)	Habitat enhancement Lighting	Permanent	Minor adverse – not significant
Badgers (Local Value)	Change in habitat composition Increased road traffic	Permanent	Minor adverse – not significant
Otter (Local Value)	Habitat enhancement and management Pollution events	Permanent and temporary	Minor adverse – not significant

Common Toad (Local Value)	Habitat enhancement Pollution events Increased road traffic Roadside gully pots	Permanent and temporary	Minor adverse – not significant
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Proposed Mitigation

12.5.39 In order to reduce the impact of pollution and change of water levels within the waterbodies at the Site and immediately surrounding the Application Site during the operational phase, appropriate mitigation and best practice measures will be implemented (see Chapter 8: Hydrology and Flood Risk).

12.5.40 Lighting at the Site is proposed to be fully LED. Holophane Lighting (Developer partner) LED fittings are proposed for the external lighting solution. The External lighting installation will consist of LED luminaires mounted on building and on tubular steel columns at approximately 8m. Lighting to the A5 and Mere Lane roundabouts shall be LED or as dictated by Highways England and Leicestershire County Council. Lighting at the Site is to be focused on the areas required, with no lighting proposed within the northern extent of Zone 1. The proposed lighting scheme will minimise upward lighting and reduce light spill to other areas of the Site, particularly habitat enhancement areas. This will limit any potential impact of lighting on suitable foraging, commuting and nesting habitat. For further information on lighting see Chapter 10: Artificial Lighting.

Non-Statutory Designated Sites

12.5.41 Adherence to best practice methodology with regards to pollution and impacts on waterbodies as discussed above will minimise the potential impacts on the non-statutory designated sites within close proximity to the Application Site. The potential impacts post-mitigation are considered to be negligible, therefore, not significant.

Habitats

12.5.42 Following best practice measures for pollution and impacts to watercourses as discussed above, along with the incorporation of habitat enhancements across the Site, these factors are considered to reduce the likelihood of any potential impact. However, whilst there is a minor beneficial effect across some habitats, the level of impact remains a minor adverse effect that is, therefore, not significant.

Species

Birds

12.5.43 Considering the implications of the proposed lighting scheme for the Site, as well as habitat retention and enhancements, the potential impact of the operational phase on nesting birds is considered to have a negligible impact which is, therefore, not significant and no mitigation is required.

GCNs

- 12.5.44 Mitigation and best practice measures with regards to pollution prevention and impacts to waterbodies as discussed above will reduce the likelihood of any potential risk to GCNs.
- 12.5.45 Amphibian tunnels and permanent amphibian fencing will be incorporated into the infrastructure plans for the Application Site at points where connectivity between suitable GCN terrestrial habitat, or to breeding ponds has been severed by access roads. It is currently proposed to install two amphibian tunnels; one beneath the extended Hunter Boulevard, and a second beneath Mere Lane which will enable GCNs, and other amphibians, to pass beneath this road section to suitable terrestrial habitat within the Application Site.
- 12.5.46 The use of SUDs at the Site will limit the requirement for gully pots along roads as far as is possible, and as stated above, amphibian tunnels together with permanent amphibian fencing will be incorporated into the final development plan, where necessary.
- 12.5.47 Thorny native hedgerow planting will be incorporated into the landscaping plans if, once the mitigation strategy for GCNs has been finalised, the general public are considered to pose a risk to any GCN breeding pond(s) that will be incorporated into the scheme. This will deter access and, therefore, discourage interference with the pond(s). Furthermore, education and information boards will be provided at the edge of any GCN compensatory habitat explaining its purpose, and encouraging walkers to act responsibly in terms of their impact upon wildlife within these areas.
- 12.5.48 With the inclusion of mitigation, any impacts upon GCNs are considered to be minor adverse and, therefore, non-significant.

Bats

- 12.5.49 All lighting at the Site will comprise LEDs to ensure that it is both directional to limit spillage onto adjacent vegetative corridors, and also limits any 'glow' that would impact upon the wider area beyond the Site boundaries. There will be no lighting on the northern areas of Zone 1 which are designated as habitat enhancement areas.
- 12.5.50 With the inclusion of mitigation, any impacts upon bats are considered to be minor adverse and, therefore, non-significant.

12.5.51 Badger

- 12.5.52 The potential impacts to badgers are considered to have a minor adverse effect and are not significant, therefore, no mitigation is required.

Otter

- 12.5.53 Mitigation and best practice measures with regards to pollution prevention and impacts to waterbodies as discussed above will reduce the likelihood of potential risk to otters. The potential impacts to otters post-mitigation is considered to be negligible and, therefore, not significant.

Common Toad

- 12.5.54 Best practice measures with regards to pollution prevention and impacts to waterbodies as discussed above will reduce the likelihood of potential risk to common toad.

12.5.55 Any severance of connectivity for toads across the Site caused by roads will be negated through the inclusion of amphibian tunnels and permanent fencing within the infrastructure plans, as discussed for GCNs.

12.5.56 The use of SUDs at the Site will limit the requirement for gully pots along roads as far as is possible, and as stated above, amphibian tunnels together with permanent amphibian fencing will be incorporated into the final development plan, where necessary.

12.5.57 The potential impacts to toads post-mitigation are considered to have a minor adverse effect which is not significant.

12.6 Residual Effects

12.6.1 Whilst there may be a short-term effect on the biodiversity value of the Site in terms of the diversity of flora fauna it supports until newly created habitats become established, in the long-term it is anticipated that full mitigation and enhancement measures will be achieved and there will be no residual effects on non-statutory designated sites, habitats or fauna resulting from the Proposed Development.

12.6.2 Monitoring of the GCN and bat populations will form part of the EPSL and will determine the success of the proposed mitigation and enhancement strategies, and inform any required remediation of management regimes post-development. Alongside this, monitoring can also be undertaken in respect of non-licensed enhancement measures including provision for hibernating bats within the tunnel structures and additional bat boxes around the Site.

Construction

12.6.3 There will be no residual effects on non-statutory designated sites, habitats or fauna resulting from the Construction Phase of the Proposed Development.

Operational

12.6.4 There will be no residual effects on non-statutory designated sites, habitats or fauna resulting from the Operational Phase of the Proposed Development.

12.7 Cumulative Effects

Other Developments Accounted

12.7.1 For the purposes of the effects of cumulative impacts of any committed off-Site development combined with the Proposed Development upon ecology, all relevant proposed and recently granted planning applications have been considered, where publically available information allows

12.7.2 15/00471/FUL Plot 2110, Magna Park is proposed for the erection of a distribution warehouse with ancillary offices, parking areas and landscaping. The site comprises approximately 60% levelled ground with hardcore with the footprint of a former building surrounded by grassland. . Grassland at the site was considered to support the necessary species composition to qualify as a LWS, and an appropriate mitigation strategy has been agreed to offset any ;loss, whilst it is considered to be suitable to support a remnant population of reptiles despite its isolated position with roads on three aspects and a large warehouse building to the east. Given the site is fragmented from Zone 1 of the Site for all species save for bats, birds, and possibly badgers for which species the Site offers limited

opportunities, and is situated 275 m to the north of Zone 2 with the A4303 and further warehouse buildings fragmenting the two areas, there are not considered to be any cumulative impacts to arise.

- 12.7.3 12/00851/FUL Land south of and adjacent to Asda George Headquarters, Magna Park. This comprises Zone 2 of the Proposed Development such that any potential impacts arising from this development on ecology have already been considered in combination with those on Zone 1 of the Proposed Development within this Chapter.
- 12.7.4 14/01090/OUT SE of Lutterworth, Leicestershire, adjacent to Junction 20 of the M1 motorway including means of access, open space, landscaping and sustainable drainage features. The site is proposed for B1 Class office buildings and associated hard and soft infrastructure. The site comprises predominantly arable land with hedgerow boundaries, and the River Swift to the north. Whilst it supports habitats generally of low ecological value, the off-site River does support both otter and water vole. Given the location of the Site 3.2 km to the east of the Proposed Development, with Lutterworth and MPL fragmenting the two areas for movement of the majority of faunal species. There are not considered to be any cumulative impacts to arise.
- 12.7.5 11/00117/OUT & 13/01282/REM Land north of Bill Crane Way, Lutterworth Leicestershire is proposed for a residential development of 149 properties with associated hard and soft infrastructure. It comprises arable and improved pasture of low botanical value, with hedgerows and trees forming boundaries, which are considered of greater value. Potential for protected species was limited, and there are no ecological planning conditions for the site. It is situated at a distance of 2.7 km to the east of the Proposed Development, with Lutterworth and MPL fragmenting the two areas. There are not considered to be any cumulative impacts to arise.
- 12.7.6 14/00739/OUT Land east of Leicester Road, Lutterworth Leicestershire has outline planning permission for 84 residential properties with associated hard and soft infrastructure. The site supports habitats that are widespread and generally of low ecological value, however, they offer potential to support GCNs and reptiles and further surveys were recommended. The site is located 5.8 km to the east of the Proposed Development with Lutterworth and MPL fragmenting the two areas for movement of the majority of faunal species. There are not considered to be any cumulative impacts to arise.
- 12.7.7 National Infrastructure Planning Unit- Daventry International Rail Freight Terminal (DIRFT) comprising the construction of Rail Freight Interchange and extension to that existing, located 10 miles south of the Proposed Development. The site supports habitats that are widespread and generally of low ecological value, however a LWS will be lost to the development. There a series of ponds that hold a medium meta-population of GCNs that will be lost to facilitate the proposals. A brown long-eared bat maternity roost will be lost as part of the proposals. The proposed mitigation will compensate for the loss of the LWS, GCN and bat habitats and ensure the favourable conservation status of these faunal species is maintained. Given the distance between the Proposed Development and DIRFT, and infrastructure between the two sites which will fragment connectivity for the majority of faunal species, such that there will be no linkage between the GCN populations, there are not considered to be any cumulative impacts to arise.
- 12.7.8 R11/0699 Rugby Radio Station, A5, Watling Street, Rugby relates to an approved outline planning application for an urban extension to Rugby for up to 6,200 dwellings, to 3,500sq.m financial services, (A2) and restaurants (A3 - A5), up to 3,500sq.m for a hotel (C1), up to 2,900sq.m of community uses (D1), up to

3,100sq.m assembly and leisure uses (D2), 31 hectares (up to 106,000sq.m) of commercial and employment space (B1, B2 and B8), and ancillary facilities; a mixed use district centre and 3 subsidiary local centres including retention and re-use of the existing buildings known as 'C' Station (Grade II listed), 'A' Station and some existing agricultural buildings; a secondary school and 3 primary schools; public art; green infrastructure including formal and informal open space and amenity space; retention of existing hedgerows, areas of ridge and furrow and grassland; new woodland areas, allotments and areas for food production, wildlife corridors; supporting infrastructure (comprising utilities including gas, electricity, water, sewerage, telecommunications, and diversions as necessary); sustainable drainage systems including ponds, lakes and water courses; a link road connecting the development to Butlers Leap, estate roads and connections to the surrounding highway, cycleway and pedestrian network; ground remodelling; any necessary demolition and any ground works associated with the removal of any residual copper matting, with all matters reserved for future determination except the three highway junctions on the A428, the two junctions on the A5 and the link road junctions at Butlers Leap and Hillmorton Lane. The site supports habitats that are widespread and generally of low ecological value that includes a series of cattle poached muddy depressions supporting a medium meta-population of GCNs, the majority of which will be lost to facilitate the proposals. The proposed mitigation will ensure that the favourable conservation status of GCNs at the site is retained. A brown long-eared bat roost will be retained. Given the location of the Radio Station site 10 miles south of the Proposed Development, and the fact that the two sites are fragmented for most faunal species by the M6 motorway, such that there will be no linkage between GCN populations, there are not considered to be any cumulative impacts to arise.

- 12.7.9 R10/1272 Rugby Gateway, Leicester Road, Rugby approved outline planning permission for residential development of up to 1,300 units); employment development (up to 36ha in total, B2 General Industrial & B8 – Storage & Distribution); community facilities (D1 – Non-residential Institutions) including primary school, nursery and health facility, retail premises (A1 – Retail, A3 – Food & Drink, A4 – Drinking Establishments & A5 – Hot Food Takeaway); open space; associated infrastructure and works including details of access into site (including alterations to highway and existing roundabouts). Demolition of existing buildings. The site comprises predominantly arable land bounded by hedgerows, with three plantation woodland areas and a marshy grassland area. Whilst the site holds potential to support protected species, limited signs were found. The site is situated 4.6 miles to the south of the Proposed Development. Given the distance between the sites and the lack of ecological features, there are not considered to be any cumulative impacts to arise.
- 12.7.10 15/00378FUL & 12/00698/REM Land bounded by the Ashby Canal, Railway Line and Bridge Road, Incorporating the former Johnsons Apparelmaster Ltd, Rugby Road, Burbage Hinckley. No ecological information is available for this scheme. Situated approximately 10 km from the proposed development site, there are not considered to be any cumulative impacts to arise.
- 12.7.11 13/01223/REM Leaders Farm, Coventry Road, Lutterworth. Proposed for the erection of 130 residential dwellings, creation of cemetery and provision of associated infrastructure. From a review of aerial photographs the site appears to comprise of arable land with boundary hedgerows, however, no ecological information is available. Given the distance of 1.5 km to the proposed site, there are not considered to be any cumulative impacts to arise.
- 12.7.12 R11/0114 Cawston Extension Site, Coventry Road, Cawston, Rugby Warwickshire approved outline planning for residential development (up to 600 dwellings, use class C3), new accesses to Coventry Road and Trussell Way, open space,

associated infrastructure and ancillary works (access not reserved). The habitats occurring at the site are widespread and generally considered to be of low ecological value. Adjacent to the site two ponds were found to support a medium population of GCNs such that there will be a loss of GCN terrestrial habitat to facilitate the proposals. Given the location of the site at a distance of 10 miles to the south of the Proposed Development and the fact that the two sites are fragmented from each other for most fauna, such that there will be no linkage between the GCN populations, there are not considered to be any cumulative impacts to arise.

- 12.7.13 13/01539/FUL Land off Dunton Road, Broughton, Astley. Decision has been appealed to allow a residential development of 24 dwellings and associated hard and soft landscaping. The site comprises a single sheep grazed field of low ecological value. Despite two trees identified as having bat roost potential, given the distance of 6.4 km separating the site there are not considered to be any cumulative impacts to arise.
- 12.7.14 12/04597/OUT Land off Crowfoot Way, Broughton Astley. High Court Planning Appeal refused for 111 residential dwellings with associated infrastructure. No further consideration has been given to this proposal.
- 12.7.15 2009/1488/03 Sutton Lodge Farm, Broughton Astley. Has permission for the erection of an anaerobic digestion facility with associated infrastructure and landscaping. The site appears to be situated within arable land, however, no ecological information is available for the site. at a distance of over 6 km to the proposed development site, there are not considered to be any cumulative impacts to arise.
- 12.7.16 15/00865/OUT Land adjacent to Glebe Farm is proposed for the erection of storage, distribution buildings (B8), with ancillary B1(a) offices, creation of access, formation of a lorry park, SUDs facilities and other associated infrastructure with the demolition of Glebe Farmhouse. Whilst not a committed development, this application is treated as a sensitivity test due to its proximity to the Application Site. The site comprises predominately agricultural land, including arable and improved grassland, of low ecological value. A number of on-site buildings and trees were assessed as having potential support roosting bats, however, no evidence of roosting bats was found at the site, whilst a disused badger sett has also been identified. The Site is situated immediately adjacent to the eastern and southern boundaries of Zone 2. The A4303 forms a barrier to dispersal to many species of flora and fauna, save for bats, birds and potentially badgers and, therefore, the cumulative impacts upon other species of fauna occurring in Zone 1 and at the site would not need to be considered. However, given that no protected or notable species of flora or fauna were found on the site, nor within Zone 2, there are not considered to be any cumulative impacts to arise.

Multiple Issues Resulting in Cumulative Effects

- 12.7.17 No identified individual effects in other technical chapters have been identified that are considered to lead to cumulative significant effects with Ecology and Nature Conservation.

12.8 Summary

- 12.8.1 Zone 1 of the Site is characterised by predominantly arable fields with poor semi-improved grassland field margins, with occasional fields of poor semi-improved grassland and a single field of marshy grassland. These are all bounded by a combination of hedgerows with trees, and drainage ditches. Several sections of

broadleaved plantation woodland are situated within the eastern and central areas of the Site, and there are four ponds at the Site. Running north-south through the Site is the dismantled Midland Counties railway line embankment. A range of domestic and commercial buildings with associated infrastructure lie within the south-western extent of the Site.

- 12.8.2 Zone 2 of the Site comprises two fields of poor semi-improved grassland bisected by a field drain, with an embankment colonised by tall ruderals within the north-eastern area, and scrub along the drain and along the eastern edge of the Site. Bounding the Site to the north and east was a hedgerow, whilst to the south was a row of scattered trees, beyond which, immediately off-Site, was a brook. Overall Zones 1 and 2 that comprise the Site are considered to be of generally low biodiversity value.
- 12.8.3 This report has assessed the value of the habitats within the Proposed Development and the species associated with them. Whilst an assessment of the trees on Zone 2 was completed for their potential to support roosting bats, no other protected species surveys were deemed necessary. Whilst there are no GCN breeding ponds on-Site, the results of the survey works indicate that there is a medium meta-population of GCNs within the local area around Zone 1, breeding within ponds to the east of the Proposed Development within MPL, and to the north, in field ponds east and west of Mere Lane. Common toad has been recorded in high numbers at Mere Lane Lagoon (Pond 3) and at Pond 1 on-Site.
- 12.8.4 At least two species of bats have been confirmed roosting in buildings and trees on-Site, with a total of three roost sites confirmed within the buildings, and two suspected roost sites, and two confirmed roost sites in trees, and three suspected roost sites. All of the roost sites have been found to support low numbers (lone males or non-breeding females) of widespread bat species. The nocturnal bat surveys have identified six species of bat to be utilising the Site for foraging and commuting purposes, with common pipistrelle bat the most frequently recorded. Heightened foraging activity was recorded along the avenue of trees leading up to Bittesby House, whilst the dismantled railway line was found to be utilised by commuting bats. Overall, bat activity across the Site was low.
- 12.8.5 The WBS recorded a total of 49 species to be utilising Zone 1 of the Site, of which two were Schedule 1 species (WCA 1981, as amended) and a total of 10 species were Red list BoCC and EBP species. The majority of bird activity was located in the field margins and field boundary hedgerows. Overall the species recorded were found in low numbers and were considered to be commonly occurring locally, and widespread within the county.
- 12.8.6 THE BBS recorded a total of 56 species to be utilising Zone 1 of the Site. Twenty-seven of the species recorded were Red or Amber list BoCC, or identified as priority species on Section 41 of the NERC Act. Whilst two Schedule 1 species (WCA 1981, as amended) were recorded on one visit, these were winter migrants recorded early in the breeding bird season. The majority of bird activity was located in the field margins, wetland areas, woodlands and field boundary hedgerows. Overall the species recorded were found in low numbers and were considered to be commonly occurring locally, and widespread within the county.
- 12.8.7 Whilst there are disused badger setts within the western and northern extents of the Site, there are no active setts on-Site. There is an active sett within proximity to the Site to the east. Widespread badger activity was recorded across the Site to indicate that the Site is within the territory of a badger group. No reptiles have been recorded within suitable habitat at the north-eastern extent of Zone 1 around the Lagoon. A single hare has been recorded on-Site on one occasion.

- 12.8.8 In light of the anticipated impacts associated with the construction and operational phases of the development, mitigation has been put forward to minimise the impacts and level of disturbance relating to the proposed development, such that there are not considered to be any significant residual impacts resulting from the proposals.
- 12.8.9 Whilst it is not possible to finalise a mitigation strategy before the development plan for the Proposed Development has been finalised, the habitat enhancements included within the landscaping plans for the Site include mitigation measures for GCNs. This includes at least one breeding pond to be included within a proposed temporary receptor area to the north of the proposed DHL building in the north-eastern extent of the Site, and further wetland areas in the northern and central areas of the Site, such that there is the potential to create a second temporary receptor area, if necessary. Ideal terrestrial habitat, including alder carr, wet meadow, reedbed habitat and species-rich grassland, as well as log piles and creation of hibernacula, in addition to the new woodland and hedgerow planting will be incorporated into the development. Furthermore, amphibian tunnels and permanent amphibian fencing have been included within the proposals, and their locations will be confirmed once the development plans have been finalised. They will be designed to ensure that no amphibians are harmed on the roads, or become trapped in gully pots.
- 12.8.10 Habitat enhancements have been made for bat species at the Site, including landscape planting to encourage a range of invertebrate species, which will increase foraging opportunities for bats. Bat boxes will be installed on mature trees along linear foraging and commuting corridors to replace any lost roosting sites as a result of the proposals, and to enhance the Site for roosting bats. In addition, two of the tunnels beneath the dismantled railway line will be enhanced for roosting and hibernating bats.
- 12.8.11 The landscaping proposals will increase foraging, sheltering and nesting opportunities for passerine bird species at the Site. A range of bird boxes will be installed on trees to be retained at the Site to enhance nesting opportunities for a range of bird species. Berry rich tree, shrub and hedgerow species and the marshy grassland will also improve foraging opportunities for badger, known to be present within the local area, but not inhabiting the Site.
- 12.8.12 Lighting at the Site has been designed to minimise any impact on wildlife habitats through the use of LEDs throughout the scheme to limit light spillage and to ensure lighting is directional. There will be no lighting onto any wildlife habitats at the Site. Whilst public access is to be increased as a result of the proposals through additional footpath provision in the northern and north-eastern areas of the Site, it is anticipated that the provision of clearly marked and accessible footpaths coupled with dense hedgerow and shrub planting alongside it will limit trespass and, therefore, disturbance to wildlife.
- 12.8.13 Overall connectivity for wildlife both within the Site and to off-Site habitats will be maintained, and where possible, enhanced through both supplementary planting to hedgerows, and new planting around the perimeter of the distribution warehouse facilities across the Site.
- 12.8.14 Going forward it will be essential to ensure that both the retained habitats and the significant areas of new habitat creation that have been proposed are appropriately managed and maintained in the long-term.
- 12.8.15 These proposed measures will help to achieve Local BAP and EBP objectives and compliance with local and national policies, and will enrich the local biodiversity of

Harborough district. This report has assessed the value of the habitats within the Proposed Development and the species associated with them.

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- Appendix I – 2: Extended Phase 1 Habitat Survey – Zone 2
- Appendix I - 3: Bat Habitat Assessment
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**Appendix I -1: Extended Phase 1 Habitat Survey
– Zone 1**

**Magna Park Extension: Hybrid Application, Zone
1**

For IDI Gazeley

Delta-Simons Project No. 14-0159.02

Issued : September 2015

EXECUTIVE SUMMARY
APPENDIX I-1: EXTENDED PHASE 1 HABITAT SURVEY – ZONE 1
PROPOSED MAGNA PARK EXTENSION: HYBRID APPLICATION
DELTA-SIMONS PROJECT No. 14-0159.02

Purpose	Delta-Simons Environmental Consultants Ltd was instructed by IDI Gazeley ('the Client') to undertake an Extended Phase 1 Habitat survey of an area of land situated off Mere Lane to the north-west of Lutterworth in Leicestershire ('the Site'). The survey was undertaken on 23 rd September 2014, and updated on 18 th August 2015. Habitats and the potential of the Site for protected species were assessed during the Extended Phase 1 Habitat Survey. The survey was undertaken in order to inform a planning application for the Site.
Current Site Status	The Site comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.
Proposed Development	An outline planning application will be submitted for up to 427,350 square metres (m ²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m ² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m ² , an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m ² , Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m ² , and an Innovation Centre of up to 2,325 m ² . The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

<p>Results: Habitats on-Site</p>	<ul style="list-style-type: none"> △ Broadleaved plantation woodland; △ Scattered broadleaved trees; △ Marshy grassland; △ Poor semi-improved grassland; △ Tall ruderal; △ Standing water; △ Running water; △ Arable; △ Amenity grassland; △ Intact hedgerow – species poor; △ Defunct hedgerow – species poor; △ Fence; △ Dry Ditch; △ Buildings and △ Hardstanding.
<p>Habitats within Land Adjoining the Site</p>	<p>The Site is situated within a rural setting, with further arable land to the north, east, beyond the A5, and west of the Site. Beyond the Site boundary to the south-east and Mere Lane, a stretch of immature broadleaved plantation woodland buffers the Site from Magna Park. A total of 19 ponds have been identified within 500 m of the Site.</p>
<p>Recommendations</p>	<p>The detailed recommendations set out within the Report are summarised below:</p> <p>Recommendation 1 (Nesting Birds) If any vegetation clearance works are to be undertaken of areas of woodland, scrub, hedgerows and trees featured on the Site, these should be performed either before early March or after late July in order to avoid affecting any birds during the main period in which they are nesting. In addition, any demolition of buildings on-Site, and clearance of bankside vegetation of the drains and ponds, should take place outside of this nesting period. If, however, Site clearance works are deemed necessary during the nesting period an experienced ecologist will be required to check the Site habitats and buildings to confirm that no nesting birds will be affected by the proposed works. It is also recommended that should there be a delay between harvesting the arable land and the commencement of the proposed development works, a total herbicide is applied to the arable land in order to prevent vegetation growth and potential habitat development for ground nesting birds.</p> <p>Recommendation 2 (Breeding Birds) In order to determine the current use of the Site by breeding birds, and identify any potential impacts of the proposed development, it is recommended that Breeding Bird Surveys (BBS) are undertaken. These should be completed by an experienced ornithologist walking pre-determined transect routes during the peak nesting bird season (May-July, inclusive)</p> <p>Recommendation 3 (Wintering Birds) In order to determine the current use of the Site by wintering farmland birds, and identify any potential impacts of the proposed development, it is recommended that Wintering Farmland Bird Surveys are undertaken. These should be completed by an experienced ornithologist walking pre-determined transect routes from October and March (inclusive).</p>

Recommendation 4 (GCNs)

In order to determine the presence or likely absence of GCNs within the on-Site ponds and those within 500 m of the Site and, therefore, the potential for this species to disperse across the terrestrial habitat at the Site it is recommended that, where access can be gained, further surveys are undertaken of the ponds. Habitat Suitability Indices should be calculated for each pond and, therefore, their suitability to support GCNs. Where ponds are found to be suitable for GCN's, having an 'Average' or greater HSI score, in accordance with best practice guidance, four survey visits for GCNs should be undertaken between mid-March and mid-June, two of which should be undertaken between mid-April and mid-May. If GCNs are found during this period, two further survey visits will be required for a population estimate to be made before mid-June, one of which should be undertaken before mid-May.

Recommendation 5 (Reptiles)

It is recommended that a reptile survey is undertaken of suitable habitats at the Site in order to establish whether or not reptiles are present at the Site. This would involve a total of seven visits to the Site to check natural and artificial refugia for the presence of reptiles. The surveys can be undertaken from late March until October during suitable weather conditions. If reptiles are present, a mitigation program may be required to enable any future development at the Site to proceed without the potential for harm to these species.

Recommendation 6 (Bats)

In order to determine the use of the Site by bats it is recommended that comprehensive survey works are undertaken. These should involve a Bat Roost Potential (BRP) survey of the trees and buildings at the Site with subsequent nocturnal emergence surveys undertaken between May-August, inclusive), where required, and bat activity transect surveys focussed on suitable foraging and commuting habitats across the Site monthly during the main active bat season (April –September, inclusive).

Recommendation 7 (Badgers)

In order to determine the extent of badger activity at the Site it is recommended that an extensive badger survey is undertaken. This should record the location of any setts, latrines and well-worn mammal paths particularly within the woodland habitats and areas least accessible during the Extended Phase 1 Habitat survey. The badger survey can be undertaken at any time of year, however, it is recommended that it is completed during the winter months such that there is greater access and visibility into dense areas of vegetation.

Recommendation 8 (Otter)

It is recommended that an otter survey is undertaken at the Site in order to determine the presence or likely absence of this species, and the level of activity associated with suitable on-Site habitats. The otter survey can be undertaken at any time of year, and the results of the survey would inform the requirement for inclusion of mitigation for this species and potential habitat enhancement measures.

Recommendation 9 (Water Vole)

It is recommended that a water vole survey is undertaken at the Site in order to determine the presence or likely absence of this species, and the level of activity associated with central drain and on-Site ponds. The water vole survey can be carried out from mid-April to September (inclusive) when this species is most active. The results of the survey would inform the inclusion of mitigation for this species and potential habitat enhancement measures.

	<p>Recommendation 10 (Pollution Prevention) In order to protect the local water courses and ponds, contractors should adhere to the recommendations outlined in Pollution Prevention Guideline 5 (PPG 5): Works in, near or liable to affect watercourses (Environment Alliance) to minimise the risk of pollution events to the watercourse during construction.</p> <p>Recommendation 11 (Badgers, Hare, Otter) It is recommended that best practice measures are followed on-Site such that either excavations are covered overnight during the construction works or mammal ramps are installed in order to prevent any badgers and/ or brown hares and/ or otters that may venture onto the Site from becoming trapped.</p> <p>Recommendation 12 (Planning and Ecological Enhancements): Following the issue of the National Planning Policy Framework (NPPF, 2012) by the Department for Communities and Local Government (DCLG), "<i>The planning system should contribute to and enhance the natural and local environment by: Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity...</i>"; and, therefore, for this particular development the use of native plant species sourced from local nurseries is recommended in landscape proposals to enhance foraging opportunities for local birds and bats, by increasing the invertebrate diversity on-Site. In addition, species specific mitigation and enhancements as well as appropriate habitat creation should be informed by the further survey works recommended above.</p>
<p>This Extended Phase 1 Habitat Survey Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This Executive Summary should be read in conjunction with the full Report.</p>	

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APPENDIX I-1: EXTENDED PHASE 1 HABITAT SURVEY – ZONE 1
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
FOR
IDI GAZELEY DELTA-SIMONS PROJECT No. 14-0159.02

1.0 INTRODUCTION

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was instructed by IDI Gazeley (‘the Client’) to undertake an Extended Phase 1 Habitat Survey. The survey was undertaken of land off Mere Lane to the north-west of Lutterworth in Leicestershire (hereafter referred to as the ‘Site’). In addition, public land immediately surrounding the Site was surveyed. The survey was undertaken in order to inform a planning application for the Site.

The aims of the Extended Phase 1 Habitat Survey were to:

- △ Identify habitat types on the Site using the standard methodology devised by the Joint Nature Conservation Committee (JNCC, 2010);
- △ Identify areas of potential for protected species/ species of conservation concern within the Site;
- △ Identify areas of potential for protected species/ species of conservation concern immediately outside the Site;
- △ Identify any invasive plant species included within Schedule 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended);
- △ Prepare a Phase 1 Habitat Survey Plan of the Site; and
- △ Propose recommendations for further surveys, where necessary.

The Site location and the area surveyed are shown in Figure 1.

1.2 Site Description

The application site (the ‘Site’) comprises approximately 227 ha of land in two zones and is centred at Ordnance Survey (OS) grid reference SP 5004 8606. Together, the two zones form the Site of the hybrid planning application.

Zone 1

Zone 1, is an approximately 220 ha triangular parcel of predominantly agricultural land to the north and north-west of Magna Park, Lutterworth. Zone 1 is linked to and extends Magna Park. Its boundaries are created by the A5 to the south and west, Mere Lane to the east and the ridgeline hedgerows that follow the parish boundary to the north.

It comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.

The Site layout is shown in Figure 2.

1.3 Proposed Developments

An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m², Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping

is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

The proposed development plan is included as Figure 3.

2.0 LEGISLATION

2.1 Birds

All wild birds are protected under Section 1 of the WCA 1981 (as amended). Subsection 1(1) makes it an offence to intentionally kill, injure, or take any wild bird; take, damage or destroy the nest of any such bird whilst it is in use or being built; or take or destroy an egg of any such wild bird. It is, furthermore, an offence to either intentionally, or recklessly, disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird. The law covers all species of wild birds including common, pest or opportunistic species.

2.2 Amphibians

All amphibians are protected under the WCA 1981 (as amended), with some species also protected under the European Habitats and Species Directive (92/43/EC), enacted in the UK through Annex IV of the Habitats and Species Regulations 2010 (as amended). All amphibians are protected from keeping, transporting, selling or exchanging. This means that in practice reasonable measures must be taken to avoid their incidental mortality.

The Great Crested Newt (GCN) *Triturus cristatus* is protected under Schedule 2 of the Habitats Regulations and Schedule 5 Sections 9(1) and 9(4) of the WCA 1981 (as amended). It is an offence to deliberately or recklessly kill, injure, capture or disturb these species or, to obstruct access to, damage or destroy areas where they live or breed. The legislation applies to all stages of the life cycle including eggs, larvae and juveniles. It should be noted that GCNs spend the majority of their lives on land, venturing up to 500 m (but more usually 250 m) from their breeding ponds and as such any ground works within 500 m of a breeding pond could have an adverse effect on GCNs.

2.3 Reptiles

All six native species of reptiles are protected under the 1981 WCA (as amended), from deliberate or reckless killing or injury. As such, all reasonable steps must be taken to avoid their incidental mortality when carrying out works.

2.4 Bats

All bats and their roosts are protected under Section 9 of the WCA 1981 (as amended) and Annex IV of the Habitats and Species Regulations 2010 (as amended).

It is an offence, either deliberately or recklessly, to destroy, damage or obstruct access to any bat roost, or to disturb a bat using such a place. It should be noted that a roost is protected whether or not bats are present and any activity or works affecting a roost, even when bats are absent, are likely to require a Natural England European Protected Species Licence.

2.5 Badgers

Badgers *Meles meles* and their setts are protected under the 1992 Protection of Badgers Act. Under this Act it is an offence to wilfully kill, injure, take, possess or cruelly ill-treat badgers, or to attempt to do so. It is also an offence to intentionally or recklessly damage, destroy, or obstruct access to any part of a sett, or to disturb an occupied sett, either by intent or negligence. When interpreting the Act, Natural England defines a sett as any structure within an area used by badgers that shows signs of having been occupied by badgers within the last 12 months.

2.6 Otters

Otter *Lutra lutra* is afforded strict protection under Section 9 of the WCA 1981 (as amended) on Schedule 5 of the WCA 1981 (as amended) and Annex IV of the Conservation of Habitats and Species Regulations (2010). They also receive protection through their inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

Under the legislation, it is an offence to intentionally capture; injure or kill an otter; intentionally or recklessly damage or destroy a breeding site or resting place of an otter; intentionally or recklessly disturb an otter while it is occupying a structure or place which it uses for shelter or protection; obstruct access to any structure or place which it uses for that purpose; possess or control a live or dead animal, or part of; sell, offer for sale, possess or transport for the purpose of sale, a live or dead animal or part of one.

2.7 Water Voles

The water vole *Arvicola amphibius* received limited legal protection up until April 1998 through its inclusion in Schedule 5 of the WCA 1981 (as amended) for some offences.

This protection was extended on 6th April 2008, so the water vole is now fully protected under Section 9.

Legal protection makes it an offence to:

- △ Intentionally kill, injure or take (capture) a water vole;
- △ Possess or control a live or dead water vole, or any part of a water vole;
- △ Intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection; or intentionally or recklessly disturb water voles while they are using such a place; and
- △ Sell, offer for sale or advertise for live or dead water voles.

2.8 Plant Species Prohibited from Release into the Wild

The handling and disposal of Japanese knotweed *Fallopia japonica* and giant hogweed *Heracleum mantegazzianum* is covered by several pieces of legislation. The main piece of legislation is Section 14(2) of the WCA 1981 (as amended) which states that 'if any person plants or otherwise causes to grow in the wild any plant which is included in Part II of Schedule 9, he shall be guilty of an offence'. Japanese knotweed and giant hogweed are listed in the Schedule. The Environmental Protection Act 1990 (as amended) is a broad ranging piece of legislation that singles out Japanese knotweed and giant hogweed for special mention. The Act places a 'Duty of Care' on the producer and anyone they employ to dispose of soil or other material contaminated with Japanese knotweed or giant hogweed, such material becomes a controlled waste, which can only be taken to licensed landfill sites who must be dealt with it in an appropriate way.

2.9 Hedgerows

Under the Hedgerows Regulations 1997 it is against the law to remove or destroy certain hedgerows without permission first being granted by the local planning authority (LPA). A hedgerow which has a continuous length of, or exceeding, 20 m, or is less than 20 m but adjoins another hedgerow at each end can be categorised as 'important' if it is 30 years old or older and satisfies at least one of the criteria listed in Part II of Schedule 1 of the Regulations. Therefore, the LPA must first grant permission for its removal.

2.10 Planning

With reference to the National Planning Policy Framework (NPPF), the Office of the Deputy Prime Minister Circular (2005) advises that ecological surveys are undertaken

before planning permission is determined. The circular states *“The need to ensure that ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances”* (see References, Appendix I).

3.0 METHODOLOGY

3.1 Data Search

A data search was undertaken by both the Leicestershire and Rutland Environmental Records Centre (LRERC) and the Warwickshire Biological Records Centre (WBRC) to identify statutory and non-statutory sites and protected and notable species within a 3 km radius of the centre of the Site. In addition, a search for designated sites for nature conservation on, or within 3 km of, the Site was performed using the Multi-Agency Geographic Information for the Countryside (MAGIC).

3.2 Extended Phase 1 Habitat Survey

The habitats on the Site and on adjoining land were surveyed on 23rd – 24th September 2014, and updated on 18th August 2015, by two Delta-Simons ecologists using the standardised JNCC Phase 1 habitat classification and mapping methodology (JNCC, 2010). Dominant plant species were recorded in each different habitat. The plant species nomenclature follows that of Stace (2010).

The following list indicates the species groups that were targeted:

- △ Birds: All species with special reference to key species (such as those on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (WCA 1981)), England Biodiversity Priority Species (EBP) (previously UK Biodiversity Action Plan (UKBAP) species) and Birds of Conservation Concern (BoCC) (Eaton et al., 2009);
- △ Amphibians: GCN;
- △ Reptiles: common lizard, adder, slow-worm, grass snake; and
- △ Mammals: bat (all species), badger, water vole, otter.

3.2.1 Birds

Visual and/ or audible identification was made of any birds on the Site or flying over the Site during the survey period. Suitable habitat was, where possible, inspected and any evidence of nesting activity was recorded.

3.2.2 Amphibians

All terrestrial and aquatic habitats on the Site were assessed for their potential to support amphibian species.

A GCN Habitat Suitability Index (HSI) assessment was carried out to evaluate the suitability of the waterbodies and adjoining habitats for GCNs (Oldham *et al.*, 2000). It is a quantitative measure of habitat quality.

The calculated HSI for a pond should score between 0 and 1, and is derived from an assessment of ten habitat variables known to influence the presence of newts. The HSI is categorised such that the closer to '1' the score is the more suitable a pond is to support GCNs. The HSI score is calculated on an individual pond basis, but takes into account surrounding terrestrial habitat and local pond density.

3.2.3 Reptiles

A cold-searching method was employed which involved identifying suitable habitats for reptiles within areas on-Site and immediately off-Site. Natural and artificial refugia (logs, large debris and so on) were lifted and examined for the presence of reptiles and their field signs (such as shed skins).

3.2.4 Bats

An initial assessment of Bat Roost Potential (BRP) of the trees and buildings on the Site was completed, guided by the *Bat Survey: Good Practice Guidelines* (Hundt, 2012). The survey methodology enables the categorisation of each tree and building in relation to its value for bats (see Appendices II and III).

3.2.5 Badgers

The Site was inspected for badger activity including sett entrances, latrines, footprints, runs through vegetation, guard hairs caught on fences and snuffle holes.

3.2.6 Otters

Suitable habitats for otter were identified and assessed within areas on-Site and immediately off-Site.

3.2.7 Water Voles

Suitable habitats for water vole were identified and assessed within areas on-Site and immediately off-Site.

3.2.8 Hedgerows

An assessment of any hedgerows present at the Site, which will be adversely affected by the proposed development, was undertaken using the standard hedgerow surveying methodology outlined in the Hedgerow Regulations 1997. The purpose of

the assessment was to ascertain whether the hedgerows are classified as 'nationally important' and therefore protected under the Hedgerow Regulations 1997. The assessment involves a scoring system which relies on particular features, number of woody and floral species present within the hedgerow habitat, and the age of the hedgerow.

3.2.9 Other Protected or Notable Species

Where applicable, during the survey, evidence was recorded of any protected or notable species, including England Biodiversity Priority Species (EBP), which have not been acknowledged within this section of the Report. Habitats with the potential to support additional protected or notable species were also recorded, if present, during the survey.

3.2.10 Plant Species Prohibited from Release into the Wild

The occurrence of any invasive plant species on the Site was identified in terms of species and stand size.

3.2.11 Surrounding Area

The land beyond the Site boundary was surveyed. Where access was not available to these areas, observations were made from the Site boundary or via public land and highways.

4.0 RESULTS

4.1 Data Search

4.1.1 Habitats

The results of the MAGIC data search and the LRERC and WBRC desk search indicate that there are no statutory designated sites within a 3 km radius of the Site centre.

The LRERC data search indicates four Local Wildlife Sites (LWS) are present within 3 km of the centre of the Site, the closest being Old Manor Reedbed LWS situated approximately 590 m to the north-east of the Site. The records centre also indicate two candidate LWS and a Potential LWS between 1.5 km and 2 km from the Site. Numerous Parish, District and County sites have been identified within the search area. These include a designation at Parish level for the stream which bisects the Site. The WBRC desk search indicates 14 EcoSites within 3 km of the centre of the Site. The closest being the disused railway line beyond the A5 to the west, which is a continuation of that which bisects the Site north- east – south-west.

4.1.2 Species

Birds

Both the LRERC and WBRC data search reveal records of protected bird species within 3 km of the centre of the Site, including barn owl *Tyto alba*, marsh harrier *Circus aeruginosus*, hen harrier *Circus cyaneus*, quail *Coturnix coturnix*, hobby *Falco Subbuteo*, fieldfare *Turdus pilaris*, brambling *Fringilla montifringilla* and red kite *Milvus milvus* which are all listed on Schedule 1 of the WCA 1981 (as amended).

Amphibians

Common frog *Rana temporaria*, common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris* have been recorded at several locations within the local area, including within a waterbody immediately adjacent to the Site in 2011. LRERC holds numerous records of GCNs from across the Ullesthorpe area, with the closest record approximately 1.8 km from the Site. The WBRC does not hold any records for the area of the County that falls within a 3km radius of the Site centre.

Reptiles

The desk search did not reveal any records of reptiles within 3 km of the Site centre.

Terrestrial Mammals

A total of 12 bat roosts have been recorded within 3 km of the centre of the Site within the last 10 years. The closest records of roosting bats are of common pipistrelle *Pipistrellus pipistrellus* and an unidentified bat *Chiroptera* sp. that are 270 m north of the Site, south of Ullesthorpe. Field records have also been recorded of brown long-eared bats *Plecotus auritus*, whiskered bat *Myotis mystacinus*, noctule *Nyctalus noctula* and natterer's bat *Myotis nattereri*.

Several badger setts have been recorded within 3 km of the centre of the Site. The closest being approximately 980 m to the east of the Site recorded in 2005, whilst the most recent record dates from 2011 from a location approximately 2 km to the south-east of the Site.

The only recent record of brown hare *Lepus europaeus* held by either records centre is from Wibtoft, approximately 1 km to the north of the Site, beyond the A5. The three records held by LRERC of water voles date from the 1980's for the local area and, are, therefore, not considered representative of the current species status.

The full results of the LRERC and WBRC data search are available to the Client upon request.

4.2 Extended Phase 1 Habitat Survey – Site

The Site is characterised by a predominantly arable fields with occasional fields of poor semi-improved grassland, bounded by hedgerows and drainage ditches. Several sections of broadleaved plantation woodland are situated within the northern, eastern and central extent of the Site and four ponds were identified at the Site. A range of domestic and commercial buildings with associated infrastructure lay within south-western extent of the Site. Two sections of the A5 (Watling Street) are present within the north-west and south-east of the Site, as are sections of Mere Lane in the north-eastern and south-eastern extents of the Site

Figure 2 shows the extent of habitat types and boundary features. Descriptions of the habitat types and dominant plant species found at the Site are provided below. Habitat descriptions and codings are by broad habitat type, as listed in the Phase 1 Habitat Survey Manual (JNCC, 2010). Target Notes (TNs) are listed under Appendix IV whilst photographs of the Site survey are located in Appendix V.

A1.1.2 Broadleaved Plantation Woodland

Several areas of immature broadleaved woodland were recorded within the northern, central and eastern areas of the Site. The woodland was dense, and since planting, additional self-seeded saplings had grown. It supported commonly occurring pedunculate oak *Quercus robur*, silver birch *Betula pendula*, beech *Fagus sylvaticus*, ash *Fraxinus excelsior*, field maple *Acer campestre*, alder *Alnus glutinosa*, wild cherry *Prunus avium*, hazel *Corylus avellana*, and sycamore *Acer pseudoplatinus*. Occasional spindle *Euromymous europeaus*, apple *Malus pumlia*, grey willow *Salix cinerea*, Norway maple *Acer platanoides* and common lime *Tilia x europaea* were also present. Patches of ash saplings were present on either side of Mere Lane at the north-eastern extent of the Site.

A3.1 Scattered Broadleaved Trees

Scattered trees at the Site were confined to the field boundary hedgerows. The trees were mature or semi-mature in age and comprised pedunculate oak, ash, English elm *Ulmus procera* and field maple. Occasional black-poplar *Populus nigra*, grey willow, goat willow *Salix caprea* and white willow *Salix alba* were also present. Numerous trees were recorded to support features, such as storm damage, rot holes, lifted bark and ivy growth suitable to support roosting bats. Evidence of previous bird nesting activity was also recorded within these trees at the Site.

B5 Marshy Grassland

A single field adjacent to the northern Site boundary comprised marshy grassland (see Photograph 1). Ruderal species frequently occurring included spear thistle *Cirsium vulgare* and broad-leaved dock *Rumex obtusifolius*, whilst common knapweed *Centaurea nigra* was also commonly found. Frequently occurring grassland species included cock's foot *Dactylis glomerata*, annual meadow grass *Poa annua*, Yorkshire fog *Holcus lanatus* and perennial ryegrass *Lolium perenne*. A number of scrapes had been created within the damper areas, at the time of the survey these were dry. However, the presence of reed mace *Typha latifolia* and soft-rush *Juncus effusus* indicated that these held water during part of the year.

B6 Poor Semi-improved Grassland

In the central region of the Site were several fields of poor semi-improved grassland, which were being grazed by sheep at the time of the survey (Photograph 2). The grassland had a short sward and was dominated by perennial ryegrass, with frequent

creeping buttercup *Ranunculus repens*, dandelion *Taraxacum* sp, creeping thistle *Cirsium arvense*, broad-leaved dock and occasional lesser burdock *Artium minus*.

An 8 m wide strip of semi-improved grassland was present along the top of the disused railway embankment running north–south across the Site (TN 1; Photograph 3). Occasional glades were also present and appeared to be managed, with the grassland supporting a long sward of approximately 30-50 cm at the time of the survey. Species recorded include perennial ryegrass, cock’s foot, creeping buttercup, creeping thistle, common knapweed, wild carrot *Daucus carota*, lady’s bedstraw *Gallium verum*, black medic *Medicago lupulina*, bird’s-foot trefoil *Lotus corniculatus*, yarrow *Achillea millefolium* and lady’s mantel *Alchemilla vulgaris* with occasional chicory *Cichorium intybus*.

The arable fields at the Site were surrounded by poor semi-improved grassland margins (Photograph 4). The field margins were approximately 2-6 m wide and were managed, with the grassland supporting a short sward of approximately 5-10 cm at the time of the survey. Species recorded include perennial ryegrass, cock’s foot, creeping buttercup, creeping thistle, broadleaved dock, and common nettle *Urtica dioica*.

C3.1 Tall Ruderal

Commonly occurring ruderals were common nettle, creeping thistle and spear thistle, which were found either in small patches or strips at the base of hedgerows, and beneath mature trees where the ground was heavily shaded. An area of land bordering the northern extent of the Site (Photograph 5) that appeared to have been left fallow had been colonised predominantly by creeping and spear thistle and broad-leaved dock, with occasional hard rush *Juncus inflexus*, great willowherb *Epilobium hirsutum* and Alexander’s *Smyrniolum olusatrum*.

G1 Standing Water

Four ponds were identified at the Site. Pond 1 (Photograph 6) was situated within the southern extent of the Site, at OS grid reference SP 5027 8529. The pond measured approximately 1240 m² and was situated within an area of semi-improved grassland. At the time of the survey the water quality was assessed to be moderate and the pond supported occasional submerged and emergent vegetation.

Pond 2 (Photograph 7) was situated to the south-west of Pond 1 at OS grid reference SP 5008 8517. No access was available to this area of the Site at the time of the survey, and surrounding willow vegetation prevented a visual assessment being made.

Pond 3 was situated towards the south-eastern corner of the Site at OS grid reference SP 5104 8589. This large open waterbody measures approximately 7800 m² and features open water and dense marginal vegetation. Water quality was assessed to be moderate at the time of the survey and the pond supported occasional submerged and emergent vegetation. Numerous wetland birds were recorded on the pond during the survey and it is considered possible that fish are present.

A field of poor semi-improved grassland within the northern extent of the Site featured a series of shallow scrapes. The presence of reed mace and rush indicates that this area is susceptible to water logged conditions and seasonal standing water, however, at the time of the initial Site visit no standing water was present. During subsequent surveys at the Site one of the scrapes (Pond 4) was recorded to support limited standing water, approximately 5 cm deep (Photograph 8), although it was considered likely that the water level fluctuates and is susceptible to regular drying out.

The ponds were assessed for their potential to support GCNs (See Section 4.2.2). In addition to the ponds, standing water was observed within a ditch running north-south across the eastern extent of the Site. No aquatic vegetation was recorded and tall ruderals filled the ditch where it was not shaded out by an overhanging hedgerow.

G2 Running Water

A stream supporting slow-flowing water bisects the Site, flowing south to north across the centre of the Site. The majority of the stream was heavily shaded by adjacent hedgerow vegetation and was obscured from view (Photograph 9). In open areas occasional marginal vegetation including stinking iris *Iris foetidissima* and brooklime *Veronica beccabunga* were present. The banks supported bramble *Rubus fruticosus* agg, common nettle and rosebay willowherb *Chamerion angustifolium*.

J1.1 Arable

The majority of the Site comprised arable land, which at the time of the survey supported recently either harvested crop stubble, maize for game bird cover, or

ploughed earth (Photograph 10). The semi-improved grassland field margins that surrounded them had been recently cut, and were considered to be species-poor.

J1.2 Amenity Grassland

The central reservation on the A5 Trunk Road supported a covering of grass that was closely mown at the time of the survey.

J2.1.2 Intact Hedge – Species Poor

A number of the boundary and bisecting hedgerows (Photograph 11) were recorded to be intact within the Site. The hedgerows were assessed as being species-poor, as whilst they were dominated by blackthorn *Prunus spinosa* and hawthorn *Crataegus monogyna*, supporting occasional specimens of the following species: Elder *Sambucus nigra*, dog rose *Rosa canina*, apple, field maple and standard trees of predominantly oak, elm and ash along their lengths. The hedgerows appeared largely managed and had been recently mechanically cut.

J2.2.2 Defunct Species-Poor Hedgerow

A defunct hawthorn and blackthorn hedgerow was present within the central area of the Site. The hedgerow was largely unmanaged with occasional gaps and leggy sections.

J2.4 Fence

A standard post and rail fence was recorded adjacent to the A5 on the western boundary of the Site. This also extended along the boundary to the north of Bittesby House.

J2.6 Dry Ditch

Drainage ditches were present at the Site and ran adjacent to the field boundary hedgerows. At the time of the survey the majority of the ditches were dry with colonising grassland vegetation including perennial ryegrass, cock's foot, broadleaved dock, bramble and nettles.

J3.6 Buildings

A combination of residential, commercial and farm buildings were located within the Site boundary. Bittesby House represents a former residential property that was converted into a commercial property, with an attached residential cottage

(unoccupied). Surrounding buildings consisted of a converted stable block, disused garages and derelict barns. The buildings were predominately constructed from brick with pitched tiled roofs.

J4 Bare Ground

Sections of the A5 and Mere Lane present within the Site comprised a tarmacadam surface that was considered to be of negligible ecological value.

4.2.1 Birds

Twenty-seven species of birds were recorded during the survey. Of these, five are EBP species, including dunnock *Prunella modularis*, song thrush *Turdus philomelos*, linnet *Carduelis cannabina*, reed bunting *Emberiza schoeniclus* and corn bunting *Miliaria calandra*. No birds listed on Schedule 1 of the WCA (1981), as amended, were recorded. It should be noted that this is not a comprehensive inventory of the bird species which may be present at the Site.

The Site provides a variety of opportunities for nesting, foraging and wintering birds. The majority of the hedgerows at the Site are mature and provide opportunities for nesting and foraging birds, whilst the scattered broadleaved trees and woodland blocks provide further ideal bird nesting habitat. The buildings at the Site feature crevices and ledges suitable to support nesting bird species and, at the time of the survey, evidence of swallow *Hirundo rustica* nests were recorded. No evidence of owl activity was identified within those buildings surveyed.

At the time of the survey the arable land featured both dense maize crop and fields that had been recently harvested and either ploughed or drilled with a cereal crop and rolled. In addition, the grassland field margins had been cut and were, therefore, not considered suitable to support nesting birds. However, depending on the future management of the arable land and field margins, the Site may provide opportunities for ground nesting birds as well as potentially suitable habitat for over-wintering bird species.

The waterbodies at the Site and associated marginal vegetation offer opportunities for wetland bird species to nest, and potentially for migrant species to over-winter.

4.2.2 Great Crested Newts

The majority of the Site comprised arable land and managed grassland field margins which are not considered ideal terrestrial habitat to support GCNs. However, the network of boundary hedgerows and woodland at the Site may provide opportunities for foraging, sheltering and hibernating GCNs, as well as providing connectivity between suitable habitats. The Site supported four ponds, three of which were accessible at the time of the survey and were assessed for their suitability to support GCNs.

Pond 1 was situated towards the southern extent of the Site, at OS grid reference SP 5027 8529. The pond measured approximately 1240 m² and was located within an area of semi-improved grassland. At the time of the survey, the water quality was assessed to be moderate and the pond supported occasional submerged and emergent vegetation. No fish were observed, however, their presence is considered possible. The pond was unshaded and surrounded by moderate terrestrial habitat with good connectivity to additional waterbodies and terrestrial resources.

Pond 2 was situated to the south-west of Pond 1 at OS grid reference SP 5008 8517. No access was available to this area of the Site at the time of the survey, and surrounding willow *Salix* sp. vegetation prevented a visual assessment from being undertaken.

Pond 3 was situated towards the eastern corner of the Site at OS grid reference SP 5104 8589. This large open waterbody measured approximately 7800 m² and featured open water and dense marginal vegetation. Water quality was assessed to be moderate at the time of the survey and the pond supported occasional submerged and emergent vegetation. Numerous wetland birds were recorded on the pond during the survey and it is considered possible that fish are present. The pond was situated adjacent to a block of plantation woodland and hedgerow habitat providing good terrestrial habitat and connectivity for GCNs, if present within the local area. Arable land extends to the north and west of the pond.

Pond 4 was situated within a semi-improved grassland field towards the north of the Site, at OS grid reference SP 4987 8652. The field featured several shallow scrapes, one of which supported standing water at the time of the survey. Pond 4 measured approximately 50 m², although the water retention is considered to vary, and the pond is likely to dry out annually. Reed mace was present and the water quality was considered to be moderate. Due to the fluctuating water levels, the presence of fish is considered to be unlikely, and no water fowl were recorded with close proximity to the

pond during the survey, nor was evidence found to indicate that they use the waterbody.

A GCN HSI assessment was undertaken of the three accessible waterbodies at the Site, the results of which are provided in Table 1 (below).

Table 1 Habitat Suitability Index Assessment

Variables of Habitat Suitability		Pond 1	Pond 3	Pond 4
SI1	Location	1	1	1
SI2	Pond area	0.9	0.01	0.2
SI3	Pond drying	1	0.9	0.1
SI4	Water quality	0.67	0.67	0.67
SI5	Shade	1	1	1
SI6	Fowl	0.67	0.01	1
SI7	Fish	0.67	0.67	1
SI8	Ponds	0.73	1	0.82
SI9	Terrestrial habitat	0.67	0.67	0.67
SI10	Macrophytes	0.6	0.6	0.4
Habitat Suitability Index		0.77	0.33	0.56

The overall HSI scores for the ponds are 0.77, 0.33 and 0.56. With reference to the criteria specified within the methodology (Section 3.3.2) the likelihood of GCNs occurring within the ponds is 'Good', 'Poor' and 'Below Average', respectively.

A review of aerial photographs and OS maps revealed the presence of 19 ponds within 500 m of the Site, which are not isolated from it by major dispersal barriers, particularly the A5 which runs the length of the south-western Site boundary. No access was available to assess these ponds at the time of the survey, however, they are considered to have good connectivity to the Site through a network of boundary hedgerows and woodland vegetation. Aquatic surveys were undertaken in 2011 of six of the ponds to the north-east of the Site as part of a planning application for a single wind turbine (Wild Frontier Ecology, May 2011). These surveys indicated the presence of a small breeding population of GCNs in one pond approximately 350 m to the north-east of the Site boundary, and a lone male in one other pond. Previous GCN surveys have also been undertaken at Magna Park to the east of the Site as part of mitigation monitoring for a European Protected Species Licence (EPSL) for GCNs that was sought to enable the development of Magna Park (see Ecosulis Report, November

2010). These surveys were undertaken between 2002 and 2010 and reported that GCNs were present within eight of the nine ponds present at Magna Park in 2010, with four ponds supporting a small GCN population, and four supporting a medium population, furthermore, it was concluded that the favourable conservation status of GCNs at the Site has been maintained through the monitoring period.

LRERC holds records of GCNs from across the Ullesthorpe area, with the closest record approximately 1.8 km from the Site. The WBRC does not hold any records for the area of the County that falls within a 3 km radius of the Site centre.

4.2.3 Reptiles

No evidence of reptiles was recorded at the Site during the survey. The majority of the Site comprised arable land, managed grassland field margins and grazed semi-improved grassland which is not considered to provide the structural diversity and shelter suitable to support reptile species. However, the disused railway line, which bisects the Site, featured areas of rough grassland, previously planted with a wildflower mix which may provide opportunities for foraging and basking reptiles, as well as adjacent woodland habitat providing opportunities for shelter and hibernation. Small rubble piles are also located at the top of the embankment providing additional shelter or basking habitat for reptile species.

The habitats associated with the disused railway also have connectivity to the drain which runs through the Site. The running water and adjacent bankside vegetation may provide additional opportunities for grass snake *Natrix natrix*, if they occur within the local area. Furthermore, Pond 3, within the eastern extent of the Site, is surrounded by dense marginal vegetation, grassland, woodland and hedgerow habitat providing a variety of opportunities for reptile species. These habitats also have good connectivity across the Site through the network of hedgerows and woodland vegetation. Neither records centre holds records of reptile species for the local area, however, these species are often under-recorded.

4.2.4 Bats

A total of 44 trees have been identified as having features suitable to support roosting bats, ranging from low to medium BRP. Trees within the woodland habitat and within boundary hedgerows were recorded to feature rot holes, woodpecker holes, storm damage, lifted bark and ivy growth which may provide opportunities for roosting bats. Due to their age and construction, the buildings at the Site were also found to provide features suitable to support roosting bats, including lifted and missing roof tiles,

accessible crevices behind soffit boxes and wooden eaves, gaps around window frames and within brickwork, and potential access into enclosed roof voids.

Two tunnels are present at the Site, allowing a vehicular access track and the central drain to pass beneath the disused railway line (TN 2 and TN 3). Both tunnels are brick-built and feature cracks and missing mortar within the brickwork, which may provide suitable crevices for roosting bats. Furthermore, the tunnel which supports the drain comprises a double layer of bricks, providing a cavity with potential to support roosting bats. The tunnel is of sufficient length to support a low light level and, is considered likely to maintain a steady temperature during winter months, particularly within the central section. This tunnel was, therefore, considered suitable to support hibernating bats.

The Site is also considered to offer ideal habitats for foraging and commuting bats, with a network of hedgerows and trees as well as grassland, woodland and waterbodies across the Site. There is little artificial lighting with only minor light spill at the south-eastern and western Site boundaries from the adjacent Magna Park and the A5.

4.2.5 Badgers

The habitats at the Site are considered ideal to support badgers. The arable land, dry ditches, woodland and disused railway embankment provide ideal habitat for sett digging badgers, with suitable substrate and shelter available. Three badger setts were recorded at the Site during the survey, as were a number of latrines and snuffle holes.

Sett 1 was situated within the northern extent of the Site at OS grid reference SP 4917 8656 and comprised three entrance holes within the field margin, and an additional four holes within the adjacent dry ditch. At the time of the survey, the sett appeared to be disused by badgers, however, evidence of rabbit *Oryctolagus cuniculus* activity was identified.

Sett 2 was situated approximately 300 m to the south-west of Sett 1 at OS grid reference SP 4944 8672. A total of seven entrance holes were identified to be associated with this sett, however, recent management of the grassland field margin and adjacent hedgerow may have obscured additional entrances. The majority of the entrance holes showed no signs of recent use, however, two were identified to be clear of obstructions with evidence of recent activity. Sett 2 was assessed as being a subsidiary sett and may only be used on occasion.

Sett 3 was situated at OS grid reference SP 4964 8630, approximately 450 m to the south-east of Sett 1. This single hole outlier sett is located at the base of the field boundary hedgerow and was assessed as being disused.

Whilst the woodland at the Site appears to provide ideal opportunities for sett digging badgers, at the time of the survey the majority of the vegetation was too dense to thoroughly inspect for existing badger activity.

Further evidence of badger activity was recorded across the Site with badger dung identified at numerous locations, particularly around the field margins and around woodland habitat. Snuffle holes were recorded within the northern extent of the Site and numerous mammal paths were identified within boundary vegetation and within the woodland habitat towards the centre of the Site, which may have been badger.

The LRERC holds numerous records of badger, the majority of which are old and, therefore, not considered to accurately represent the current population status of this species in the local area. The closest record is from approximately 1 km to the east of the Site boundary recorded in 2005, whilst the most recent record dates from 2011 from a location approximately 2 km to the south-east of the Site. WBRC hold no records of this species for their search area.

4.2.6 Otters

The drain which flows south to north through the centre of the Site is considered suitable to support otters, if they occur in the local area. The drain had an earth and stone substrate and had varied water depth of between approximately 15 cm and 50 cm. The drain meanders through the Site, with a width of between 1-3 m and subsequent varied flow rate. Bankside vegetation was considered to provide shelter for this species, and adjacent woodland and hedgerow habitat may provide opportunities for a holt and/ or resting places. The drain is considered likely to provide foraging opportunities for otter, since fish were noted to be present within the waterbody at the time of the survey, and has good connectivity to a network of water courses and ponds within the local area, providing additional opportunities for this species. The majority of the drain is unobstructed for any otters commuting through the Site. The water course passes through a large tunnel beneath the disused railway and passes beneath three short culverts to allow vehicular access to the surrounding fields. The culverts are considered passable for otters and access is available up the banks to allow this species to enter and exit the water. In addition, the drain passes through a large concrete pipe at the southern Site boundary in order to carry the water course beneath the A5. This is also considered accessible to otters and provides

connectivity to land beyond the main road. At the time of the survey, an otter spraint was identified in the culvert towards the northern extent of the Site, indicating that this location falls within an otter territory. Neither the LRERC nor the WBRC holds records of this species for a 3 km radius of the Site centre.

4.2.7 Water Voles

The majority of the ditches at the Site were dry at the time of the survey, or supported localised pools of seasonal standing water with no aquatic vegetation. They were, therefore, not considered suitable to support water vole. The main drain, however, which flows through the centre of the Site provides sections of suitable habitat for this species. The drain meanders through the Site with varied width and water flow. At the time of the survey the water depth varied between approximately 15 cm and 50 cm. The banks of the drain were predominately earth substrate providing ideal conditions for burrowing water voles, with bankside vegetation providing suitable foraging and shelter from predation. Although a thorough inspection was not undertaken at the time of the survey, occasional rodent prints were seen at the water's edge, which could have been either water vole or rat *Rattus norvegicus*.

In addition, burrow entrances were recorded around the banks of Mere Lane Lagoon (Pond 3), indicating extensive rodent activity. Again, a thorough inspection was not undertaken at the time of the survey and it was, therefore, not possible to determine if these originated from water vole or rat. However, the pond supports occasional marginal vegetation, providing suitable foraging habitat for water vole. The pond is situated within an area of semi-improved grassland, however, a ditch to the south of the pond may provide potential connectivity to other suitable habitats, particularly if it holds seasonal standing water. There is, therefore, the potential for water vole to inhabit the banks of the pond. Neither records centre hold any recent records of this species.

4.2.8 Other Protected Species

With the exception of the arable land at the Site and within the immediate surrounding area providing suitable habitat for brown hare, there was no evidence of other protected species, or habitats that could support them, on the Site.

4.2.9 Plant Species Prohibited from Release into the Wild

Japanese Knotweed was recorded adjacent to the track crossing through the centre of the Site (TN4, Photograph 12). No other invasive species were recorded at the time of the survey visits.

4.2.10 Hedgerows

The hedgerows at the Site were recorded to be species-poor, dominated by blackthorn and hawthorn, and supported occasional specimens of the following species along their lengths: Elder, dog rose, apple, field maple and standard trees of oak, elm and ash. It was, therefore, not considered necessary to assess the hedgerows against the Hedgerow Regulations criteria (1997).

4.3 Extended Phase 1 Habitat Survey – Land Adjoining the Site

The Site is situated within a rural setting, with further arable land to the north, east and west of the Site. Beyond the Site boundary and Mere Lane, a stretch of immature broadleaved plantation woodland buffers the Site from Magna Park, which is present to the east of the Site. A total of 25 ponds have been identified within 500 m of the Site, see Figure 4.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The Site is characterised by predominantly arable fields with occasional poor semi-improved grassland fields, bounded by hedgerows and drainage ditches. Several sections of broadleaved plantation woodland are situated within the eastern and central areas of the Site, and four ponds were identified at the Site. A range of domestic and commercial buildings with associated infrastructure lay within the south-western area of the Site.

The results of the MAGIC data search, and the LRERC and WBRC desk searches, indicate that there are no statutory sites within 3 km of the Site centre. The closest LWS is situated approximately 800 m to the north of the Site, whilst the closest EcoSite comprises a continuation of the on-Site disused railway line beyond the A5 to the south of the Site. In addition, the stream on Site has been recognised at Parish Level by LRERC.

Twenty-seven species of birds were recorded during the survey, including five EBP species. The Site provides a variety of opportunities for nesting, foraging and wintering birds. The hedgerows, standard trees, wetland marginal vegetation and woodland provide ideal nesting habitat, and the buildings provide suitable crevices and ledges for nesting. Depending on the future management of the arable land and field margins, the Site may provide opportunities for ground nesting birds as well as potentially suitable habitat for over wintering bird species. Without further surveys to inform the requirement for mitigation, any future development at the Site has the potential to adversely impact upon breeding and wintering birds, and to change the suitability of the Site to support the numbers and assemblage of species present.

The majority of the Site comprised arable land and managed grassland field margins, which are not considered ideal terrestrial habitat to support GCNs. However, the network of boundary hedgerows and woodland at the Site may provide opportunities for foraging, sheltering and hibernating GCNs, as well as connectivity between other suitable habitats. The Site supported four ponds, three of which were assessed for their suitability to support GCNs. One of these waterbodies was assessed as having a 'Good' suitability to support this species. A review of aerial photographs and OS maps revealed the presence of 25 ponds within 500 m of the Site, which are not isolated from it by major dispersal barriers. From the available reports reviewed, at least ten of these have been found to support GCNs in the last four years. There is, therefore, a risk that GCNs could occur at the Site. Without appropriate surveys and, where necessary,

associated mitigation, any future development at the Site, therefore, has the potential to risk injuring or killing GCNs.

The disused railway line which bisects the Site features associated habitats suitable to support reptile species, including rough grassland, small rubble piles and adjacent woodland habitat. The wetland habitats and surrounding vegetation associated with the central drain and Pond 3 also provide additional opportunities for reptiles. Further surveys are, therefore, required to determine the requirement for mitigation since any future development at the Site has the potential to harm reptiles, if present at the Site. Numerous trees at the Site were assessed as having BRP, whilst the buildings were also found to support suitable structural features to support roosting bats. Two tunnels beneath the disused railway line at the Site were assessed as being suitable to support roosting bats, with one, supporting the central drain, providing suitable structural and climatic conditions for hibernating bats. The Site provides a variety of habitats and linear features suitable for commuting and foraging bats, as well as connectivity to other suitable habitat within the local area. Without appropriate surveys and, where necessary, appropriate mitigation, any future development at the Site, therefore, has the potential to risk harming bats as well as impacting on the Site's suitability to support bat roosts.

The habitats at the Site are considered ideal to support badgers, and evidence of their presence was recorded during the survey, including three setts and badger dung across the Site. Mammal paths were recorded across the Site and within boundary vegetation, however, at the time of the survey dense vegetation prevented thorough inspection of these habitats, particularly the woodland vegetation along the railway embankment. Without further assessment of the Site and appropriate mitigation, any future development at the Site has the potential to disturb or harm badgers and to impact adversely upon the Site's suitability to support badgers.

The drain which flows south to north through the centre of the Site is considered suitable to support otters, and surrounding vegetation provides opportunities for shelter and resting places. The majority of the drain is unobstructed for otters to potentially commute through the Site, and has good connectivity to a network of water courses and ponds within the local area, providing additional opportunities for this species. At the time of the survey, an otter spraint was identified at the culvert towards the northern extent of the Site, indicating the presence of this species at the Site. Without further surveys and appropriate mitigation, any future development at the Site has the potential to disturb or harm otters and to adversely impact upon the Site's suitability to support this species.

The central drain at the Site is considered suitable in sections to support water vole. The banks provide ideal burrowing opportunities, foraging and shelter from predators. The drain has good connectivity beyond the Site boundary and opportunities for water voles to disperse. In addition, rodent burrow entrances were recorded around the banks of Pond 1, indicating extensive activity and, potentially suitable habitat for water voles. Without further surveys and, where necessary, appropriate mitigation, the future development at the Site has the potential to harm water voles and to adversely impact on the Site's suitability to support this species.

The arable land at the Site and extending beyond it into the surrounding area provides suitable habitat for brown hare, although none were recorded at the time of the survey. However, this species, if present within the local area, may venture onto the Site during future development works. No evidence of other protected species, or habitats that could support them, were recorded on the Site.

5.2 Recommendations

Recommendation 1 (Nesting Birds)

- △ If any vegetation clearance works are to be undertaken of areas of woodland, scrub, hedgerows and trees featured on the Site, these should be performed either before early March or after late July in order to avoid affecting any birds during the main period in which they are nesting. In addition, any demolition of buildings on Site, and clearance of bankside vegetation of the drains and ponds, should take place outside of this nesting period. Conflict with the development can be avoided by clearing the Site of any suitable nesting habitat outside of the breeding period in advance of any proposed works;
- △ If, however, Site clearance works are deemed necessary during the nesting period an experienced ecologist will be required to check the Site habitats and buildings to confirm that no nesting birds will be affected by the proposed works; and
- △ It is recommended that should there be a delay between harvesting the arable land and the commencement of the proposed development works, a total herbicide is applied to the arable land in order to prevent vegetation growth and potential habitat development for ground nesting birds. This would leave the area free from vegetation for up to six months in case of delays.

Recommendation 2 (Breeding Birds)

In order to determine the current use of the Site by breeding birds, and identify any potential impacts of the proposed development, it is recommended that Breeding Bird Surveys (BBS) are undertaken. These should be completed by an experienced ornithologist walking pre-determined transect routes during March to July (inclusive). All birds should be mapped using Common Bird Census (CBC) techniques.

Recommendation 3 (Wintering Birds)

In order to determine the current use of the Site by wintering farmland birds, and identify any potential impacts of the proposed development, it is recommended that Wintering Farmland Bird Surveys are undertaken. These should be completed by an experienced ornithologist walking pre-determined transect routes between October and March (inclusive). All birds should be mapped using Common Bird Census (CBC) techniques.

Recommendation 4 (GCNs)

In order to determine the presence or likely absence of GCNs within the on-Site ponds and those within 500 m of the Site and, therefore, the potential for this species to disperse across the terrestrial habitat at the Site it is recommended that, where access can be gained, further surveys are undertaken of the ponds. This would involve the following:

- △ Where access can be gained, visiting each pond in order to calculate their Habitat Suitability Indices (HSI, Oldham *et al*, 2000) and, therefore, their suitability to support GCNs;
- △ Where ponds are found to be suitable for GCN's, having an 'Average' or greater HSI score, in accordance with best practice guidance, four survey visits for GCNs should be undertaken between mid-March and mid-June, two of which should be undertaken between mid-April and mid-May;
- △ If GCNs are found during this period, two further survey visits will be required for a population estimate to be made before mid-June, one of which should be undertaken before mid-May; and
- △ If GCNs are present within the ponds, it is likely that an EPSL will be required from Natural England prior to commencing construction works in order to ensure works can commence lawfully.

Recommendation 5 (Reptiles)

It is recommended that a reptile survey is undertaken of suitable habitats at the Site in order to establish whether or not reptiles are present at the Site. This would involve a total of seven visits to the Site to check natural and artificial refugia for the presence of reptiles. The surveys can be undertaken from late March until October during suitable weather conditions. If reptiles are present, a mitigation program may be required to enable any future development at the Site to proceed without the potential for harm to these species.

Recommendation 6 (Bats)

In order to determine the use of the Site by bats it is recommended that comprehensive survey works are undertaken. These should involve a BRP survey of the trees and buildings at the Site, with subsequent nocturnal emergence surveys, where required during the peak active bat season (May-August, inclusive), and bat activity transect surveys focused on suitable foraging and commuting habitats across the Site monthly during the main active bat season (April –September, inclusive).

Recommendation 7 (Badgers)

In order to determine the extent of badger activity at the Site it is recommended that an extensive badger survey is undertaken. This should record the location of any setts, latrines and well-worn mammal paths particularly within the woodland habitats and areas least accessible during the Extended Phase 1 Habitat survey. The badger survey can be undertaken at any time of year, however, it is recommended that it is completed during the winter months such that there is greater access and visibility to the dense areas of vegetation.

Recommendation 8 (Otter)

It is recommended that an otter survey is undertaken at the Site in order to determine the presence or likely absence of this species at the Site, and the level of activity associated with suitable on-Site habitats. The otter survey can be undertaken year-round and the results of the survey would inform the requirement for any mitigation for this species, and potential habitat enhancement measures.

Recommendation 9 (Water Vole)

It is recommended that a water vole survey is undertaken at the Site in order to determine the presence of these species and the level activity associated with central

drain and on-Site ponds. The water vole survey can be carried out from mid-April to September (inclusive) when this species is most active. The results of the survey would inform the requirement for any mitigation for this species, and potential habitat enhancement measures.

Recommendation 10 (Pollution Prevention)

In order to protect the local water courses and ponds, contractors should adhere to the recommendations outlined in Pollution Prevention Guideline 5 (PPG 5): Works in, near or liable to affect watercourses (Environment Alliance) to minimise the risk of pollution events to the watercourse during construction.

Recommendation 11 (Badgers, Hare, Otter)

It is recommended that best practice measures are followed on-Site such that either excavations are covered overnight during the construction works or mammal ramps are installed in order to prevent any badgers and/ or brown hares and/ or otters that may venture onto the Site from becoming trapped.

Recommendation 12 (Planning and Ecological Enhancements)

Following the issue of the National Planning Policy Framework (NPPF, 2012) by the Department for Communities and Local Government (DCLG), "*The planning system should contribute to and enhance the natural and local environment by: Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity...*"; and, therefore, for this particular development we recommend the use of native plant species sourced from local nurseries in landscape proposals to enhance foraging opportunities for local birds and bats, by increasing the invertebrate diversity on-Site. In addition, species specific mitigation and enhancements as well as appropriate habitat creation should be informed by the further survey works recommended above.

6.0 LIMITATIONS OF SURVEY

6.1 Limitations

At the time of the survey Delta-Simons was not able to access all areas of the Site due to access constraints thus any observations and results relating to these areas within the Site have been made via observations made from areas within the Site boundary or public highways.

The survey was undertaken during the sub-optimal time of year for identifying plant species on the Site. However, since the weather conditions had remained mild into late September, floral species had not died back and, therefore, potential misidentification of habitats is not considered to be a significant constraint.

The behaviour of animals can be unpredictable and may not conform to characteristics recorded in current scientific literature. This Report, therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

Whilst every effort was made to access all parts of the Site, not all external regions were able to be accessed for the inspection. Delta-Simons had not obtained permission to access the residential buildings near to the Site. It should be noted that on a single inspection it is not possible to define the presence or absence of many species.

6.2 Disclaimer

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Ecology Consultant. Delta-Simons does not warrant or guarantee that the Site is free of Bats or other protected species.

No part of the survey included an assessment of the materials and conditions of any buildings. No part of the survey included an asbestos assessment, nor did it represent an appraisal of other deleterious materials or hazardous substances.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in

Section 1.0 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

This Report was prepared by:



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Ecologist

15/09/15

Date

And:



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15/09/15

Date

This Report was reviewed and authorised by:



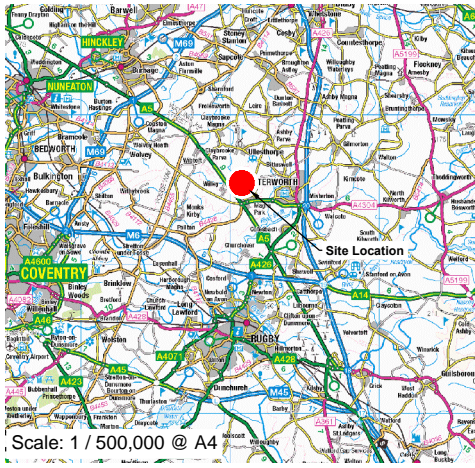
Charlotte Sanderson

Ecology Unit Manager


15/09/15

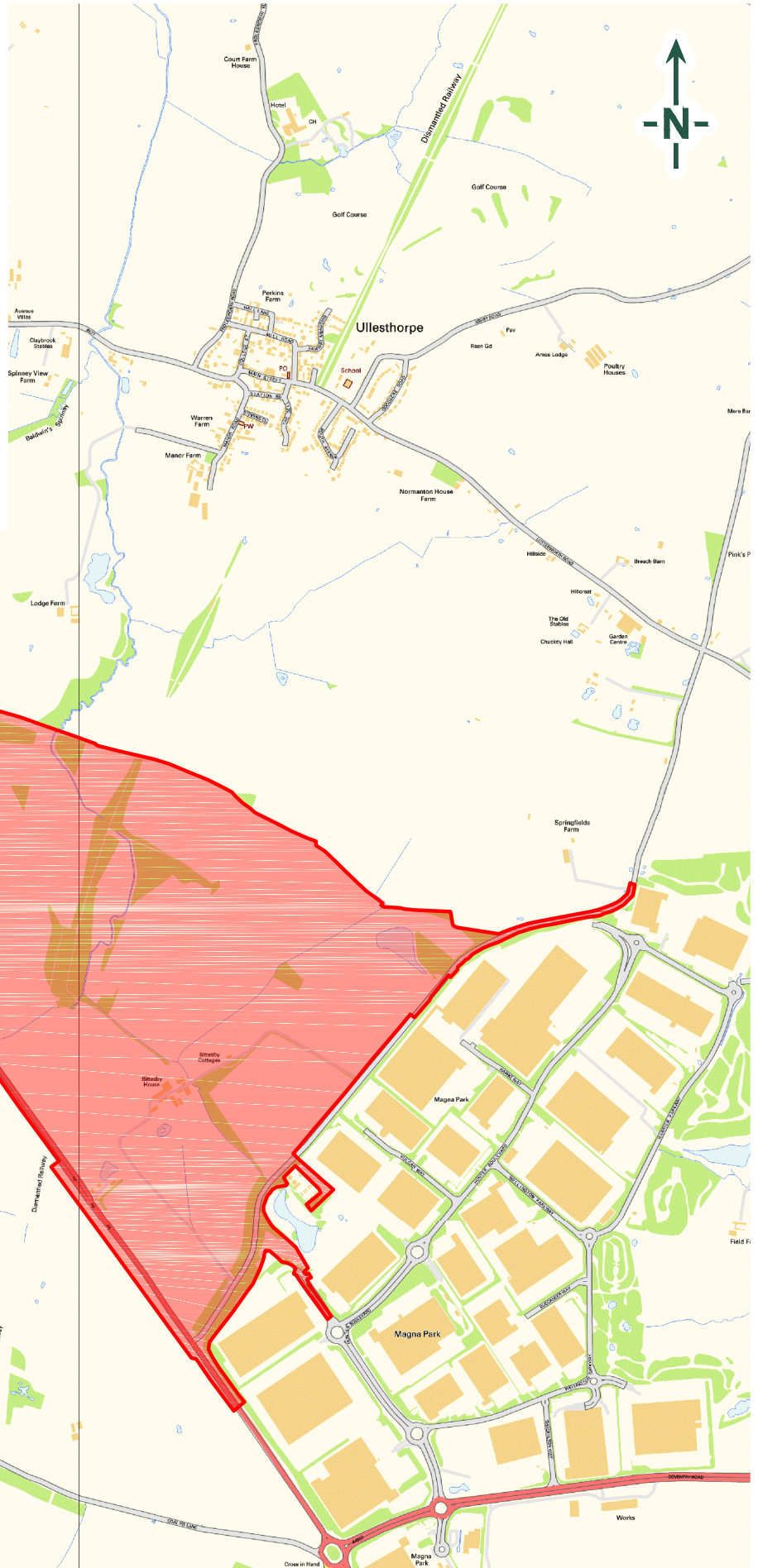
Date





LEGEND

 Site Boundary



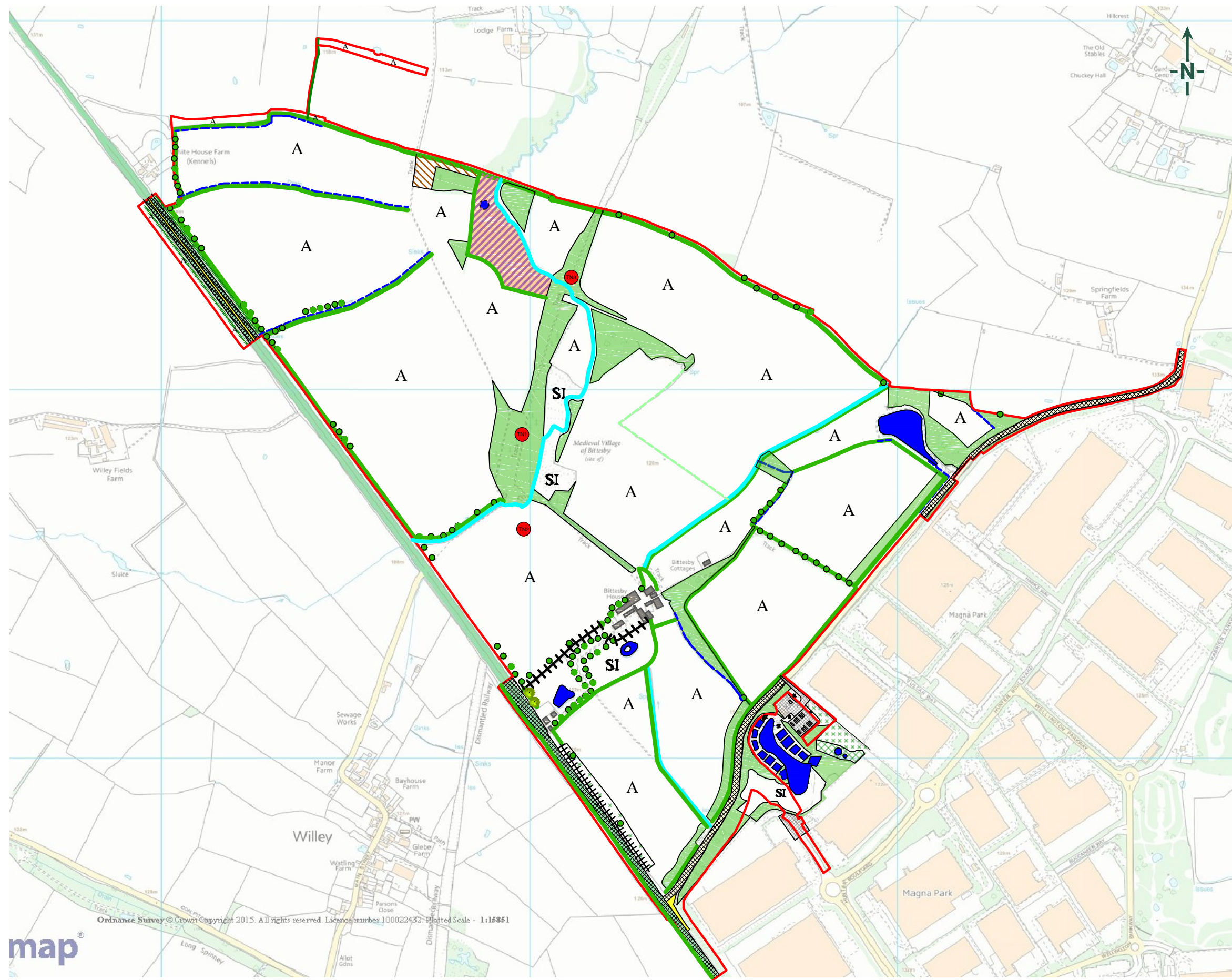
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TITLE:
Site Location Plan
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN: DP
 SCA: To Scale @ A4
 CHK: JS
 REV: 1
 DATE: 14 September 2015

PROJECT NO.:
14-0159.02
 FIGURE NO.:
1



LEGEND

- Site Boundary
- Broadleaved Plantation Woodland (A1.1.2)
- Scattered Broadleaved Trees (A3.1)
- Scattered Coniferous Trees (A3.2)
- Marsh Grassland (B5)
- SI Poor Semi Improved Grassland (B6)
- Tall Ruderal (C3.1)
- Standing Water (G1)
- Running Water (G2)
- A Arable (J1.1)
- Amenity Grassland (J1.2)
- Intact Hedgerow - Species Poor (J2.1.2)
- Defunct Hedgerow - Species Poor (J2.2.2)
- Fence (J2.4)
- Dry Ditch (J2.6)
- X X X X Scattered Scrub (A2.2)
- Species Poor Hedgerow with Trees (J2.3.2)
- Dense Scrub (A2.1)
- Buildings (J3.6)
- X X X X Hard Standing (J4.1)
- Target Note



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TITLE:
 Extended Phase 1 Habitat Survey Plan
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.02
CHK: JS	REV: 1	FIGURE NO.: 2
DATE: 14 September 2015		



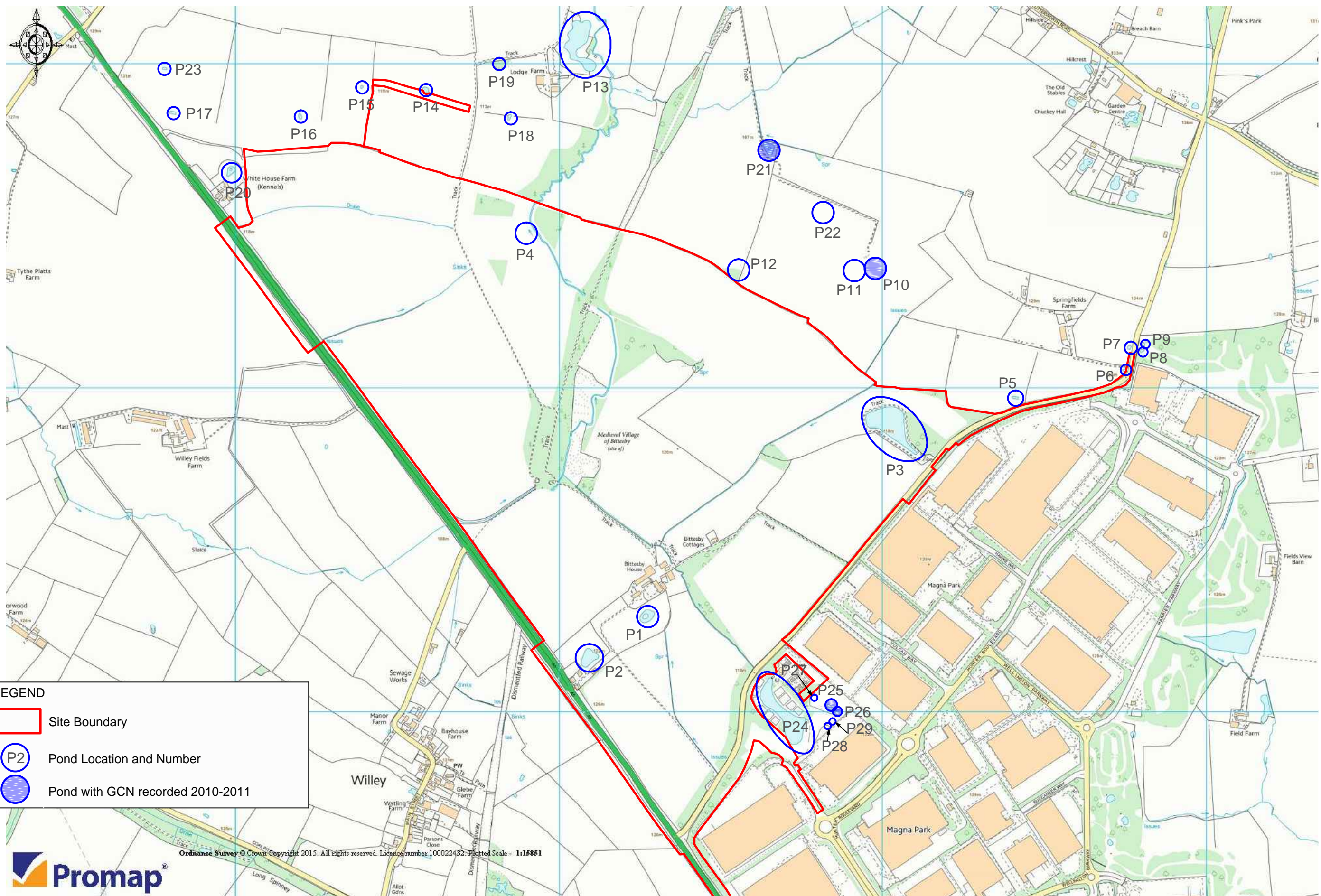
- GENERAL NOTES:
1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERING AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
 3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
 4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERRED TO THE CLIENT IMMEDIATELY.
 5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 6. ALL LEVELS IN METRES.
 7. DO NOT SCALE OFF THIS DRAWING.
 8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
 9. THE CONTENT OF THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST PROJECT GOMR REGISTER.

NO	14/09/2015	FOR COMMENT	1/18	DN
REV	Date	Description	Rev	Drawn/Chk
grant associates Landscape Architecture, Urban Design, Creative Ecology 21 Mill Street, Bath BA1 1UT T: +44 (0) 1225 323814 F: +44 (0) 1225 428184 E: info@grant-associates.co.uk				
CLIENT IDI Gazeley				
PROJECT Magna Park Extension OPA				
TITLE Illustrative Masterplan				
Author	Drawn	Check	Rev	Appr
14/09/2015	10/09/2015	1/18	DN	PC
FOR COMMENT				
Project No.	Rev			
MLP14to-AL-A01-MP-0-001	00			



TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Planning Application
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.02
CHK: JS	REV: 1	FIGURE NO.: 3
DATE: 14 September 2015		



LEGEND

- Site Boundary
- P2 Pond Location and Number
- P2 Pond with GCN recorded 2010-2011



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TITLE:
Pond Location Plan and Previous Records of Great Crested Newts
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.02
CHK: JS	REV: 1	FIGURE NO.:
DATE: 14 September 2015		4





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Categorisation of Bat Roosting Potential – Trees

Bat Roost Potential	Description
Negligible	<p>An inspected tree which is considered to have no features of importance for roosting bats.</p> <p>No further constraints apply to the method or timing of proposed works.</p>
Low	<p>From the ground, the tree appears to have features (holes, cavities or cracks) that extend back into a cavity. Owing to the aspect, the feature may support singleton bats outside of hibernation.</p> <p>Alternatively, if no features are visible but owing to its size and age and structure, the tree is considered likely to have hidden features that only an elevated inspection may reveal.</p> <p>In respect of ivy cover, this is not dense (i.e. providing BRP in itself) but may mask the presence of BRP features.</p> <p>Emergence and activity surveys may be required.</p> <p>If following all surveys the feature remains categorised as low BRP, works typically proceed under supervision by an experienced bat worker, as a precautionary measure. For example, including a re-inspection immediately prior to works and sectioned felling of a tree. The requirements of Natural England European Protected Species licensing will be re-considered should bats or evidence of bat activity be identified during the supervision.</p>
Medium	<p>Features include holes, cracks, crevices that extend or appear to extend back to cavities suitable for bats.</p> <p>Alternatively, ivy cover is sufficiently well-established and matted so as to create potential crevices between the growth and the trunk.</p> <p>Emergence and activity surveys may be required.</p> <p>A Natural England European Protected Species (EPS) Licence is not required for works that affect unconfirmed roosts. However, if following all surveys the feature remains categorised as medium BRP, works should proceed only under supervision by a licensed bat worker following pre-agreed procedures. The requirements of Natural England European Protected Species licensing will be re-considered should bats or evidence of bat activity be identified during the watching brief.</p>
Confirmed Roost	<p>Bats or evidence of bats recorded – both of recent and/or historic activity. Emergence surveys will be required to qualify and quantify usage if such a feature is to be affected by proposed works.</p> <p>A Natural England European Protected Species (EPS) Licence is required for all works affecting features supporting confirmed roosts.</p>





Categorisation of Bat Roosting Potential - Buildings

Bat Roost Potential	Description
Negligible	<p>An inspected building which is considered to have no features of importance for roosting bats.</p> <p>No further constraints apply to the method or timing of proposed works.</p>
Low	<p>From the ground, the building appears to have superficial features (e.g. cracks and crevices) that are sub-optimal for roosting bats but may be used in some circumstances.</p> <p>Surrounding habitat appears to provide little or no foraging potential and/or connectivity to further suitable habitats.</p> <p>Works may progress if in accordance with appropriate precautionary mitigation measures.</p>
Medium	<p>A building in which no evidence of bats has been found, but features have been identified that could support roosting bats (such as cracks, crevices and/or structural features)</p> <p>Surrounding habitat provides good foraging potential and/or connectivity to further suitable habitat.</p> <p>Should works affect the area in question further emergence surveys would be required. If, following these surveys, no roosts are identified, works should proceed with appropriate precautionary mitigation measures. If a roost is identified, depending on the type of work and timings proposed, a Natural England European Protected Species (EPS) Licence may be required.</p>
Confirmed Roost	<p>Bats or evidence of bats recorded within the building, including both current and/or historic roosts.</p> <p>A Natural England European Protected Species (EPS) Licence would be required for all works that significantly affect the roost. A licence application would require survey data detailing the type of roost and the number and species of bat involved, surveys may be restricted to certain times of the year.</p>





Target Notes

- | | |
|----------------------|---|
| Target Note 1 | Semi-improved grassland along the top of the disused railway embankment |
| Target Note 2 | Tunnel under disused railway line with Low Bat Roost Potential (BRP) |
| Target Note 3 | Culvert under disused railway line with Medium BRP |
| Target Note 4 | A stand of Japanese Knotweed adjacent to the central track |



**Magna Park Extension: Hybrid Extension, Zone 1
Delta-Simons Project No.14-0159.02**



Photograph 1 – Marshy grassland



Photograph 2 – Sheep grazed poor semi-improved grassland

**Proposed Magna Park Extension: Hybrid Extension
Delta-Simons Project No.14-0159.02**



Photograph 3 – Semi-improved grassland on railway embankment



Photograph 4 – Semi-improved grassland field margin

**Proposed Magna Park Extension: Hybrid Extension
Delta-Simons Project No.14-0159.02**



Photograph 5 – Tall ruderals



Photograph 6 – Pond 3

**Proposed Magna Park Extension: Hybrid Extension
Delta-Simons Project No.14-0159.02**

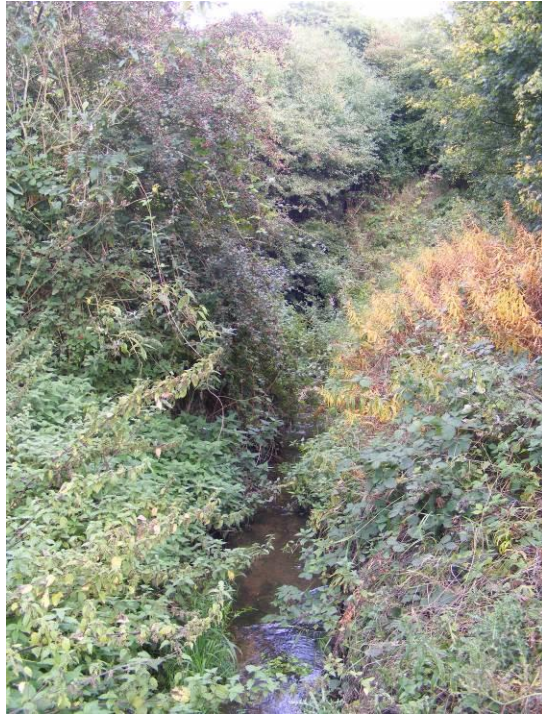


Photograph 7 – Pond 2



Photograph 8 – Pond 4

**Proposed Magna Park Extension: Hybrid Extension
Delta-Simons Project No.14-0159.02**



Photograph 9 – Heavily shaded stream



Photograph 10 – Arable fields

**Proposed Magna Park Extension: Hybrid Extension
Delta-Simons Project No.14-0159.02**



Photograph 11 – Species-poor intact hedgerow



Photograph 12 – Japanese Knotweed adjacent to the track



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Categorisation of Bat Roosting Potential – Trees

Bat Roost Potential	Description
Negligible	<p>An inspected tree which is considered to have no features of importance for roosting bats.</p> <p>No further constraints apply to the method or timing of proposed works.</p>
Low	<p>From the ground, the tree appears to have features (holes, cavities or cracks) that extend back into a cavity. Owing to the aspect, the feature may support singleton bats outside of hibernation.</p> <p>Alternatively, if no features are visible but owing to its size and age and structure, the tree is considered likely to have hidden features that only an elevated inspection may reveal.</p> <p>In respect of ivy cover, this is not dense (i.e. providing BRP in itself) but may mask the presence of BRP features.</p> <p>Emergence and activity surveys may be required.</p> <p>If following all surveys the feature remains categorised as low BRP, works typically proceed under supervision by an experienced bat worker, as a precautionary measure. For example, including a re-inspection immediately prior to works and sectioned felling of a tree. The requirements of Natural England European Protected Species licensing will be re-considered should bats or evidence of bat activity be identified during the supervision.</p>
Medium	<p>Features include holes, cracks, crevices that extend or appear to extend back to cavities suitable for bats.</p> <p>Alternatively, ivy cover is sufficiently well-established and matted so as to create potential crevices between the growth and the trunk.</p> <p>Emergence and activity surveys may be required.</p> <p>A Natural England European Protected Species (EPS) Licence is not required for works that affect unconfirmed roosts. However, if following all surveys the feature remains categorised as medium BRP, works should proceed only under supervision by a licensed bat worker following pre-agreed procedures. The requirements of Natural England European Protected Species licensing will be re-considered should bats or evidence of bat activity be identified during the watching brief.</p>
Confirmed Roost	<p>Bats or evidence of bats recorded – both of recent and/or historic activity. Emergence surveys will be required to qualify and quantify usage if such a feature is to be affected by proposed works.</p> <p>A Natural England European Protected Species (EPS) Licence is required for all works affecting features supporting confirmed roosts.</p>



Categorisation of Bat Roosting Potential - Buildings

Bat Roost Potential	Description
Negligible	<p>An inspected building which is considered to have no features of importance for roosting bats.</p> <p>No further constraints apply to the method or timing of proposed works.</p>
Low	<p>From the ground, the building appears to have superficial features (e.g. cracks and crevices) that are sub-optimal for roosting bats but may be used in some circumstances.</p> <p>Surrounding habitat appears to provide little or no foraging potential and/or connectivity to further suitable habitats.</p> <p>Works may progress if in accordance with appropriate precautionary mitigation measures.</p>
Medium	<p>A building in which no evidence of bats has been found, but features have been identified that could support roosting bats (such as cracks, crevices and/or structural features)</p> <p>Surrounding habitat provides good foraging potential and/or connectivity to further suitable habitat.</p> <p>Should works affect the area in question further emergence surveys would be required. If, following these surveys, no roosts are identified, works should proceed with appropriate precautionary mitigation measures. If a roost is identified, depending on the type of work and timings proposed, a Natural England European Protected Species (EPS) Licence may be required.</p>
Confirmed Roost	<p>Bats or evidence of bats recorded within the building, including both current and/or historic roosts.</p> <p>A Natural England European Protected Species (EPS) Licence would be required for all works that significantly affect the roost. A licence application would require survey data detailing the type of roost and the number and species of bat involved, surveys may be restricted to certain times of the year.</p>



Target Notes

- | | |
|----------------------|---|
| Target Note 1 | Semi-improved grassland along the top of the disused railway embankment |
| Target Note 2 | Tunnel under disused railway line with Low Bat Roost Potential (BRP) |
| Target Note 3 | Culvert under disused railway line with Medium BRP |
| Target Note 4 | A stand of Japanese Knotweed adjacent to the central track |

**Magna Park Extension: Hybrid Extension, Zone 1
Delta-Simons Project No.14-0159.02**



Photograph 1 – Marshy grassland



Photograph 2 – Sheep grazed poor semi-improved grassland

**Proposed Magna Park Extension: Hybrid Extension
Delta-Simons Project No.14-0159.02**



Photograph 3 – Semi-improved grassland on railway embankment



Photograph 4 – Semi-improved grassland field margin

**Proposed Magna Park Extension: Hybrid Extension
Delta-Simons Project No.14-0159.02**



Photograph 5 – Tall ruderals



Photograph 6 – Pond 3

**Proposed Magna Park Extension: Hybrid Extension
Delta-Simons Project No.14-0159.02**

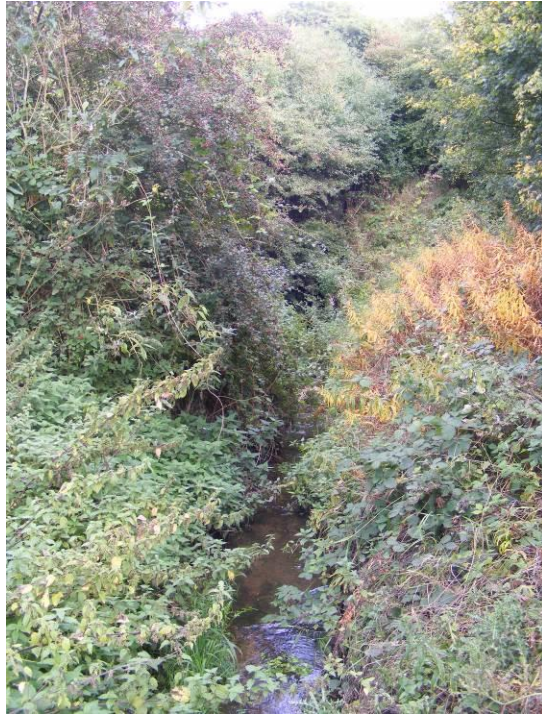


Photograph 7 – Pond 2



Photograph 8 – Pond 4

**Proposed Magna Park Extension: Hybrid Extension
Delta-Simons Project No.14-0159.02**



Photograph 9 – Heavily shaded stream



Photograph 10 – Arable fields

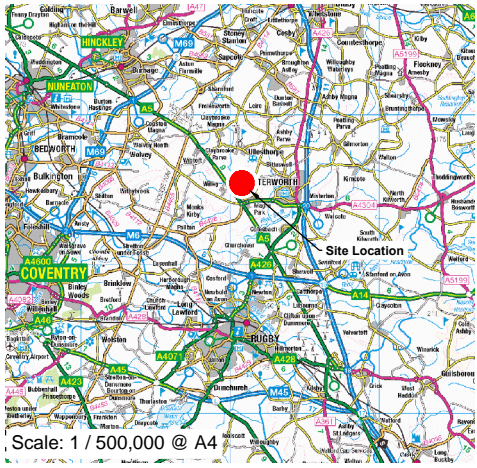
**Proposed Magna Park Extension: Hybrid Extension
Delta-Simons Project No.14-0159.02**




Photograph 11 – Species-poor intact hedgerow

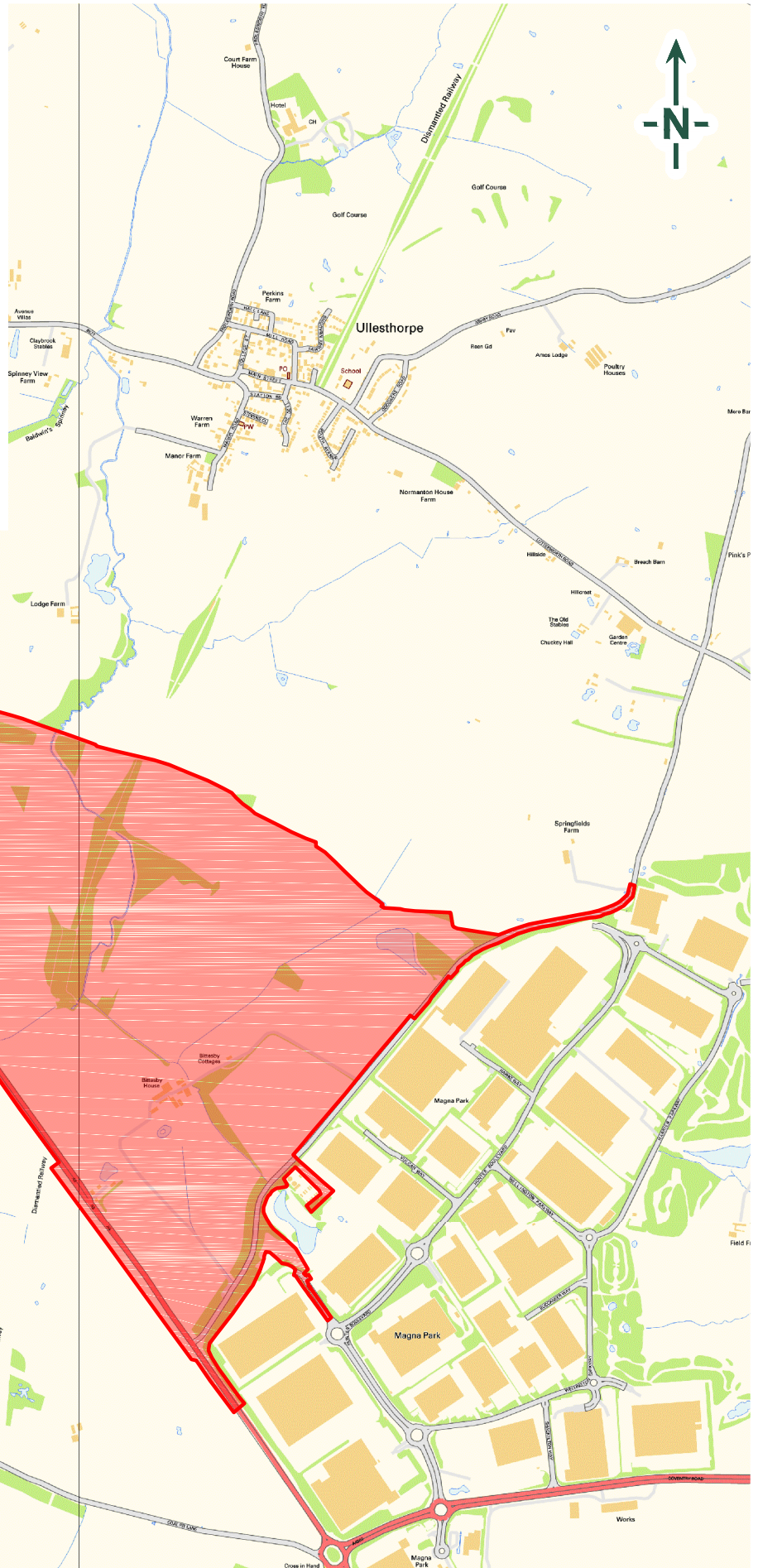


Photograph 12 – Japanese Knotweed adjacent to the track



LEGEND

 Site Boundary



Scale: 1 / 20,000 @ A4

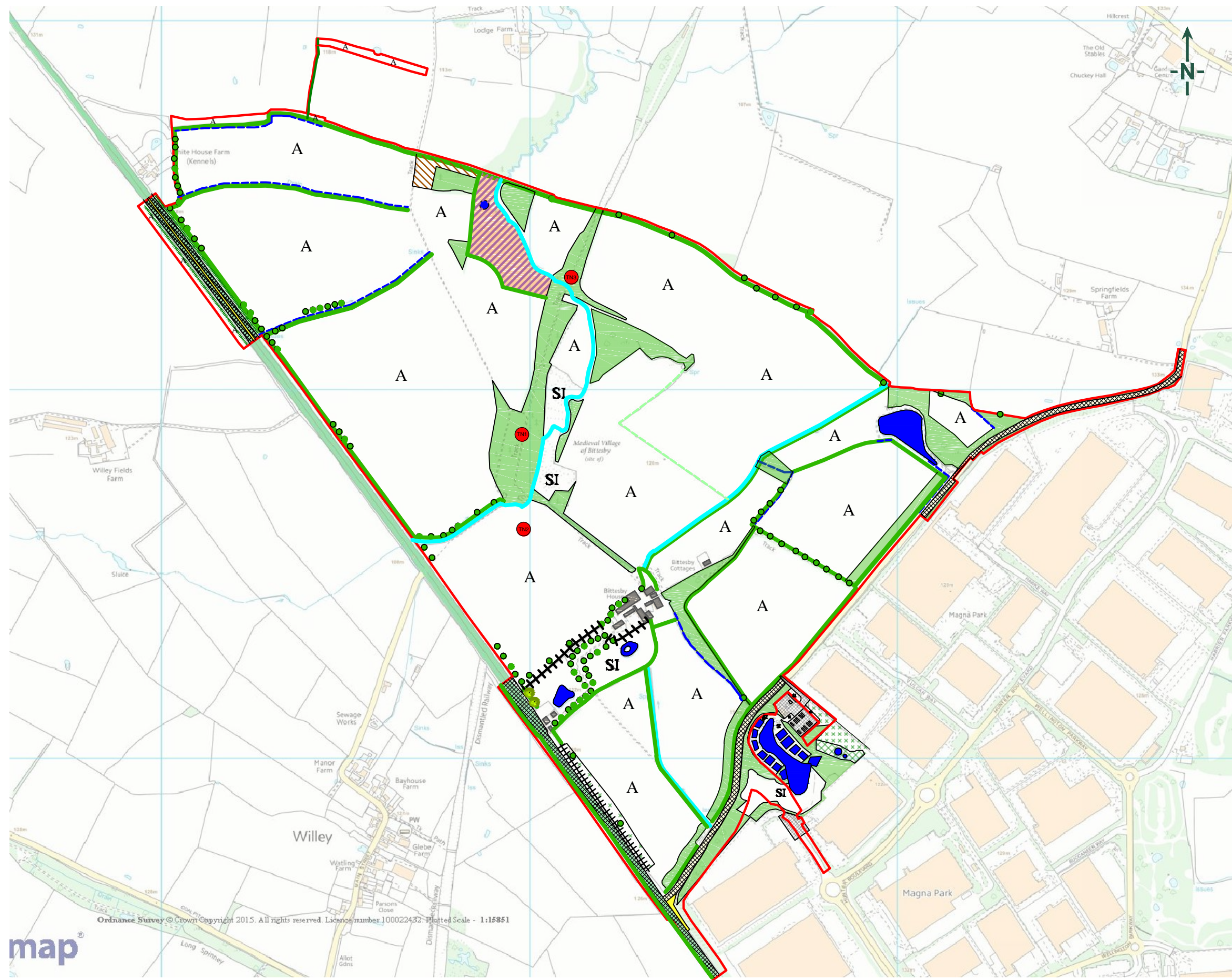
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TITLE:
Site Location Plan
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN:	DP	SCA:	To Scale @ A4
CHK:	JS	REV:	1
DATE:	14 September 2015		

PROJECT NO.:	14-0159.02
FIGURE NO.:	1



LEGEND

	Site Boundary
	Broadleaved Plantation Woodland (A1.1.2)
	Scattered Broadleaved Trees (A3.1)
	Scattered Coniferous Trees (A3.2)
	Marsh Grassland (B5)
	Poor Semi Improved Grassland (B6)
	Tall Ruderal (C3.1)
	Standing Water (G1)
	Running Water (G2)
	Arable (J1.1)
	Amenity Grassland (J1.2)
	Intact Hedgerow - Species Poor (J2.1.2)
	Defunct Hedgerow - Species Poor (J2.2.2)
	Fence (J2.4)
	Dry Ditch (J2.6)
	Scattered Scrub (A2.2)
	Species Poor Hedgerow with Trees (J2.3.2)
	Dense Scrub (A2.1)
	Buildings (J3.6)
	Hard Standing (J4.1)
	Target Note

map

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TITLE:
 Extended Phase 1 Habitat Survey Plan
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.02
CHK: JS	REV: 1	FIGURE NO.: 2
DATE: 14 September 2015		



- GENERAL NOTES:
1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERING AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
 3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
 4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERRED TO THE CLIENT IMMEDIATELY.
 5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 6. ALL LEVELS IN METRES.
 7. DO NOT SCALE OFF THIS DRAWING.
 8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
 9. THE CONTENT OF THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST PROJECT GOMR REGISTER.



Zone 1

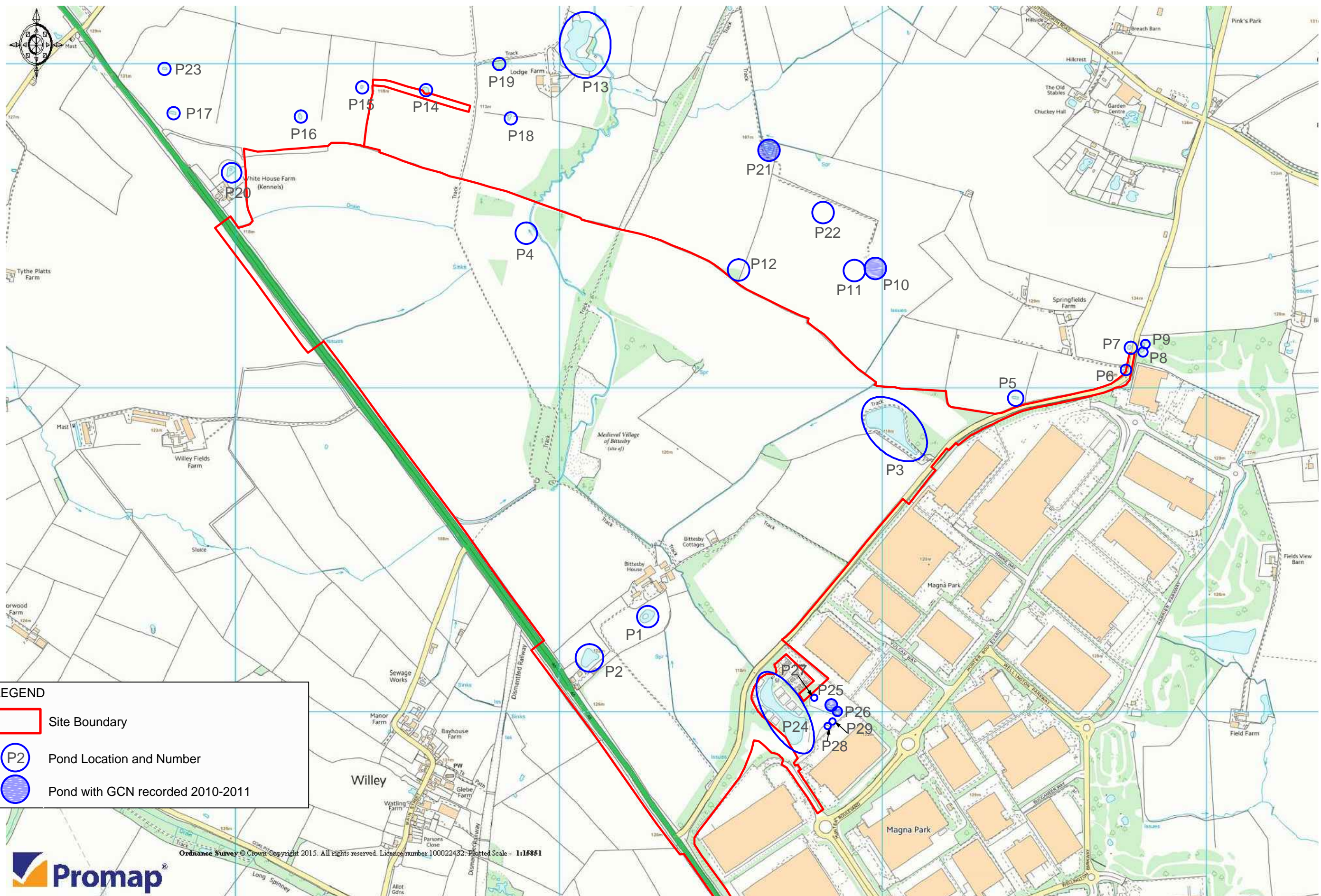
Zone 2

NO	14/09/2015	FOR COMMENT	1/18	DN
REV	Date	Description	Rev	Drawn/Chk
grant associates Landscape Architecture, Urban Design, Creative Ecology 21 Wick Street, Bath BA1 1JT T: +44 (0) 1225 323864 F: +44 (0) 1225 428184 E: info@grant-associates.co.uk				
CLIENT IDI Gazeley				
PROJECT Magna Park Extension OPA				
TITLE Illustrative Masterplan				
Author	Drawn	Checked	Approved	Scale
14/09/2015	JS	JS	JS	DN
FOR COMMENT				
Project No.	Rev			
MLP410-AL-A01-MP-Q-001	00			



TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Planning Application
 Lutterworth

DWN:	DP	SCA:	Not to Scale	PROJECT NO.:	14-0159.02
CHK:	JS	REV:	1	FIGURE NO.:	3
DATE:	14 September 2015				



LEGEND

- Site Boundary
- P2 Pond Location and Number
- P2 Pond with GCN recorded 2010-2011



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TITLE:
 Pond Location Plan and Previous Records of Great Crested Newts
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.02
CHK: JS	REV: 1	FIGURE NO.:
DATE: 14 September 2015		4



Appendix I-2: Extended Phase 1 Habitat Survey

Magna Park Extension: Hybrid Application

Zone 2, Railfreight Shuttle Terminal

For IDI Gazeley

Delta-Simons Project No. 14-0159.12

Issued: September 2015

EXECUTIVE SUMMARY
APPENDIX I-2: EXTENDED PHASE 1 HABITAT SURVEY
MAGNA PARK EXTENSION: HYBRID APPLICATION
ZONE 2, RAILFREIGHT SHUTTLE TERMINAL
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.12

Purpose	Delta-Simons Environmental Consultants Ltd was instructed by IDI Gazeley ('the Client') to undertake an Extended Phase 1 Habitat survey of an area of land situated off the A4303, Coventry Road, to the west of Lutterworth in Leicestershire (Zone 2 of the 'Site'). The survey was undertaken on 23 rd July 2015. Habitats and the potential of the Site for protected species were assessed during the Extended Phase 1 Habitat Survey. The survey was undertaken in order to inform a planning application for the Site.
Current Site Status	Zone 2, a 6.7 ha rectangular parcel of former agricultural land is situated approximately 1.0 km to the south-east of Zone 1, and to the rear of the George headquarters building on the A4303 near the junction with the A5. Zone 2 consists of two grassland fields separated by a drain, with encroaching scrub, whilst bounding the zone to the east and to its southern extent are mature trees and a brook. Along the northern boundary is hedgerow, scrub and ruderals, whilst there is a continuation of grassland habitat bounding the Site to the west. Beyond Zone 2 to the south and east is open farmland.
Proposed Development	Zone 2 is the site of the detailed proposals for the dedicated Magna Park railfreight shuttle terminal and HGV parking facility. It benefits from an extant planning permission for a Heavy Goods Vehicle (HGV) parking facility (reference 12/00851/FUL granted by Harborough District Council in November 2012: Change of use of land to provide HGV and car parking; formation of hard standing; erection of vehicle maintenance unit building; administration building; fuel island and vehicle washing facility; and associated landscaping (revised scheme of 11/01757/FUL), Land South of and Adjacent to Asda George Headquarters, A4303 Magna Park, Lutterworth). The Client is in the process of discharging the pre-commencement planning conditions relating to the approved HGV parking scheme and will commence development once the requisite approvals have been secured. The existing access arrangements for both the main Magna Park access and Zone 2 access will benefit from improvements and upgrading works associated with the proposed DHL Supply Chain project, currently the subject of a planning application (ref: 15/00919/FUL) and the extant planning permission for the HGV parking facility.
Results: Habitats on-Site	<ul style="list-style-type: none"> △ Dense Scrub; △ Scattered Scrub; △ Broadleaved Scattered Trees; △ Improved Grassland; △ Poor Semi-Improved Grassland; △ Running Water; △ Tall Ruderals; △ Intact Species-Poor Hedgerow; △ Earth Bank; and

<p>Habitats within Land Adjoining the Site</p>	<p>△ Hardstanding.</p> <p>North of the Site is the George headquarters on the A4303 near the junction with the A5, and further distribution buildings with associated hard and soft landscaping within Magna Park. East and south of the Site are arable fields whilst to the west is a continuation of the poor semi-improved grassland field within the western area of the Site, beyond which is a substation and the A5.</p>
<p>Recommendations</p>	<p>The detailed recommendations set out within the Report are summarised below:</p> <p>Recommendation 1 (Nesting Birds) Any clearance works to be undertaken on the areas of hedgerow, trees and scrub at the Site should be done either before early March or after late July to avoid the main nesting bird season. If Site clearance are necessary during the nesting period an experienced ecologist needs to be present to check the Site before works begin to confirm no nesting birds will be affected.</p> <p>Recommendation 2 (Bats) If pruning or felling works are required to either the oak or the ash tree that were assessed as having low Bat Roosting Potential (BRP), it is recommended that a precautionary approach is undertaken such that the works are completed under the Method Statement outlined in Section 5.2. A licenced bat ecologist will be required to check the trees for any signs of bats, or bat activity, prior to any works taking place during the active bat season (April-October, inclusive).</p> <p>The boundary hedgerows, scattered trees, and scrub/ ruderal vegetation along the boundaries of the Site may provide suitable habitat for commuting and foraging bats. Therefore, a sensitive lighting plan is recommended such that the proposed development does not increase lighting along, or beyond, the vegetation corridors on the Site boundaries.</p> <p>Recommendation 3 (Badgers, Otters) Whilst no recent signs of these species were found at the time of the survey, as is general good practice for Sites where badgers or otters may occur, it is recommended that no excavations or trenches are left uncovered overnight during the construction phase of works in order to prevent any badgers from becoming trapped. Alternatively, ramps can be provided to enable them to climb out of trenches or excavations.</p> <p>Recommendation 4 (Pollution Prevention) Contractors should adhere to the recommendations outlined in Pollution Prevention Guideline 5 (PPG 5): Works in, near or liable to affect watercourses (Environment Agency n.d.) to minimise the risk of pollution events to the adjacent ponds during construction.</p> <p>Recommendation 5 (Planning) Following the issue of the National Planning Policy Framework (NPPF, 2012) by the Department for Communities and Local Government (DCLG), "<i>The planning system should contribute to and enhance the natural and local environment by: Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity...</i>"; and, therefore, for this particular development the use of native plant species sourced from local nurseries is recommended in the landscape proposals. The hedgerows and scattered trees are due to retained and enhanced with further tree planting, and an attenuation pond will be built in the eastern area of the Site, which will enhance foraging opportunities for local birds</p>

	and bats, by increasing the invertebrate diversity on-Site. A species list of recommended trees and shrubs is included within the recommendations section of this Report.
--	---

<p>This Extended Phase 1 Habitat Survey Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This Executive Summary should be read in conjunction with the full Report.</p>

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**APPENDIX I-2: EXTENDED PHASE 1 HABITAT SURVEY
MAGNA PARK EXTENSION: HYBRID APPLICATION
ZONE 2, RAILFREIGHT SHUTTLE TERMINAL
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.12**

1.0 INTRODUCTION

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was instructed by IDI Gazeley ('the Client') to undertake an Extended Phase 1 Habitat Survey. The survey was undertaken of land off the A4303, Coventry Road, to the west of Lutterworth in Leicestershire (hereafter referred to as the "Site"). In addition, public land immediately surrounding the Site was surveyed. The survey was undertaken in order to inform a planning application for the Site.

The aims of the Extended Phase 1 Habitat Survey were to:

- △ Identify habitat types on the Site using the standard methodology devised by the Joint Nature Conservation Committee (JNCC, 2010);
- △ Identify areas of potential for protected species/ species of conservation concern within the Site;
- △ Identify areas of potential for protected species/ species of conservation concern immediately outside the Site;
- △ Identify any invasive plant species included within Schedule 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended);
- △ Prepare a Phase 1 Habitat Survey Plan of the Site; and
- △ Propose recommendations for further surveys, where necessary.

The Site location and the area surveyed are shown in Figure 1.

1.2 Site Description

The Site is centred at Ordnance Survey (OS) grid reference SP 51308 83774 to the west of Lutterworth. Zone 2, a 6.7 ha rectangular parcel of former agricultural land is situated approximately 1.0 km to the south-east of Zone 1, and to the rear of the George headquarters building on the A4303 near the junction with the A5. Zone 2 consists of two grassland fields separated by a drain, with encroaching scrub, whilst bounding the zone to the east and to its southern extent are mature trees and a brook.

Along the northern boundary is hedgerow, scrub and ruderals, whilst there is a continuation of grassland habitat bounding the Site to the west. Beyond Zone 2 to the south and east is open farmland.

Topographically the Site is well drained and did not support standing water at the time of the survey, although, a possible area where seasonal standing water gathers was identified west of the central drain.

The Site layout is shown in Figure 2.

1.3 Proposed Development

Zone 2 is the site of the detailed proposals for the dedicated Magna Park railfreight shuttle terminal and HGV parking facility. It benefits from an extant planning permission for a Heavy Goods Vehicle (HGV) parking facility (reference 12/00851/FUL granted by Harborough District Council in November 2012: Change of use of land to provide HGV and car parking; formation of hard standing; erection of vehicle maintenance unit building; administration building; fuel island and vehicle washing facility; and associated landscaping (revised scheme of 11/01757/FUL), Land South of and Adjacent to Asda George Headquarters, A4303 Magna Park, Lutterworth). The Client is in the process of discharging the pre-commencement planning conditions relating to the approved HGV parking scheme and will commence development once the requisite approvals have been secured. The existing access arrangements for both the main Magna Park access and Zone 2 access will benefit from improvements and upgrading works associated with the proposed DHL Supply Chain project, currently the subject of a planning application (ref: 15/00919/FUL) and the extant planning permission for the HGV parking facility.

The proposed development is shown in Figure 3.

2.0 LEGISLATION

2.1 Birds

All wild birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). Subsection 1(1) makes it an offence to intentionally kill, injure, or take any wild bird; take, damage or destroy the nest of any such bird whilst it is in use or being built; or take or destroy an egg of any such wild bird. It is, furthermore, an offence to either intentionally, or recklessly, disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird. The law covers all species of wild birds including common, pest or opportunistic species.

2.2 Amphibians

All amphibians are protected under the WCA 1981 (as amended), with some species also protected under the European Habitats and Species Directive (92/43/EC), enacted in the UK through Annex IV of the Habitats and Species Regulations 2010 (as amended). All amphibians are protected from keeping, transporting, selling or exchanging. This means that in practice reasonable measures must be taken to avoid their incidental mortality.

The Great Crested Newt (GCN) is protected under Schedule 2 of the Habitats Regulations and Schedule 5 Sections 9(1) and 9(4) of the WCA 1981 (as amended). It is an offence to deliberately or recklessly kill, injure, capture or disturb these species or, to obstruct access to, damage or destroy areas where they live or breed. The legislation applies to all stages of the life cycle including eggs, larvae and juveniles. It should be noted that GCNs spend the majority of their lives on land, venturing up to 500 m (but more usually 250 m) from their breeding ponds and as such any ground works within 500 m of a breeding pond could have an adverse effect on GCNs.

2.3 Reptiles

All six native species of reptiles are protected under the 1981 WCA (as amended), from deliberate or reckless killing or injury. As such, all reasonable steps must be taken to avoid their incidental mortality when carrying out works.

2.4 Bats

All bats and their roosts are protected under Section 9 of the WCA 1981 (as amended) and Annex IV of the Habitats and Species Regulations 2010 (as amended).

It is an offence, either deliberately or recklessly, to destroy, damage or obstruct access to any bat roost, or to disturb a bat using such a place. It should be noted that a roost is protected whether or not bats are present and any activity or works affecting a roost, even when bats are absent, are likely to require a Natural England European Protected Species Licence.

2.5 Badgers

Badgers *Meles meles* and their setts are protected under the 1992 Protection of Badgers Act. Under this Act it is an offence to wilfully kill, injure, take, possess or cruelly ill-treat badgers, or to attempt to do so. It is also an offence to intentionally or recklessly damage, destroy, or obstruct access to any part of a sett, or to disturb an occupied sett, either by intent or negligence. When interpreting the Act, Natural England defines a sett as any structure within an area used by badgers that shows signs of having been occupied by badgers within the last 12 months.

2.6 Water Voles

The water vole *Arvicola amphibius* received limited legal protection up until April 1998 through its inclusion in Schedule 5 of the WCA 1981 (as amended) for some offences. This protection was extended on 6th April 2008, so the water vole is now fully protected under Section 9.

Legal protection makes it an offence to:

- Δ Intentionally kill, injure or take (capture) a water vole;
- Δ Possess or control a live or dead water vole, or any part of a water vole;
- Δ Intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection; or intentionally or recklessly disturb water voles while they are using such a place; and
- Δ Sell, offer for sale or advertise for live or dead water voles.

2.7 Otters

- Δ Otter *Lutra lutra* is afforded strict protection under Section 9 of the WCA 1981 (as amended) on Schedule 5 of the WCA 1981 (as amended) and Annex IV of the Conservation of Habitats and Species Regulations (2010). They also receive protection through their inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).
- Δ Under the legislation, it is an offence to intentionally capture; injure or kill an otter; intentionally or recklessly damage or destroy a breeding site or resting

place of an otter; intentionally or recklessly disturb an otter while it is occupying a structure or place which it uses for shelter or protection; obstruct access to any structure or place which it uses for that purpose; possess or control a live or dead animal, or part of; sell, offer for sale, possess or transport for the purpose of sale, a live or dead animal or part of one.

2.8 Plant Species Prohibited from Release into the Wild

The handling and disposal of Japanese knotweed *Fallopia japonica* and giant hogweed *Heracleum mantegazzianum* is covered by several pieces of legislation. The main piece of legislation is Section 14(2) of the WCA 1981 (as amended) which states that 'if any person plants or otherwise causes to grow in the wild any plant which is included in Part II of Schedule 9, he shall be guilty of an offence'. Japanese knotweed and giant hogweed are listed in the Schedule. The Environmental Protection Act 1990 (as amended) is a broad ranging piece of legislation that singles out Japanese knotweed and giant hogweed for special mention. The Act places a 'Duty of Care' on the producer and anyone they employ to dispose of soil or other material contaminated with Japanese knotweed or giant hogweed, such material becomes a controlled waste, which can only be taken to licensed landfill sites who must be dealt with it in an appropriate way.

2.9 Hedgerows

Under the Hedgerows Regulations 1997 it is against the law to remove or destroy certain hedgerows without permission first being granted by the local planning authority (LPA). A hedgerow which has a continuous length of, or exceeding, 20 m, or is less than 20 m but adjoins another hedgerow at each end can be categorised as 'important' if it is 30 years old or older and satisfies at least one of the criteria listed in Part II of Schedule 1 of the Regulations. Therefore, the LPA must first grant permission for its removal.

2.10 Planning

With reference to the National Planning Policy Framework (NPPF), the Office of the Deputy Prime Minister Circular (2005) advises that ecological surveys are undertaken before planning permission is determined. The circular states "*The need to ensure that ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances*" (see References, Appendix I).

3.0 METHODOLOGY

3.1 Data Search

A data search was undertaken by the Leicestershire and Rutland Environmental Records Centre (LRERC) to identify statutory and non-statutory sites and protected and notable species within a 1 km radius of the centre of the Site. In addition, a search for designated sites for nature conservation on, or within 1 km of, the Site was performed using the Multi-Agency Geographic Information for the Countryside (MAGIC).

3.2 Review of Previous Surveys

Where possible, information was gathered on any previous surveys that have been conducted at the Site. The survey report prepared by Arnott & Mann Consulting Ecologists was reviewed (Ecological Assessment of land behind ASDA George building, June 2012).

3.3 Extended Phase 1 Habitat Survey

The habitats on the Site and on adjoining land were surveyed on 23rd July 2015 by two Delta-Simons ecologists using the standardised JNCC Phase 1 habitat classification and mapping methodology (JNCC, 2010). Dominant plant species were recorded in each different habitat. The plant species nomenclature follows that of Stace (2010).

The following list indicates the species groups that were targeted:

- △ Birds: All species with special reference to key species (such as those on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (WCA 1981)), England Biodiversity Priority Species (EBP) (previously UK Biodiversity Action Plan (UKBAP) species) and Birds of Conservation Concern (BoCC) (Eaton et al., 2009);
- △ Amphibians: GCN;
- △ Reptiles: common lizard, adder, slow-worm, grass snake; and
- △ Mammals: bat (all species), badger, water vole, otter.

3.3.1 Birds

Visual and/ or audible identification was made of any birds on the Site or flying over the Site during the survey period. Suitable habitat was, where possible, inspected and any evidence of nesting activity was recorded.

3.3.2 Amphibians

The terrestrial habitats at the Site were assessed for their potential to support amphibian species and a desk search was undertaken in order to identify any water bodies within 500 m of the Site that were not fragmented from it by physical barriers such as major roads or flowing water bodies.

3.3.3 Reptiles

A cold-searching method was employed which involved identifying suitable habitats for reptiles within areas on-Site and immediately off-Site. Natural and artificial refugia (logs, large debris and so on) were lifted and examined for the presence of reptiles and their field signs (such as shed skins).

3.3.4 Bats

An assessment of Bat Roost Potential (BRP) of the trees on the Site was completed, guided by the *Bat Survey: Good Practice Guidelines* (Hundt, 2012). The survey methodology enables the categorisation of each tree in relation to its value for bats (see Appendix II).

3.3.5 Badgers

The Site was inspected for badger activity including sett entrances, latrines, footprints, runs through vegetation, guard hairs caught on fences and snuffle holes.

3.3.6 Water Voles

Suitable habitats for water vole were identified and assessed within areas on-Site and immediately off-Site.

3.3.7 Otters

Suitable habitats for otter were identified and assessed within areas on-Site and immediately off-Site

3.3.8 Hedgerows

An assessment of any hedgerows present at the Site, which will be adversely affected by the proposed development, was undertaken using the standard hedgerow surveying methodology outlined in the Hedgerow Regulations 1997. The purpose of the assessment was to ascertain whether the hedgerows are classified as 'nationally important' and therefore protected under the Hedgerow Regulations 1997. The assessment involves a scoring system which relies on particular features, number of

woody and floral species present within the hedgerow habitat, and the age of the hedgerow.

The following hedgerow features were recorded:

- △ A bank or wall supporting the hedgerow for at least half its length;
- △ Gaps in the hedgerow not exceeding 10% of its length;
- △ An average of at least one standard tree per 50 m of hedgerow;
- △ The number of woodland plant species (as defined);
- △ A ditch along at least half the hedgerow;
- △ Connections (as defined by the Regulations) scoring four points or more; and
- △ A parallel hedge within 15 m of the hedgerow.

An assessment of a 30 m section was undertaken per 100 m of hedgerow length, which involved recording the number of woody and floral species present. Where two or more sections of each hedgerow were surveyed, the average number of the species was calculated.

3.3.9 Other Protected or Notable Species

Where applicable, during the survey, evidence was recorded of any protected or notable species, including England Biodiversity Priority Species (EBP), which have not been acknowledged within this section of the Report. Habitats with the potential to support additional protected or notable species were also recorded, if present, during the survey.

3.3.10 Plant Species Prohibited from Release into the Wild

The occurrence of any invasive plant species on the Site was identified in terms of species and stand size.

3.3.11 Surrounding Area

The land beyond the Site boundary was surveyed. Where access was not available to these areas, observations were made from the Site boundary or via public land and highways.

4.0 RESULTS

4.1 Data Search

4.1.1 Habitats

The results of the MAGIC data search and the LRERC desk search indicate that there are no statutory sites on or within 1 km of the Site centre.

With regards to non-statutorily designated sites, the hedgerow (row of broadleaved scattered trees) along the southern Site boundary, which was assessed in 2011, is designated as a potential Local Wildlife Site (pLWS), whilst an area of mesotrophic grassland within Magna Park 300 m north of the Site is a candidate Local Wildlife Site (cLWS). An area of mixed woodland approximately 675 m south of the Site boundary has been identified as a Parish site.

4.1.2 Species

Birds

- △ A single record of quail *Coturnix coturnix*, a Schedule 1 species under the WCA (1981, as amended), was identified 400 m north-west of the Site in 2010; and
- △ A single marsh harrier *Circus aeruginosus*, a Schedule 1 species under the WCA (1981, as amended) and 16 lesser redpolls *Acanthis cabaret*, an EBP species, were all recorded 640 m north of the Site in 2012.

Amphibians

A single record of GCN was identified within at a distance of 1 km from the Site in 2010. This is from the 2010 protected species licence monitoring survey conducted of the ponds within the north-western extent of Magna Park by Ecosulis. No further details were provided.

Reptiles

The data centre does not hold any records of reptiles within a 1 km radius of the Site centre.

Terrestrial Mammals

No recent records of badger *Meles meles* were included within the data search, the only record was of a sett 750 m from the Site boundary in 1989. Given its age, it is not

considered to accurately represent the current species status of badgers within the local area.

There were no other records of any terrestrial mammals received with the data search.

The Results of the LRERC data search are available to the Client on request.

4.2 Review of Previous Surveys

In September 2011 both of the fields at the Site were surveyed by Arnott & Mann Consulting Ecologists, including the whole of the western field that at the time extended beyond the current Site boundary. The western field was heavily grazed in 2011.

No badger sett entrances were identified around the Site, although, rabbit *Oryctolagus cuniculus* burrows were recorded along the ditch banks. Badger paths were recorded around the perimeter of the eastern field and leading off-Site to the east, south and into the western field. Four single latrines were noted and two multiple latrines were identified around the perimeter of the Site, mainly along the drain dividing the two fields, with a further latrine recorded on the northern boundary of the western field, beyond the current Site boundary. These field signs indicated widespread use of the Site by badgers, and that the Site was included within a badger group's (clan) territory.

The stream adjacent to the southern Site boundary was assessed for water vole and white clawed crayfish *Austropotamobius pallipes*. No evidence of either species was found and limited invertebrates were found within the watercourse.

Fifteen mature trees were present on-Site; four of these outside the current Site boundary, and a further three of these trees no longer present along the central drain. No bat roosting features such as cracks or branch damage were identified on any of the trees, however, the bark of the ash *Fraxinus excelsior* and willow *Salix* spp. trees was noted as having BRP due to typical small cracks and fissures being present.

Recommendations were made for landscaping measures at the Site, and a precautionary approach with regards to nesting birds and badgers.

4.3 Extended Phase 1 Habitat Survey – Site

The Site is characterised by two poor semi-improved grassland fields divided by a drain with an earth embankment, and sections of hedgerow and scattered trees.

Figure 2 shows the extent of habitat types and boundary features. Descriptions of the habitat types and dominant plant species found at the Site are provided below. Habitat descriptions and codings are by broad habitat type, as listed in the Phase 1 Habitat Survey Manual (JNCC, 2010). Target Notes (TNs) are listed under Appendix III whilst photographs of the Site survey are located in Appendix IV.

A2.1 Dense Scrub

Bramble *Rubus fruticosus* agg. scrub extended along the base of the hedgerow within the field in the eastern extent of the Site.

A2.2 Scattered Scrub

Young ash, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, bramble and bittersweet *Solanum dulcamara* extended along the banks of the on-Site drain.

A3.1 Scattered Trees

Scattered predominantly semi-mature ash trees and an oak *Quercus robur* were present within the hedgerow around the northern boundary. Scattered trees were present along the southern boundary, a number of which may have been part of a former hedgerow. Species occurring were frequent ash and hawthorn, and occasional alder *Alnus glutinosa*, silver birch *Betula pendula*, elder *Sambucus nigra*, willow *Salix* spp. and sycamore *Acer pseudoplatanus*. Bramble, rosebay willowherb *Chamerion angustifolium*, common nettle *Urtica dioica*, ivy *Hedera helix* and cleavers *Galium aparine* formed an understorey beneath these trees and along the bank of the drain.

B6 Poor Semi Improved Grassland

The majority of the Site comprised poor semi-improved grassland (Photograph 1). Yorkshire Fog *Holcus lanatus*, common bent *Agrostis capillaris*, creeping bent *Agrostis stolonifera*, cock's foot *Dactylis glomerata* and perennial rye grass *Lolium perenne* were all abundant, with occasional tufted hair grass *Deschampsia cespitosa*, meadow foxtail *Alopecurus pratensis*, Timothy *Phleum pratense*, false oat grass *Arrhenatherum elatius*, creeping soft grass *Holcus mollis* and wavy hair grass *Deschampsia flexuosa*. Patches of creeping thistle *Cirsium arvense* and common ragwort *Jacobaea vulgaris*

were noted within the grassland and occasional broadleaved dock *Rumex obtusifolius*, hogweed *Heracleum sphondylium*, spear thistle *Cirsium vulgare*, meadowsweet *Filipendula ulmaria*, dandelion *Taraxacum officinale*, yarrow *Achillea millefolium*, red clover *Trifolium pratense*, white clover *Trifolium repens*, common sorrel *Rumex acetosa*, creeping buttercup *Ranunculus repens* and common vetch *Vicia sativa* were also recorded.

Within the western area of the Site was a depression that appeared to support seasonal standing water due to the presence of widespread soft rush *Juncus effusus*.

B4 Improved Grassland

Adjacent to the hardstanding in the north of the Site was a grassland verge that was managed to a short sward height. It comprised predominantly perennial ryegrass.

C3.1 Tall Ruderals

The earth bank within the north-western area of the Site was dominated by a combination of common ragwort, spear thistle, creeping thistle, common nettle, rosebay willowherb and brambles. Further occasional mostly non-ruderal species including broadleaved dock, self-heal *Prunella vulgaris*, creeping buttercup, ribwort plantain *Plantago lanceolata*, greater plantain *Plantago major*, hedge bindweed *Calystegia sepium*, sweet vernal grass *Anthoxanthum odoratum*, Yorkshire Fog, rough meadow grass *Poa trivialis*, white clover, and scarlet pimpernel *Anagallis arvensis* were also recorded along the bank.

G2 Running Water

A drain was flowing north to south through the Site. At the time of the survey it was flowing slowly, and was both shallow and turbid (Photograph 2). The drain banks were steep and densely vegetated with both scrub and grassland, and were approximately 3m deep, while the ditch was approximately 5 m wide. A second ditch extended off-Site, running parallel to the southern boundary (Photograph 3). This had a narrow channel with slow flowing and shallow water.

J2.1.2 Intact Species-Poor Hedgerow

Along the northern and eastern boundaries was an unmanaged hedgerow, approximately 4-5 m high, comprising hawthorn and blackthorn, with dense brambles around the base.

J2.4 Fence

Metal meshed fencing approximately 5 m tall extended around the northern boundary with the neighbouring warehouse. This was not considered to have any ecological value.

J3.8 Earth Bank

Along the northern extent of the Site was an earth and rubble embankment that has been colonised by ruderal plant species (C3.1).

J4.1 Hardstanding

Coventry Road and a track to the gateway into the main Site are to the north of the Site and comprise tarmac hardstanding. This habitat was considered to have negligible ecological value.

4.3.1 Birds

Goldfinch *Carduelis carduelis* and woodpigeon *Columba palumbus* were recorded on-Site at the time of the survey. There were habitats featured on the Site that are suitable for nesting birds, including the hedgerow and trees, however, the grassland was deemed too dense to offer suitable conditions for ground nesting birds. No bird nesting activity was observed at the time of the inspection.

No birds listed on Schedule 1 of the WCA (1981) as amended or those listed on the Red List of Birds of Conservation Concern (Eaton *et al.*, 2009) were recorded.

It should be noted that this is not a comprehensive inventory of the bird species which may be present at the Site.

4.3.2 Great Crested Newts

No permanent standing waterbody was present on-Site, although, a depression west of the on-Site drain (TN 1, Photograph 4) appeared to hold seasonal standing water due to the concentration of rushes present. This was dry at the time of the survey. The terrestrial habitat at the Site was isolated from other suitable terrestrial habitat for amphibians. The grassland offers foraging opportunities, whilst the hedgerows and scrub would provide shelter and a commuting corridor, however, the ditch bisecting the Site, and the brook off-Site to the south, the A4303 to the north, and the A5 to the west each form dispersal barriers. A review of aerial photographs and OS maps revealed the presence of four ponds, one 210 m north and three between 180 and 490 m west,

however, these are separated from the Site by the A4303 and A5 roads, respectively. A GCN population record was identified approximately 1 km north at Magna Park as part of the 2010 population assessment conducted by Ecosulis. Given the barriers to dispersal between the ponds and the Site, and the lack of ideal terrestrial habitat at the Site there are no further recommendations with regards to the species.

4.3.3 Reptiles

No evidence of reptiles was recorded on the Site. The scrub and hedgerow will offer shelter for reptiles if present within the local area, whilst the denser grass may offer some foraging habitat, however, the Site lacks ideal basking habitat and does not support the mosaic of habitats that these species require. Furthermore, it is isolated from suitable off-Site habitats. No reptiles were recorded within the data search. There are no further recommendations for the species at the Site.

4.3.4 Bats

The majority of trees at the Site lacked any suitable features for bats. An oak tree in the east of the Site (TN 2, Photograph 5) was identified as having low BRP due to a branch wound, whilst an ash tree (TN 3, Photograph 6) on the southern boundary was also assessed as having low BRP due to a low density of ivy cladding around the trunk. The previous survey did not identify any signs of roosting bats.

The hedgerow, trees and watercourses at the Site offer suitable foraging and commuting opportunities for bats, as these features link to those around neighbouring fields. The neighbouring warehouses have numerous security lights within the car parking areas and around the buildings, however, these did not appear to shine directly onto the Site. No records of bats were identified within the data search.

4.3.5 Badgers

The Site did not support any evidence to indicate that badgers were using or inhabiting it. There were no sett entrances, latrines, snuffle holes, mammal runs or badger dung found within the survey area. The data search held a historic single badger sett record 750 m from the Site from 1989, whilst the results of the previous survey from 2011 found numerous mammal runs and latrines at the Site indicating that it was previously within a badger group's territory. The Site offers both sett digging and foraging opportunities for this species.

4.3.6 Water Voles

Both ditches at the Site were assessed as being unsuitable for water vole. The ditch bisecting the Site was shallow with poor quality water and was heavily overshadowed from the bankside vegetation (Photograph 2), and there was a lack of ideal foraging opportunities for water voles along the banks. The brook adjacent to the southern boundary was also shallow, no aquatic vegetation was present and the water was heavily overshadowed due to the trees and bankside vegetation (Photograph 3). There was a lack of suitable foraging opportunities along the banks. The previous survey found no evidence of water vole within the stream to the south of the Site and there were no records of the species within the data search. There are, therefore, no further recommendations for the species at the Site.

4.3.7 Otters

Whilst no signs of otters were found at the time of the survey, this species is known to be present within the wider area (see Extended Phase 1 Habitat Survey Magna Park II – Plot 1 (14-0159.02) and, therefore, there is the potential for the species to utilise the on-Site drain for commuting purposes on occasion, if it disperses through the local area. None of the terrestrial habitat on Site was considered dense enough to support a holt, and none of the trees had suitable gaps within their tree roots. The drain did not offer foraging opportunities for otter.

4.3.8 Other Protected Species

There was no evidence of other protected species, or habitats that could support them, on the Site.

4.3.9 Plant Species Prohibited from Release into the Wild

Invasive plants such as Japanese knotweed, Himalayan balsam and giant hogweed were not recorded on the Site.

4.3.10 Hedgerows

The hedgerows at the Site are not considered important under the Hedgerow Regulations as they did not contain more than three woody species in a 30 m stretch.

4.4 Extended Phase 1 Habitat Survey – Land Adjoining the Site

North of the Site is the A4303, Coventry Road, and warehouses with associated hard and soft landscaping within Magna Park. East and south of the Site are arable fields whilst to the west is the remained of the improved grassland field, a substation and the

A5. A brook runs immediately beyond the southern Site boundary. Whilst this does not offer foraging opportunities to otter, nor is there any suitable habitat to support a holt, it may be used on occasion for commuting purposes.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The majority of the Site comprised poor semi-improved grassland within two fields divided by a drain. A predominantly ruderal covered earth bank extended along the north of the eastern field. Hedgerow extended around the northern and eastern boundary. Scattered trees extended along the southern Site to the eastern extent of the Site. Dense bramble scrub was present inside the eastern hedgerow, whilst scattered scrub bordered the central drain. The Site is accessed from the north off the A4303, Coventry Road, via a hardstanding track leading to the Site gate with a managed grassland verge.

No statutory sites were identified within 1 km of the Site. The hedgerow (row of broadleaved scattered trees) along the southern Site boundary is a pLWS, and grassland 300 m north of the Site is a candidate LWS. An area of mixed woodland 675 m to the south of the Site has been identified as a Parish site. The proposed development is not anticipated to adversely impact upon the candidate LWS nor the Parish site due to their respective distances from the Site, and since the habitats are fragmented from it by roads and warehouses/ further hardstanding. The pLWS will remain in situ such that there will be no significant adverse impact upon it. Furthermore, it is proposed to enhance it through new tree planting immediately to the north, which will create a landscape bund in between the development and the established trees that comprise the pLWS.

The trees, hedgerow and scrub at the Site offer suitable nesting opportunities for birds. Whilst the scrub will be lost to facilitate the proposals, a new landscape bund will enhance nesting opportunities for birds at the Site. In order to ensure that nesting birds are not adversely impacted upon by the proposals, mitigation will need to be put in place to ensure that they are not harmed or disturbed during the nesting bird season once vegetation clearance works commence to facilitate the proposals.

The boundary features and the central ditch provide suitable commuting and foraging for any bats in the area. Two trees at the Site were identified as having low BRP, an oak in the east due to a damaged branch and an ash on the southern boundary with ivy cladding. Whilst it is understood that no works are proposed on the trees, an

appropriate mitigation strategy will need to be prepared to ensure that bats are not harmed or disturbed by the proposed development.

No evidence of badger was identified at the Site, however, during the 2011 survey paths and numerous latrines were identified within the eastern fields. The Site does offer foraging and sett digging potential for the species and, therefore, a precautionary approach should be taken to ensure badgers are not harmed by the works.

Whilst no signs of otter were recorded at the time of the survey, and the Site only has potential to be used for commuting purposes, this species is known to be present within the local area and, therefore, a precautionary approach should be taken to ensure otters are not harmed by the works.

5.2 Recommendations

Recommendation 1 (Nesting Birds)

- △ If any vegetation clearance or tree felling works are to be undertaken on areas of scrub, hedgerow or scattered trees featured on the Site, these should be performed either before early March or after late July in order to avoid the main bird nesting season. Conflict with the development can be avoided by clearing the Site of any suitable nesting habitat outside of the breeding period in advance of any proposed works; and
- △ If, however, Site clearance works are deemed necessary during the nesting period an experienced ecologist will be required to check the Site habitats immediately prior to works commencing to confirm that no nesting birds will be affected by the proposed works.

Recommendation 2 (Bats)

Any works to the oak or ash tree assessed as having low BRP trees must not be undertaken until the following has been completed:

- △ A dawn return survey of the ivy-clad ash tree will be undertaken by a licenced bat ecologist to determine the presence/ likely absence of bats;
- △ An inspection of the branch wound on the ash tree will be completed by a licenced bat ecologist to determine the presence/ likely absence of bats;
- △ These surveys and any works to follow will only be completed during the active bat season (April-October, inclusive);

- △ Following the survey(s) and, assuming no signs of roosting bats are found, the licensed bat ecologist will give a tool box talk to contractors prior to works commencing to the trees. This should aim to increase awareness of the potential presence of bats and to direct what further actions should be undertaken in the event of a bat being found. The licensed bat ecologist should explain the legal obligations of the contractor in this case;
- △ The licensed bat ecologist will supervise the felling works; and
- △ In the event that a bat is found, or if significant recent evidence of bats is found, works must stop immediately and the licensed bat ecologist will decide on the most appropriate way forward. Natural England may be contacted in this event, and it may be necessary to postpone all works until further surveys for bats have been undertaken in order to have adequate survey information to apply for an European Protected Species Licence (EPSL) from Natural England.

The boundary hedgerows, scattered trees, and scrub/ ruderal vegetation along the boundaries of the Site may provide suitable habitat for commuting and foraging bats. Therefore, a sensitive lighting plan is recommended such that the proposed development does not increase lighting along, or beyond, the vegetation corridors on the Site boundaries.

Recommendation 3 (Badgers, Otters)

As is general good practice for Sites where badgers or otters may occur, it is recommended that no excavations or trenches are left uncovered overnight during the development works in order to prevent any badgers from becoming trapped. Alternatively, ramps can be provided to enable them to climb out of trenches or excavations.

Recommendation 4 (Pollution Prevention)

Contractors should adhere to the recommendations outlined in Pollution Prevention Guideline 5 (PPG 5): Works in, near or liable to affect watercourses (Environment Agency n.d.) to minimise the risk of pollution events to the adjacent ponds during construction.

Recommendation 5 (Planning)

Following the issue of the National Planning Policy Framework (NPPF, 2012) by the Department for Communities and Local Government (DCLG), "*The planning system*

should contribute to and enhance the natural and local environment by: Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity..."

- △ The hedgerows and scattered trees are due to retained and enhanced with further tree planting, and an attenuation pond will be built in the eastern area of the Site, which will enhance foraging opportunities for local birds and bats, by increasing the invertebrate diversity on-Site; and
- △ The use of native plant species sourced from local nurseries is recommended in landscape proposals to enhance foraging opportunities for local birds and bats, by increasing the invertebrate diversity on-Site. A species list of recommended trees and shrubs is given below:

- △ Beech *Fagus sylvatica*;
- △ Elder *Sambucus nigra*;
- △ Field maple *Acer campestre*;
- △ Silver birch *Betula pendula*;
- △ Rowan *Sorbus aucuparia*;
- △ Small-leaved lime *Tilia cordata*;
- △ Bird cherry *Prunus padus*;
- △ Blackthorn *Prunus spinosa*;
- △ Hazel *Corylus avellana*;
- △ Hawthorn *Crataegus monogyna*;
- △ Holly *Ilex aquifolium*;
- △ Honeysuckle *Lonicera periclymenum*;
- △ Wild privet *Ligustrum vulgare*;
- △ Walnut *Juglans regia*; and
- △ Guelder-rose *Viburnum opulus*.

6.0 LIMITATIONS OF SURVEY

6.1 Limitations

Visibility and access was limited to the off-Site Brook due to the densely vegetated banks and overshadowing from the trees. Since these conditions decrease the suitability of the watercourse to support water vole, they were not considered to represent a significant constraint to the survey.

The behaviour of animals can be unpredictable and may not conform to characteristics recorded in current scientific literature. This Report, therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

Whilst every effort was made to access all parts of the Site, not all external regions were able to be accessed for the inspection. Delta-Simons had not obtained permission to access the residential buildings near to the Site. It should be noted that on a single inspection it is not possible to define the presence or absence of many species.

6.2 Disclaimer

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Ecology Consultant. Delta-Simons does not warrant or guarantee that the Site is free of Bats or other protected species.

No part of the survey included an assessment of the materials and conditions of any buildings. No part of the survey included an asbestos assessment, nor did it represent an appraisal of other deleterious materials or hazardous substances.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1.0 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the

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This Report was prepared by:



Catherine Bywood
Graduate Ecologist

15/09/15
Date

This Report was reviewed by:



Jonathan Spencer
Senior Ecologist

15/09/15
Date

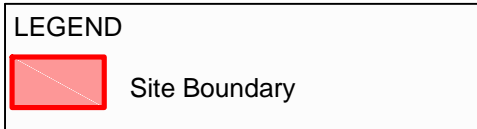
This Report was authorised by:



Charlotte Sanderson
Ecology Unit Manager

15/09/15
Date





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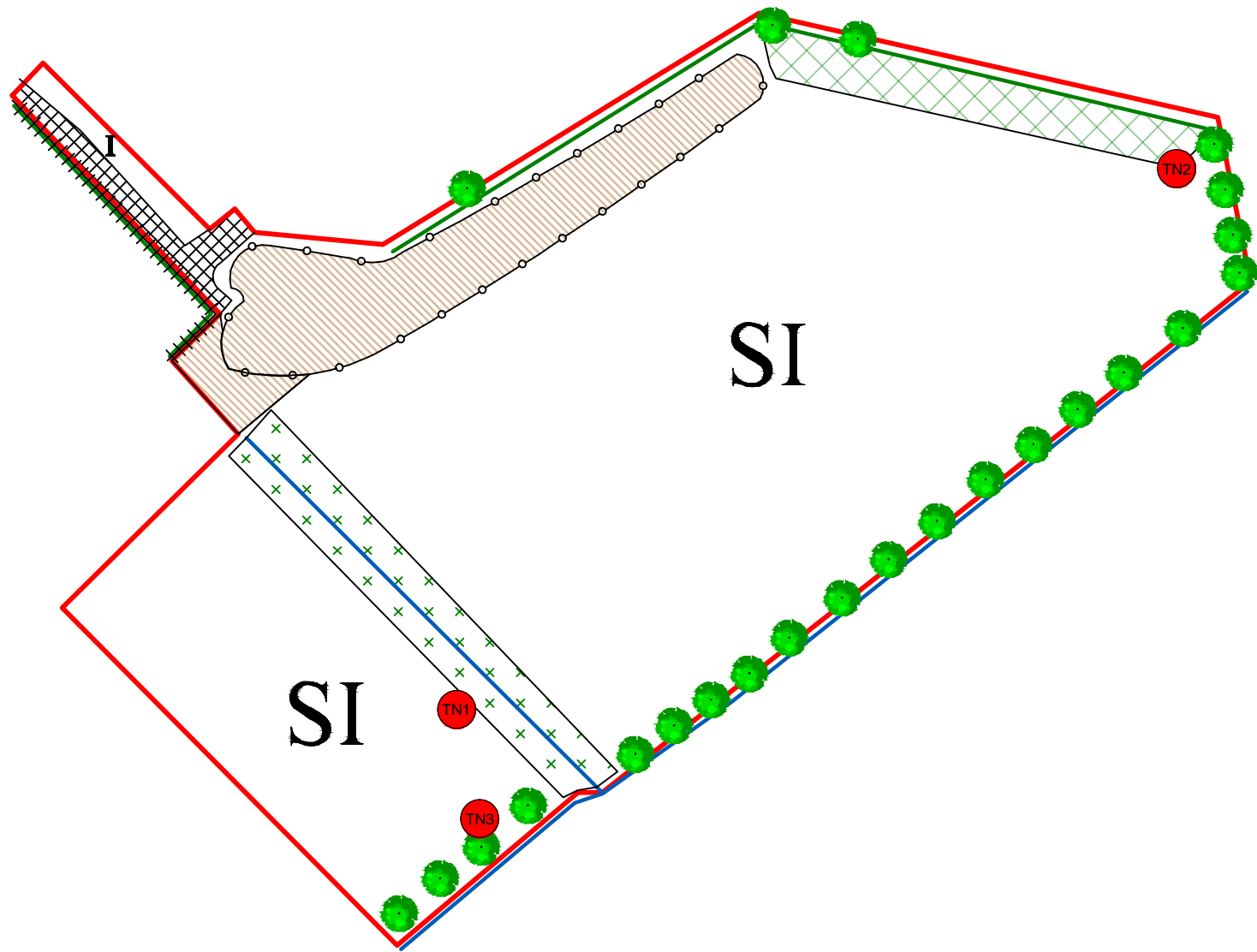
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Site Location Plan
 Magna Park Extension: Hybrid Application, Zone 2
 Railfreight Shuttle Terminal

DRAWN BY: DP
 CHECKED BY: JS
 DATE: 14 September 2015

SCALE:
 To Scale @ A4
 REVISION: 1

PROJECT NO:
14-0159.12

FIGURE NO:
1



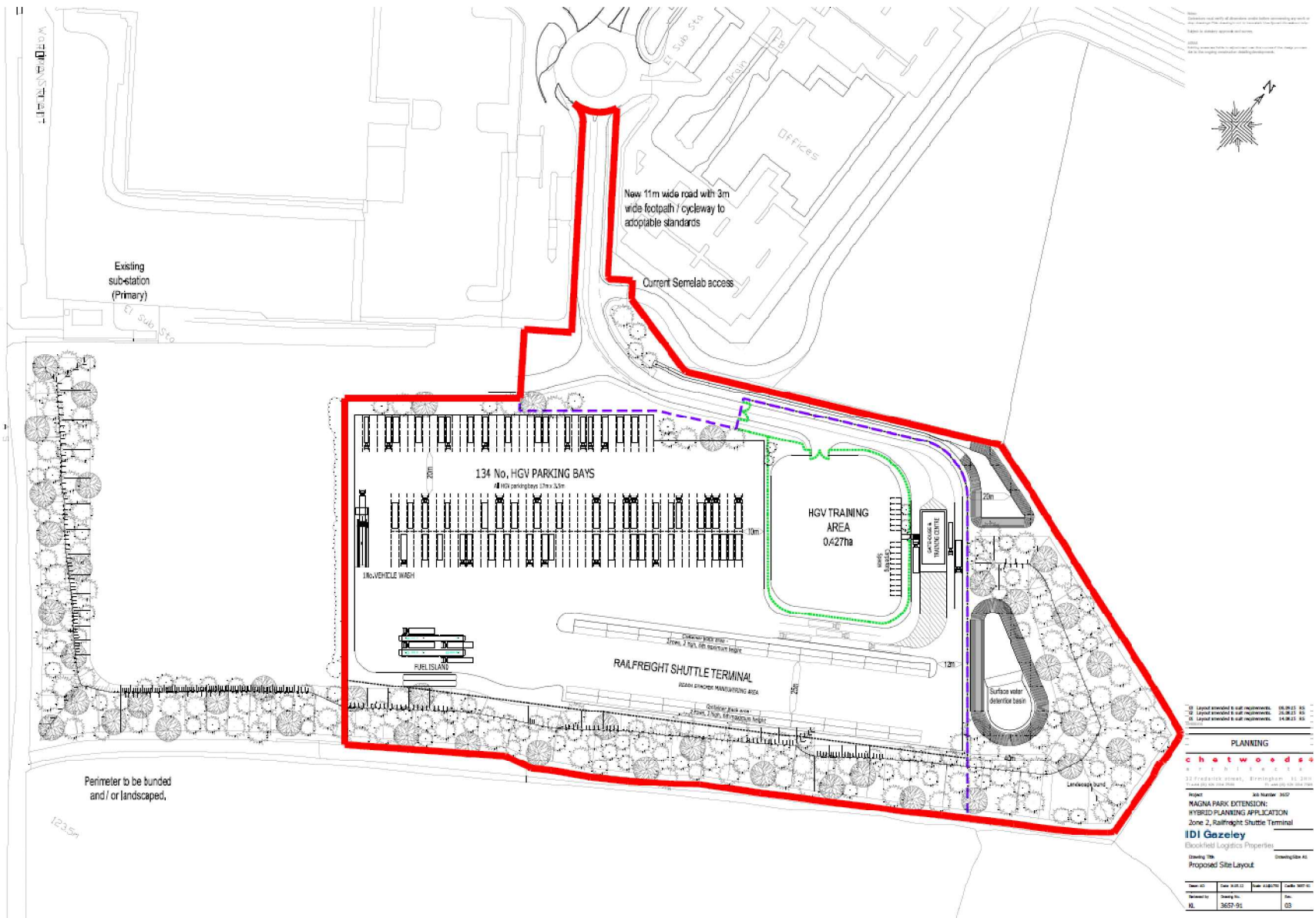
LEGEND	
	Site Boundary
	Dense Scrub (A2.1)
	Scattered Scrub (A2.2)
	Broadleaved Scattered Trees (A3.1)
SI	Poor Semi-Improved Grassland (B6)
	Running Water (G2)
	Tall ruderals (C3.1)
	Intact Species-Poor Hedgerow (J2.1.2)
	Fence (J2.4)
	Earth Bank (J2.8)
	Hardstanding (J4.1)
	Target Note

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TITLE:
Extended Phase 1 Habitat Survey
Magna Park Extension: Hybrid Application, Zone 2,
Railfreight Shuttle Terminal

DRAWN BY: DP	SCALE: Not to Scale	PROJECT NO: 14-0159.12
CHECKED BY: CB	REVISION: 1	FIGURE NO: 2
DATE: 14 September 2015		



1:10 Layout intended to suit requirements: 08.09.15 JS
 1:20 Layout intended to suit requirements: 20.08.15 JS
 1:50 Layout intended to suit requirements: 14.08.15 JS

PLANNING
chetwoods
 11 Woodcock Lane, Birmingham, B37 7YU
 Job Number: 3657
 Project: MAGNA PARK EXTENSION: HYBRID PLANNING APPLICATION Zone 2, Railfreight Shuttle Terminal
IDI Gezeley
 Blockfield Logistics Properties
 Drawing Title: Proposed Site Layout
 Drawing Size: A1

Drawn by:	Date:	Scale:	Check:
DP	14.09.15	Not to Scale	JS
Checked by:	Drawn by:	Revision:	Date:
JS	DP	1	14.09.15
Date:	14 September 2015		



TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Application, Zone 2,
 Railfreight Shuttle Terminal

DRAWN BY:	SCALE:	PROJECT NO:
DP	Not to Scale	14-0159.12
CHECKED BY:	REVISION:	FIGURE NO:
JS	1	3
DATE:	14 September 2015	





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Categorisation of Bat Roosting Potential – Trees

Bat Roost Potential	Description
Negligible	<p>An inspected tree which is considered to have no features of importance for roosting bats.</p> <p>No further constraints apply to the method or timing of proposed works.</p>
Low	<p>From the ground, the tree appears to have features (holes, cavities or cracks) that extend back into a cavity. Owing to the aspect, the feature may support singleton bats outside of hibernation.</p> <p>Alternatively, if no features are visible but owing to its size and age and structure, the tree is considered likely to have hidden features that only an elevated inspection may reveal.</p> <p>In respect of ivy cover, this is not dense (i.e. providing BRP in itself) but may mask the presence of BRP features.</p> <p>Emergence and activity surveys may be required.</p> <p>If following all surveys the feature remains categorised as low BRP, works typically proceed under supervision by an experienced bat worker, as a precautionary measure. For example, including a re-inspection immediately prior to works and sectioned felling of a tree. The requirements of Natural England European Protected Species licensing will be re-considered should bats or evidence of bat activity be identified during the supervision.</p>
Medium	<p>Features include holes, cracks, crevices that extend or appear to extend back to cavities suitable for bats.</p> <p>Alternatively, ivy cover is sufficiently well-established and matted so as to create potential crevices between the growth and the trunk.</p> <p>Emergence and activity surveys may be required.</p> <p>A Natural England European Protected Species (EPS) Licence is not required for works that affect unconfirmed roosts. However, if following all surveys the feature remains categorised as medium BRP, works should proceed only under supervision by a licensed bat worker following pre-agreed procedures. The requirements of Natural England European Protected Species licensing will be re-considered should bats or evidence of bat activity be identified during the watching brief.</p>
Confirmed Roost	<p>Bats or evidence of bats recorded – both of recent and/or historic activity. Emergence surveys will be required to qualify and quantify usage if such a feature is to be affected by proposed works.</p> <p>A Natural England European Protected Species (EPS) Licence is required for all works affecting features supporting confirmed roosts.</p>





Target Notes

Target Note 1 **A depression dominated by rushes**

Target Note 2 **An oak tree with a branch wound**

Target Note 3 **An ash tree with an ivy clad trunk**



**Magna Park Extension: Hybrid Application, Zone 2, Railfreight Shuttle Terminal
Delta-Simons Project No. 15-0720.12**



Photograph 1 – Improved grassland at the Site



Photograph 2 – On-Site drain

**Magna Park Extension: Hybrid Application, Zone 2, Railfreight Shuttle Terminal
Delta-Simons Project No. 15-0720.12**



Photograph 3 – Off-Site ditch



Photograph 4 – Depression dominated by rushes

**Magna Park Extension: Hybrid Application, Zone 2, Railfreight Shuttle Terminal
Delta-Simons Project No. 15-0720.12**




Photograph 5 – Oak tree with a branch wound



Photograph 6 – Ivy clad ash tree



LEGEND

 Site Boundary



Scale: 1 / 20,000 @ A4

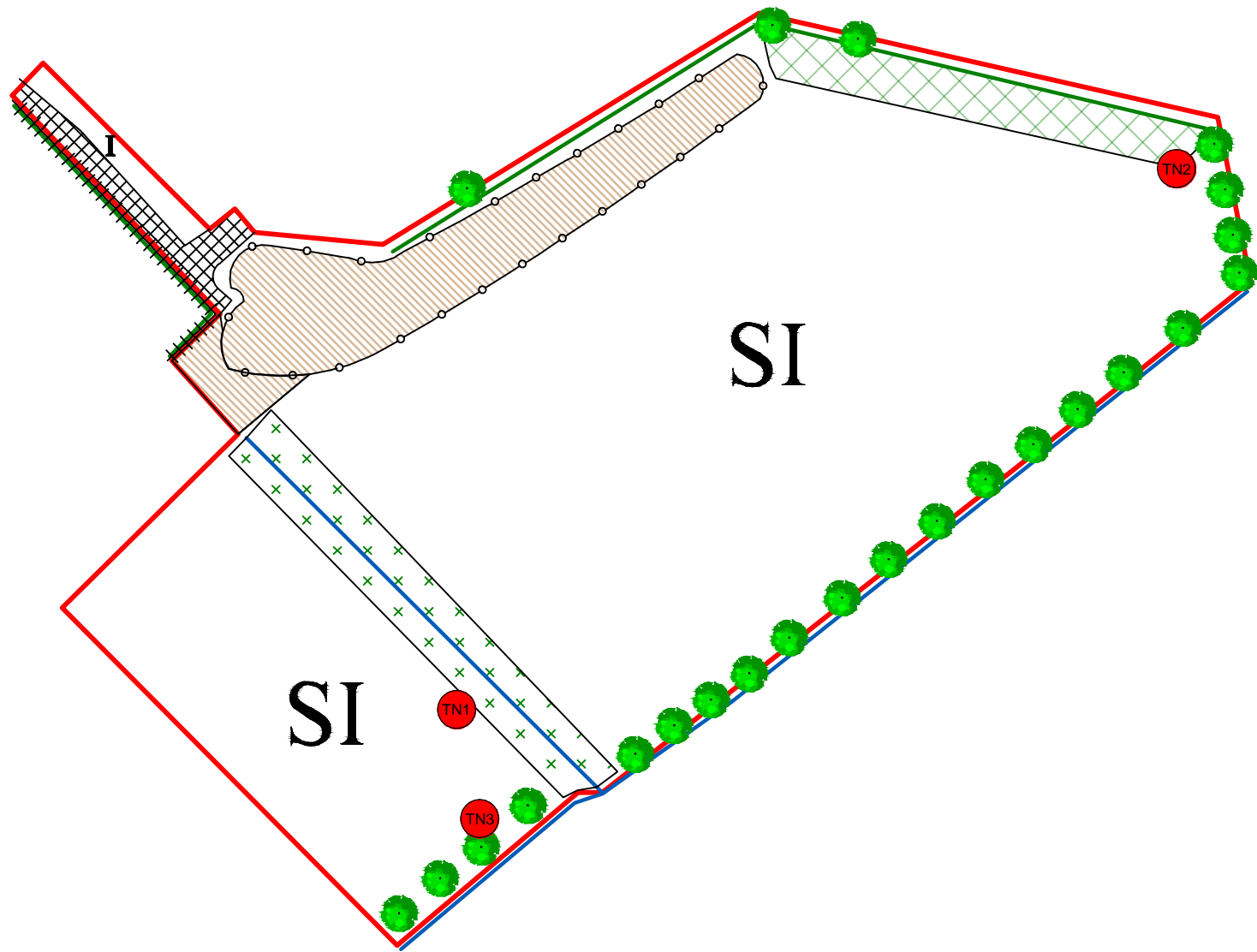
Ordnance Survey, (c) Crown Copyright 2015. All rights reserved.



TITLE:
Site Location Plan
 Magna Park Extension: Hybrid Application, Zone 2
 Railfreight Shuttle Terminal

DRAWN BY: DP	SCALE: To Scale @ A4
CHECKED BY: JS	REVISION: 1
DATE: 14 September 2015	

PROJECT NO: 14-0159.12
FIGURE NO: 1



LEGEND

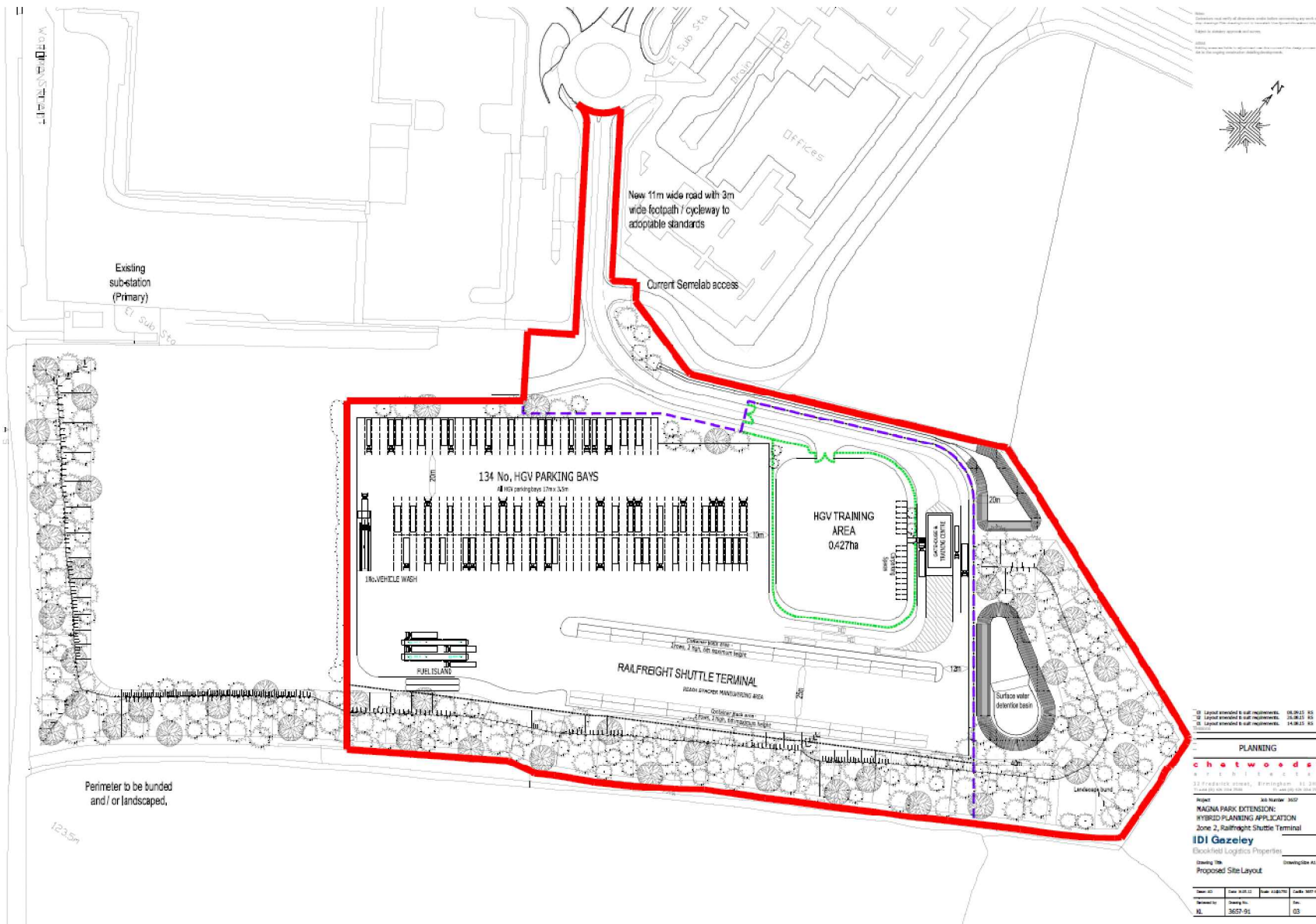
	Site Boundary
	Dense Scrub (A2.1)
	Scattered Scrub (A2.2)
	Broadleaved Scattered Trees (A3.1)
SI	Poor Semi-Improved Grassland (B6)
	Running Water (G2)
	Tall ruderals (C3.1)
	Intact Species-Poor Hedgerow (J2.1.2)
	Fence (J2.4)
	Earth Bank (J2.8)
	Hardstanding (J4.1)
	Target Note

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TITLE:
 Extended Phase 1 Habitat Survey
 Magna Park Extension: Hybrid Application, Zone 2,
 Railfreight Shuttle Terminal

DRAWN BY: DP	SCALE: Not to Scale	PROJECT NO: 14-0159.12
CHECKED BY: CB	REVISION: 1	FIGURE NO: 2
DATE: 14 September 2015		



10	Layout extended to suit requirements	08.09.15	JS
20	Layout extended to suit requirements	23.08.15	JS
30	Layout extended to suit requirements	14.08.15	JS

PLANNING

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Project Job Number: 3657
 Magna Park Extension: Hybrid Planning Application
 Zone 2, Railfreight Shuttle Terminal
IDI Gezeley
 Blockfield Logistics Properties
 Drawing Title: Proposed Site Layout
 Drawing Size: A1

Drawn by:	DP	Date:	14.09.15	Scale:	1:1000	Check:	JS
Checked by:	JS	Drawn by:	DP	Scale:	1:1000	Check:	JS
Date:	14.09.15	Drawn by:	DP	Scale:	1:1000	Check:	JS



TITLE:
Proposed Development Plan
Magna Park Extension: Hybrid Application, Zone 2,
Railfreight Shuttle Terminal

DRAWN BY:	DP	SCALE:	Not to Scale
CHECKED BY:	JS	REVISION:	1
DATE:	14 September 2015		

PROJECT NO:
14-0159.12

FIGURE NO:
3



Appendix I-3: Bat Habitat Assessment

Magna Park Extension: Hybrid Extension, Zone 1

For IDI Gazeley

Delta-Simons Project No. 14-0159.03

Issued: September 2015

EXECUTIVE SUMMARY
APPENDIX I – 3: BAT HABITAT ASSESSMENT
MAGNA PARK EXTENSION: HYBRID EXTENSION, ZONE 1
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.03

Purpose	Delta-Simons Environmental Consultants Ltd was instructed by IDI Gazeley ('the Client') to undertake a Bat Habitat Assessment of an area of land situated off Mere Lane to the west of Lutterworth in Leicestershire, which forms Zone 1 of the proposed development ('the Site'). The survey was undertaken over a period of four days in September and December 2014. Both the habitat suitability for bats at the Site, and any potential roosting sites for bats were assessed during the survey. The survey was undertaken in order to inform a planning application for the Site.
Current Site Status	The Site comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.
Proposed Development	An outline planning application will be submitted for up to 427,350 square metres (m ²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m ² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m ² , an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m ² , Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m ² , and an Innovation Centre of up to 2,325 m ² . The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.
Results:	A total of 24 buildings were assessed for their potential to support roosting bats. Of these, 18 will require further bat activity surveys as these buildings have a number of features, including lifted roof tiles, gaps between bricks and woodwork and roof voids, with potential to support roosting bats. Their suitability was

	<p>assessed to vary from low to high Bat Roost Potential (BRP). Evidence of both previous summer roosting pipistrelle bats and brown long-eared bats was recorded during the assessments.</p> <p>Three disused tunnels underneath the dismantled railway cutting were assessed and found to have medium BRP, and also to have the potential to support bats in hibernation.</p> <p>All semi-mature and mature trees at the Site were assessed for their suitability to support roosting bats. A total of 44 trees were assessed as having a low to medium BRP.</p> <p>The Site provides suitable roosting, commuting and foraging habitat to support a range of bat species with differing habitat requirements. There are suitable hedgerows and strips of plantation woodland to provide commuting routes in between roosting sites and foraging areas, including the hedgerows themselves, woodland and grassland at the Site. The overall habitat value in relation to bats has been evaluated to be of medium value.</p>
<p>Recommendations</p>	<p><u>Recommendation 1 (Bat Activity Transects)</u> Due to the size of the Site and the habitat quality, bat transect surveys, each comprising a dusk and a dawn survey, should be undertaken of the key areas of habitat at the Site for bats once a month, from April to September, to gain an understanding of how bats utilise the Site.</p> <p><u>Recommendation 2 (Nocturnal Bat Surveys)</u> It is recommended that nocturnal surveys are undertaken of all buildings and trees at the Site assessed as having at minimum low BRP, in order to determine the presence or likely absence of roosting bats. The nocturnal bat surveys should be undertaken during the peak active bat season (from May-August, inclusive). Where appropriate, static bat recorders will be left in/ within close proximity to, potential roost sites to provide supplementary data on bat activity over a period of days or weeks. If a bat roost is found a total of three surveys would be required to inform a European Protected Species Licence (EPSL) application to Natural England that would enable the building to be lawfully demolished.</p> <p><u>Recommendation 3 (Hibernation Survey)</u> It is recommended that a further internal assessment of the garages at Bittesby House, the ground floor of the old barn within Bittesby House yard and two of the tunnels beneath the old railway line are undertaken as they offer suitable conditions for hibernating bats. The hibernation surveys are being undertaken during the hibernation period (from December – February inclusive) by a Natural England licenced bat surveyor. If hibernating bats are found an EPSL application will be required to be made to Natural England to enable any works to the tunnels to be undertaken lawfully.</p> <p><u>Recommendation 4 (Mitigation and Enhancement)</u> The results of the ongoing bat surveys will be utilised to inform the plans being prepared by the landscape design team, and the lighting team for the project, to ensure a more robust and pragmatic mitigation strategy for the proposed development. In general, this will include:</p> <ul style="list-style-type: none"> △ Artificial roost provision – these could be bat boxes attached to trees or buildings, or alternatively roosts built into new structures to support a range of different bat species occurring locally;

	<ul style="list-style-type: none">△ Foraging and commuting habitat retention and enhancement and/ or creation; and△ Sensitive lighting design – artificial lighting will be minimised as much as possible. <p>The results of the surveys will be used to inform the requirement for the above.</p>
<p>This Bat Habitat Assessment Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This Executive Summary should be read in conjunction with the full report.</p>	

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APPENDIX I-3: BAT HABITAT ASSESSMENT
MAGNA PARK EXTENSION: HYBRIS APPLICATION, ZONE 1
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.03

1.0 INTRODUCTION

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was instructed by IDI Gazeley ('the Client') to undertake a Bat Habitat Assessment. The survey was undertaken of land off Mere Lane to the west of Lutterworth in Leicestershire, that forms Zone 1 of the proposed development(hereafter referred to as the "Site"). The Site Location is shown in Figure 1. The survey was undertaken in order to inform a planning application for the Site.

The aim of the Bat Habitat Assessment was:

- △ To determine the Bat Roost Potential (BRP) of any suitable features, such as buildings and trees, within and close to the Site Boundary;
- △ To highlight any habitat features which may provide optimal bat foraging habitat;
- △ To identify the presence of any linkages from habitat present within the Site boundary to possible high value habitats located outside of the development area;
- △ To determine the requirement for further bat surveys, such as activity transect surveys, remote detector surveys and/ or targeted dusk emergence and dawn re-entry surveys to better inform the use of the Site by bat species; and
- △ To provide recommendations for working methodologies, further surveys and/ or the need for a European Protected Species Licence (EPSL) from Natural England in light of the survey results.

1.2 Site Description

Zone 1, is an approximately 220 ha triangular parcel of predominantly agricultural land to the north and north-west of Magna Park, Lutterworth. Zone 1 is linked to and extends Magna Park. Its boundaries are created by the A5 to the south and west, Mere Lane to the east and the ridgeline hedgerows that follow the parish boundary to the north.

It comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.

The Site layout is shown in Figure 2.

1.3 Proposed Development

An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m², Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

The proposed development plan is included as Figure 3.

2.0 LEGISLATION

2.1 Bats

All bats and their roosts are protected under Section 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended) and Annex IV of the Habitats and Species Regulations 2010 (as amended).

It is an offence, either deliberately or recklessly, to destroy, damage or obstruct access to any bat roost, or to disturb a bat using such a place. It should be noted that a roost is protected whether or not bats are present and any activity or works affecting a roost, even when bats are absent, is likely to require a European Protected Species Licence from Natural England.

2.2 Planning

The Office of the Deputy Prime Minister (ODPM) Circular (2005) advises that ecological surveys are undertaken before planning permission is determined. The circular states *“The need to ensure that ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances”* (see References, Appendix I).

3.0 METHODOLOGY

3.1 Data Search

The results of the 3 km data search received from the Leicestershire and Rutland Environmental Records Centre (LRERC) and the Warwickshire Biological Records Centre (WBRC), for the initial Extended Phase 1 Habitat Survey (Delta-Simons Project no. 14-0159.02), were reviewed for all bat records within the search area.

In addition, a search for designated sites for nature conservation for bats on, or within 10 km of, the Site was performed using the Multi-Agency Geographic Information for the Countryside (MAGIC).

3.2 Bat Survey

BRP Assessment - Buildings

A building assessment was undertaken with reference to the guidelines specified within Natural England's Bat Mitigation Guidelines, 2004, and the Bat Conservation Trust (BCT) Guidelines, 2012. The suitability of the buildings to support roosting bats was then categorised (See also Appendix II - categorisation of bat roosting potential – Buildings).

The exterior of all buildings on the Site were visually assessed for potential bat access points and evidence of bat activity, using binoculars and a high powered torch (Clulite CB2), where necessary. Features, such as small gaps/ crevices beneath eaves, along the ridges or within the brick work; lifted or missing roofing materials; or gaps around doorways and broken windows which had potential as bat access points into the building were sought. Evidence that these potential access points were actively used by bats typically would include staining within gaps and/ or bat droppings or urine staining under gaps and/ or on walls. These signs were recorded wherever they were present. The presence of cobwebs and general detritus within the features were also recorded as these indicate that potential access points were likely to be inactive.

The interior of all accessible buildings was assessed for evidence of bat activity, or signs of BRP. Particular evidence, including droppings and urine staining, was sought beneath features that bats may use for roosting and/ or as an access point. Features included gaps within mortise joints, above beams and lintels and gaps within walls. The presence of a bat roost is typically indicated by the presence of live/ dead bats, a concentration of,

or scattered bat droppings, food remains, for example moth wings, scratch marks, fur, or urine stains.

A high-powered torch, bat detector, binoculars and endoscope were used as required during the internal surveys.

BRP Assessment – Trees

All of the trees on the Site were assessed for their potential to support a bat roost (see Appendix III for categorisation of bat roosting potential - trees). Binoculars were used to examine the trees for suitable features to support bats such as cracks, crevices and hollows in the trunks or branches as a result of decay, weathering or pruning. These are all features more commonly associated with mature or semi-mature trees. Furthermore, these features can be concealed by ivy *Hedera helix*, or dense woody ivy can itself provide the necessary features to support an occasional bat roost.

Any trees that had features suitable to support a bat roost were also checked for signs of bats, such as droppings, scratch marks and staining around possible entrance holes. All tree inspections were undertaken by visual observation, aided by binoculars, from ground level.

Suitability of the Site to Support Bats

The Bat Survey Guidelines (BCT, 2012) state that there are no clearly defined categories of habitat value, rather a continuum from low to high value for bats. High value habitat for bats would include woodland edges, deciduous/mixed woodland, waterbodies and linear features (woodland edges, hedgerows, treelines, rivers, ditches).

An assessment of habitats both within and beyond the Site boundary was undertaken to identify potential commuting/ foraging corridors and suitable foraging sites. This enabled the suitability of the wider area for bats to be determined, as well as the accessibility of the Site to bats.

Details of the Surveyors and Surveys

The survey was undertaken by the following ecologists:

- △ Jonathan Spencer, Senior Ecologist (Natural England licence number: CLS00506 Class Survey Licence WML CL18 (Bat Survey Level 2));

- △ Charlotte Sanderson, Ecology Unit Manager (Natural England licence number: CLS01014 Class Survey Licence WML CL18 (Bat Survey Level 2));
- △ Jennifer Britt Ecologist, (Natural England licence number: CLS01304 Class Survey Licence WML CL18 (Bat Survey Level 2)); and
- △ Henry Louth, Ecological Assistant.

Table 1 below details the full survey timings and weather conditions:

Table 1 - Timings and Weather Conditions of Bat Surveys

Survey	Date	Timing	Weather
Initial tree and habitat assessment	16/09/2014	10:00 – 16:00	20°C, dry, clear skies
1 st Building assessment (Bittersby House)	25/09/2014	10:00 – 12:00	14°C, dry overcast, slight breeze
2 nd Building assessment (Bittesby House associated buildings)	30/09/2014	10:00 – 15:00	18°C, dry clear skies, slight breeze
3 rd Building assessment (Bittesby Farm and Bittesby Cottage)	05/12/2014	10:00 – 12:00	5°C, dry overcast, slight breeze
4 th Building assessment (Lodge Cottage and Emmanuel Cottage)	26/02/2015	10:30 – 12:30	9°C, raining overcast, windy

4.0 RESULTS

4.1 Data Search

A review of the data search, undertaken by the LRERC and WBRC during the Extended Phase 1 Habitat Survey was undertaken. The LRERC returned a total of 24 bat records ranging from 1986 to 2009 within 3 km of the Site centre. Records over 10 years old were excluded from the review as they are not considered to depict an accurate representation of bat activity in the local area. There were 19 records of bat roosts, the most recent and closest roost records to the Site are shown in Table 2, with all recent record being from 2009. Only common pipistrelle *Pipistrellus pipistrellus*, Brown Long-Eared (BLE) bat *Plecotus auritus* and Natterer's bat *Myotis nattereri* were identified to species level.

Table 2 – Most recent roost records from LRERC

Species	Date	Record Type	Distance in km and Direction (from nearest Site boundary)
Unidentified	2009	Roost	2 km - north
Common Pipistrelle	2009	Roost: maternity	1 km - north
Natterer's Bat	2009	Roost	1.15 km - north
Pipistrelle species	2009	Roost	1.15 km - north
BLE	2009	Roost	1.15 km - north
BLE	2009	Roost	1.25 km - north
Pipistrelle species	2009	Roost	1.8 km - north
Unidentified	2009	Roost	1.3 km - north
Unidentified	2009	Roost	0.27 km - north
Unidentified	2009	Roost	0.27 km - north
Common Pipistrelle	2009	Roost	0.27 km - north
Common Pipistrelle	2009	Roost	0.27 km - north

A total of 12 bat roosts have been recorded within the last 10 years. The closest records of roosting bats are of common pipistrelle and an unidentified bat species that are 500 m north-west of the Site, south of Ullesthorpe village. Noctule bats *Nyctalus noctula* have been recorded over a field within 500 m from the northern Site boundary.

The WBRC did not return any recent records of bats roosts within 3 km of the Site centre. A review of the MAGIC data search revealed that there are no statutory or non-statutory designated sites on or within immediate proximity to the Site that are designated for bats,

nor are there any statutorily designated sites within a 10 km radius of the Site centre that are designated for these species.

4.2 Bat Roost Potential Assessment

4.2.1 Bat Roost Potential – Buildings

Table 3 summarises the BRP of Bittesby Cottages, Emmanuel Cottage, and Lodge Cottage and associated outbuildings, and outlines the features that have contributed to their BRP rating. The location of the buildings assessed are shown in Figures 4a and 4b, and further details and photographs are shown in Appendix IV.

Table 3 Bat Roost Potential Survey Results – Buildings, Bittesby House

Building	Roost Potential Category	Notes
Bittesby House	High	<p>Potential roosting features recorded included lifted roof tiles, gaps between window frames and brick work, gaps under lead flashing and gaps under fascia boards.</p> <p>The main roof void was divided into three separate rooms. A number of recent and old bat droppings (<i>Pipistrelle</i> sp.) were recorded within the roof void. A cellar was present, no evidence of bats was observed. The heating boiler was located within the cellar which may cause temperature fluctuations, therefore, resulting in unsuitable conditions.</p>
The Cottage	Medium	<p>Several lifted roof tiles and missing mortar from the ridge tiles, gaps in brick work under the guttering. Lifted lead flashing was noted at the base of chimney on the eastern aspect. Gaps noted under roof tiles on the eastern gable end. The northern aspect was densely vegetated covering 85 % of the building and roof. Old bat droppings were found on window glass pane, not identified to species level.</p> <p>A large amount of cobwebs and dust was recorded throughout the roof void. There was roof felting on the southern aspect, therefore, a possibility for bats to roost between the felting and roof tiles. On the northern aspect the tiles were exposed with gaps evident, therefore, allowing bats to access the roof void.</p>
Garages	Medium	<p>Three single storey terraced brick garages adjoin the northern aspect of the Cottage. The roof was pitched and tiled with several lifted tiles, gaps above doors and in brick work to allow access to the first garage.</p> <p>Butterfly wings of various ages, including recently deposited ones, were found within the first and third garage indicating possible BLE foraging perch, or potential roosting site. The third garage had wooden panels attached to the interior brick walls, with gaps underneath allowing access into this cavity.</p>
The Stables	Medium	<p>A mixture of single and two storey buildings. Brick work was well sealed, however, some gaps were present where the roof met the</p>

		brick work. All the roofs were tiled and pitched, several tiles were cracked and lifted on the single storey. On the two storey extension several roof tiles were missing as was some of the mortar beneath the ridge. Recently refurbished offering no potential roosting for bats internally.
Old Stables	Medium	Adjoining the converted stables on the northern side. The long two storey building offered suitable roosting opportunity as there were appropriate roosting features located on the ground floor with gaps in wooden beams and brick work, also several butterfly wings were recorded. First floor again offered suitable roosting as it resembled a large roof void opening on the northern gable end allowing bats to access the roof void. The stables on the western side again offered potential for roosting bats due to loose and cracked roof tiles, with cracks in brick work and beams internally.
Small buildings	Medium	Small brick stables attached to the large modern barn. One was not accessible but did provide suitable roosting opportunities as roof pitched and gaps within tile and brick work. Only the building adjoining the barn could be accessed. Large amount of rubbish within the building. Hole in the roof had created damp conditions internally and allowed light in, lowering suitability for bats.
Out building	Low	Small brick shed adjacent to Bittesby House. Access was not obtained. However, it appeared to be in good condition with no gaps between tiles or missing mortar from the brickwork.
Barn	Negligible	Modern barn constructed out of breeze blocks with metal panelling. No potential roosting features present.
Bike shelter	Negligible	No suitable features observed. Light and exposed to draughts throughout.
Lodge Cottage	High	<p>Currently under refurbishment such that the brickwork had recently been repointed. The roof was pitched and tiled, and appeared to be in generally good condition, however, some gaps under ridge tiles were noted and also under the eaves.</p> <p>A number of recent and old pipistrelle and BLE bat droppings were recorded on top of the loft insulation directly below wooden beams, and also at the base of the brickwork. Also bat droppings of both species were recorded scattered throughout the roof void in small numbers, indicating bats had flown within these areas. A possible BLE bat feeding perch was recorded due to a large deposit of insect wings and droppings located in a single location below the wall</p>
Emmanuel Cottage	Low	<p>The roof was pitched and tiled and appeared to be in generally good condition, however, some gaps under ridge tiles were noted and also under the eaves.</p> <p>No evidence of bat roosting was recorded within the roof void. A large amount of cobwebs were noted on some of the beams. The roof was felted, no access holes were observed, however there was potential for bats to roost between the tiles and felting.</p>
Metal Barn	Negligible	<p>Large barn constructed from breeze blocks and corrugated metal sheeting, which offered limited roosting potential for bats</p> <p>No internal access was gained at the time of the BRP</p>
Wooden shed	Low	Small wooden shed located next to the metal barn. Limited potential apart from gaps under the fascia boarding. No evidence of bats recorded internally nor externally.

Summer House	Low	Small wooden summer house located adjacent to a large pond. Limited potential, apart from gaps under the fascia boarding on the gable ends. No evidence of bats recorded internally nor externally.
Work shed	Negligible	Breeze block with metal shutter doors. The roof was pitched and tiled, the tiles appear well-sealed with no gaps present. No internal access was gained at the time of the BRP

Table 4 summarises the BRP of buildings that were assessed at Bittesby Farm and Bittesby Cottage and outlines the features that have contributed to the BRP rating. The location of the buildings assessed are shown on Figure 4a, and Bittesby Cottage are shown in Figure 4c, whilst further details and photographs are found in Appendix IV.

Table 4 - Bat Roost Potential Survey Results – Buildings, Bittesby Farm

Building	Roost Potential Category	Notes
Bittesby Cottages	Medium	Two converted brick-built cottages. Brick work appeared to be in good condition with no missing mortar, roof was pitched and tiled with some gaps present. Gaps were evident behind the soffit boxes. No evidence of bats found in the roof void. However, beneath the tiles roofing felt was present, allowing bats to roost between the tiles and felt.
Shed	Low	Brick-built outbuilding with several rooms. Roof was pitched and tiled. Potential access for bats through gaps around the doors and beneath the roof tiles.
Reception	Medium	Converted brick-built barn, brick work appears to be well sealed with no cracks evident. The roof was tiled and pitched, several lifted tiles were noted. A possible bat dropping was noted below the south-eastern soffit box, in an area that could not be accessed fully at the time of the survey. The building had recently been refurbished such that the roof void was not suitable for roosting bats due to thick insulation immediately below the roof such that bats could not access the void.
Office	Low	Converted hay barn with a suspected pitched asbestos cement sheeted roof. Several gap noted underneath the ridge tiles. Gaps in the mortar on the western aspect. There does not appear to be a roof void due to recent refurbishment.
Prefabricated Office	Negligible	No obvious features present and the roof appeared to be flat. There appeared to be a number of gaps present under barge boards.
Barn 1	Low	Double barn with one part constructed from bricks and suspected corrugated asbestos, the second part constructed from wooden boarding. Both provided suitable gaps between the wooden boarding and possible asbestos cement panels for roosting bats. Internal access was not permitted at the time of survey
Barn 2	Low	Large barn constructed from cinder blocks and corrugated asbestos panels and roofing providing potential small crevices. Internal access was not permitted at the time of survey.

Barn 3	Low	Large barn constructed from cinder blocks and corrugated asbestos panels and roofing providing potential small crevices. Internally it appears that the barn had been converted for private functions with lighting and display systems present.
Barn 4	Negligible	Converted livestock shed, fully open to inclement weather on the eastern aspect. Limited roosting potential for bats.

Suitability of the Buildings for Hibernating Bats

Given that Bittesby House and the Stables are currently in use for commercial business, it is anticipated that these do not offer suitable conditions to accommodate hibernating bats as the buildings will be prone to temperature fluctuations through the winter months. The small building adjoined to the Cottage, the first floor of the old barns and two of the garages offer suitable hibernating conditions for various bat species. Bittesby Cottage and the buildings located within the Bittesby Farm complex, and Lodge and Emmanuel Cottages do not offer any hibernation potential as they are all currently in use for commercial and residential use, and do not provide stable low temperatures through the winter months.

4.2.2 Structures

Table 5 summarises the BRP identified within structures other than buildings or trees that were assessed at the Site, and outlines the features that have contributed to the outcome of the BRP assessment. The location of structures assessed in Table 5 are shown on Figure 5, and further details are in Appendix V.

Table 5 – Bat Roost Potential Survey Results – Structures

Structure Reference	Roost Potential Rating	Features/ Comments
Tunnel S1	Medium	Headwall and abutments constructed from bricks and mortar. Gaps between mortar and bricks on both northern and southern aspects. No evidence to indicate previous bat roosting recorded at the time of the survey.
Tunnel S2	Medium	Smaller tunnel underneath dismantled railway. Gaps between mortar and bricks noted on both northern and southern aspects, missing bricks and mortar within the tunnel. No evidence to indicate previous bat roosting recorded at the time of the survey
Tunnel S3	Medium	Secluded tunnel entrance on southern bank of the dismantled railway. The tunnel was blocked off half way through, and a crack in the brick work of the tunnel arch was noted. No evidence to indicate previous bat roosting recorded at the time of the survey.

There is potential for all three tunnels to support hibernating bats, and in particular S3, as this is in a more secluded location and offers more shelter.

4.2.3 BRP Assessment Results - Trees

A total of 47 trees were assessed for their potential to support bat roosting sites. A summary of the number of trees falling within each BRP category is provided in Table 6 below.

Table 6 - Bat Roost Potential Survey Results – Trees

Roost Potential Category	Number of Trees
High	0
Medium	26
Low	18
Negligible	3
Total Trees	47

The location of trees assessed in Table 6, and their BRP results, are shown on Figure 5 and further details are given in Appendix VI.

4.2.4 Bat Commuting and Foraging Habitat

The main bat foraging habitat present at the Site was assessed to be the network of hedgerows and drainage ditches, which connect the agricultural land, woodland and waterbodies to buildings at Bittesby House and Bittesby Farm, but also on-Site features to the wider area, and potential roost sites within off-Site local farmsteads and buildings within surrounding hamlets and villages. The hedgerows, drainage ditches and small plantation woodlands are considered to provide good foraging and commuting habitat due to their linear nature, the shelter they offer, and abundance of invertebrates that are attracted to the plants and/ or water present. The hedgerows, plantations and drainage ditches are shown in Figure 2, as part of the Phase 1 Habitat Map.

There are several waterbodies within the Site boundary but also beyond, located within the immediate surrounding habitats. These waterbodies will provide good foraging opportunities for a range of bat species that are attracted to the invertebrates they will support, and two of these waterbodies are located in proximity to Bittesby House and Bittesby Farm, and associated buildings.

The arable fields which make up the majority of the on-Site habitats provide sub-optimal foraging habitat for species such as common pipistrelle and soprano pipistrelle (BCT, 2012), which are widely occurring species with less specific habitat requirements than those of other species.

The wider countryside offers reasonable habitat for roosting and foraging/ commuting bats, being largely arable farmland with hedgerows, mature trees and limited areas of woodland habitat, along with agricultural and residential buildings.

The foraging habitats together with the roosting habitats within the Site boundary are assessed as being of medium value to bats within the local area.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The results of the desk search from the LRERC search indicate that there are/ have been numerous bat roost sites within 3 km of the Site centre, especially to the north of the Site. Several BLE and common pipistrelle roosts were located predominately in the village of Ullesthorpe, situated 1.15 km to the north of the Site. The closest recorded roost (common pipistrelle) was located 270 m to the north of the Site. No recent roosting records were obtained from the WBRC. These roost sites are all within commuting distance of the Site boundary, and bats from these roosts may utilise the Site for foraging.

Bittesby House and eight of the surrounding buildings will require further nocturnal bat surveys as all of the buildings have a number of features (lifted roof tiles, gaps between bricks and woodwork and roof voids) to support roosting bats. Evidence of roosting pipistrelles, and possible foraging remains from BLE bats, were observed during the assessment. Bittersby Cottage and six buildings located at Bittesby Farm will require further nocturnal bat surveys. No evidence of roosting bats was found, however, a possible bat dropping was recorded on the wall below the south western gable end of the Reception building.

Three disused tunnels underneath the dismantled railway will require further survey as they were assessed to have medium BRP. In addition, two have been assessed as potential hibernation sites and will require hibernation checks.

A total of 44 trees assessed to have low or medium BRP will require further nocturnal bat surveys.

The Site was assessed as providing medium value to bats given the quality of potential commuting, foraging and roosting habitat. Potential roost sites identified included buildings, disused railway tunnels and trees. The hedgerows, trees, drainage ditches and waterbodies on-Site provide commuting and foraging habitat for bats at the Site that adjoin to a continuation of suitable habitats within the wider area.

5.2 Recommendations

Recommendation 1 (Bat Activity Transects)

The Site has been evaluated as having a medium habitat suitability with regards to bats and, due to the size of the Site and the extent of the proposed development proposals, it is recommended in accordance with the BCT guidelines that bat transect surveys are completed. They will each comprise either a dusk or a dawn survey, apart from the July transects which comprise of both, and should be undertaken at the Site once a month, from April to September, to gain an understanding of how bats utilise the Site by building up a picture of the distribution and intensity of bat activity (spatially and temporally), the type of activity, such as foraging (feeding buzzes), commuting (high direct pass rates) and direction of travel. Where necessary, static bat recorders will be deployed to supplement the survey effort as they can be left in a location for set periods of time (days-weeks) to record bat activity. Numbers of/ timing of bat passes can be used to infer, or determine, the presence of a roost site i.e. bats returning to, or emerging from a roost site. The results of these transects will help inform any future recommendations and mitigation, if required.

Recommendation 2 (Nocturnal Bat Surveys)

It is recommended that nocturnal surveys are undertaken of the buildings and trees at the Site that have been assessed as having low- high BRP, in order to determine the presence or likely absence of roosting bats. The nocturnal bat surveys should be undertaken during the peak active bat season (from May-August inclusive). Where necessary, static bat recorders will be left in/ within close proximity to, potential roost sites to provide supplementary data on bat activity over a period of days or weeks. If a bat roost is found, a total of three surveys are required to inform an EPSL application to Natural England that would enable the building/ tree to be lawfully demolished/ felled. An EPSL cannot be obtained until full planning permission has been granted for the Site.

Recommendation 3 (Hibernation Surveys)

It is recommended that a further internal assessment of the garages at Bittesby House, the ground floor of the old barn within Bittesby House yard, and two of the tunnels beneath the railway line (S2 and S3, Figure 5) are undertaken, as they offer suitable conditions for hibernating bats. Tunnel S1 will not require hibernation surveys as this tunnel is too exposed to windy and wet conditions that will result in temperature and humidity fluctuations. The hibernation surveys are being undertaken during the peak hibernation

period (from December – February inclusive) by a Natural England licenced bat surveyor. If hibernating bats are found, an EPSL application to Natural England will be required to enable any works to be undertaken to the tunnels lawfully.

Recommendation 4 (Mitigation and Enhancement)

General mitigation and enhancement measures for bats should be considered for incorporation into the design of the proposed development. The results of the on-going bat surveys will be utilised to inform the plans being prepared by the landscape design team, and the lighting team for the project, to ensure a more robust and pragmatic mitigation strategy for the proposed development. In general, this will include:

- △ Artificial roost provision – A combination of bat boxes attached to trees or buildings or built into new structures to support a range of different bat species occurring in the local area;
- △ Foraging and commuting habitat retention/ creation – As part of this project it is noted that large areas of predominantly agricultural land are proposed for development and, therefore, should any habitat considered valuable to bats be due to be lost, such as hedgerows, that provide potential foraging and commuting corridors across the Site, they will be compensated for by the inclusion of new hedgerows and/ or corridors of linear planting. The ecologists will advise on the planting scheme to ensure that native nectar/ berry rich species are included that will support a wide range of invertebrate species to ensure benefits to foraging bats are maximised. In addition, supplementary planting of vegetation corridors through the development that are to be retained, such as the railway embankment, will benefit bats; and
- △ Sensitive lighting design – artificial lighting will be minimised as much as possible. Where lighting is required, such as street and security lighting, the design should take into account the recommendations set out in *Bats and Lighting* (BCT and ILE, 2009).

The results of the afore recommended bat surveys will help inform the above to ensure a pragmatic and robust mitigation strategy for the proposed development.

6.0 LIMITATIONS

The behaviour of animals can be unpredictable and may not conform to characteristics recorded in current scientific literature. This Report, therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 4 of this Report, exercising the duty of care required of an experienced Ecology Consultant. Delta-Simons does not warranty or guarantee that the Site is free of Bats or other protected species.

No part of the survey included an assessment of the materials and conditions of the building. No part of the survey included an asbestos assessment, nor did it represent an appraisal of other deleterious materials or hazardous substances.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

This Report was prepared by:



Jonathan Spencer
Senior Ecologist

15/09/15
Date

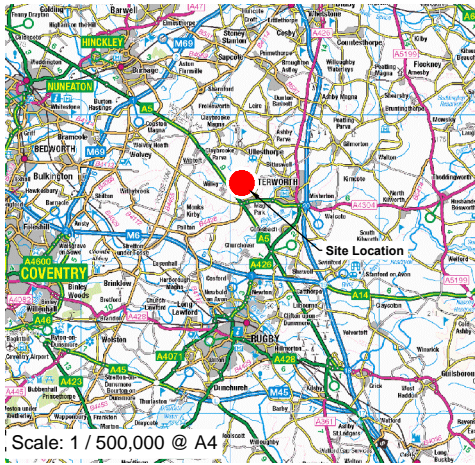
This Report was reviewed and authorised by:




Charlotte Sanderson
Ecology Unit Manager

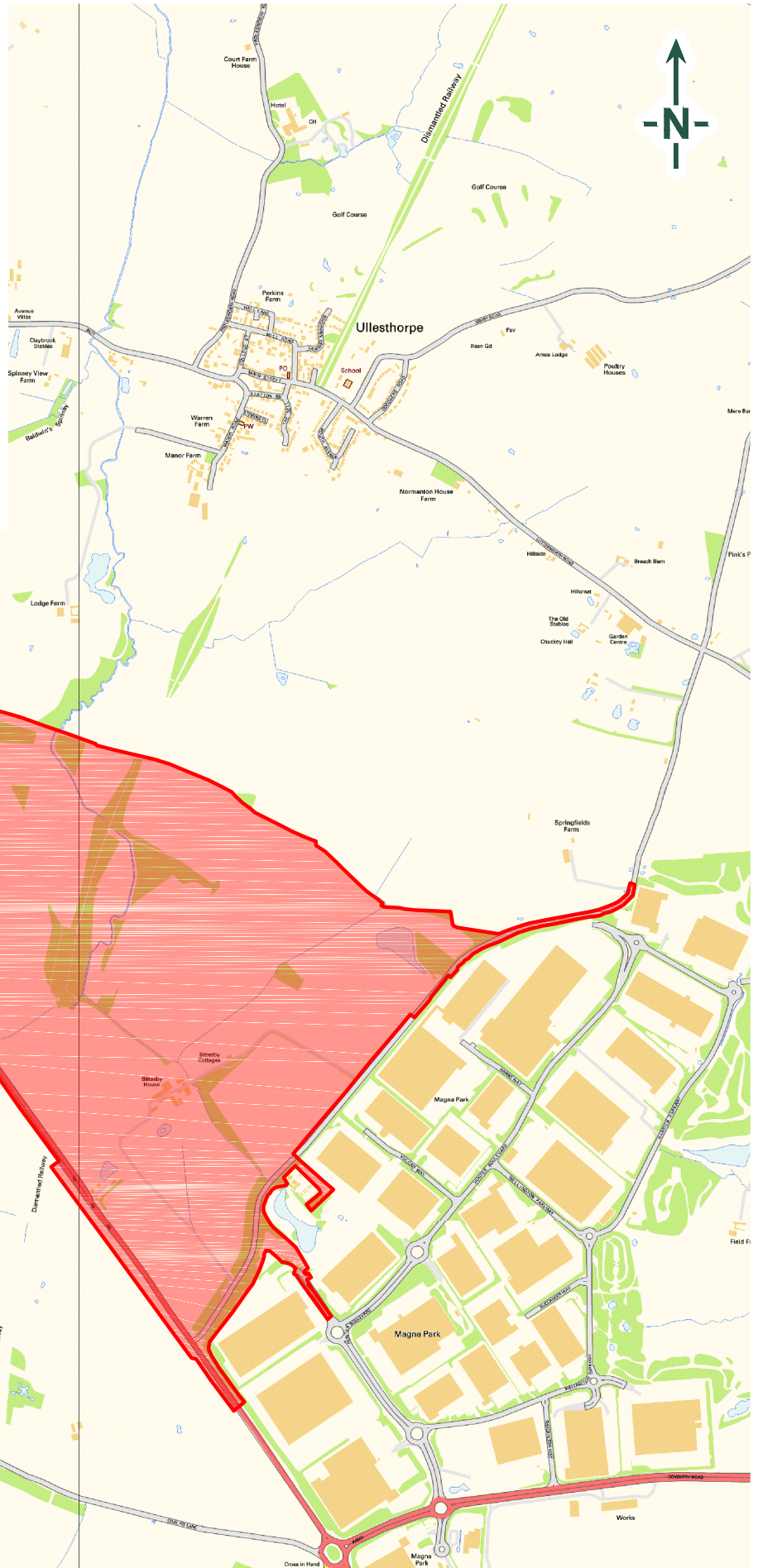
15/09/15
Date





LEGEND

 Site Boundary



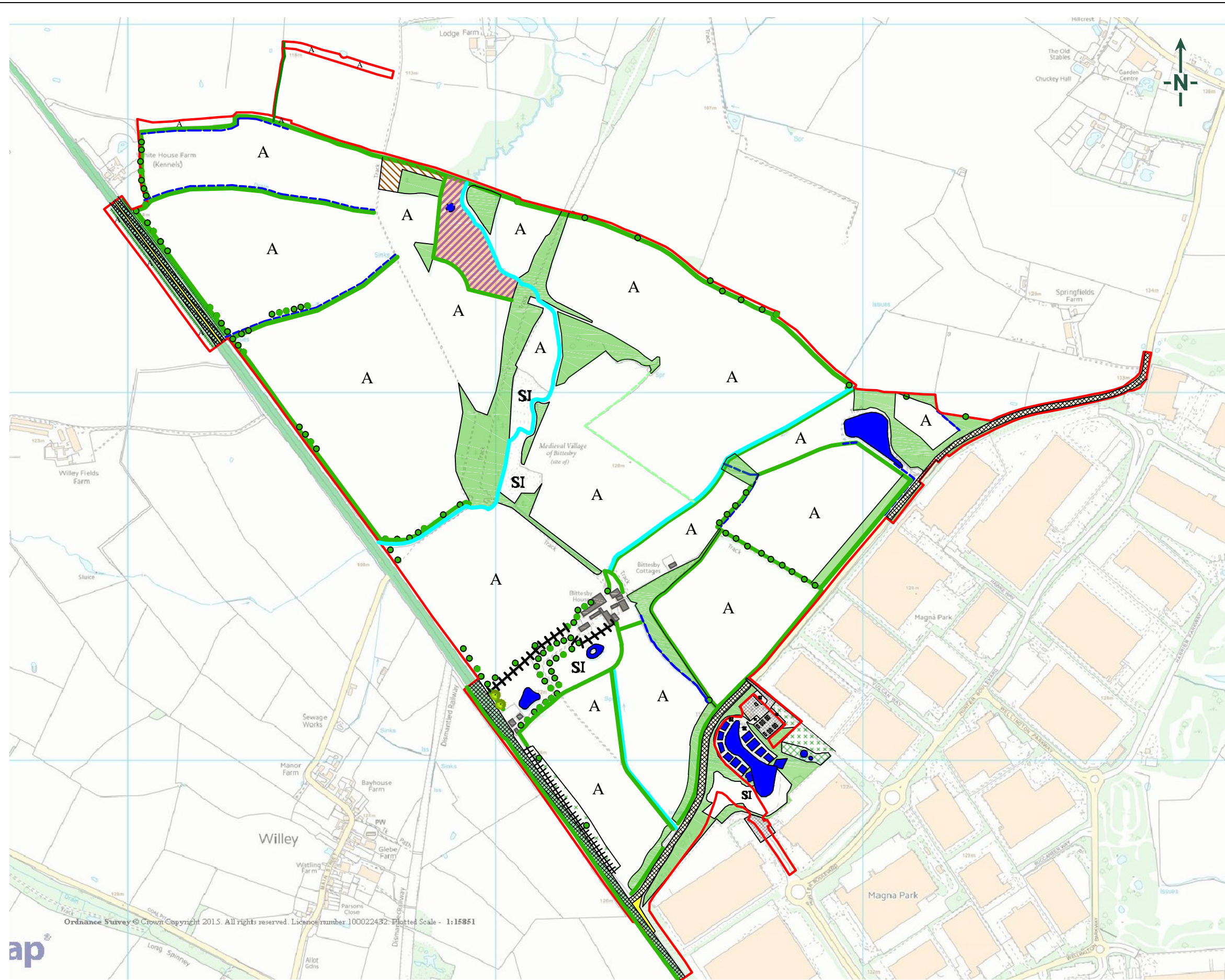
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TITLE:
Site Location Plan
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN: DP
 SCA: To Scale @ A4
 CHK: JS
 REV: 1
 DATE: 14 September 2015

PROJECT NO.:
14-0159.03
 FIGURE NO.:
1



LEGEND

- Site Boundary
- Broadleaved Plantation Woodland (A1.1.2)
- Scattered Broadleaved Trees (A3.1)
- Scattered Coniferous Trees (A3.2)
- Marsh Grassland (B5)
- SI Poor Semi Improved Grassland (B6)
- Tall Ruderal (C3.1)
- Standing Water (G1)
- Running Water (G2)
- A Arable (J1.1)
- Amenity Grassland (J1.2)
- Intact Hedgerow - Species Poor (J2.1.2)
- Defunct Hedgerow - Species Poor (J2.2.2)
- Fence (J2.4)
- Dry Ditch (J2.6)
- X X X X Scattered Scrub (A2.2)
- Species Poor Hedgerow with Trees (J2.3.2)
- Dense Scrub (A2.1)
- Buildings (J3.6)
- X X X X Hard Standing (J4.1)

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TITLE:
Site Layout Plan
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.:
DATE: 14 September 2015		2



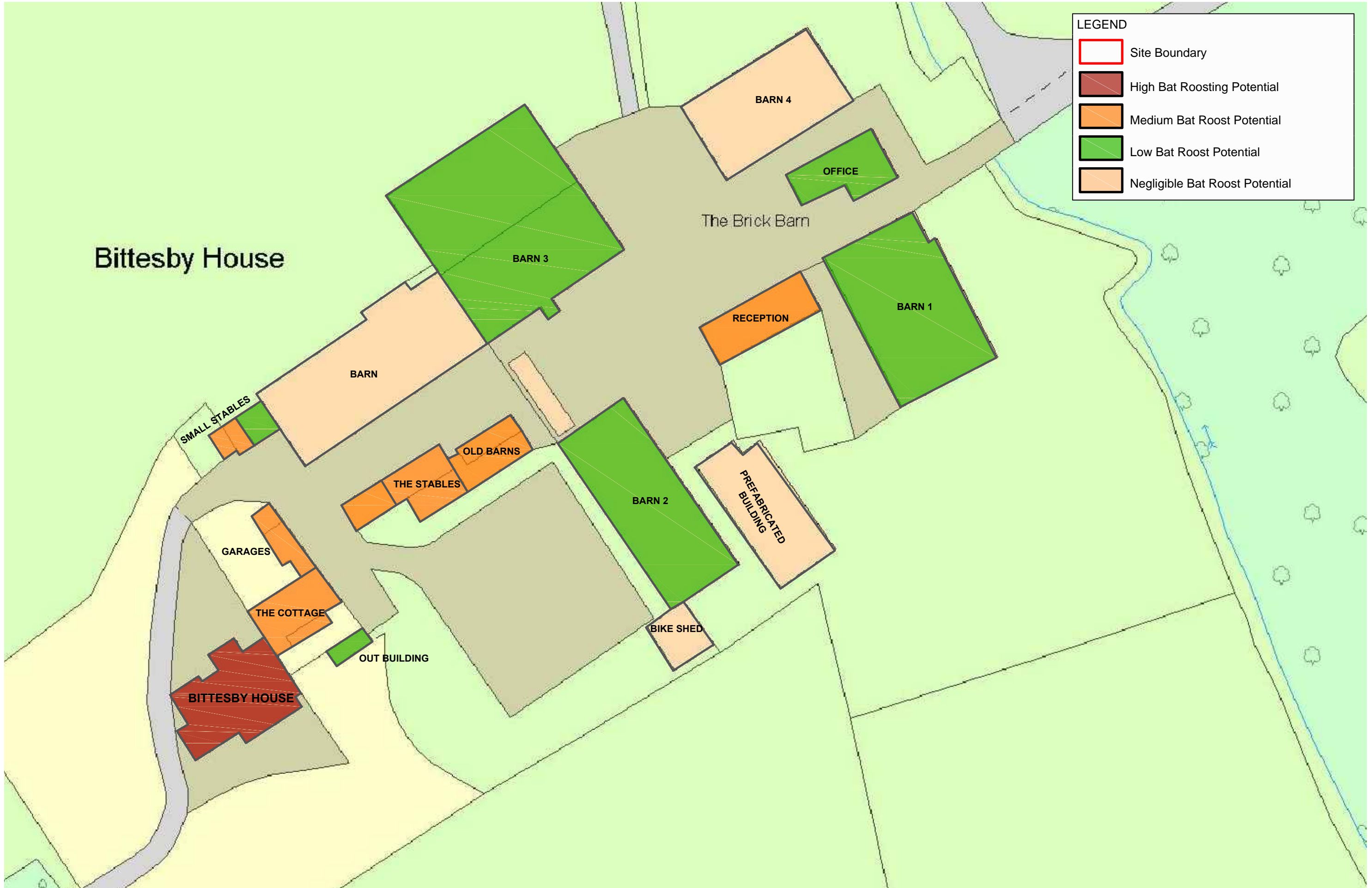
- GENERAL NOTES:
1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERING AND ARCHITECTURE DRAWINGS AND SPECIFICATIONS.
 3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
 4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERRED TO THE CLIENT IMMEDIATELY.
 5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 6. ALL LEVELS IN METRES.
 7. DO NOT SCALE OFF THIS DRAWING.
 8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
 9. THE CONTENT OF THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST PROJECT GOMR REGISTER.

NO	14/09/2015	FOR COMMENT	1/18	DN
Rev	Date	Description	Rev	Drawn/Chk
 Landscape Architecture, Urban Design, Creative Ecology 21 Mill Street, Bath BA1 1UT T: +44 (0) 1225 323864 F: +44 (0) 1225 428184 E: info@grant-associates.co.uk				
CLIENT IDI Gazeley				
PROJECT Magna Park Extension OPA				
TITLE Illustrative Masterplan				
Author	14/09/2015	10/09/2015	1/18	DN
State	FOR COMMENT			
Drawing Number MLP410-AL-A01-MP-0-001				



TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Planning Application
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 3
DATE: 14 September 2015		



LEGEND

- Site Boundary
- High Bat Roosting Potential
- Medium Bat Roost Potential
- Low Bat Roost Potential
- Negligible Bat Roost Potential

Bittesby House

The Brick Barn

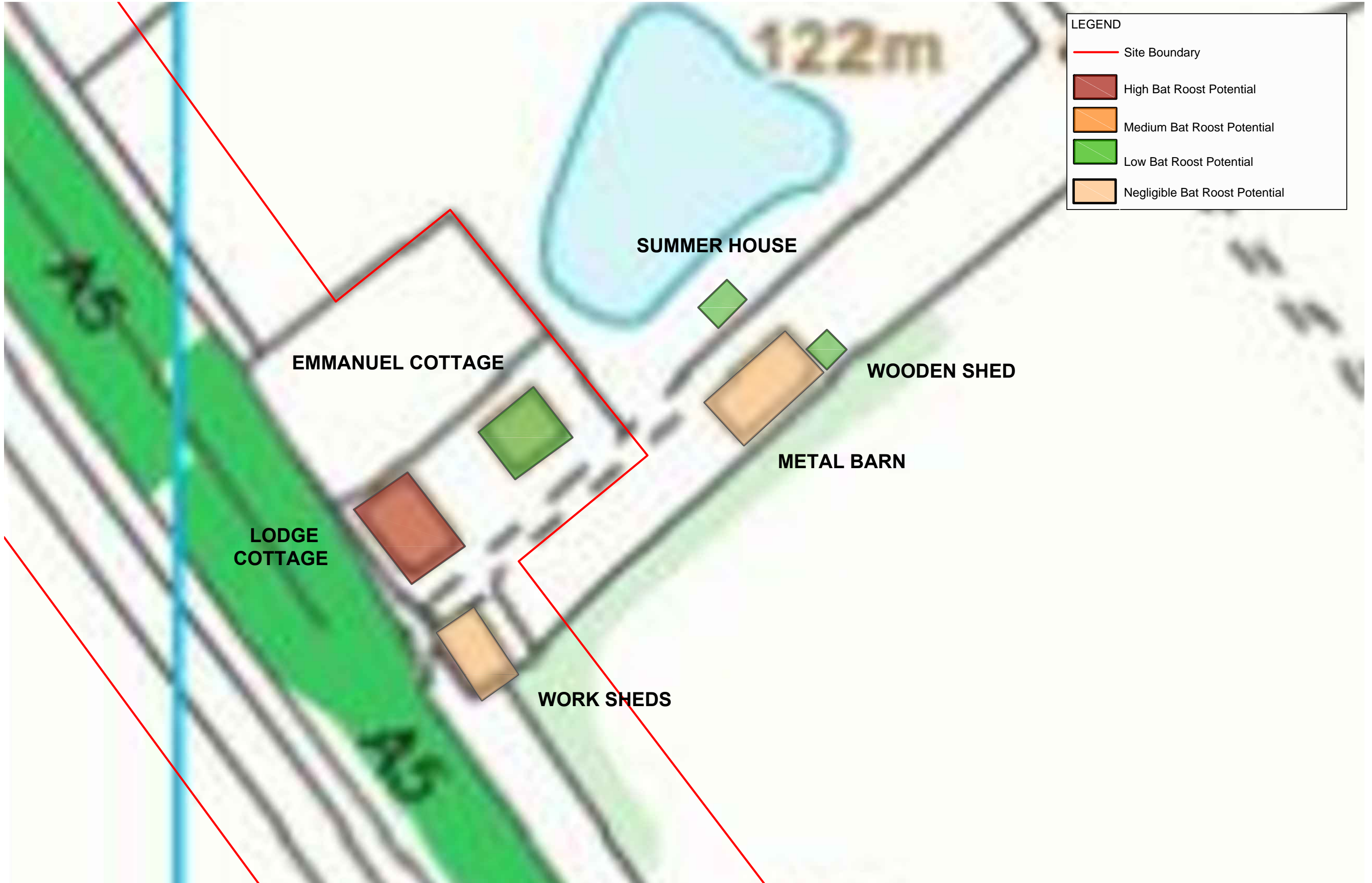


TITLE:
 Bat Roost Potential - Bittesby Farm (2014)
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP
 CHK: JS
 DATE: 14 September 2015

SCA: Not to Scale
 REV: 1

PROJECT NO.: 14-0159.03
 FIGURE NO.: 4a



LEGEND

- Site Boundary
- High Bat Roost Potential
- Medium Bat Roost Potential
- Low Bat Roost Potential
- Negligible Bat Roost Potential

EMMANUEL COTTAGE

SUMMER HOUSE

WOODEN SHED

METAL BARN

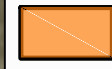

LODGE COTTAGE

WORK SHEDS

122m



LEGEND

-  Medium Bat Roost Potential
-  Low Bat Roost Potential

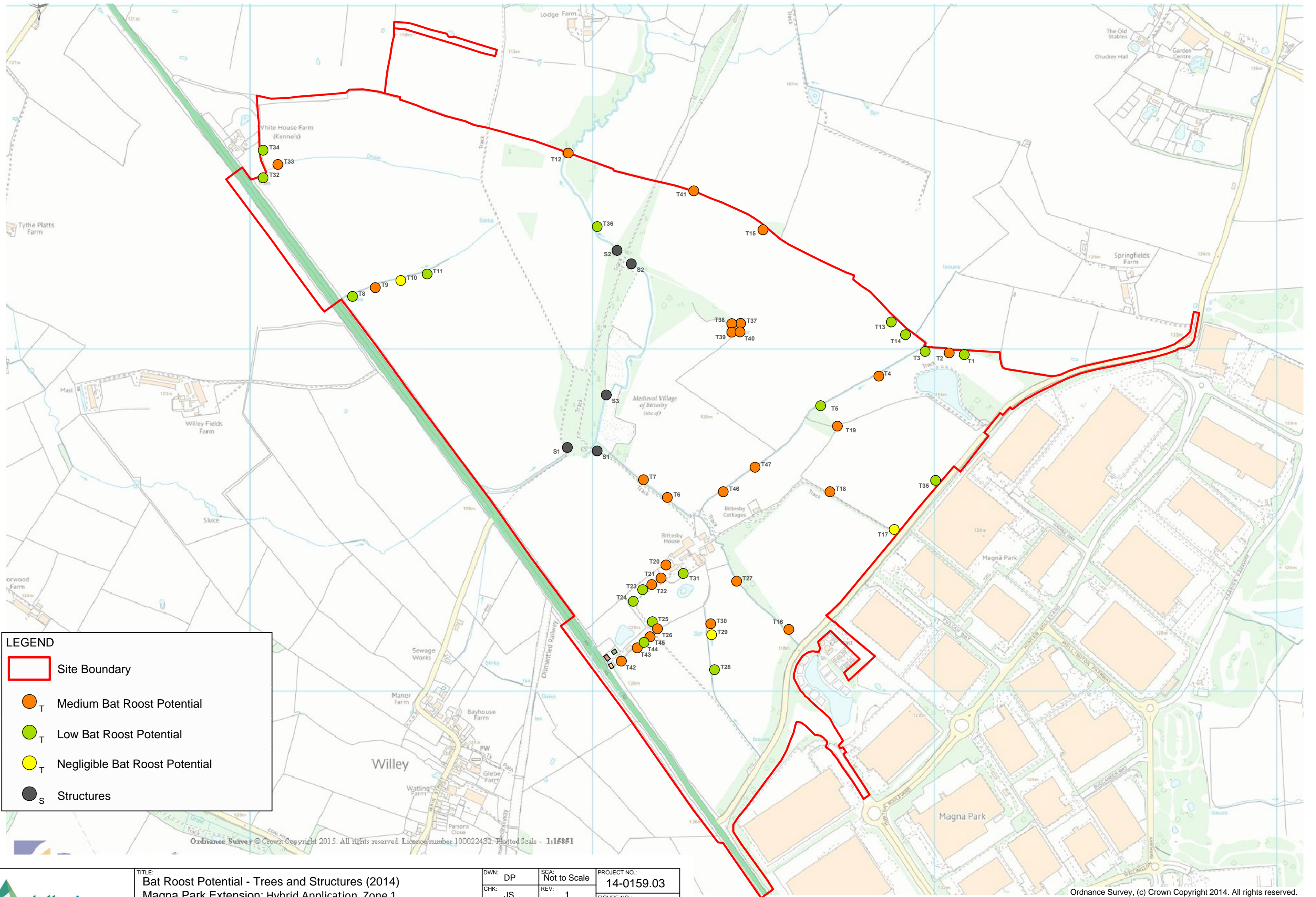
SHED

BITTESBY COTTAGES



TITLE:
Bat Roost Potential - Buildings (2014) Bittesby Cottages
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 4c
DATE: 14 September 2015		







References

Department for Communities and Local Government (2012). National Planning Policy Framework.

English Nature (now Natural England) (2004) Bat Mitigation Guidelines. English Nature, UK

Hundt, L. (2012) Bat surveys: Good Practice Guidelines, 2nd edition. Bat Conservation Trust.

Office of the Deputy Prime Minister (2005): Circular 06/05: Biodiversity and geological conservation - statutory obligations and their impact within the planning system.

The Conservation of Habitats and Species Regulations 2010 (as amended) HMSO

Wildlife and Countryside Act 1981 (as amended), HMSO.





Categorisation of Bat Roosting Potential - Buildings

Bat Roost Potential	Description
Negligible	<p>An inspected building which is considered to have no features of importance for roosting bats.</p> <p>No further constraints apply to the method or timing of proposed works.</p>
Low	<p>From the ground, the building appears to have superficial features (e.g. cracks and crevices) that are sub-optimal for roosting bats but may be used in some circumstances.</p> <p>Surrounding habitat appears to provide little or no foraging potential and/or connectivity to further suitable habitats.</p> <p>Works may progress if in accordance with appropriate precautionary mitigation measures.</p>
Medium	<p>A building in which no evidence of bats has been found, but features have been identified that could support roosting bats (such as cracks, crevices and/or structural features)</p> <p>Surrounding habitat provides good foraging potential and/or connectivity to further suitable habitat.</p> <p>Should works affect the area in question further emergence surveys would be required. If, following these surveys, no roosts are identified, works should proceed with appropriate precautionary mitigation measures. If a roost is identified, depending on the type of work and timings proposed, a Natural England European Protected Species (EPS) Licence may be required.</p>
Confirmed Roost	<p>Bats or evidence of bats recorded within the building, including both current and/or historic roosts.</p> <p>A Natural England European Protected Species (EPS) Licence would be required for all works that significantly affect the roost. A licence application would require survey data detailing the type of roost and the number and species of bat involved, surveys may be restricted to certain times of the year.</p>











Categorisation of Bat Roosting Potential – Trees



Bat Roost Potential	Description
Negligible	<p>An inspected tree which is considered to have no features of importance for roosting bats.</p> <p>No further constraints apply to the method or timing of proposed works.</p>
Low	<p>From the ground, the tree appears to have features (holes, cavities or cracks) that extend back into a cavity. Owing to the aspect, the feature may support singleton bats outside of hibernation.</p> <p>Alternatively, if no features are visible but owing to its size and age and structure, the tree is considered likely to have hidden features that only an elevated inspection may reveal.</p> <p>In respect of ivy cover, this is not dense (i.e. providing BRP in itself) but may mask the presence of BRP features.</p> <p>Emergence and activity surveys may be required.</p> <p>If following all surveys the feature remains categorised as low BRP, works typically proceed under supervision by an experienced bat worker, as a precautionary measure. For example, including a re-inspection immediately prior to works and sectioned felling of a tree. The requirements of Natural England European Protected Species licensing will be re-considered should bats or evidence of bat activity be identified during the supervision.</p>
Medium	<p>Features include holes, cracks, crevices that extend or appear to extend back to cavities suitable for bats.</p> <p>Alternatively, ivy cover is sufficiently well-established and matted so as to create potential crevices between the growth and the trunk.</p> <p>Emergence and activity surveys may be required.</p> <p>A Natural England European Protected Species (EPS) Licence is not required for works that affect unconfirmed roosts. However, if following all surveys the feature remains categorised as medium BRP, works should proceed only under supervision by a licensed bat worker following pre-agreed procedures. The requirements of Natural England European Protected Species licensing will be re-considered should bats or evidence of bat activity be identified during the watching brief.</p>
Confirmed Roost	<p>Bats or evidence of bats recorded – both of recent and/or historic activity. Emergence surveys will be required to qualify and quantify usage if such a feature is to be affected by proposed works.</p> <p>A Natural England European Protected Species (EPS) Licence is required for all works affecting features supporting confirmed roosts.</p>









Appendix IV Bat Roost Potential of the Buildings and Photographs

Building	Bat Roost Potential Category	Notes	Photograph Reference
Bittesby House	High	<p>Two storey brick house built pre 19th century. Refurbished in 2004 such that the brickwork is well sealed. The roof is pitched with slate tiles. Potential roosting features recorded included lifted roof tiles, gaps in between window frames and brick work, gaps under lead flashing and gaps under fascia boards.</p> <p><i>Internal</i> Main roof void is divided into three separate rooms. A number of recent and old bat droppings (pipistrelle) were recorded on top of a bookshelf directly below a wooden beam. Also bat droppings were recorded scattered throughout the roof void in small numbers, indicating bats had flown within these areas. Also the building has a cellar that was accessed at the time of the survey but no evidence of bats was found. The boiler system was located within the cellar, therefore, resulting in a fluctuating temperature gradient.</p>	  

Garages	Medium	<p>Three single storey terraced brick-built garages adjoin the northern aspect of the Cottage. The roof is pitched and tiled with several lifted tiles. Gaps above doors and in brick work to allow access to the first garage.</p> <p><i>Internal</i> A number old and recent butterfly wings indicative of a potential Brown Long-Eared (BLE) foraging perch and/ or possible roosting site were found within the first and third garages. The third garage had wooden panels attached to the interior brick walls with gaps underneath allowing access into the void. Boarding was present within the first roof void allowing bats to crawl in between the roofing felt and the boarding.</p>	  
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The Stables	Medium	<p>A mixture of single and two storey buildings, originally stables, now converted into offices post-2007. Brick work was well sealed, with no missing mortar noted. Some gaps were recorded where the roof meets the brick work on the two storey extension. All the roofs are tiled and pitched, several tiles were cracked and lifted on the single storey building. On the two storey extension several roof tiles were missing as was some of the mortar between the ridge tiles – providing suitable roosting habitat.</p> <p><i>Internal</i> Recently refurbished offering no potential roosting for bats since there is no roof void. However, there is the opportunity for crevice dwelling bats to roost in between the roof tiles and wooden roof boards.</p>	 
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<p>Old Stables</p>	<p>Medium</p>	<p>Adjoining the converted stables on the northern side. The long two storey building offers suitable roosting opportunity as there were lifted and broken roof tiles, gaps within the brick work and internal access via an open door at the time of the survey.</p> <p><i>Internal</i> On the ground floor were gaps in wooden beams and brick work, also several butterfly wings were recorded, indicating possible foraging perch / roost site for BLE bats. First floor again offered suitable roosting as it supports the roof void of the pitched tiled roof, opening on the northern gable end allowing bats access. The stables on the western aspect again offer potential for roosting bats as a number of cracks were present in the internal brick work. Also offers potential hibernation sites.</p>	  
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Small Buildings	Medium	<p>Small brick-built stables attached to the large modern barn. Walls have a number of cracks between the mortar providing roosting opportunities for individuals of crevice dwelling bat species. Roof is pitched and tiled with some missing and lifted tiles allowing internal access. Large hole in roof of the building attached to the barn.</p> <p><i>Internal</i></p> <p>Only the building adjoining the barn could be accessed. Large amount of rubbish within the building. Hole in the roof has created damp conditions internally and allows light in. The second building could not be accessed but has potential to support roosting bats as access can be gained through air grate.</p>	
Out-Building	Low	<p>Small brick-built shed adjacent to Bittersby House. Access was not obtained, however, it appeared to be in good condition with no gaps between tiles or missing mortar from the brickwork.</p>	
Barn	Negligible	<p>Modern barn constructed out of breeze blocks with metal panelling. No potential roosting features recorded.</p>	
Bike shelter	Negligible	<p>No suitable features observed. Light and exposed to draughts throughout.</p>	<p>No photo</p>

Bittesby Farm and Cottage

Bittesby
Cottage



Medium




Two converted brick-built cottages. Brick work is in good condition, roof is pitched and tiled with some gaps present. Gaps were evident behind the soffit boxes allowing bats to roost behind the soffits.



Internal

Roof void did not support evidence of bats, however, beneath the tiles was roofing felt offering potential for bats to sit between the tiles and felt.






Shed	Low	Brick outbuilding with several separate rooms. Roof is pitched and tiled. Bats may be able to access through gaps round the doors and roof tiles	
Reception	Medium	<p>Converted brick-built barn, brick work was well sealed with no missing mortar evident. The roof is tiled and pitched and several lifted tiles were noted at the time of the survey. Possible access point beneath lifted tile on the southern aspect since a possible bat dropping was recorded on the wall below the south-eastern soffit box.</p> <p><i>Internal</i> The building has recently been refurbished and the roof void is not suitable for roosting bats due to thick roofing insulation immediately below the roof such that bats could not access it.</p>	 
Office	Low	Converted hay barn with a pitched suspected asbestos sheeted roof. Several gaps underneath the ridge tiles. Gaps in the mortar on the western aspect. Building was not accessed internally. It is currently in use for commercial purposes. There does not appear to be a roof void.	No photo




<p>Pre-fabricated Office</p>	<p>Negligible</p>	<p>No obvious features present and the roof is flat. A number of gaps noted to be present under barge boards.</p>	
<p>Barn 1</p>	<p>Low</p>	<p>Double barn, with one constructed from brick and suspected corrugated asbestos sheeting on the walls and roof, and the second with metal frame supporting wooden boarding. Both provide suitable roosting sites behind asbestos sheeting, and internally behind beams.</p>	
<p>Barn 2</p>	<p>Low</p>	<p>Large barn constructed from breeze blocks and suspected corrugated asbestos panels and roofing providing small crevices.</p> <p>Internal access was not permitted at the time of survey</p>	

Barn 3	Low	<p>Large barn constructed from breeze blocks and suspected corrugated asbestos sheeting and roofing providing crevices for crevice-dwelling species of bat.</p> <p>Internally it appears that the barn has been converted for private functions with light and display systems present.</p>	
Barn 4	Negligible	<p>Converted livestock shed, fully open on the eastern aspect creating draughty conditions. Limited roosting potential for bats.</p>	

Lodge and Emmanuel Cottage		
<p>Lodge Cottage</p>	<p>High</p>	<p>Two, two storey brick-built houses converted into one building. Built mid-20th century. Currently under refurbishment such that the brickwork appeared well-sealed with no missing mortar noted. The roof is pitched and tiled and appears to be in good condition, however, some gaps under ridge tiles were noted and also under the eaves. The windows are uPVC and well-sealed therefore no possibility of bats roost within the frames.</p> <p><i>Internal</i></p> <p>Main roof void is divided into two separate rooms – divided by a brick wall. A number of recent and old droppings of pipistrelle sp. and BLE bat were recorded on top of the loft insulation directly below wooden beams, and also at the base of the brickwork. Also bat droppings of both species were recorded scattered throughout the roof void in small numbers, indicating bats had flown within these areas. A possible BLE foraging perch was recorded due to the large deposit of insect wings and droppings located in one location below the wall. There was roofing felt within the roof void, therefore, a possibility for bats to access the tiles and sit behind the felting, also it was noted several gaps and tears in the roof felting, thus allowing bats to access the void.</p>






<p>Emmanuel Cottage</p>	<p>Low</p>	<p>Two, two storey brick-built houses converted into one building. Built mid-20th century. Currently occupied. The roof is pitched and tiled and appears to be in good condition, however, some gaps under ridge tiles were noted and also under the eaves. The windows are uPVC and well-sealed, therefore, no possibility of bat roost within the frames.</p> <p><i>Internal</i> Main roof void is divided into two separate rooms – divided by a brick wall. No evidence of bats was recorded as the wooden flooring and loft insulation was clean. A large amount of cobwebs were noted on some of the beams. The roof is felted, no access gaps were observed, however, there is potential for bats to roost between the tiles and felting.</p>	 
<p>Metal Barn</p>	<p>Negligible</p>	<p>Large barn constructed from breeze blocks and corrugated metal sheeting which offers poor roosting potential for bats</p> <p>No internal access was gained at the time of the BRP</p>	



<p>Wooden Shed</p>	<p>Low</p>	<p>Small wooden shed located next to the metal barn. Limited potential apart from gaps under the fascia boarding.</p> <p>No evidence of bats recorded internally</p>	
<p>Summer House</p>	<p>Low</p>	<p>Small wooden summer house located adjacent to the large pond. Limited potential apart from gaps under the fascia boarding on the gable ends.</p> <p>No evidence of bats recorded internally</p>	
<p>Work Shed</p>	<p>Negligible</p>	<p>Breeze block with meta-shutter doors. The roof is pitched and tiled, the tiles appear well-sealed with no gaps present.</p> <p>No internal access was gained at the time of the BRP</p>	



Appendix V Bat Roost Potential of Structures and Photographs





Structure Reference	Structure Type	Bat Roost Potential Rating	Features/ Comments	Photos
S1	Old railway tunnel	<p>Medium</p> <p>Potential as a daytime summer roost, and/ or night roost for crevice dwelling bats.</p>	<p>Brick tunnel running under the dismantled railway line.</p> <p>Headwall and abutments constructed from bricks and mortar.</p> <p>Gaps between mortar and bricks.</p> <p>No bat roosting signs recorded at time of survey.</p>	





<p>S2</p>	<p>Small tunnel over watercourse</p>	<p>Medium</p> <p>Potential as a daytime summer roost, and/ or night roost for crevice dwelling bats.</p> <p>Potential hibernaculum for crevice dwelling bats between bricks within the tunnel.</p>	<p>Brick tunnel running under the dismantled railway line.</p> <p>Headwall and abutments constructed from bricks and mortar.</p> <p>Gaps between mortar and bricks.</p> <p>No bat roosting signs recorded at time of survey.</p>	 
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<p>S3</p>	<p>Small tunnel</p>	<p>Medium</p> <p>Potential as a daytime summer roost, and/ or night roost for crevice dwelling bats.</p> <p>Potential hibernaculum for crevice dwelling bats between bricks within the tunnel.</p>	<p>Brick tunnel running under the dismantled railway line.</p> <p>Blocked off in the centre of the tunnel</p> <p>Stable temperature and humidity.</p> <p>Crack in brick and mortar running the circumference of the inner arch.</p>	 
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Appendix VI Bat Roost Potential of Trees and Photographs

Tree Reference No.	Species	Age	Potential Roost Feature	Height and Aspect of Feature	Situation / connectivity	Roosting Potential Rating (BCT, 2012)	Photograph
T1	English oak <i>Quercus robur</i>	Mature	Exposed limb Lifted bark	10 m facing south	Within hedge line and field drainage ditch	Low	
T2	Ash <i>Fraxinus excelsior</i>	Mature	Large fissure in trunk	3 m south facing	Within hedge line and field drainage ditch	Medium	
T3	Ash	Mature	Multiple broken and rotten limbs	Various heights and aspects	Within hedge line and field drainage ditch	Low	
T4	English oak	Mature	Woodpecker holes Broken branch Hazard beam (split along branch)	1-2m high (west)	Within hedge line and field drainage ditch	Medium	





T5	Ash	Mature	Crack in trunk—creating a cavity	0-1m (south-east)	None	Low	
T6	Oak species.	Mature	Dense ivy cover	Various	Within hedge line and field drain	Medium	
T7	Oak	Mature	Dense ivy cover	Various	Within hedge line and field drainage ditch	Medium	
T8	Ash	Semi-mature	Two callous holes that may have cavity	10 m south- east 10-15m high (south)	Within hedge line and field drainage ditch	Low	




T9	Ash	Semi mature	Large wound with splits wood – goes in to cavity	4 m south	Within hedge line and field drainage ditch	Medium	
T10	Ash	Mature	No features		Within hedge line and field drainage ditch	Negligible	
T11	Ash	Mature	Heavily damaged and rotten	Various heights and aspects	Within hedge line and field drainage ditch	Low	
T12	Crack willow <i>Salix fragilis</i>	Mature	Three bat boxes Woodpecker holes Cracked and lifted bark	Various	Within hedge line and field drainage ditch	Medium	




T13	Ash	Mature	Lightening damage, ivy clad	Various	Within hedge line and field drainage ditch	Low	
T14	Ash	Mature	Calous holes- large trunk wound	Various – south west	Within hedge line and field drainage ditch	Low	
T15	Ash	Mature			Within hedge line and field drainage ditch	Medium	
T16	Ash	Mature	Callous hole Dense ivy	4 m south west Various aspects	Within hedge line and field drainage ditch	Medium	
T17	Ash	Mature	No features		Within hedge line and field drainage ditch	Negligible	No Photo

T18	Ash	Mature	Dense ivy	Various	Within hedge line and field drainage ditch	Medium	
T19	Ash	Dead	Cracked bark and holes	Various	Within woodland belt	Low	No Photo
T20	English oak	Mature	Broken branch with hazard beam Two hazard beams	6 m south-west 5-6 m south facing	Within hedge and tree line at Bittersby house	Medium	No Photo
T21	Ash	Mature	Rotten hollow branch Rot hole on cut branch Callous hole	3 m south facing 4 m west facing 5 m west facing	Within hedge and tree line at Bittersby house	Medium	
T22	Large-Leaved Lime <i>Tilia platyphyllos</i>	Mature	Woodpecker holes	Various heights all south facing	Avenue of trees along the track to Bittersby House	Medium	
T23	Large-Leaved Lime	Mature	Rotten lifted bark and dead branches	Various	Avenue of trees along the track to Bittersby House	Low	

T24	Horse chestnut <i>Aesculus hippocastanum</i>	Mature	Large hollow with clear drop zone	3-4 m west facing	Avenue of trees along the track to Bittersby House	Low	
T25	Horse chestnut	Mature	Rot holes and callous holes	Various heights and aspects	Avenue of trees along the track to Bittersby House	Low	
T26	Horse chestnut	Mature	Large cavity with hollow	3m south facing	Avenue of trees along the track to Bittersby House	Medium	
T27	Ash	Mature	Four woodpecker holes	Various and south	Within hedge line and field drainage ditch	Medium	
T28	Dead tree	Dead	Various rot holes and lifted bark	Various	Within hedge line and field drainage ditch	Low	

T29	Oak	Mature	Lifted bark	Various	Within hedge line and field drain	Negligible	
T30	Ash	Mature	Full tree is hollow with large entrance	Internal – south facing	Within hedge line and field drainage ditch	Medium	
T31	Beech <i>Fagus sylvatica</i>	Mature	Large callous hole that goes into a cavity	2 m south west	Within ground of Bittersby House	Low	
T32	Ash	Mature	Limited features		Within hedge line	Low	No Photo
T33	Ash	Mature	Large rot wound and hollow branch	3 m east	Within hedge line	Medium	No Photo
T34	Ash	Mature	Limited features		Within hedge line	Low	No Photo
T35	Ash	Mature	Slit and Broken Branch	South-west facing	Within Hedgerow adjacent to Mere Lane	Low	

T36	Ash	Semi mature	Heavily rotted limbs and main trunk	South-east facing	Along drain	Low	
T37	Ash	Mature	Dense ivy	Various	Small cluster of trees	Medium	No Photo
T38	Ash	Mature	Dense ivy	Various	Small cluster of trees	Medium	No Photo
T39	Ash	Mature	Dense ivy	Various	Small cluster of trees	Medium	No Photo
T40	Ash	Mature	Dense ivy	Various	Small cluster of trees	Medium	No Photo
T41	Ash	Mature	Large hazard beam on branch	South-west 3 m	Along drain and hedge line	Medium	No Photo
T42	Horse Chestnut	Mature	Large rot cavity – goes up into a hollow Broken branches	West 2m Various heights and aspects	Along field edge	Medium	
T43	Horse Chestnut	Mature	Broken branches	Various heights and aspects	Along field edge	Low	

T44	Horse Chestnut	Mature	Large cavity on main trunk Large split in branch	West 2.5 m	Along field edge	Medium	
T46	Ash	Mature	Large wound on main trunk creating a large cavity and hollow	5 metres, east	Along hedge line	Medium	
T47	Ash	Mature	Several broken limbs creating cavity, cavity also present on main trunk	Various heights and aspects	Along hedge line	Medium	



Appendix I-4: Bat Transect Survey

**Magna Park Extension: Hybrid Application, Zone
1**

For IDI Gazeley

Delta-Simons Project No. 14-0159.03

Issued: September 2015

EXECUTIVE SUMMARY
APPENDIX 1-4: BAT TRANSECT SURVEY REPORT
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.03

Purpose	Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley (the 'Client') to undertake Bat Transect Surveys of land situated off Mere Lane to the west of Lutterworth in Leicestershire, which forms Zone 1 of the proposed development (the 'Site'). The surveys were undertaken during the main bat active season (April-September, inclusive), between September 2014 and August 2015. The surveys were undertaken in order to inform a planning application for the Site.
Current Site Status	The Site comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.
Proposed Development	An outline planning application will be submitted for up to 427,350 square metres (m ²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m ² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m ² , an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m ² , Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m ² , and an Innovation Centre of up to 2,325 m ² . The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.
Results:	The Bat Transect Survey recorded five species of bat from within the Site boundary. Low levels of foraging and commuting activity were recorded during the surveys, which was largely associated with common pipistrelle bats. Heightened foraging activity was recorded around the avenue of lime trees up to Bittesby House and also recorded along the dismantled railway, whilst the dismantled railway was found to be a regularly used commuting corridor. A

	<p>single bat was recorded emerging from a roost at Lodge Cottage on one occasion during a transect survey. In addition, the timings and behaviour of bats on a number of occasions during the transect survey indicated possible bats roosts within trees at the Site.</p>
<p>Recommendations</p>	<p><u>Recommendation 1 (Construction Phase)</u> In order to limit disturbance to bats during the construction phase of works lighting to facilitate the works must be directional, and light spill onto key foraging/ commuting vegetated corridors, both on-Site and immediately beyond the Site boundaries, must be avoided. Where possible, works at the Site should be limited to standard daytime working hours in order to prevent disturbance to bats when they emerge from roost sites to forage, or commute to foraging habitats along the Site boundaries.</p> <p><u>Recommendation 2 (Operational Phase)</u> In order to prevent any adverse impact upon the roosting, commuting and foraging habitats utilised by bats at the Site, the lighting plan for the Site must be sensitive to bats, such that lighting within public areas of the proposed development is kept to a minimum (as required for safety and security), and that light spill onto vegetated corridors is avoided wherever possible.</p> <p><u>Recommendation 3 (Roosting Habitat Enhancement)</u> Bat boxes will be installed at the Site in order to compensate for the loss of any roost necessary sites to facilitate the proposals, and to enhance the roosting opportunities for bats at the Site.</p> <p><u>Recommendation 4 (Foraging and Commuting Habitat Enhancement)</u> Habitats associated with the dismantled railway line will be retained, however, a number of hedgerows will be lost, and therefore, new hedgerows, or blocks of linear landscape planting have been included within the proposals, to provide foraging and commuting corridors for bats at the Site. Furthermore, landscaping supporting a variety of native species will be planted to provide food throughout the year for invertebrate species, which will in turn increase foraging opportunities for bats, and other faunal species at the Site. Tree species planted along pathways and within amenity areas will include a mixture of native broadleaved trees that will develop roosting potential as they mature, together with trees planted in belts and clusters to support foraging and commuting bats.</p> <p>Careful landscape planning will be undertaken to ensure that at the eastern extent of the proposed extension to Magna Park, there is a continuity of those habitats occurring on the present Magna Park site, to encourage bats to commute and forage across both areas.</p>
<p>This Bat Transect Survey Report Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This executive summary should be read in conjunction with the full report.</p>	

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Appendices

Appendix I	References
Appendix II	Timings and Weather Conditions of the Transect Surveys

APPENDIX I-4 BAT TRANSECT SURVEY REPORT
MAGNA PARK EXTENSION: HYBRID EXTENSION, ZONE 1
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.03

1.0 INTRODUCTION

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley ('the Client') to undertake a series of Bat Transect Surveys of land off Mere Lane to the west of Lutterworth in Leicestershire, that forms Zone 1 of the proposed development (hereafter referred to as the "Site"). This follows the recommendations of the Extended Phase 1 Habitat Survey in August 2015, and the Bat Habitat Assessment completed by Delta-Simons in February 2015. The survey was undertaken in order to inform a planning application for the Site.

The aim of the bat transect surveys was to:

- △ Determine the usage of the Site by bats;
- △ Assess the results of the survey and determine the potential impact of the proposed development works on any bats that might use the Site;
- △ Provide recommendations for working methodologies, further surveys and/ or the need for a European Protected Species Licence from Natural England in light of the survey results; and
- △ Make any initial recommendations for mitigation following the survey with respect to bats and to liaise with the Natural England Local Species Officer, if considered necessary.

1.2 Site Description

Zone 1, is an approximately 220 ha triangular parcel of predominantly agricultural land to the north and north-west of Magna Park, Lutterworth. Zone 1 is linked to and extends Magna Park. Its boundaries are created by the A5 to the south and west, Mere Lane to the east and the ridgeline hedgerows that follow the parish boundary to the north.

It comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are

further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.

The Site layout is shown in Figure 2.

1.3 Proposed Development

An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m², Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

The proposed development plan is included as Figure 3.

2.0 LEGISLATION

2.1 Bats

All bats and their roosts are protected under Section 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended) and Annex IV of the Habitats and Species Regulations 2010 (as amended).

It is an offence, either deliberately or recklessly, to destroy, damage or obstruct access to any bat roost, or to disturb a bat using such a place. It should be noted that a roost is protected whether or not bats are present and any activity or works affecting a roost, even when bats are absent, is likely to require a European Protected Species Licence from Natural England.

2.2 Planning

The Office of the Deputy Prime Minister (ODPM) Circular (2005) advises that ecological surveys are undertaken before planning permission is determined. The circular states *“The need to ensure that ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances”* (see References, Appendix I).

3.0 METHODOLOGY

3.1 Data Search

The results of the data searches received from the Leicestershire and Rutland Environmental Records Centre (LRERC) and Warwickshire Biological Records Centre (WBRC), for the initial Extended Phase 1 Habitat Survey (Delta-Simons Project no. 14-0159.02), were reviewed for records of bats within the search area.

In addition, a search for designated sites for bats on or within 10 km of the Site was performed using the Multi-Agency Geographic Information for the Countryside (MAGIC).

3.2 Review of Bat Roost Potential

Where possible, information was gathered on any previous surveys that have been conducted at, or within proximity to, the Site. The following survey reports were reviewed:

- △ Extended Phase 1 Habitat Survey, Magna Park Extension: Hybrid Extension, Zone 1 (August 2015),, Delta-Simons; and
- △ Bat Habitat Assessment Magna Park Extension: Hybrid Application (September 2015) , Delta-Simons.

3.3 Bat Transect Survey

Suitability of the Site to Support Bats

An assessment of habitats both within the Site boundary, and immediately beyond, was undertaken to identify potential commuting/ foraging corridors and suitable foraging sites. This enabled the suitability of the wider area for bats to be determined, as well as the accessibility of the Site to bats.

Bat Transect Surveys

The bat transect survey was undertaken with reference to Natural England's Bat Mitigation Guidelines (2004) and the BCT Guidelines (Hundt, 2012). Either a dawn or a dusk nocturnal transect survey was carried out of each transect route on each monthly transect survey visit, however, in accordance with this guidance, in July both a dusk and a dawn transect was undertaken of each transect route. This enabled an assessment to be made of bat activity associated with the habitats at the Site.

The dusk survey commenced approximately fifteen minutes prior to sunset and ceased two hours following sunset. The dawn survey commenced approximately one hour and thirty minutes prior to sunrise and ceased fifteen minutes following sunrise.

Two surveyors walked the predetermined routes shown in Figure 4. The bat transects were walked at a steady pace and included regular listening station stops. The location of each stop was chosen in order to incorporate different aspects of field habitats around the Site and lasted for a period of three minutes. The surveyors were equipped with Duet bat box detectors, Edirol recording equipment and high powered torches. Records were made of any bats seen and/ or heard and the species, the time, location and direction of flight.

Details of the timings and weather conditions at the time of all the transect surveys can be found in Appendix II. With reference to the Bat Mitigation Guidelines (2004), the weather conditions during both the dusk and dawn survey were considered suitable for bat activity.

Details of the Surveyors and Surveys

The survey was undertaken by the following ecologists:

- △ Jonathan Spencer, Senior Ecologist (Natural England licence number: CLS00506 Class Survey Licence WML CL18 (Bat Survey Level 2));
- △ Jennifer Britt, Ecologist (Natural England licence number: CLS01304 Class Survey Licence WML CL18 (Bat Survey Level 2));
- △ Pete Morrell Natural England licence number: 2015-00655-CL-CL Class Survey Licence WML CL18 (Bat Survey Level 2));
- △ Catherine Bywood (Graduate Ecologist);
- △ Alex Clarke (Graduate Ecologist);
- △ Emma Grubb (Natural England licence number: CLS01549 Class Survey Licence WML CL20 (Bat Survey Level 4));
- △ Thomas Witty Assistant Ecologist;
- △ Samuel Gregory, Ecological Assistant; and
- △ Henry Louth, Ecological Assistant

4.0 RESULTS

4.1 Data Search

The MAGIC data search revealed that there are no statutory designated sites for bats on or within a 10 km radius of the Site centre.

The LRERC and the WBRC desk searches indicate that there are no non-statutorily designated sites for bats within a 3 km radius of the centre of the Site.

The LRERC search returned a total of 24 bat records from 1986 to 2009 within 3 km of the Site centre. Records pre 2004 were not considered to give an accurate representation of the status of bats in the local area and, therefore, were not considered further. There were 19 records of bat roosts, the most recent and closest roost records to the Site are shown in Table 1, with all recent record being from 2009. Only common pipistrelle *Pipistrellus pipistrellus*, Brown Long-Eared bat (BLE) *Plecotus auritus* and Natterer's bat *Myotis nattereri* were identified to species level.

Table 1 – Most recent roost records from LRERC

Species	Date	Record Type	Distance in km and direction (from nearest Site boundary)
Unidentified	2009	Roost	1.98 km - north
Common Pipistrelle	2009	Roost: maternity	1.7 km - north
Natterer's Bat	2009	Roost	1.50 km - north
Pipistrelle species	2009	Roost	1.50 km – north-west
BLE	2009	Roost	1.25 km – north
BLE	2009	Roost	1.52 km – north
Pipistrelle species	2009	Roost	2 km – north-west
Unidentified	2009	Roost	1.27 km - north
Unidentified	2009	Roost	0.52 km – north-east
Unidentified	2009	Roost	0.50 km – north-west
Common Pipistrelle	2009	Roost	0.50 km – north-west
Common Pipistrelle	2009	Roost	1.8 km – north

A total of 12 bat roosts have been recorded within the last 10 years. The closest records of roosting bats are of common pipistrelle and an unidentified bat species that are 500 m north of the Site, south of Ullesthorpe village. The WBRC search did return any recent records of bats roosts within 3 km of the Site centre.

In addition to the roost records, field records have also been recorded of BLE, whiskered bat *Myotis mystacinus*, noctule *Nyctalus noctula* and Natterer's bat. Noctule bat have previously been identified on the Site boundary.

4.2 Review of Previous Surveys

Both the Extended Phase 1 Habitat Survey and Bat Habitat Assessment recommended further Bat Transect Surveys focus on suitable foraging and commuting habitats across the Site monthly during the main active bat season (April –September, inclusive).

4.3 Bat Survey

4.3.1 Bat Transect Surveys

Five species of bat comprising, common pipistrelle, soprano pipistrelle, noctule, BLE and a *Myotis Myotis* sp., were recorded along the transect routes. The results of the dusk transects are summarised in Tables 2-7, below. Bats were only recorded on transect routes 2, 4, 5 and 6 during the September survey, see Table 2, such that no bats were recorded on routes 1 and 3. Furthermore, routes 7-9 could not be completed during September 2014 due to access constraints, but monthly surveys have been completed along them since.

**Table 2 - Summary of Activity for the Transects September 2014,
results shown in Figure 5.1**

Transect Number	Date	Summary of Activity Observed	Time of First/Last Bat
2	22/09/2014 Dusk	Low levels of common pipistrelle recorded foraging and commuting. Bats heard at points 4 and 10 (Peak count of 1 bat).	19:52 (49 minutes after ss)
4	24/09/2014 Dusk	Noctule seen commuting over Site. Common pipistrelle commuting and foraging activity was concentrated along the dismantled railway (Peak count of 1).	19:34 (36 minutes after ss)
5	23/09/2014 Dusk	Very low levels of common pipistrelle recorded foraging and commuting between points 8 and 9 (Peak count of 2).	19:41 (41 minutes after ss)
6	23/09/2014 Dusk	Very low levels of common pipistrelle recorded foraging and commuting at listening points 1, 3, 4 and 6 (Peak count of 1).	19:43 (43 minutes after ss)

In April, whilst the temperatures during the transect surveys were suitable for bats to be active, there were still intermittent ground frosts during that month, which may have

affected the overall activity level of bats at the Site since it would have impacted upon prey availability. However, at least three different species were recorded in low numbers at the Site, and behaviour also to indicate the possible presence of bats roosting within trees at the Site (T4, T16 and T41). Furthermore, a bat was recorded to emerge from the southern aspect of Lodge Cottage, see Table 3, below.

Table 3- Summary of Activity for the Transects April 2015, results shown in Figure 5.2

Transect Number	Date	Summary of Activity Observed	Time of First/Last Bat
1	21/04/2015 Dusk	Bat activity was low and concentrated on the hedgerow habitats, only common pipistrelle recorded. Possible emergence from trees near to point 7 on southern boundary (Peak count of 4).	20:42 (29 minutes after ss)
2	22/04/2015 Dusk	Low levels of activity concentrated around the area of plantation woodland associated with the watercourse between points 5 and 6. Species limited to common and soprano pipistrelles. All bats heard but not seen (Peak count of 1).	21:02 (47 minutes after ss)
3	22/04/2015 Dusk	Low levels of bat activity with all bats recorded as common pipistrelle. Activity concentrated along the northern hedgerow. Possible roosts located in two trees between points 3 and 2 (Peak count of 4).	20:45 (30 minutes after ss)
4	20/04/2015 Dusk	Low to medium levels of bat foraging activity concentrated along the centre of the dismantled railway, bat also observed foraging along woodland belts. Common pipistrelle and noctule recorded. (Peak count of 2).	20:43 (32 minutes after ss)
5	20/04/2015 Dusk	Low levels of common pipistrelle foraging activity concentrated along the hedgerows and woodland belts (Peak count of 1).	20:51 (40 minutes after ss)
7	27/04/2015 Dusk	Low levels of common pipistrelle activity, bat was seen to emerge from the southern aspect of Lodge Cottage. Myotis bat also recorded (Peak count of 1).	20:51 (28 minutes after ss)
8	27/04/2015 Dusk	Low levels of bat activity recorded, only a single common pipistrelle was heard and not seen (Peak count of 1).	21:25 (62 minutes after ss)
9	21/04/2015 Dusk	Low levels of common pipistrelle activity recorded. Bat possibly emerged from a tree near to point 6. Bat activity associated with trees near to Bittesby House (Peak count of 1).	20:44 (31 minutes after ss)

Activity during the May transects reduced due to seasonally low evening temperatures that affected overall bat activity when weather conditions were suitable for bats to be out, with the lowest temperature recorded overnight as 7 °C. Bats were only recorded on transects 4, 7, 8 and 9, see Table 4 below.

Table 4 - Summary of Activity for the Transects May 2015, results shown in Figure 5.3

Transect Number	Date	Summary of Activity Observed	Time of First/Last Bat
4	28/05/2015 Dusk	Very low levels of activity recorded with common pipistrelle and Myotis recorded (Peak count 1)	21:55 (37 minutes after ss)
7	27/05/2015 Dusk	Very low levels of soprano pipistrelle activity, only two passes (Peak count of 1).	22:17 (67 minutes after ss)
8	26/05/2015 Dusk	Low levels of common pipistrelle activity recorded, activity was associated with all boundary hedgerows. Possible roost nearby due to timing of first bats recoded (Peak count of 2).	21:40 (31 minutes after ss)
9	27/05/2015 Dusk	Low levels of common pipistrelle activity recorded. Myotis also recorded and activity was associated with woodland belts and Bittesby House tree line (Peak count of 1).	21:57 (47 minutes after ss)

Bat activity in June was consistent with that found in April and a low level of bat activity was recorded on all transect routes, with four species recorded, see Table 5 and Figure 5.4.

Table 5 - Summary of Activity for the Transects June 2015, results shown in Figure 5.4

Transect Number	Date	Summary of Activity Observed	Time of First/Last Bat
1	19/06/2015 Dawn	Bat activity was low and concentrated on the hedgerow habitats. Common pipistrelle and Myotis sp. recorded along this habitat. A noctule was observed foraging over the pond and commuting east (Peak count of 1).	04:24 (17 minutes before sr)
2	18/06/2015 Dusk	Low levels of common pipistrelle activity concentrated around the area of hedgerow and track between points 3 and 4, and associated with the watercourse between points 5 and 6 (Peak count of 1).	22:05 (35 minutes after ss)
3	19/06/2015 Dusk	Low levels of bat activity with all bats recorded as common pipistrelle. Activity concentrated along the northern hedgerow (Peak count of 1).	22:09 (69 minutes after ss)
4	24/06/2015 Dawn	Low levels of foraging activity concentrated along the central track of the railway. Common and soprano pipistrelle recorded (Peak count of 1).	04:15 (27 minutes before sr)
5	23/06/2015 Dusk	Single common pipistrelle commuting at listening point 9 (Peak count of 1).	23:13 (102 minutes after ss)

6	23/06/2015 Dusk	Low levels of common pipistrelle activity, mainly associated with the woodland belts between points 7 and 9. (Peak count of 1).	22:20 (51 minutes after ss)
7	19/06/2015 Dawn	Low levels of common and soprano pipistrelle foraging associated with the trees and pond. Medium levels of noctule foraging activity along the tree line up to Bittesby House. Myotis sp. recorded (Peak count of 3).	04:25 (22 minutes before sr)
8	27/06/2015 Dusk	A single common pipistrelle was heard and not seen (Peak count of 1).	03:29 (73 minutes before sr)
9	25/06/2015 Dawn	Low levels of foraging activity was recorded with activity associated with hedge line and trees (Peak count of 1).	04:16 (33 minutes before sr)

Higher levels of bat activity were recorded whilst undertaking the July transects, with bats recorded on all transect routes at dusk and on all routes at dawn, apart from on transect 6. One BLE was recorded flying along the central hedgerow of Transect 1. See Table 6, below. Overall, however, for the time of year, bat activity on-Site was considered to be low.

Table 6 - Summary of Activity for the Transects July 2015, results shown in Figure 5.5

Transect Number	Date	Summary of Activity Observed	Time of First/Last Bat
1	20 – 21/07/2015 Dusk and Dawn	Dusk - Low levels of common pipistrelle activity recorded, foraging along hedgerows, a BLE was also recorded commuting between points 8 and 7 (Peak count of 1). Dawn - Low levels of common pipistrelle and noctule activity recorded foraging along hedgerows (Peak count of 1).	22:06 (52 minutes after ss) 04:18 (49 minutes before sr)
2	21- 22/07/2015 Dusk and Dawn	Dusk - Low levels of common and soprano pipistrelle activity concentrated hedgerow between points 9 and 10 (Peak count of 1). Dawn – very low levels of common pipistrelle activity with noctule also recorded (Peak count of 2).	21:40 (26 minutes after ss) 04:50 (20 minutes before sr)
3	20 – 21/07/2015 Dusk and Dawn	Dusk - Low levels of bat activity with all bats recorded as common pipistrelle. Activity concentrated along the northern hedgerow (Peak count of 1). Dawn - Low levels of bat activity with all bats recorded as common pipistrelle. Activity	No times given

		concentrated along the northern hedgerow (Peak count of 1).	
4	23- 24/07/2015 Dusk and Dawn	Dusk - Low levels of foraging activity concentrated along the central track of the railway. Common pipistrelle and noctule recorded (Peak count of 1). Dawn - Low levels of foraging activity concentrated along the central track of the railway. Common pipistrelle recorded (Peak count of 1).	21:21 (11 minutes after ss) 04:45 (27 minutes before sr)
5	27- 28/07/2015 Dusk and Dawn	Dusk – very low levels of common pipistrelle activity recorded, focused around wooded areas at point 8 (Peak count of 1). Dawn – Very low levels of common pipistrelle activity, concentrated along hedgerows (Peak count of 1).	21:50 (45 minutes after ss) 05:00 (18 minutes before sr)
6	27- 28/07/2015 Dusk and Dawn	Dusk – Very low levels of common pipistrelle activity along the A5 hedgerow and at White House Farm (Peak count of 1). Dawn - Very low levels of common pipistrelle activity (Peak count of 1).	22:00 (55 minutes after ss). 04.20 (59 minutes before sr)
7	08 – 09/07/2015 Dusk and Dawn	Dusk – only two common pipistrelle passes recorded along hedgerows between points 1 and 2 (Peak count of 1). No bats recorded on the dawn survey.	22:10 (44 minutes before sr)
8	21- 22/07/2015 Dusk and Dawn	Dusk - Low levels of common pipistrelle and noctule bat activity recorded (Peak count of 1). Dawn –Two bats (common pipistrelle and noctule) recorded (Peak count of 1).	No times given
9	21- 22/07/2015 Dusk and Dawn	Dusk - Low levels of foraging activity was recorded with activity associated with hedge line and trees along the lane to Bittesby House (Peak count of 1). Dawn- low levels of common pipistrelle activity associated with the boundary hedgerows and trees up to Bittesby House (Peak count of 1).	21:54 (31 minutes before sr) 04:57 (12 minutes before sr)

Overall, levels of bat activity recorded during the August transects were lower than in July, with low levels of activity recorded on transects 2, 3 5 and 6, whilst activity along transect 4 was consistent with other months, see Table 7, below.

Table 7 - Summary of Activity for the Transects August 2015, results shown in Figure 5.6

Transect Number	Date	Summary of Activity Observed	Time of First/Last Bat
1	06/08/2015 Dawn	Bat activity was low and concentrated on the hedgerow habitats. Common pipistrelle was the only species recorded (Peak count of 1).	04:56 (36 minutes before sr)
2	05/08/2015 Dawn	Low levels of common pipistrelle activity concentrated around the area between points 3 and 4 associated with the watercourse, and between points 7 and 8 (Peak count of 1).	04:27 (33 minutes before sr)
3	06/08/2015 Dawn	Low levels of bat activity with all bats recorded as common pipistrelle. Activity concentrated along the northern hedgerow (Peak count of 1).	04:45 (45 minutes before sr)
4	06/08/2015 Dawn	Low levels of foraging activity concentrated along the central track of the railway. Common and soprano pipistrelle species and noctule recorded commuting north along the track (Peak count of 1).	05:10 (20 minutes before sr)
5	05/08/2015 Dusk	Low levels of common pipistrelle commuting along the northern hedgerow between points 4 and 6 (Peak count of 1).	21:26 (37 minutes after ss)
6	04/08/2015 Dusk	Low levels of common pipistrelle activity mainly associated with the woodland belts between points 7 and 9.	21:07 (15 minutes after ss)
7	05/08/2015 Dawn	Very low levels of common foraging associated with the tree and pond. (Peak count of 1).	04:56 (34 minutes before sr)
8	03/08/2015 Dusk	Low levels of common pipistrelle bat activity recorded, and a single noctule and a single Myotis sp. were heard and not seen (Peak count of 1).	21:08 (15 minutes after ss)
9	04/08/2015 Dawn	Low levels of foraging activity was recorded, with activity associated with hedge line drain in the central and eastern sections of the transect (Peak count of 1).	04:50 (38 minutes before sr)

Whilst the arable land is not considered ideal habitat for foraging bats, it was anticipated that bats would utilise the hedgerow field boundaries for commuting in between roost sites and foraging sites, and generally for foraging, and species that glean prey from water (such as soprano pipistrelle bat) would use the on-Site waterbodies for foraging. However, the monthly transect surveys indicate that bat activity at the Site for all species is generally low, with even Pipistrelle bats that have more generalist habitat requirements than other species only occurring in low numbers at the Site. Each month the surveys were undertaken during dry conditions with suitable temperatures for bats to be active. However, during the month of September 2014 the weather was generally wet and cold which would have impacted upon bat prey activity, but given that many nights of foraging

would have been missed due to overnight rainfall, it was anticipated that when there were opportunities to forage, bat activity would have been heightened, were they relying on the Site for roosting and/ or foraging opportunities. Again, in May 2015 when the weather was unseasonably cold, it was anticipated that on those slightly warmer nights when opportunities for bats to forage were greater that they would have taken advantage of them. Overall, therefore, it is anticipated that the habitats at the Site offer limited opportunities for bats.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The Site is characterised by predominantly arable fields, with occasional poor semi-improved grassland fields, bounded by hedgerows and drainage ditches. Several sections of broadleaved plantation woodland are situated within the eastern and central areas of the Site, and there are four ponds at the Site. A range of domestic and commercial buildings with associated infrastructure lay within the south-western extent of the Site.

The results of the MAGIC data search indicate that there are no statutory sites designated for bats within 10 km of the Site centre. Furthermore, there are no non-statutory designated for bats within a 3 km radius of the Site centre.

A total of 12 bat roosts have been recorded within the last 10 years within a 3 km radius of the Site centre. The closest records of roosting bats are of common pipistrelle and an unidentified bat species that are 500 m north of the Site, south of Ullesthorpe village. Field records have also been recorded of BLE, whiskered bat, noctule and Natterer's bat.

Low numbers of bats were recorded on all transect routes during the September 2014 to August 2015 transect surveys. Bat activity levels were particularly low during the 2014 September transects and the 2015 May transects, which is considered to be due to the transects being undertaken during periods of generally poor weather conditions, either as a result of wet cold conditions, or unseasonably low temperatures, both of which would impact prey availability on days that were suitable for foraging.

Whilst suitable habitats such as hedgerow corridors around arable fields, and drainage ditches for commuting and foraging bats, and the waterbodies for foraging bats, exist at the Site, even Pipistrelle bat species with more generalist habitat requirements were only recorded in low numbers at the Site. During the transect surveys, a common pipistrelle was seen to emerge from Lodge Cottage, and also behaviour recorded to indicate the possible presence of individual common pipistrelle bats roosting within trees T16 and T41 at the Site, however, no behaviour was recorded to indicate the presence of a maternity roost on, or local to the Site. Bat activity at the Site was found to be highest in July based on transect results, which was as anticipated since weather conditions were ideal, and

invertebrate prey would be abundant. Several hotspots of bat activity was recorded, predominately along the avenue of trees up to Bittesby House and around the pond and trees at Lodge Cottage, whilst activity was also associated with the various woodland belts around the Site, again though few bats were recorded in these locations. No evidence of swarming at roost sites was observed during the transect surveys.

5.2 Potential Impacts of Development

It is anticipated that without mitigation in place during the construction phase of works there is the potential to disturb or harm bats roosting on and off-Site within either trees or buildings. There is the potential for the clearance works to facilitate the proposals to sever connectivity between roost sites and foraging areas and, therefore, the results of this Report should be considered in conjunction with the Nocturnal Bat Survey Report, where survey effort was focussed on buildings, trees and structures with potential to support roosting and/ or hibernating bats.

Disturbance during the construction phase of works would result from both lighting to facilitate the construction works, and the noise/ vibration from those works. Any impact upon bats will be temporary and localised to the area immediately surrounding the Site. However, the felling of Trees T16, T19 and T45, and demolition of Lodge Cottage, any works to the Reception and the Office at Bittesby Farm, due to be retained, would result in the long-term loss, or temporary disturbance, of roosting sites. Given the current bat survey results, the overall adverse impact upon the local bat population during the construction phase without mitigation in place is considered to be low.

It is anticipated that without mitigation in place during the operational phase of the development there is the potential to deter all bat species from roosting within habitats immediately within and adjacent to the Site due to light spill and increased anthropogenic activity resulting from the development. Furthermore, those bat species utilising Site edge habitats or habitats on Site for foraging and commuting will be limited to light tolerant bat species, which includes both pipistrelle bat species and noctules. Therefore, given the survey results to date, the majority of bats utilising the Site for foraging and commuting purposes are not anticipated to be negatively impacted upon by the proposed development. Given that a low number of small bat roosting sites, supporting lone males or non-breeding females, will be lost to facilitate the proposals, the overall negative impact

upon the local bat population during the operational phase without mitigation in place is considered to be low.

A review of the preliminary landscaping proposals for the Site indicates that the majority of the hedgerows, trees and watercourses will be retained as part of the development, in particular within the northern and eastern areas of the Site, and the dismantled railway that bisects the Site will also be retained. This will secure an area of the Site that is already used by foraging bats for the long-term. Furthermore, the inclusion of extensive shrub, tree and herbaceous borders around buildings and the inclusion of several SUDS and wet woodlands, will provide commuting and foraging habitat for bats. The provision of species-rich grassland areas within the eastern area of the Site, will increase invertebrate density at the Site and, therefore, increase available prey for bats. Bat boxes will be installed at suitable locations at the Site to both compensate for the loss of roost sites, but also to enhance opportunities for roosting bats at the Site. Overall the proposed landscaping proposals are considered to provide a net gain in suitable foraging habitat for bats within the local area and there are, therefore, not anticipated to be any significant adverse impacts in the short to long-term on the bat population within the local area as a result of the proposed development.

5.3 Recommendations

Recommendation 1 (Construction Phase)

- △ In order to limit disturbance to bats during the construction phase of works, lighting to facilitate the works must be directional, and light spill onto key foraging/commuting vegetated corridors both on and off-Site must be avoided; and
- △ Where possible, works at the Site should be limited to standard daytime hours in order to prevent disturbance to bats when they emerge from roost sites to forage, or commute to foraging habitats along the Site boundaries.

Recommendation 2 (Operational Phase)

- △ In order to prevent any adverse impacts upon the commuting and foraging features for bats at the Site, the lighting plan for the Site must be sensitive to bats such that lighting within public areas of the proposed development is kept to a minimum (as required for safety and security) and that light spill onto vegetation corridors, is avoided where possible; and

- △ There are several methods by which light can be targeted and light trespass avoided in order to minimize adverse impacts to bats. Lamps with a low UV component should be used. Insects are particularly sensitive to UV light and are attracted in large numbers to lights with a high UV component. This has the effect of reducing insect availability in adjacent dark areas impacting the ability of light-avoiding bats to forage. Lighting should be directed to the target area only and light trespass onto linear vegetation avoided. Design of the luminaire, the luminaire aiming angles and optical control should be such as to minimize glare. If appropriate, physical barriers such as cowls, hoods, louvers and shields should be considered to avoid light trespass onto vegetative corridors, and, the use of highly directional Light Emitting Diodes (LEDS) should be considered.

Recommendation 3 (Roosting Habitat Enhancement)

Artificial bat roosting sites will be incorporated within the overall landscaping design for the Site, these will compensate for the loss of the roosts within the buildings and trees and will also enhance the Site for roosting bats. A total of 24 bat boxes should be installed on a number of mature trees that will be retained, or alternatively on telegraph poles/ similar if no such trees are of adequate stature, and, bat bricks and/ or bat boxes should be installed within the disused railway tunnels (just inside for summer roosts, further inside to provide hibernation opportunities).

Recommendation 4 (Foraging and Commuting Habitat Enhancement)

It is understood that the habitats associated with the dismantled railway line will be retained, however, a number of hedgerows will be lost, and therefore, the landscape proposals for the Site have incorporated new hedgerows, or blocks of linear landscape planting into the proposals, to provide foraging and commuting corridors for bats at the Site. Furthermore, landscaping supporting a variety of native species will be planted to provide food throughout the year for invertebrate species, which will in turn increase foraging opportunities for bats, and other faunal species at the Site. Tree species planted along pathways and within amenity areas will include a mixture of native broadleaved trees that will develop roosting potential as they mature, together with trees planted in belts and clusters to support foraging and commuting bats.

Careful landscape planning will be undertaken to ensure that at the eastern extent of the proposed extension to Magna Park, there is a continuity of those habitats occurring on the present Magna Park site, to encourage bats to commute and forage across both areas.

6.0 LIMITATIONS

In September 2014 no access could be gained to complete Transect routes 7, 8 and 9 at the Site. However, given the overall extent of bat survey effort undertaken during the active bat season, and the overall low level of bat activity that has been found at the Site, the lack of this data is not considered to be a constraint, and no additional transect surveys are deemed necessary.

The behaviour of animals can be unpredictable and may not conform to characteristics recorded in current scientific literature. This Report, therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 4 of this Report, exercising the duty of care required of an experienced Ecology Consultant. Delta-Simons does not warranty or guarantee that the Site is free of Bats or other protected species.

No part of the survey included an assessment of the materials and conditions of the building. No part of the survey included an asbestos assessment, nor did it represent an appraisal of other deleterious materials or hazardous substances.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

This Report was prepared by:



Jonathan Spencer
Senior Ecologist

15/09/15
Date

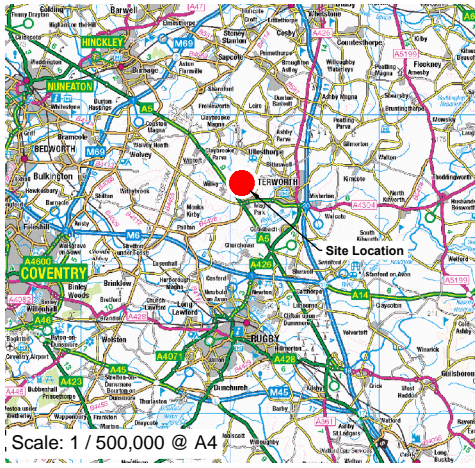
This Report was reviewed and authorised by:




Charlotte Sanderson
Ecology Unit Manager

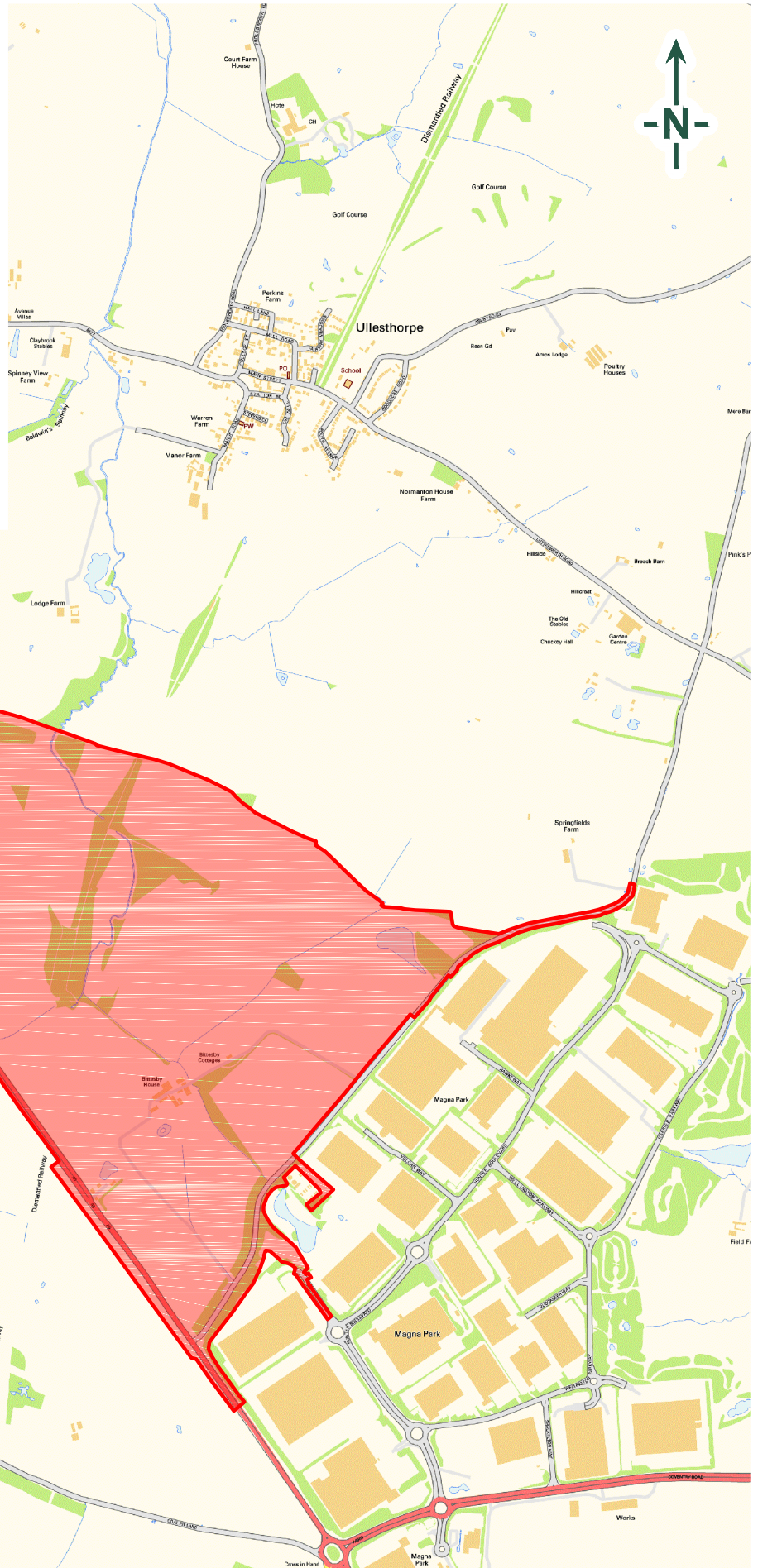
15/09/15
Date





LEGEND

 Site Boundary



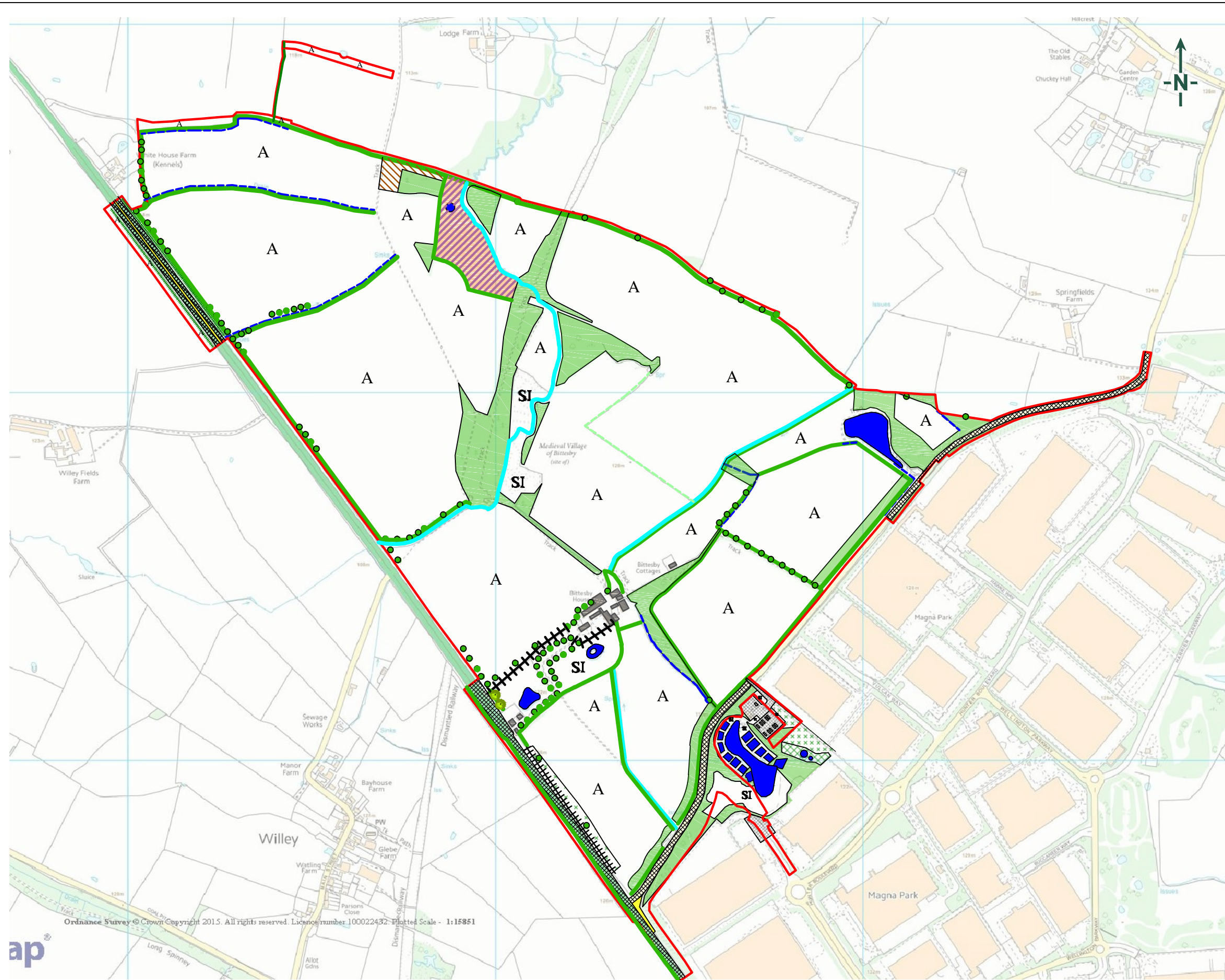
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TITLE:
Site Location Plan
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN: DP
 SCA: To Scale @ A4
 CHK: JS
 REV: 1
 DATE: 14 September 2015

PROJECT NO.:
14-0159.03
 FIGURE NO.:
1



LEGEND

	Site Boundary
	Broadleaved Plantation Woodland (A1.1.2)
	Scattered Broadleaved Trees (A3.1)
	Scattered Coniferous Trees (A3.2)
	Marsh Grassland (B5)
	Poor Semi Improved Grassland (B6)
	Tall Ruderal (C3.1)
	Standing Water (G1)
	Running Water (G2)
	Arable (J1.1)
	Amenity Grassland (J1.2)
	Intact Hedgerow - Species Poor (J2.1.2)
	Defunct Hedgerow - Species Poor (J2.2.2)
	Fence (J2.4)
	Dry Ditch (J2.6)
	Scattered Scrub (A2.2)
	Species Poor Hedgerow with Trees (J2.3.2)
	Dense Scrub (A2.1)
	Buildings (J3.6)
	Hard Standing (J4.1)

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TITLE:
 Site Layout Plan
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 2
DATE: 14 September 2015		



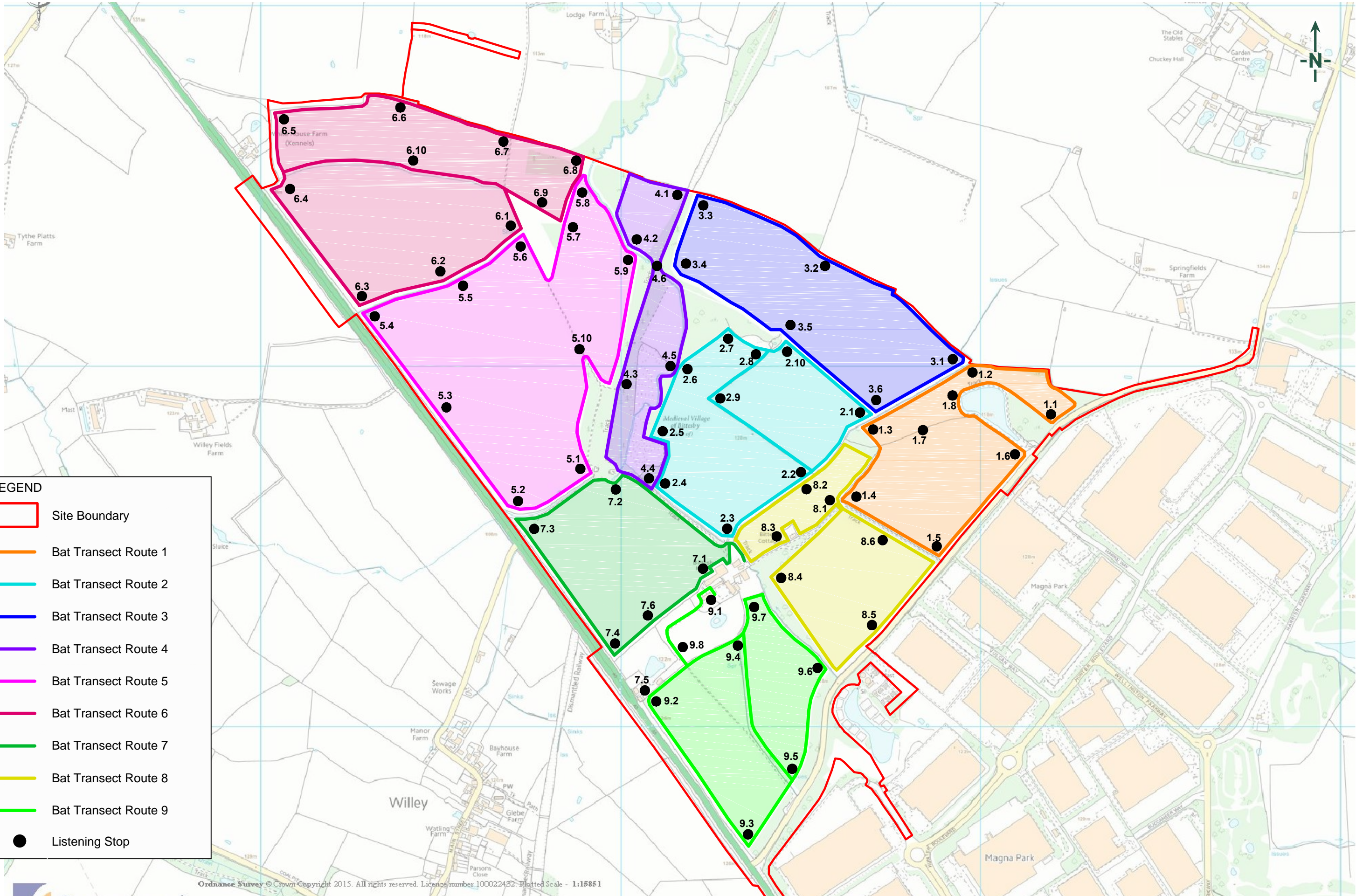
- GENERAL NOTES:
1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERING AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
 3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
 4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERRED TO THE CLIENT IMMEDIATELY.
 5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 6. ALL LEVELS IN METRES.
 7. DO NOT SCALE OFF THIS DRAWING.
 8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
 9. THE CONTENT OF THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST PROJECT GOMR REGISTER.

NO	14/09/2015	FOR COMMENT	1/18	DN
REV	Date	Description	Rev	Drawn/Chk
 Landscape Architecture, Urban Design, Creative Ecology 21 Mill Street, Bath BA1 1UT T: +44 (0) 1225 323864 F: +44 (0) 1225 428184 E: info@grant-associates.co.uk				
CLIENT IDI Gazeley				
PROJECT Magna Park Extension OPA				
TITLE Illustrative Masterplan				
Author	Drawn	Check	Scale	Appr.
14/09/2015	JS	10/09/2015	1/18	DN
FOR COMMENT				
Drawing No.	Rev			
MLP14to-AL-A01-MP-0-001	00			



TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Planning Application
 Lutterworth

DWN:	DP	SCA:	Not to Scale	PROJECT NO.:	14-0159.03
CHK:	JS	REV:	1	FIGURE NO.:	3
DATE:	14 September 2015				



LEGEND

- Site Boundary
- Bat Transect Route 1
- Bat Transect Route 2
- Bat Transect Route 3
- Bat Transect Route 4
- Bat Transect Route 5
- Bat Transect Route 6
- Bat Transect Route 7
- Bat Transect Route 8
- Bat Transect Route 9
- Listening Stop

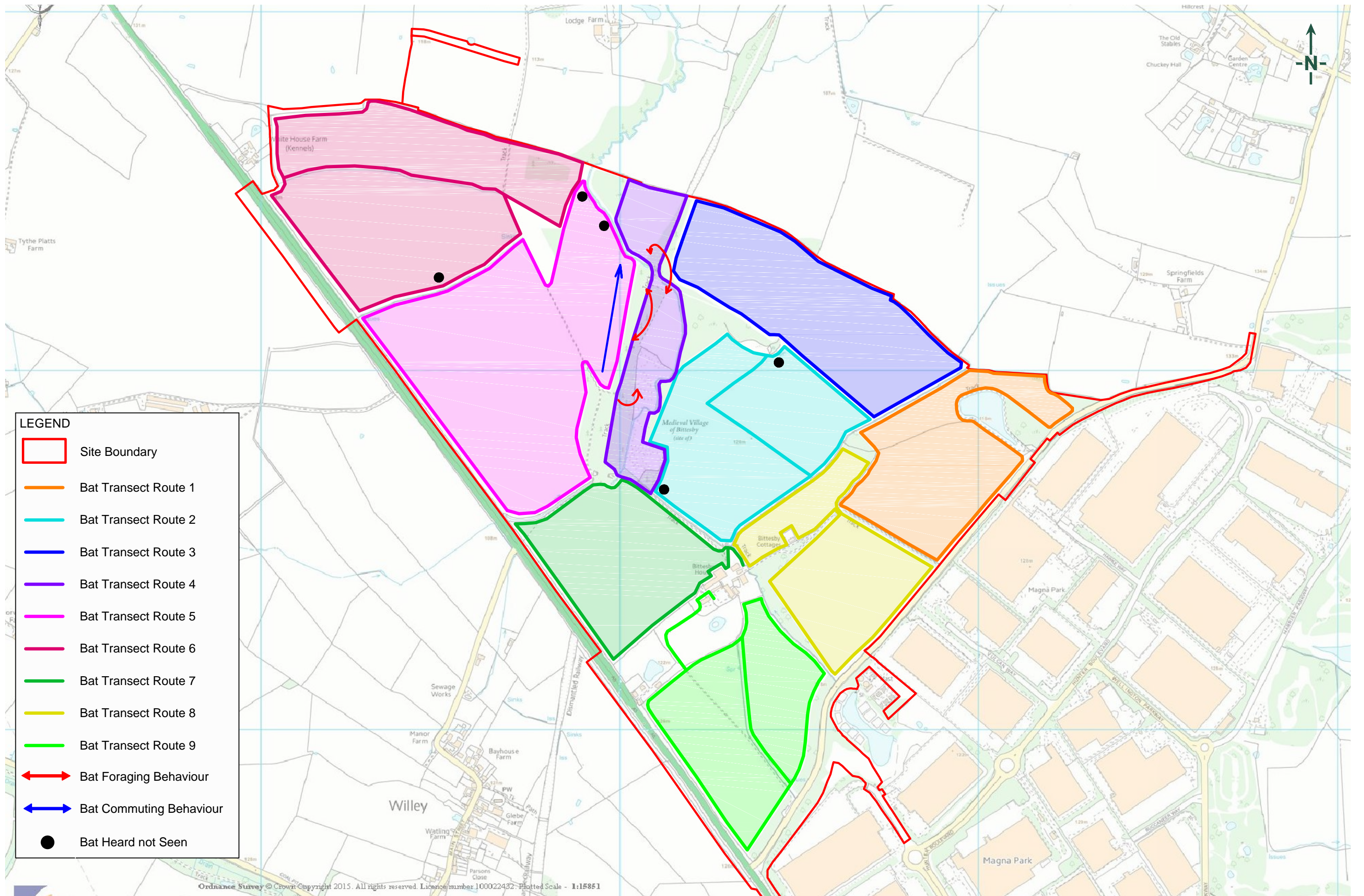
Ordnance Survey © Crown Copyright 2015. All rights reserved. Licence number 100022432. Plotted Scale - 1:15851



TITLE:
Bat Transect Routes
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 4
DATE: 14 September 2015		

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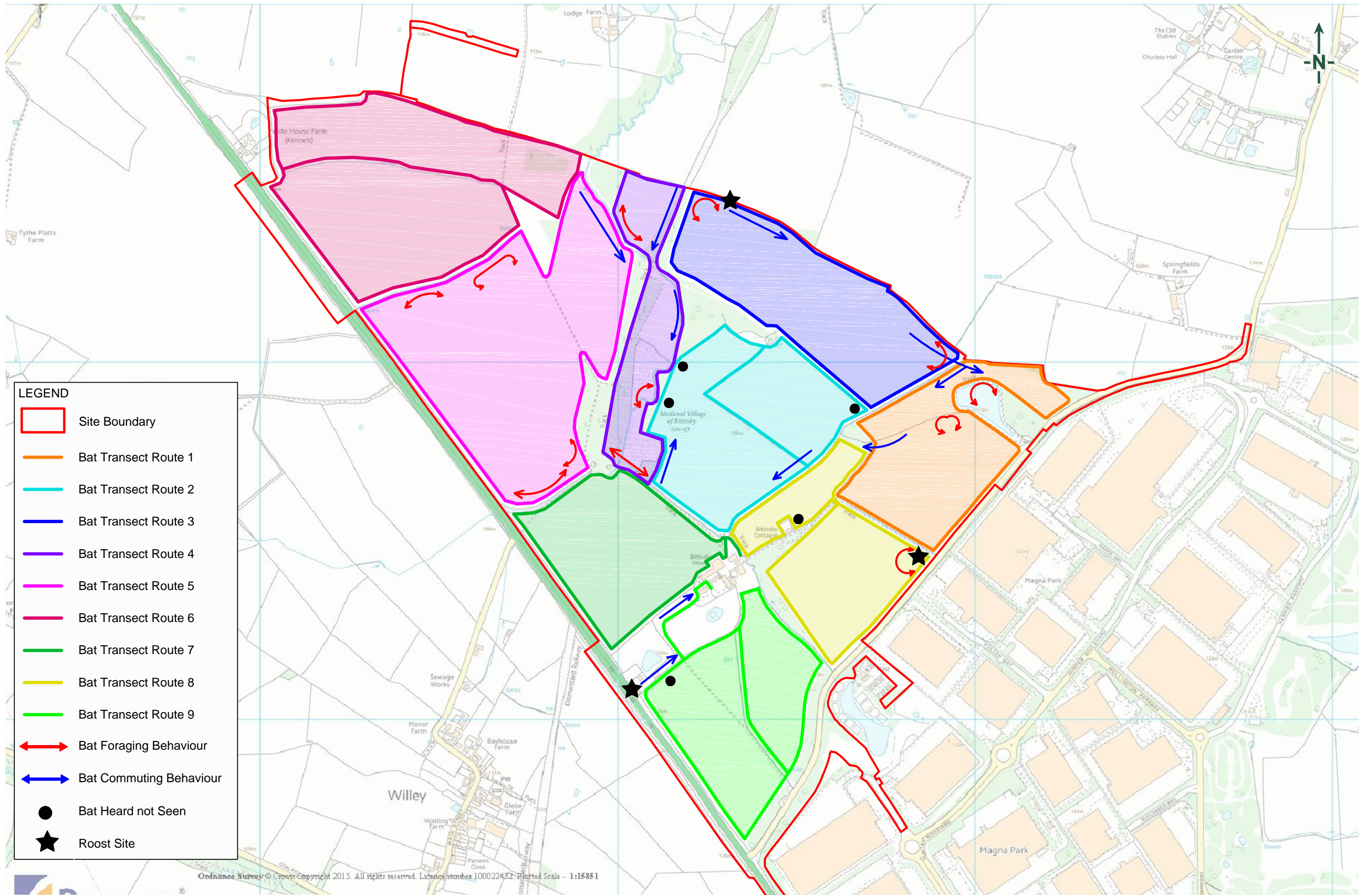
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TITLE:
Bat Transect Results September 2014
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN:	DP	SCA:	Not to Scale	PROJECT NO.:	14-0159.03
CHK:	JS	REV:	1	FIGURE NO.:	5.1
DATE:	14 September 2015				



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LEGEND

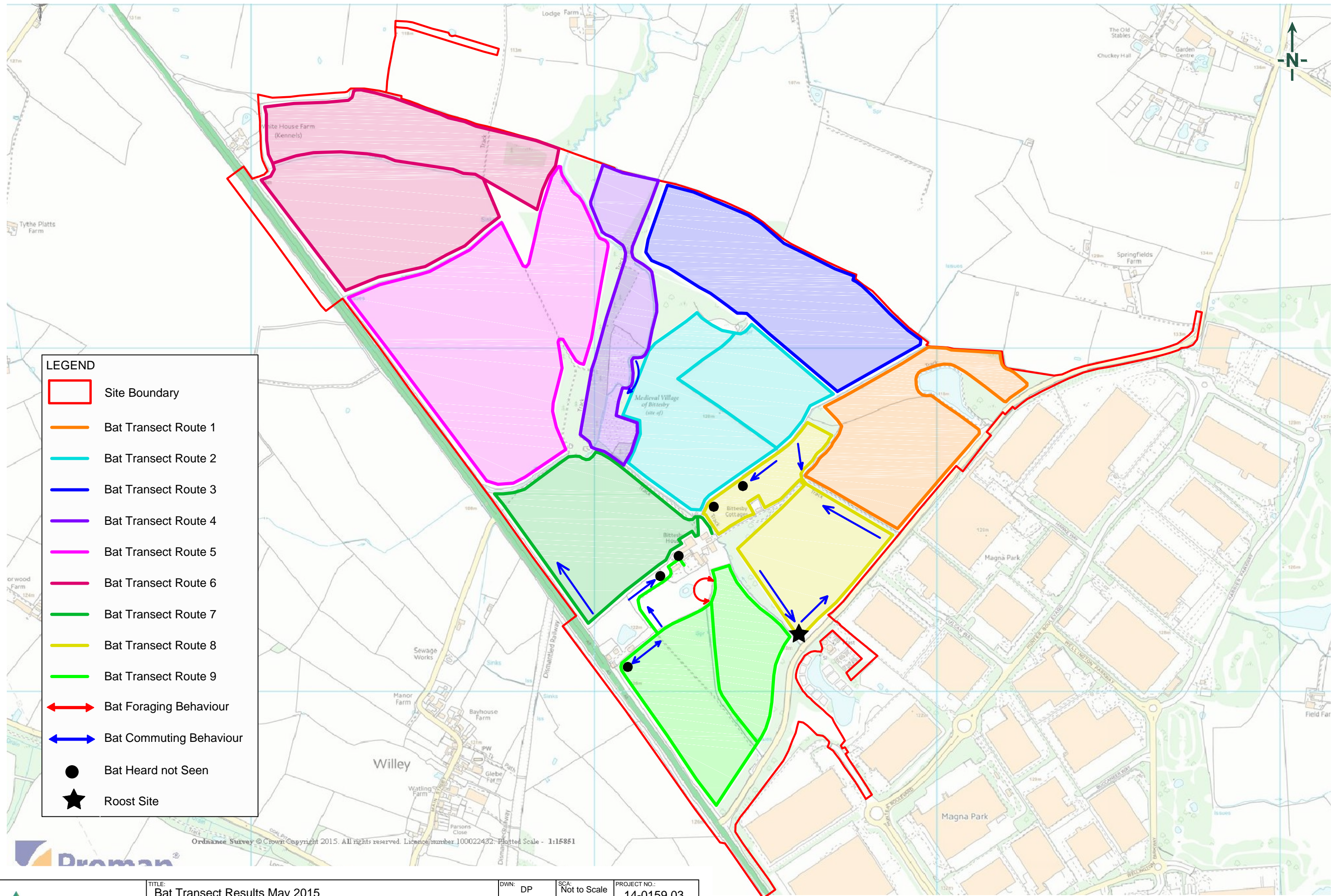
- Site Boundary
- Bat Transect Route 1
- Bat Transect Route 2
- Bat Transect Route 3
- Bat Transect Route 4
- Bat Transect Route 5
- Bat Transect Route 6
- Bat Transect Route 7
- Bat Transect Route 8
- Bat Transect Route 9
- ↔ Bat Foraging Behaviour
- ↔ Bat Commuting Behaviour
- Bat Heard not Seen
- ★ Roost Site

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TITLE:
 Bat Transect Results April 2014
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 5.2
DATE: 14 September 2015		



LEGEND

- Site Boundary
- Bat Transect Route 1
- Bat Transect Route 2
- Bat Transect Route 3
- Bat Transect Route 4
- Bat Transect Route 5
- Bat Transect Route 6
- Bat Transect Route 7
- Bat Transect Route 8
- Bat Transect Route 9
- ↔ Bat Foraging Behaviour
- ↔ Bat Commuting Behaviour
- Bat Heard not Seen
- ★ Roost Site

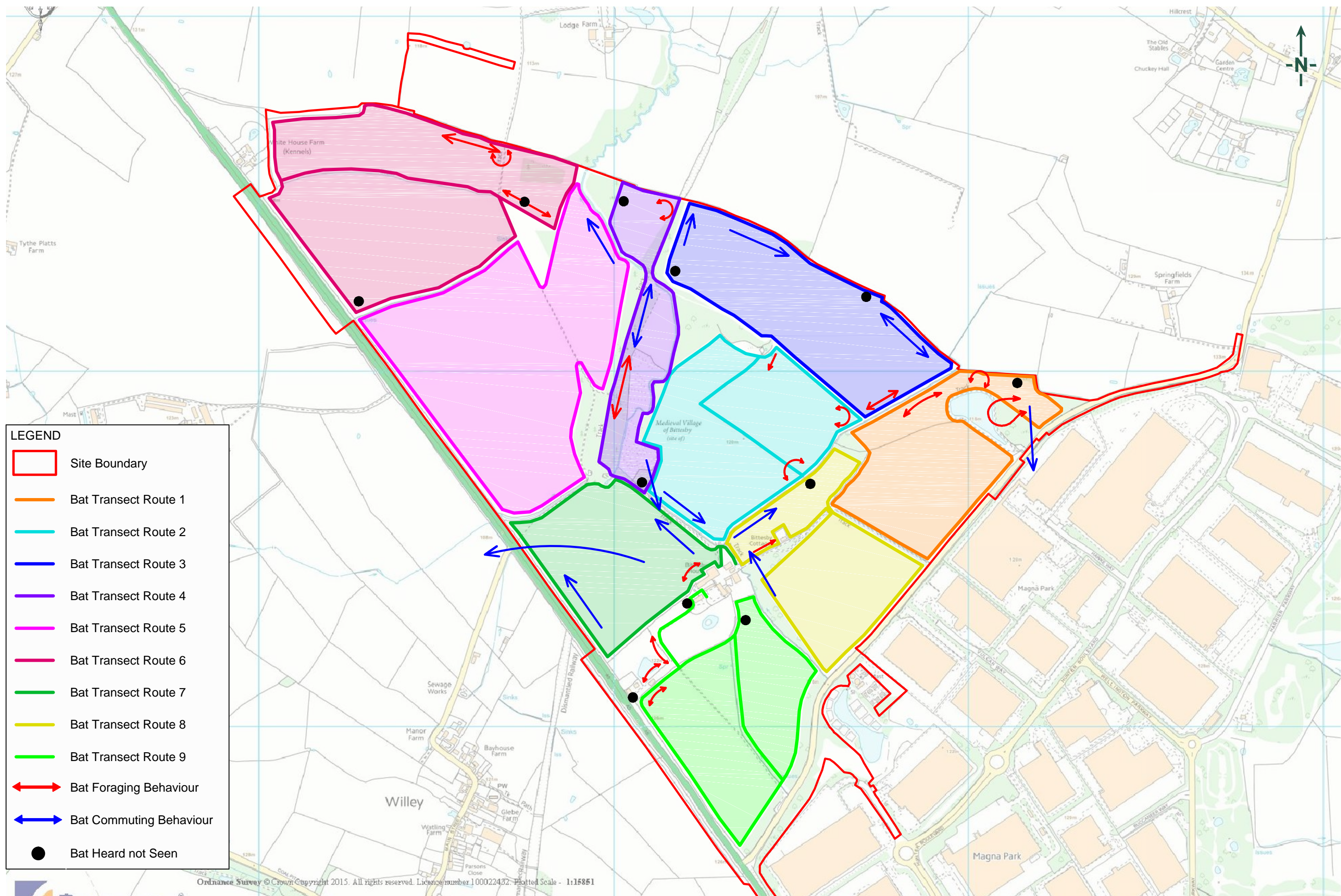
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TITLE:
 Bat Transect Results May 2015
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 5.3
DATE: 14 September 2015		

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LEGEND

- Site Boundary
- Bat Transect Route 1
- Bat Transect Route 2
- Bat Transect Route 3
- Bat Transect Route 4
- Bat Transect Route 5
- Bat Transect Route 6
- Bat Transect Route 7
- Bat Transect Route 8
- Bat Transect Route 9
- ↔ Bat Foraging Behaviour
- ↔ Bat Commuting Behaviour
- Bat Heard not Seen

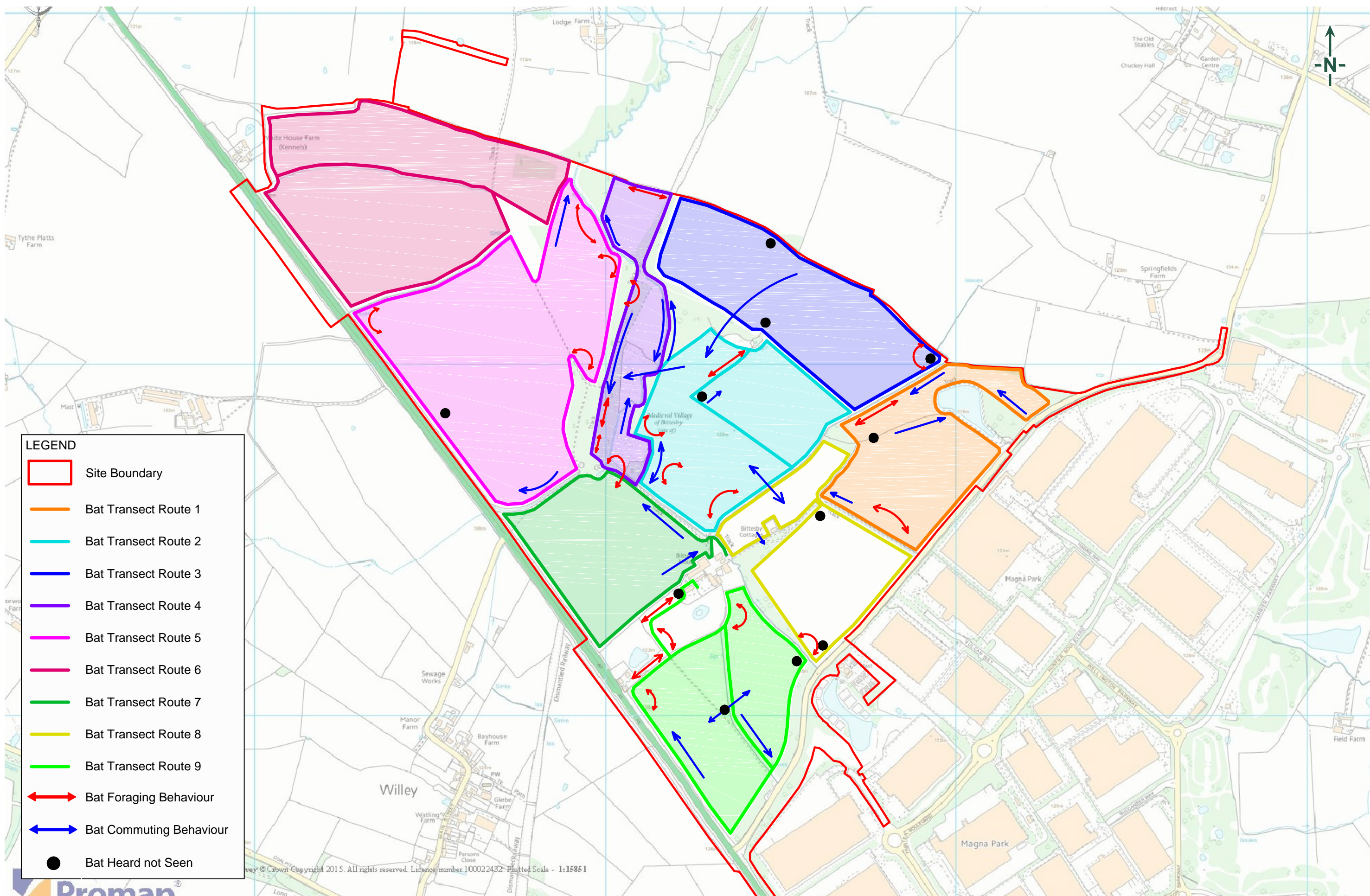
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TITLE:
 Bat Transect Results June 2015
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 5.4
DATE: 14 September 2015		

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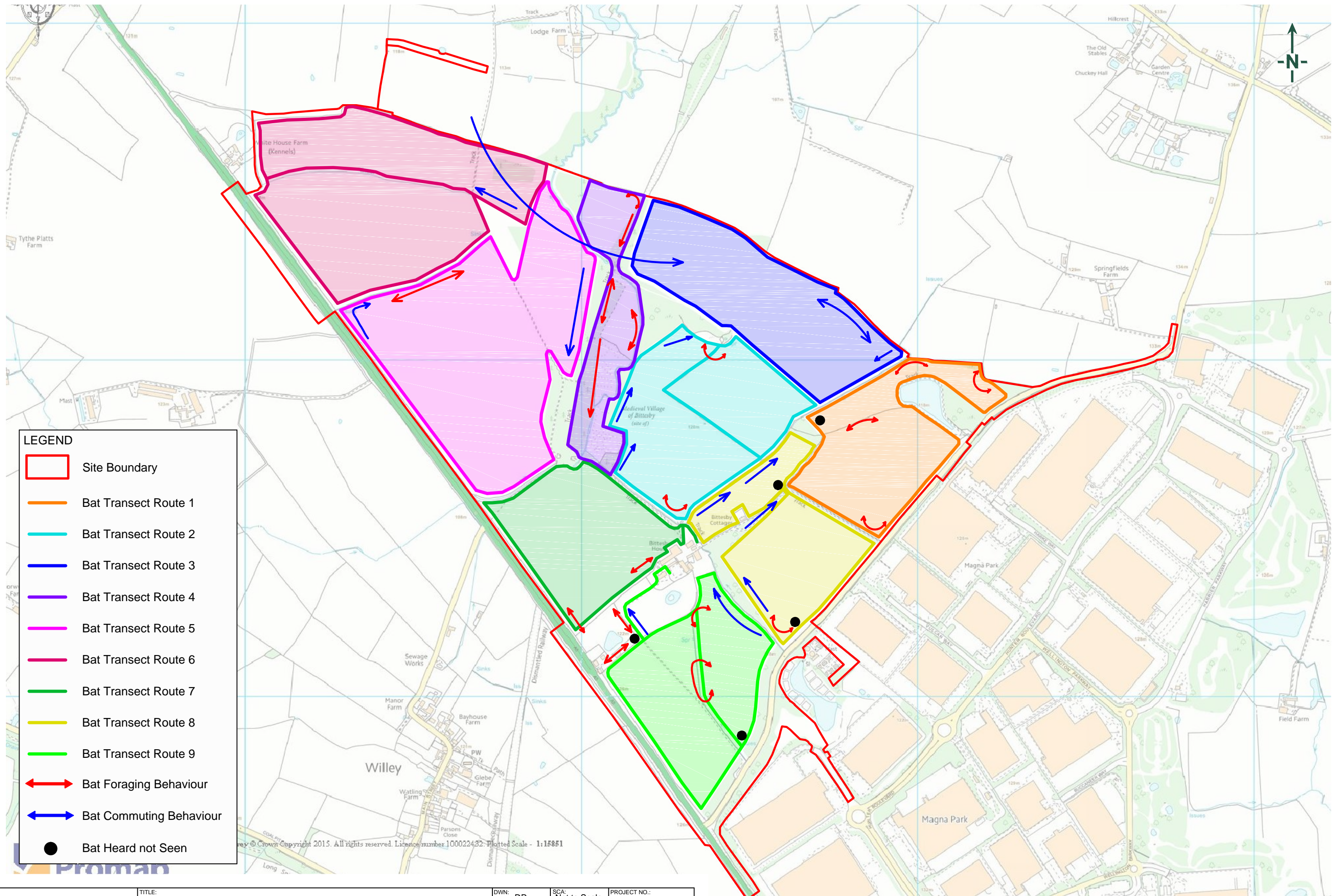
LEGEND

- Site Boundary
- Bat Transect Route 1
- Bat Transect Route 2
- Bat Transect Route 3
- Bat Transect Route 4
- Bat Transect Route 5
- Bat Transect Route 6
- Bat Transect Route 7
- Bat Transect Route 8
- Bat Transect Route 9
- ↔ Bat Foraging Behaviour
- ↔ Bat Commuting Behaviour
- Bat Heard not Seen

TITLE: Bat Transect Results July 2015
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 5.5
DATE: 14 September 2015		





TITLE:
 Bat Transect Results August 2015
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 5.6
DATE: 27 August 2015		





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The Conservation of Habitats and Species Regulations 2010 (as amended) HMSO

Wildlife and Countryside Act 1981 (as amended), HMSO.



Table 1 – September 2014 Timings and Weather Conditions of Bat Surveys

Survey	Date	Timing	Weather
Transect Routes 2 & 5	22/09/14	18:50 – 21:10 (sunset 19:03)	14 °C, dry, 2/8 cloud cover, slight breeze
Transect Route 1	23/09/14	04:52 – 06:52 (sunrise 06:52)	8 °C, dry, 0/8 cloud cover, no breeze
Transect Route 6	23/09/15	18:47 – 21:12 (sunset 19:02)	17°C, dry, light breeze, 5/8 cloud cover, light breeze
Transect Routes 3 & 4	24/09/15	18:45 – 20:42 (sunset 18:54)	16°C, dry, 2/8 cloud cover, light breeze

Table 2 – April 2015 Timings and Weather Conditions of Bat Surveys

Survey	Date	Timing	Weather
Transect Routes 4, 5 & 6	20/04/15	19:55 – 21:55 (sunset 20:11)	12°C, dry, 0/8 cloud cover, no breeze
Transect Routes 1 & 9	21/04/15	19:58 – 22:17 (sunrise 20:13)	11 °C, dry, 1/8 cloud cover, slight breeze
Transect Routes 2 & 3	22/04/15	20:00 – 22:18 (sunset 20:15)	12°C, dry, 1/8 cloud cover, occasional breeze
Transect Routes 7 & 8	27/04/15	20:10 – 21:30 (sunset 20:15)	8°C, dry, 6/8 cloud cover, moderate breeze

Table 3 – May 2015 Timings and Weather Conditions of Bat Surveys

Survey	Date	Timing	Weather
Transect Routes 1 & 8	26/05/15	20:55 – 23:10 (sunset 21:09)	10 °C, dry, 1/8 cloud cover, light breeze
Transect Routes 2 & 3	27/05/15	02:53 – 04:53 (sunrise 04:53)	7 °C, dry, 0/8 cloud cover, no breeze
Transect Routes 7 & 9	27/05/15	20:55 – 23:25 (sunset 21:10)	12°C, dry, 7/8 cloud cover, south-westerly breeze
Transect Routes 5 & 6	28/05/15	02:51 – 04:59 (sunrise 04:53)	9°C, overnight rain but currently dry, 5/8 cloud cover, moderate south-westerly breeze
Transect Route 4	28/05/15	20:50 – 23:30 (sunset 21:12)	12°C, dry, 3/8 cloud cover, light breeze

Table 4 – June 2015 Timings and Weather Conditions of Bat Surveys

Survey	Date	Timing	Weather
Transect Routes 2 & 3	18/06/15	21:15 – 23:15 (sunset 21:30)	13 °C, dry, 2/8 cloud cover, slight breeze
Transect Routes 1 & 8	19/06/15	03:10 – 04:41 (sunrise 04:41)	9 °C, dry, 2/8 cloud cover, slight breeze
Transect Routes 5 & 6	23/06/15	21:15 – 23:15 (sunset 21:31)	15 °C, dry, 2/8 cloud cover, slight breeze
Transect Route 4	24/06/15	03:12 – 04:42 (sunrise 04:42)	11°C, dry, 6/8 cloud cover, no breeze
Transect Routes 7 & 9	25/06/15	03:16 – 04:43 (sunrise 04:43)	11°C, dry, 6/8 cloud cover, no breeze

Table 5 – July 2015 Timings and Weather Conditions of Bat Surveys

Survey	Date	Timing	Weather
Transect Route 7	08/07/15	21:13 – 23:06 (sunset 21:28)	15°C, dry, 2/8 cloud cover, slight breeze
Transect Route 7	09/07/15	03:25 – 04:53 (sunrise 04:53)	8 °C, dry, 3/8 cloud cover, slight breeze
Transect Routes 1 & 3	20/07/15	20:59 – 22:45 (sunset 21:14)	18°C, dry with previous rain, 3/8 cloud cover, south-westerly breeze
Transect Routes 1 & 3	21/07/15	3:27 – 05:07 (sunrise 05:07)	12°C, dry, 0/8 cloud cover, light breeze
Transect Routes 2, 8 & 9	21/07/15	20:58 – 22:51 (sunset 21:13)	17°C, dry, 3/8 cloud cover, moderate breeze
Transect Routes 2, 8 & 9	22/07/15	03:30 – 05:09 (sunrise 05:09)	15°C, dry, 6/8 cloud cover, slight breeze
Transect Route 4	23/07/15	21:00 – 22:38 (sunset 21:11)	12°C, dry, 5/8 cloud cover, no breeze
Transect Route 4	24/07/15	3:38 – 05:10 (sunrise 05:10)	10°C, dry, 8/8 cloud cover, no breeze
Transect Routes 5 & 6	27/07/15	20:55 – 22:46 (sunset 21:05)	10°C, dry previous rain, 8/8 cloud cover, moderate breeze
Transect Routes 5 & 6	28/07/15	03:30 – 05:18 (sunrise 05:18)	11°C, damp and humid, 8/8 cloud cover, light – moderate winds

Table 6 – August Timings and Weather Conditions of Bat Surveys

Survey	Date	Timing	Weather
Transect Route 8	03/08/15	20:38 – 22:23 (sunset 20:53)	18 °C, dry, 3/8 cloud cover, slight breeze
Transect Route 9	04/08/15	03:58 – 05:28 (sunrise 05:28)	12 °C, dry, 0/8 cloud cover, no breeze
Transect Route 6	04/08/15	20:40 – 22:30 (sunset 20:52)	16°C, dry, 6/8 cloud cover, moderate breeze
Transect Routes 2 & 7	05/08/15	03:57 – 05:30 (sunrise 05:30)	10°C, dry, 6/8 cloud cover, light breeze
Transect Route 5	05/08/15	20:35 – 22:20 (sunset 20:50)	14°C, raining at times, 7/8 cloud cover, light breeze
Transect Routes 1, 3 & 4	06/08/15	03:58 – 05:32 (sunrise 05:32)	11°C, dry but previous light rain, 8/8 cloud cover, light wind



Appendix I-5: Nocturnal Bat Survey Report

**Magna Park Extension: Hybrid Application, Zone
1**

For IDI Gazeley

Delta-Simons Project No. 14-0159.03

Issued: September 2015

EXECUTIVE SUMMARY
APPENDIX I-5: NOCTURNAL BAT SURVEY REPORT
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.03

Purpose	Delta-Simons Environmental Consultants Ltd was instructed by IDI Gazeley (the 'Client') to undertake nocturnal bat surveys of a number of trees and buildings previously assessed as having potential to support roosting bats. The buildings and trees were on land situated off Mere Lane to the west of Lutterworth in Leicestershire that forms Zone 1 of the proposed development (the 'Site').
Current Site Status	The Site comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.
Proposed Development	An outline planning application will be submitted for up to 427,350 square metres (m ²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m ² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m ² , an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m ² , Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m ² , and an Innovation Centre of up to 2,325 m ² . The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.
Results:	Six species of bat were recorded during the dusk and dawn roost surveys. Those identified to species level were common pipistrelle, soprano pipistrelle, noctule and brown long-eared bat (BLE). In addition, at least two Myotis bat species were recorded that could not be classified to species level, however, it is

	<p>anticipated given their behaviour that they were Daubenton's bat and whiskered/Brandt's.</p> <p>Five roost sites were identified within the on-Site trees surveyed. Two of these were confirmed (T5 and T19), and three suspected (T16, T41 and T45). Four roost sites were identified within three of the on-Site buildings. Three of these were confirmed (Lodge Cottage and the Reception) and one was suspected (the Office). Two separate roost sites were recorded at Lodge Cottage. A common pipistrelle was observed re-entering a roost on the eastern and western gable apex, and a single BLE bat was recorded emerging from the western gable apex. All of the roosts supported lone male or non-breeding female bats, of such that they were all of widespread species, with low conservation status.</p>
<p>Recommendations</p>	<p>Recommendation 1 (Construction Phase) It is recommended that a European Protected Species Licence (EPSL) is sought in order to enable lawful demolition of Lodge Cottage the Reception and the Office at Bittesby Farm supporting bat roosts, and felling of trees T16, T19 and T45 supporting bats roosts, in order to facilitate the proposals. In order to inform the EPSL, a third nocturnal survey is required of T16, T19 and T45, and of the Office at the Site.</p> <p>Recommendation 2 (Construction Phase) In order to limit disturbance to bats during the construction phase of works, lighting to facilitate the works must be directional, and light spill onto key foraging/ commuting vegetated corridors both on and off-Site must be avoided. Where possible, works at the Site should be limited to standard daytime hours in order to prevent disturbance to bats when they emerge from roost sites to forage, or commute to foraging habitats along the Site boundaries.</p> <p>Recommendation 3 (Operational Phase) In order to prevent any adverse impacts upon the commuting and foraging features for bats at the Site, the lighting plan for the Site must be sensitive to bats such that lighting within all public areas of the proposed development is kept to a minimum (as required for safety and security), and that light spill onto vegetation corridors is avoided where possible.</p> <p>Recommendation 4 (Planning and Ecological Enhancements) Following the issue of the National Planning Policy Framework (NPPF, 2012) by the Department for Communities and Local Government (DCLG), "<i>The planning system should contribute to and enhance the natural and local environment by: Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity...</i>"; For this particular development, planting and management at the Site has the potential to create valuable wet woodland, species-rich grassland and new waterbodies to provide locally important habitat and connectivity for a wide range of protected and notable species which would result in an overall increase of the biodiversity value of the Site. Retention and appropriate management of the existing hedgerows, ponds and some scrub vegetation also has the potential to maintain and enhance their value to wildlife. In addition, compensatory roost sites will be provided through bat box installation at appropriate locations at the Site, and further bat boxes will be installed to enhance roosting opportunities for bats at the Site.</p>
<p>This Nocturnal Bat Survey Report Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This executive summary should be read in conjunction with the full report.</p>	

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APPENDIX I-5: NOCTURNAL BAT SURVEY REPORT
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.03

1.0 INTRODUCTION

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley (hereafter referred to as 'the Client') to undertake nocturnal bat surveys on a number of trees and buildings assessed as having potential to support roosting bats. They were situated within land off Mere Lane to the west of Lutterworth in Leicestershire, that forms Zone 1 of the proposed development(hereafter referred to as 'the Site'. This follows the recommendations of the Extended Phase 1 Habitat Survey and the Bat Habitat Assessment Survey undertaken by Delta-Simons in September and December 2014 (Delta-Simons Project nos. 14-0159.02 and 14-0159.03, respectively), which undertaken in order to support a planning application for the Site. The Site Location is shown in Figure 1.

The aim of the nocturnal bat surveys was to:

- △ Determine whether or not bats are using any of the buildings or trees on-Site as a roost and the extent of bat activity associated with the Site;
- △ Assess the results of the survey and determine the potential impact of the proposed development works on any bats that might use the buildings or trees; and where necessary; and
- △ Provide recommendations for working methodologies, further surveys and/ or the need for a European Protected Species Licence (EPSL) from Natural England in light of the survey results.

1.2 Site Description

Zone 1, is an approximately 220 ha triangular parcel of predominantly agricultural land to the north and north-west of Magna Park, Lutterworth. Zone 1 is linked to and extends Magna Park. Its boundaries are created by the A5 to the south and west, Mere Lane to the east and the ridgeline hedgerows that follow the parish boundary to the north.

It comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.

The Site layout is shown in Figure 2.

1.3 Proposed Development

An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m², Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

The proposed development plan is included as Figure 3.

2.0 LEGISLATION

2.1 Bats

All bats and their roosts are protected under Section 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended) and Annex IV of the Habitats and Species Regulations 2010 (as amended).

It is an offence, either deliberately or recklessly, to destroy, damage or obstruct access to any bat roost, or to disturb a bat using such a place. It should be noted that a roost is protected whether or not bats are present and any activity or works affecting a roost, even when bats are absent, is likely to require a European Protected Species Licence from Natural England.

2.2 Planning

The Office of the Deputy Prime Minister (ODPM) Circular (2005) advises that ecological surveys are undertaken before planning permission is determined. The circular states *“The need to ensure that ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances”* (see References, Appendix I).

3.0 METHODOLOGY

3.1 Data Search

The results of the data searches received from the Leicestershire and Rutland Environmental Records Centre (LRERC) and Warwickshire Biological Records Centre (WBRC), for the initial Extended Phase 1 Habitat Survey (Delta-Simons Project no. 14-0159.02), were reviewed for records of bats within the search area.

In addition, a search for designated sites for bats on or within 10 km of the Site was performed using the Multi-Agency Geographic Information for the Countryside (MAGIC).

3.2 Review of Bat Roost Potential

Where possible, information was gathered on any previous surveys that have been conducted at, or within proximity to, the Site. The Bat Habitat Assessment Magna Park Extension: Hybrid Application, Zone 1 Report (Delta-Simons 2015) was reviewed.

3.3 Nocturnal Bat Surveys

Nocturnal surveys were undertaken with reference to Natural England's Bat Mitigation Guidelines (Natural England, 2004) and the Bat Conservation Trust (BCT) Guidelines (Hundt, 2012). A back to back dusk and dawn survey was undertaken followed by a further dusk survey. The nocturnal surveys were carried out to assess bat activity associated with the buildings at the Site.

The dusk surveys commenced approximately 15 minutes prior to sunset and ceased approximately one and a half hours following sunset. The dawn survey was undertaken for approximately one and a half hours up to sunrise.

The surveyors were equipped with Bat Box Duet Detectors, Edirol recording equipment, two-way radios and high powered torches. Records were made of any bats seen and/or heard and the species, the time, location and direction of flight.

Figures 4 and 5 show the location of the buildings and trees that will be subject to detailed surveys.

Tress T12, 36, 37, 38, 39 and 40 and structures S2 and S3, assessed as having the potential to support roosting and/ or hibernating bats, were not subject to detailed surveys since they will not be impacted upon by the proposed development.

Details of the Surveyors and Surveys

The surveys were undertaken by the following ecologists:

- △ Jonathan Spencer (Natural England licence number: CLS00506 Class Survey Licence WML CL18 (Bat Survey Level 2));
- △ Jennifer Britt (Natural England licence number: CLS01304 Class Survey Licence WML CL18 (Bat Survey Level 2));
- △ Pete Morrell Natural England licence number: 2015-00655-CL-CL Class Survey Licence WML CL18 (Bat Survey Level 2));
- △ Catherine Bywood (Graduate Ecologist);
- △ Alex Clarke (Graduate Ecologist);
- △ Emma Grubb (Natural England licence number: CLS01549 Class Survey Licence WML CL20 (Bat Survey Level 4));
- △ Thomas Witty Assistant Ecologist; and
- △ Sam Gregory Ecological Assistant.

3.4 Static Detectors

SM2BAT static detectors were used in locations identified as confirmed bats roosts during the initial BRP assessment, possible hibernation sites and also potential roost sites that were observed during the activity transects. Three Sm2's were used to survey the confirmed roost sites Bittesby House and Lodge Cottage (two at Bittesby House and one at Lodge Cottage), a single SM2 was deployed in the Garage, Old Stables and S3 between November 2014 to February 2015. SM2's were also deployed at trees T16 and T45 to determine if the trees were used as roosts. The SM2's were set to commence recording 15 minutes before sunset and 15 minutes after sunrise and each was set to record for a period of five consecutive nights. The locations that the static detectors were set is shown in Figure 6.

3.5 Sound Analysis

Any bat calls that could not be identified in the field by the surveyors were subject to analysis using Batsound version 4.2 and Analook in order to determine the species, and associated activity to provide a more robust result.

4.0 RESULTS

4.1 Data Search

A review of the data search, undertaken by the LRERC and WBRC during the previous Extended Phase 1 Habitat Survey and the MAGIC data search revealed that there are no statutory or non-statutory designated sites on or within 3 km of the Site centre that are designated for bats, nor are there any statutorily designated sites within a 10 km radius of the Site centre that are designated for these species.

The LRERC returned a total of 24 bat records from 1986 to 2009 within 2 km of the Site centre. Records over 10 years old were excluded from the review as they are not considered to depict an accurate representation of bat activity in the local area. There were 19 records of bat roosts, the most recent and closest roost records to the Site are shown in Table 1, with all recent record being from 2009. Only common pipistrelle *Pipistrellus pipistrellus*, Brown Long-Eared (BLE) bat *Plecotus auritus* and Natterer's bat *Myotis nattereri* were identified to species level.

Table 1 – Most recent roost records from LRERC

Species	Date	Record Type	Distance in km and Direction (from nearest Site boundary)
Unidentified	2009	Roost	2 km - north
Common Pipistrelle	2009	Roost: maternity	1 km - north
Natterer's Bat	2009	Roost	1.15 km - north
Pipistrelle species	2009	Roost	1.15 km - north
BLE	2009	Roost	1.15 km - north
BLE	2009	Roost	1.25 km - north
Pipistrelle species	2009	Roost	1.8 km - north
Unidentified	2009	Roost	1.3 km - north
Unidentified	2009	Roost	0.27 km - north
Unidentified	2009	Roost	0.27 km - north
Common Pipistrelle	2009	Roost	0.27 km - north
Common Pipistrelle	2009	Roost	0.27 km - north

A total of 12 bat roosts have been recorded within the last 10 years. The closest records of roosting bats are of common pipistrelle and an unidentified bat species that are 500 m north-west of the Site, south of Ullesthorpe village. Noctules *Nyctalus noctula* have been recorded over a field within 500 m from the northern Site boundary.

The WBRC did not return any recent records of bats roosts within 3 km of the Site centre.

4.2 Review of Bat Habitat Assessment Survey

4.2.1 Bat Roost Potential – Buildings

Table 2 summarises the BRP of buildings that were assessed at Bittesby House, Emmanuel and Lodge Cottage and outlines the features that have contributed to the BRP rating. The location of the buildings assessed are shown in Figures 4a, and 4b.

Table 2 Bat Roost Potential Survey Results – Buildings, Bittesby House

Building	Roost Potential Category	Notes
Bittesby House	High	<p>Potential roosting features recorded included lifted roof tiles, gaps between window frames and brick work, gaps under lead flashing and gaps under fascia boards.</p> <p>The main roof void was divided into three separate rooms. A number of recent and old bat droppings (<i>Pipistrelle</i> sp.) were recorded within the roof void. A cellar was present, no evidence of bats was observed. The heating boiler was located within the cellar which may cause temperature fluctuations, therefore, resulting in unsuitable conditions.</p>
The Cottage	Medium	<p>Several lifted roof tiles and missing mortar from the ridge tiles, gaps in brick work under the guttering. Lifted lead flashing was noted at the base of chimney on the eastern aspect. Gaps noted under roof tiles on the eastern gable end. The northern aspect was densely vegetated covering 85 % of the building and roof. Old bat droppings were found on window glass pane, not identified to species level.</p> <p>A large amount of cobwebs and dust was recorded throughout the roof void. There was roof felting on the southern aspect, therefore, a possibility for bats to roost between the felting and roof tiles. On the northern aspect the tiles were exposed with gaps evident, therefore, allowing bats to access the roof void.</p>
Garages	Medium	<p>Three single storey terraced brick garages adjoin the northern aspect of the Cottage. The roof was pitched and tiled with several lifted tiles, gaps above doors and in brick work to allow access to the first garage.</p> <p>Butterfly wings of various ages, including recently deposited ones, were found within the first and third garage indicating possible BLE foraging perch, or potential roosting site. The third garage had wooden panels attached to the interior brick walls, with gaps underneath allowing access into this cavity.</p>
The Stables	Medium	<p>A mixture of single and two storey buildings. Brick work was well sealed, however, some gaps were present where the roof met the brick work. All the roofs were tiled and pitched, several tiles were cracked and lifted on the single storey. On the two storey</p>

		extension several roof tiles were missing as was some of the mortar beneath the ridge. Recently refurbished offering no potential roosting for bats internally.
Old Stables	Medium	Adjoining the converted stables on the northern side. The long two storey building offered suitable roosting opportunity as there were appropriate roosting features located on the ground floor with gaps in wooden beams and brick work, also several butterfly wings were recorded. First floor again offered suitable roosting as it resembled a large roof void opening on the northern gable end allowing bats to access the roof void. The stables on the western side again offered potential for roosting bats due to loose and cracked roof tiles, with cracks in brick work and beams internally.
Small buildings	Medium	Small brick stables attached to the large modern barn. One was not accessible but did provide suitable roosting opportunities as roof pitched and gaps within tile and brick work. Only the building adjoining the barn could be accessed. Large amount of rubbish within the building. Hole in the roof had created damp conditions internally and allowed light in, lowering suitability for bats.
Out building	Low	Small brick shed adjacent to Bittesby House. Access was not obtained. However, it appeared to be in good condition with no gaps between tiles or missing mortar from the brickwork.
Barn	Negligible	Modern barn constructed out of breeze blocks with metal panelling. No potential roosting features present.
Bike shelter	Negligible	No suitable features observed. Light and exposed to draughts throughout.
Lodge Cottage	High	<p>Currently under refurbishment such that the brickwork had recently been repointed. The roof was pitched and tiled, and appeared to be in generally good condition, however, some gaps under ridge tiles were noted and also under the eaves.</p> <p>A number of recent and old pipistrelle and BLE bat droppings were recorded on top of the loft insulation directly below wooden beams, and also at the base of the brickwork. Also bat droppings of both species were recorded scattered throughout the roof void in small numbers, indicating bats had flown within these areas. A possible BLE bat feeding perch was recorded due to a large deposit of insect wings and droppings located in a single location below the wall</p>
Emmanuel Cottage	Low	<p>The roof was pitched and tiled and appeared to be in generally good condition, however, some gaps under ridge tiles were noted and also under the eaves.</p> <p>No evidence of bat roosting was recorded within the roof void. A large amount of cobwebs were noted on some of the beams. The roof was felted, no access holes were observed, however there was potential for bats to roost between the tiles and felting.</p>
Metal Barn	Negligible	<p>Large barn constructed from breeze blocks and corrugated metal sheeting, which offered limited roosting potential for bats</p> <p>No internal access was gained at the time of the BRP</p>
Wooden shed	Low	<p>Small wooden shed located next to the metal barn. Limited potential apart from gaps under the fascia boarding.</p> <p>No evidence of bats recorded internally nor externally.</p>

Summer House	Low	Small wooden summer house located adjacent to a large pond. Limited potential, apart from gaps under the fascia boarding on the gable ends. No evidence of bats recorded internally nor externally.
Work shed	Negligible	Breeze block with metal shutter doors. The roof was pitched and tiled, the tiles appear well-sealed with no gaps present. No internal access was gained at the time of the BRP

Table 3 summarises the BRP of buildings that were assessed at Bittesby Farm and Bittesby Cottage and outlines the features that have contributed to the BRP rating. The location of the buildings assessed are shown on Figure 4b, and Bittesby Cottages are shown in Figure 4c.

Table 3 - Bat Roost Potential Survey Results – Buildings, Bittesby Farm

Building	Roost Potential Category	Notes
Bittesby Cottages	Medium	Two converted brick-built cottages. Brick work appeared to be in good condition with no missing mortar, roof was pitched and tiled with some gaps present. Gaps were evident behind the soffit boxes. No evidence of bats found in the roof void. However, beneath the tiles roofing felt was present, allowing bats to roost between the tiles and felt.
Shed	Low	Brick-built outbuilding with several rooms. Roof was pitched and tiled. Potential access for bats through gaps around the doors and beneath the roof tiles.
Reception	Medium	Converted brick-built barn, brick work appears to be well sealed with no cracks evident. The roof was tiled and pitched, several lifted tiles were noted. A possible bat dropping was noted below the south-eastern soffit box, in an area that could not be accessed fully at the time of the survey. The building had recently been refurbished such that the roof void was not suitable for roosting bats due to thick insulation immediately below the roof such that bats could not access the void.
Office	Low	Converted hay barn with a suspected pitched asbestos cement sheeted roof. Several gap noted underneath the ridge tiles. Gaps in the mortar on the western aspect. There does not appear to be a roof void due to recent refurbishment.
Prefabricated Office	Negligible	No obvious features present and the roof appeared to be flat. There appeared to be a number of gaps present under barge boards.
Barn 1	Low	Double barn with one part constructed from bricks and suspected corrugated asbestos, the second part constructed from wooden boarding. Both provided suitable gaps between the wooden boarding and possible asbestos cement panels for roosting bats. Internal access was not permitted at the time of survey
Barn 2	Low	Large barn constructed from cinder blocks and corrugated asbestos panels and roofing providing potential small crevices. Internal access was not permitted at the time of survey.

Barn 3	Low	Large barn constructed from cinder blocks and corrugated asbestos panels and roofing providing potential small crevices. Internally it appears that the barn had been converted for private functions with lighting and display systems present.
Barn 4	Negligible	Converted livestock shed, fully open to inclement weather on the eastern aspect. Limited roosting potential for bats.

Suitability of the Buildings for Hibernating Bats

Given that Bittesby House and the Stables are currently in use for commercial business, it is anticipated that these do not offer suitable conditions to accommodate hibernating bats as the buildings will be prone to temperature fluctuations through the winter months. The small building adjoined to the Cottage, the first floor of the old barns and two of the garages offer suitable hibernating conditions for various bat species. Bittesby Cottage and the buildings located within the Bittesby Farm complex and The Lodge / Emmanuel Cottage do not offer any hibernation potential as they are all currently in use for commercial and residential use, and do not provide stable low temperatures through the winter months.

4.2.2 Structures

Table 4 summarises the BRP identified within structures that were assessed at the Site and outlines the features that have contributed to the BRP assessment. The location of structures assessed in Table 4 are shown on Figure 5.

Table 4 – Bat Roost Potential Survey Results – Structures

Structure Reference	Roost Potential Rating	Features/ Comments
Tunnel S1	Medium	Headwall and abutments constructed from bricks and mortar. Gaps between mortar and bricks on both northern and southern aspects. No evidence to indicate previous bat roosting recorded at the time of the survey.
Tunnel S2	Medium	Smaller tunnel underneath dismantled railway. Gaps between mortar and bricks noted on both northern and southern aspects, missing bricks and mortar within the tunnel. No evidence to indicate previous bat roosting recorded at the time of the survey
Tunnel S3	Medium	Secluded tunnel entrance on southern bank of the dismantled railway. The tunnel was blocked off half way through, and a crack in the brick work of the tunnel arch was noted. No evidence to indicate previous bat roosting recorded at the time of the survey.

There is potential for all three tunnels to support hibernating bats, and in particular S3, as this is in a more secluded location and offers more shelter.

4.2.3 BRP Assessment Results - Trees

A total of 47 trees were assessed for potential bat roosting sites. A summary of the number of trees falling within each BRP category is provided in Table 5 below.

Table 5 - Bat Roost Potential Survey Results – Trees

Roost Potential Category	Number of Trees
High	0
Medium	26
Low	18
Negligible	3
Total Trees	47

The locations of trees assessed in Table 5 are shown in Figure 5.

4.3 Nocturnal Surveys

The following species of bats were recorded during the dusk and dawn roost surveys: Common pipistrelle, soprano pipistrelle *Pypistrellus pygmaeus*, noctule and BLE. In

addition, *Myotis* sp. bats were also recorded which could not be identified to species level, however, it is anticipated that the species encountered included Daubenton's *Myotis daubentonii* and whiskered/ Brandt's *Myotis mystacinus/ Myotis brandtii*, due to the habitats they were either recorded within, or in proximity to. Generally a low to moderate level of activity was recorded throughout the Site, which is to be expected from this landscape/ habitat types.

4.3.1 Buildings

A total of 18 buildings with a BRP rating of low to high were subjected to detailed dusk and/ or dawn surveys. Two buildings were confirmed to have bats roosting within them, and a third was suspected to have a single common pipistrelle roosting with in it. The buildings with confirmed or suspected bat roosts are shown in Table 6 and Figure 7. Further survey details can be found in Appendix II, and photographs of the roost location are held within Appendix III.

Table 6 Summary of suspected and confirmed bat roosts in buildings, bold text indicates roosting behaviour

Tree Number	BRP Rating	Summary of Roost Activity Recorded	Roost Confirmed or Suspected	Bat Species	Number of Bats
Lodge Cottage	High	<p>Survey 1) Dusk 13/07/2015. First bat, noctule, was heard at 21:31, the first p45 (common pipistrelle) was heard at 21:57 (32 minutes after sunset).</p> <p>Survey 2) Dawn 24/07/2015. p45 was observed making a false return on the western gable apex then entered the north eastern gable apex of the building at 04:54 (17 minutes before sunrise)</p> <p>Survey 3) Dusk 06/08/2015. BLE was observed emerging from the eastern gable end apex of building at 21:18 (30 minutes after sunset), conversely a p45 was</p>	Confirmed	Common pipistrelle	1
				BLE	1

		observed entering the western gable apex at 21:41 (see Appendix III, photograph 1)			
Reception	Medium	Survey 1) Dusk 16/07/2015. First bat, p45, heard at 21:52 (32 minutes after sunset) bat was seen flying from office. Survey 2) Dawn 23/07/2015 Low levels of p45 activity with foraging activity between the reception and Barn 2, p45 was recorded roosting within the south eastern corner of the building at 04:31 (41 minutes before sunrise).	Confirmed	Common pipistrelle	1
Office	Low	Survey 1) Dusk 15/07/2015. First bat p45 heard at 21:51 (31 minutes after sunset) bat was observed flying north of the building. Survey 2) Dawn 23/07/2015. Low levels of foraging activity, no signs of roosting.	Suspected	Common pipistrelle	1

In addition to the above, roosting behaviour at Lodge Cottage was observed during the April transect survey (see separate Bat Transect Survey Report), where a common pipistrelle was observed emerging from the southern aspect of the building 30 minutes after sunset.

The single common pipistrelle recorded re-entering a roost on the south-eastern corner of the Reception (Photograph 2), 41 minutes before sunrise, was noted to be returning early, which could be attributed to the colder morning temperatures during the survey.

It should be noted that no roosting was observed at Bittesby house, despite pipistrelle bat droppings being found in the initial BRP. No evidence of BLE roosting within with garages and old stables was recorded, despite there being evidence of BLE feeding remains during the initial BRP. A second nocturnal survey was undertaken on the Office as it was unclear if a single common pipistrelle had emerged from the building during the dusk survey, however, no roosting was recorded and, therefore, this remains a suspected roost.

4.3.2 Structures

There was no roosting activity recorded to be associated with Structure S1. However, the tunnel embankment does provide suitable foraging and commuting habitat for bats, as activity was recorded within the tunnel, at both entrances and also bats were recorded commuting over the tunnel during the dusk and dawn surveys, see Appendix II.

4.3.3 Trees

A total of 35 low to medium BRP trees within the Site boundary that are due to be impacted upon by the proposed development, were subject to detailed dusk emergence or dawn return nocturnal surveys. Trees identified through a series of dusk emergence and dawn re-entry surveys as confirmed or suspected bat roosts are shown in Table 7 and Figure 7, whilst a summary of the survey results can be found in Appendix II. Two trees were confirmed as being small common pipistrelle roosts, and a further three trees as suspected roosts.

Table 7 Summary of suspected and confirmed bat roosts in trees

Tree Number	Tree species	BRP Rating	Summary of Roost Activity Recorded	Roost Confirmed or Suspected	Bat Species	Number of Bats
T5	Ash	Low	Survey 1) Dusk 06/07/2015 P45 emerged from the tree at 21:56 (28 minutes after sunset), bat flew west along hedgerow	Confirmed	Common pipistrelle	1
T16	Ash	Medium	No roosting activity recorded on surveys. However a single common pipistrelle was recorded at T16 31 minutes after sunset on the April transect	Suspected	Common pipistrelle	1
T19	Ash	Medium	Survey 1) Dusk 06/07/2015 no roosting activity was recorded. Survey 2) Dawn 17/07/2015 One common pipistrelle was observed	Confirmed	Common pipistrelle	1

			returning to roost in the tree at 04:29 (31 minutes before sunrise).			
T41	Ash	Medium	No roosting activity recorded. However a two common pipistrelles was recorded commuting from T41 30 minutes after sunset on the April transect	Suspected	Common pipistrelle	2
T45	Ash	Medium	No roosting activity recorded. However surveys undertaken on trees (T25) adjacent to T45 and the timings of the first bat (32 minutes after sunset) may indicate a potential roost	Suspected	Common pipistrelle	1

No noctule bat roosts were identified in the trees. However, due to the early recordings of noctules over the survey period, it is anticipated that this species is roosting within the immediate area surrounding the Site.

4.4 Static Detectors

The results from the deployment of the static detectors at the confirmed roost sites within buildings and potential roost sites in trees are summarised in Table 8 below. From the deployment of the static detectors it is clear that there are common pipistrelle and *Myotis* bats roosting within Lodge Cottage due to the emergence times, it is also clear that there are potential common pipistrelle roosts within trees T16 and T45 as shown in Table 8. The Sm2 deployed within the garages did not record any BLE bats but only faint common pipistrelle, therefore indicating that the bats were flying on the outside of the building.

Table 8 Results of Static Detectors

SM2 Location	Date set	time and species of first bat	Time before / after sunset
Lodge Cottage	13/07/2015	21:34 Common pipistrelles	12 minutes after sunset
	14/07/2015	21:09 Myotis species	13 minutes before sunset
	15/07/2015	21:08 common pipistrelle	12 minutes before sunset
	16/07/2015	21:11 common pipistrelle	8 minutes before sunset
	15/07/2015	21:11 common pipistrelle	7 minutes before sunset
T16	23/07/2015	20:57 Common pipistrelle, 21.03 <i>Myotis</i>	13 minutes before sunset, 7 minutes before sunset
	24/07/2015	21:11 Common pipistrelle	2 minutes after sunset
	25/07/2015	20:59 common pipistrelle	9 minutes before sunset
	26/07/2015	21:37 common pipistrelle	31 minutes after sunset
	27/07/2015	20:54 common pipistrelle	9 minutes before sunset
T45	14/07/2015	21:07 common pipistrelle	12 minutes before sunset
	15/07/2015	21:06 common pipistrelle, 21:24 <i>Myotis</i>	14 minutes before sunset, 4 minutes after sunset
	16/07/2015	21:05 common pipistrelles	15 minutes before sunset
	17/07/2015	21:04 common pipistrelle, 21:34 <i>Myotis</i>	14 minutes before sunset, 16 minutes after sunset
	18/07/2015	21:03 common pipistrelle	14 minutes before sunset.

SM2s that were placed in potential hibernation sites such as the garages, old stable and structure S3 during November – February did not record any bat activity, therefore, indicating that these sites were not utilised by bats for hibernation.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The following species of bat were recorded during the dusk and dawn roost surveys: Common pipistrelle; soprano pipistrelle; noctule; and BLE. In addition *Myotis* sp. bats were also recorded which could not be identified to species level, however, it is considered likely that the *Myotis* bat species encountered were Daubenton's and whiskered/ Brandt's bat due to the habitats they were recorded to be associated with. Generally a low level of activity was recorded throughout the Site, which was lower than was expected from this landscape/ habitat type (see separate Bat Habitat Assessment Report).

Bat Roosts

Five tree roosts were identified within the on-Site trees surveyed. Two confirmed (T5 and T19) and three suspected (T16, T41 and T45). All were lone male or non-breeding female common pipistrelle roosts (maximum number of bats recorded: 2). No noctule tree roosts were identified, however, it is possible that a noctule roost is present within the immediate surrounding area around the Site due to the timing of the first recordings of noctules during the surveys. No maternity roosts of any species were recorded within any of the trees.

Four roosts were identified within three of the on-Site buildings. There were three confirmed roosts (Lodge Cottage and the Reception) and one suspected roost (the Office). All the buildings are proposed for demolition. Two separate roosts were recorded at Lodge Cottage, with common pipistrelle and BLE bats recorded. Lodge Cottage was suspected of supporting a *Myotis* sp. bat roost as a *Myotis* bat was recorded on a static SM2 detector located on the western aspect of the building at 21:05 on 14/07/2015, thus it is likely that the bat emerged from the Lodge Cottage. No bats were recorded to be roosting within Bittesby House and the associated buildings that had evidence of previous bat use within them. No significant roosts (maternity / hibernation), or of endangered bat species were recorded on-Site. All of the roosts were either lone male or lone non-breeding females and, therefore, when the roost status and associated species are considered together, these roosts are of low conservation status.

The survey area supports a substantial number of potential roost locations in buildings, structures (disused railway tunnels) and trees. However the number of bat roosts that have

been identified is low. This could possibly be due to the lack of connectivity between a number of the buildings to other habitat features, such as woodlands, hedgerows and the on-Site waterbodies. It could also be due to land use being predominantly managed through arable farming which would support limited invertebrate prey.

The nocturnal dusk emergence and dawn return surveys identified intermittent foraging of predominantly low numbers of common pipistrelle bats at the Site. Activity appeared to be associated with the hedgerows and waterbodies throughout the Site. Higher levels of activity were associated with the mature tree avenue up to Bittesby House, but generally activity right across the Site was considered to be low.

Impact Assessment of Proposed Works on Bats

The impacts/ potential impacts are listed below:

The proposed development will result in the loss of all the buildings at the Site, including the demolition of Lodge Cottage the Office and Reception buildings at Bittesby Farm, which will result in the loss of two small common pipistrelle roost and a small BLE roost. In addition there is also potential for a single *Myotis* bat roost to be lost at Lodge Cottage. All of these roosts are considered to be of low conservation status.

It is understood that the only confirmed tree roost to be lost to the development will be T19, which is dead, and it will be removed along with a small section of woodland. The suspected roosts within T16 and T45 will also be lost to the development. Again they support at most a low number of common pipistrelle bats, and are considered to be of low conservation status.

It is anticipated that without mitigation in place during the construction phase of works, there is the potential to disturb or harm bats roosting on-Site and, potentially immediately off-Site, within either trees or buildings. This disturbance would result from both lighting to facilitate the construction works, and the noise/ vibration from those works. Any impact upon bats would be temporary and localised to the area immediately surrounding the Site. However, the felling of T19 and demolition of Lodge Cottage the Reception building and Office at Bittesby Farm, will result in the long-term loss of roosting sites. Given the proposals, the overall adverse impact upon the local bat population during the construction phase without mitigation in place is considered to be low.

It is anticipated that without mitigation in place during the operational phase of the development, there is the potential to deter all bat species from roosting within habitats immediately within and adjacent to the Site due to light spill and increased anthropogenic activity. Furthermore, those bat species continuing to utilise Site edge habitats, or habitats on Site, for foraging and commuting, will be limited to light tolerant bat species, which includes both pipistrelle species of bat, and noctule. Therefore, given the survey results to date, the majority of bats utilising the Site for foraging and commuting purposes alone, are not anticipated to be adversely impacted upon by the proposed development. However, since Lodge Cottage is a confirmed small common pipistrelle and BLE roost, the Reception and Office at Bittesby Farm support one confirmed and one suspected small common pipistrelle roost site, respectively, , whilst individual common pipistrelles roost within several trees due to be lost to facilitate the proposals, the overall negative impact upon the local bat population during the operational phase without mitigation in place is considered to be low.

A review of the preliminary landscaping proposals for the Site indicates that the majority of the hedgerows, trees and watercourses will be retained as part of the development, in particular within the northern and eastern areas of the Site, as will the dismantled railway that bisects the Site. This will secure an area of the Site that is already used by foraging and commuting bats for the long-term. Furthermore, the inclusion of extensive shrub, tree and herbaceous borders around buildings and the inclusion of several SUDS and wet woodlands, will provide commuting and foraging habitat for bats. The provision of species-rich grassland areas within the eastern area of the Site, will increase invertebrate density at the Site and, therefore, increase available prey for bats. Whilst the avenue of lime trees that lead up to the entrance of Bittesby House, and the property itself, will be lost to facilitate the proposals, no bats have been recorded to roost within the building or trees in 2015, nor, therefore, are the trees a key commuting route to the property, such that there are not anticipated to be any significant adverse impacts upon bats as a result of the proposals.

Overall the proposed landscaping proposals are considered to provide a net gain in suitable foraging habitat for bats within the local area. Furthermore, with the inclusion of bat boxes on trees at suitable locations at the Site, both compensating for roost losses and overall, enhancing roosting opportunities for bats at the Site, there are not anticipated

to be any significant adverse impacts in the short to long-term on the bat population within the local area as a result of the proposed development.

5.2 Recommendations

Recommendation 1 (Construction Phase)

- △ It is recommended that a European Protected Species Licence (EPSL) is sought in order to enable lawful demolition of Lodge Cottage and the Reception and the Office at Bittesby Farm, which, support bat roosts, and felling of trees T16, T19 and T45 supporting bats roosts, in order to facilitate the proposals; and
- △ In order to inform the EPSL, a third nocturnal survey is required during the peak bat active season (May-August, inclusive) of T16, T19 and T45, and of, the Office at Bittesby Farm.

It should be noted that an EPSL application requires that full planning permission is first granted, and can take up to six weeks to be processed.

Recommendation 2 (Construction Phase)

- △ In order to limit disturbance to bats during the construction phase of works, lighting to facilitate the works must be directional, and light spill onto key foraging/commuting vegetated corridors both on and off-Site must be avoided; and
- △ Where possible, works at the Site should be limited to standard daytime hours in order to prevent disturbance to bats when they emerge from roost sites to forage, or commute to foraging habitats along the Site boundaries.

Recommendation 3 (Operational Phase)

- △ In order to prevent any negative impact upon the commuting and foraging features for bats at the Site, the lighting plan for the Site must be sensitive to bats such that lighting within all public areas of the proposed development is kept to a minimum (as required for safety and security) and that light spill onto vegetation corridors, is avoided where possible; and
- △ There are several methods by which light can be targeted and light trespass avoided in order to minimise adverse impacts to bats. Lamps with a low UV component should be used. Insects are particularly sensitive to UV light and are attracted in large numbers to lights with a high UV component. This has the effect

of reducing insect availability in adjacent dark areas impacting the ability of light-avoiding bats to forage. Lighting should be directed to the target area only and light trespass onto linear vegetation avoided. Design of the luminaire, the luminaire aiming angles and optical control should be such as to minimize glare. If appropriate, physical barriers such as cowls, hoods, louvers and shields should be considered to avoid light trespass onto vegetative corridors, and, the use of highly directional Light Emitting Diodes (LEDS) should be considered.

Recommendation 4 (Planning and Ecological Enhancements)

- △ Following the issue of the National Planning Policy Framework (NPPF, 2012) by the Department for Communities and Local Government (DCLG), *“The planning system should contribute to and enhance the natural and local environment by: Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity...”*; and, therefore, care must be taken to ensure biodiversity gains are made at the Site; including
- △ new hedgerows and blocks of linear landscape planting have been incorporated into the proposals by the landscaping team to compensate for the loss of a number of hedgerows, in order to provide foraging and commuting corridors for bats at the Site;
- △ Furthermore, landscaping supporting a variety of native species will be planted to provide foraging opportunities throughout the year for invertebrate species, which will in turn increase foraging opportunities for bats, and other faunal species at the Site;
- △ Tree species planted along pathways and within amenity areas will include a mixture of native broadleaved trees that will develop roosting potential as they mature, together with trees planted in belts and clusters to support foraging and commuting bats;
- △ Careful landscape planning will be undertaken to ensure that at the eastern extent of the proposed extension to Magna Park, there is a continuity of those habitats occurring on the present Magna Park site, to encourage bats to commute and forage across both areas; and

- △ Compensatory roost sites will be provided through bat box installation at appropriate locations at the Site, and further bat boxes will be installed to enhance roosting opportunities for bats at the Site.

6.0 LIMITATIONS

The behaviour of animals can be unpredictable and may not conform to characteristics recorded in current scientific literature. This Report, therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Ecology Consultant. Delta-Simons does not warrant or guarantee that the Site is free of bats or other protected species.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1.0 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

This Report was prepared by:



Jonathan Spencer
Senior Ecologist

16/09/15

Date

This Report was reviewed and authorised by:

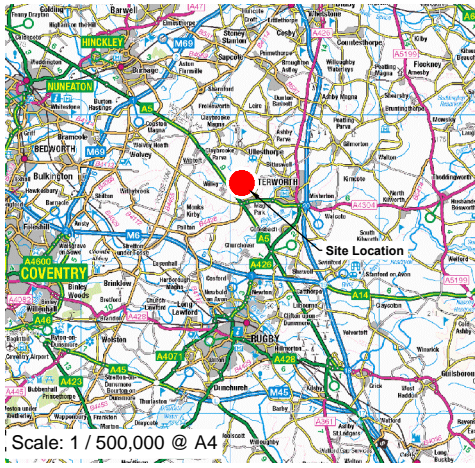


Charlotte Sanderson
Ecology Unit Manager


16/09/15

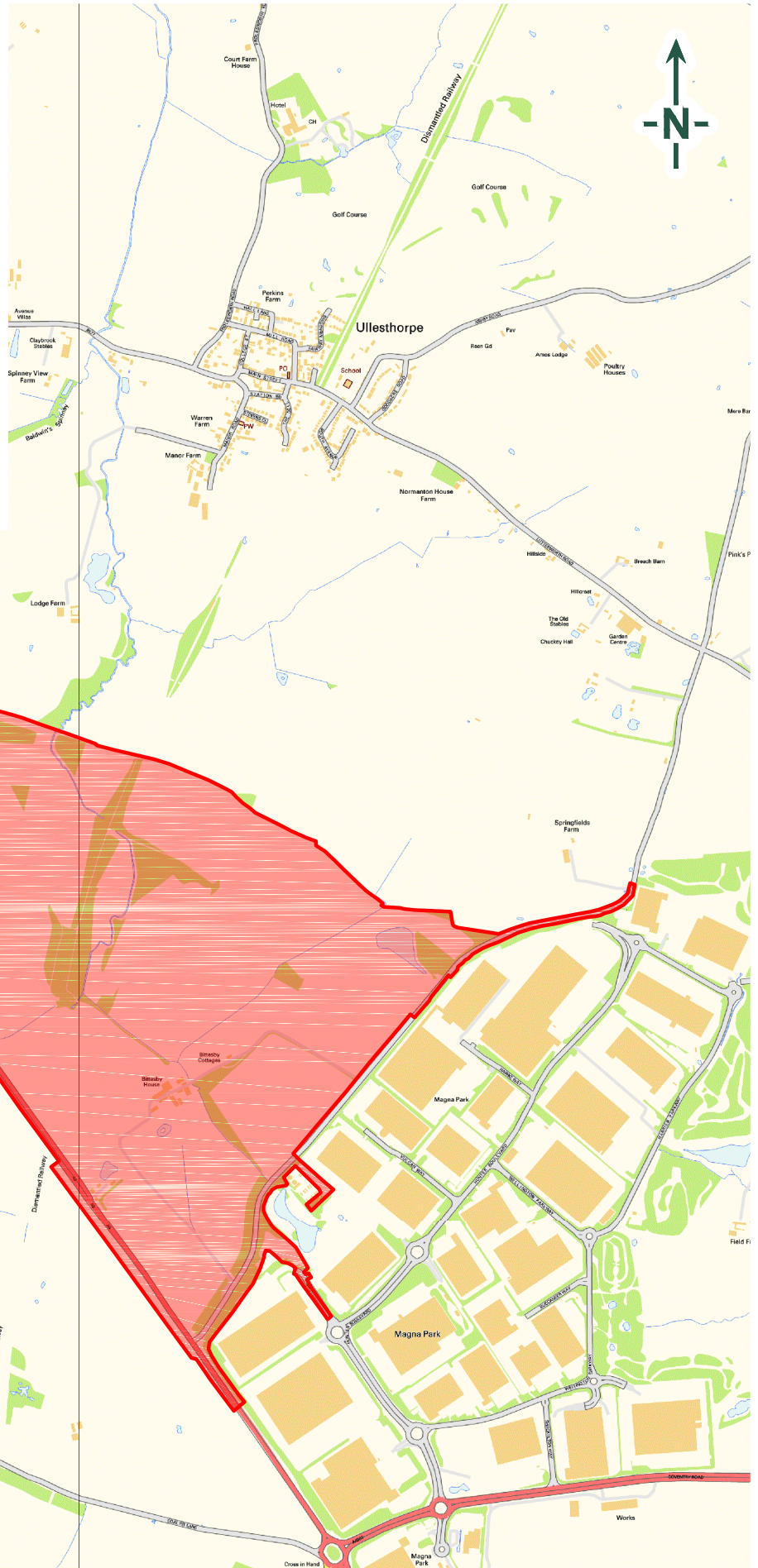
Date





LEGEND

 Site Boundary



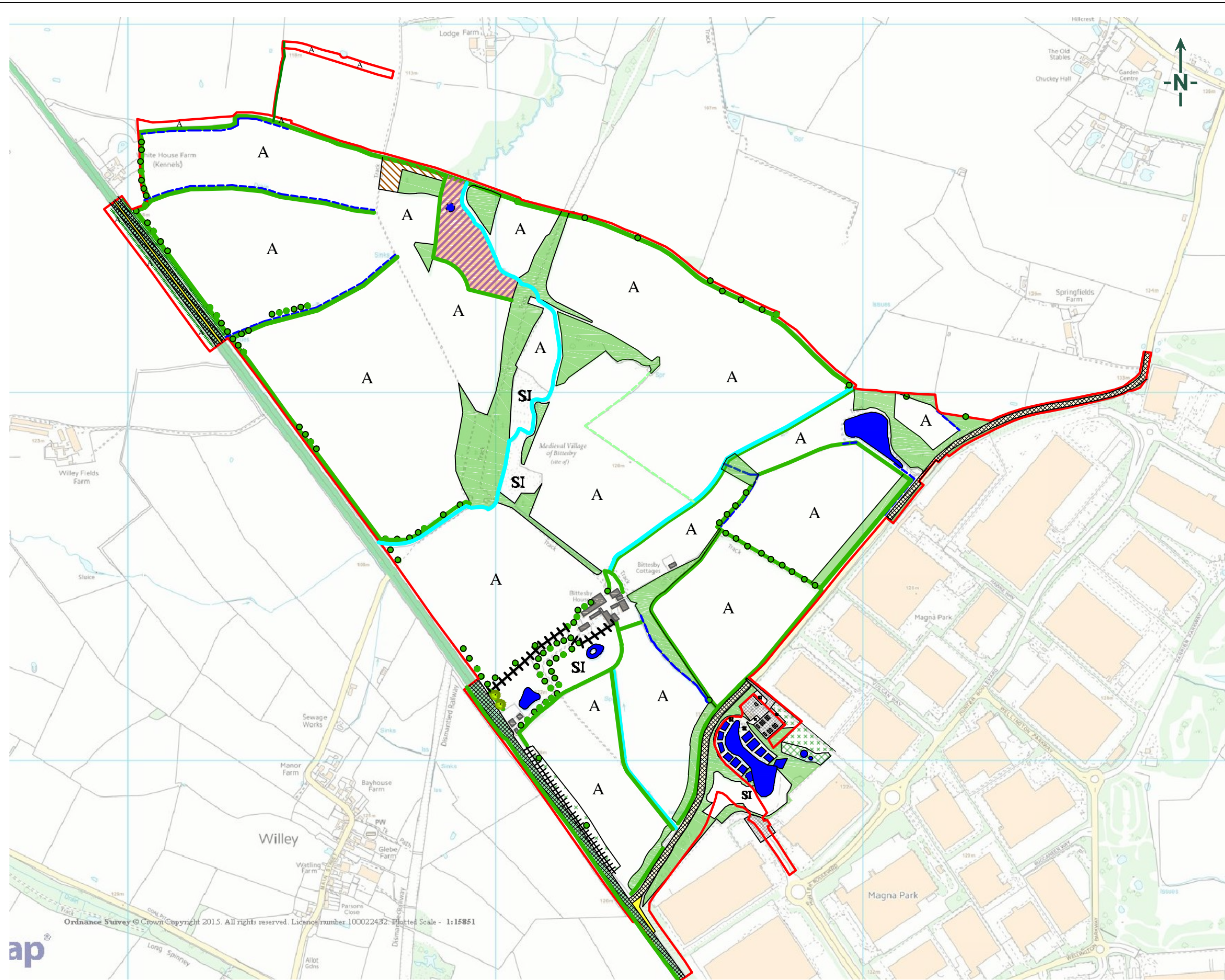
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TITLE:
Site Location Plan
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN: DP
 SCA: To Scale @ A4
 CHK: JS
 REV: 1
 DATE: 14 September 2015

PROJECT NO.:
14-0159.03
 FIGURE NO.:
1



LEGEND

	Site Boundary
	Broadleaved Plantation Woodland (A1.1.2)
	Scattered Broadleaved Trees (A3.1)
	Scattered Coniferous Trees (A3.2)
	Marsh Grassland (B5)
	Poor Semi Improved Grassland (B6)
	Tall Ruderal (C3.1)
	Standing Water (G1)
	Running Water (G2)
	Arable (J1.1)
	Amenity Grassland (J1.2)
	Intact Hedgerow - Species Poor (J2.1.2)
	Defunct Hedgerow - Species Poor (J2.2.2)
	Fence (J2.4)
	Dry Ditch (J2.6)
	Scattered Scrub (A2.2)
	Species Poor Hedgerow with Trees (J2.3.2)
	Dense Scrub (A2.1)
	Buildings (J3.6)
	Hard Standing (J4.1)

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TITLE:
 Site Layout Plan
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 2
DATE: 14 September 2015		



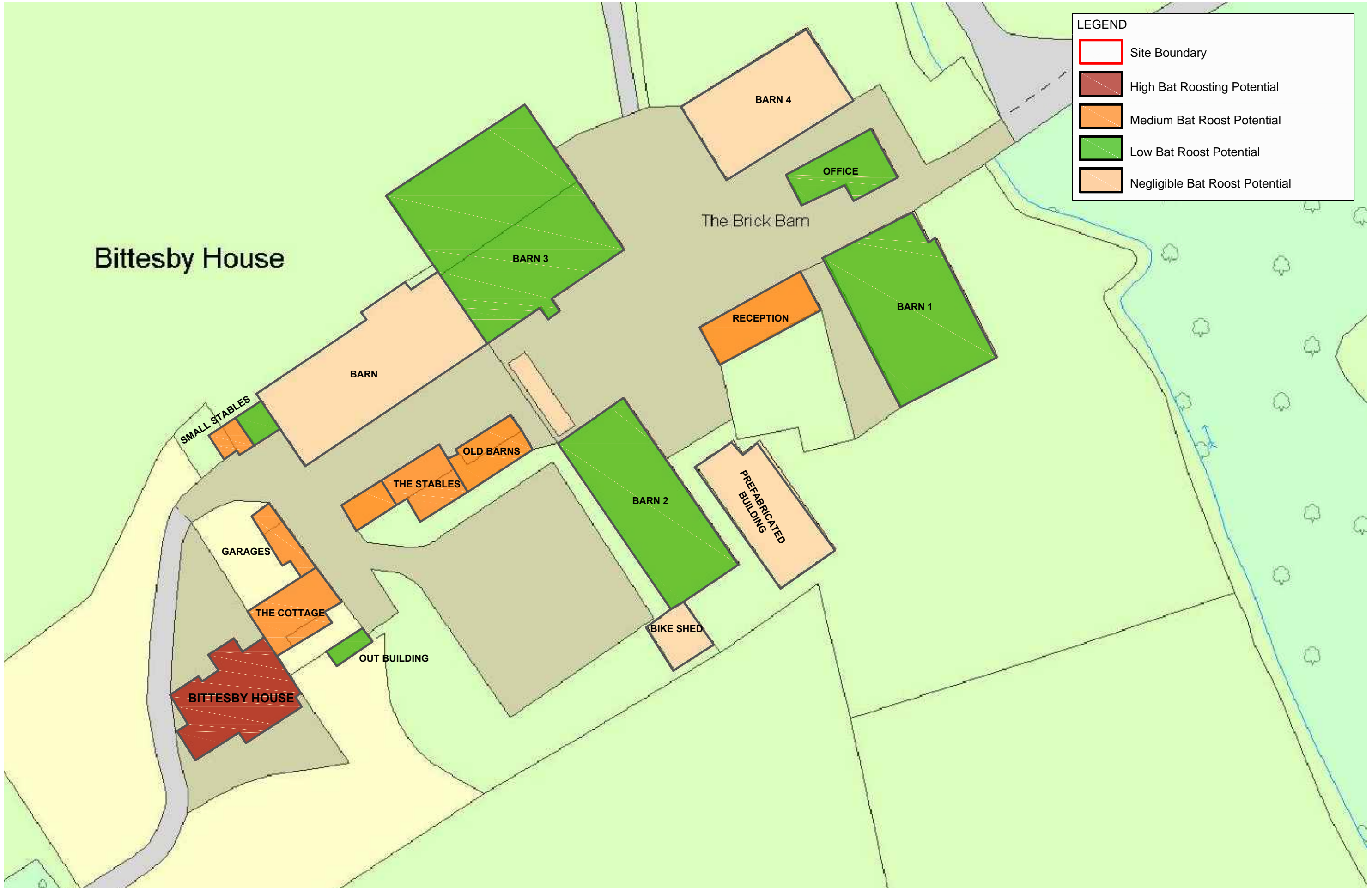
- GENERAL NOTES:
1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERING AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
 3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
 4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERRED TO THE CLIENT IMMEDIATELY.
 5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 6. ALL LEVELS IN METRES.
 7. DO NOT SCALE OFF THIS DRAWING.
 8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
 9. THE CONTENT OF THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST PROJECT GOMR REGISTER.

NO	14/09/2015	FOR COMMENT	1/18	DN
REV	Date	Description	Rev	Drawn/Chk
 Landscape Architecture, Urban Design, Creative Ecology 21 Mill Street, Bath BA1 1UT T: +44 (0) 1225 323664 F: +44 (0) 1225 428184 E: info@grant-associates.co.uk				
CLIENT IDI Gazeley				
PROJECT Magna Park Extension OPA				
TITLE Illustrative Masterplan				
Author	Drawn	Check	Scale	Appr.
14/09/2015	JS	103/09/2015	1/18	DN
FOR COMMENT				
Drawing No.	Rev			
MPL14to-AL-A01-MP-0-001	00			



TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Planning Application
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 3
DATE: 14 September 2015		



LEGEND

- Site Boundary
- High Bat Roosting Potential
- Medium Bat Roost Potential
- Low Bat Roost Potential
- Negligible Bat Roost Potential

Bittesby House

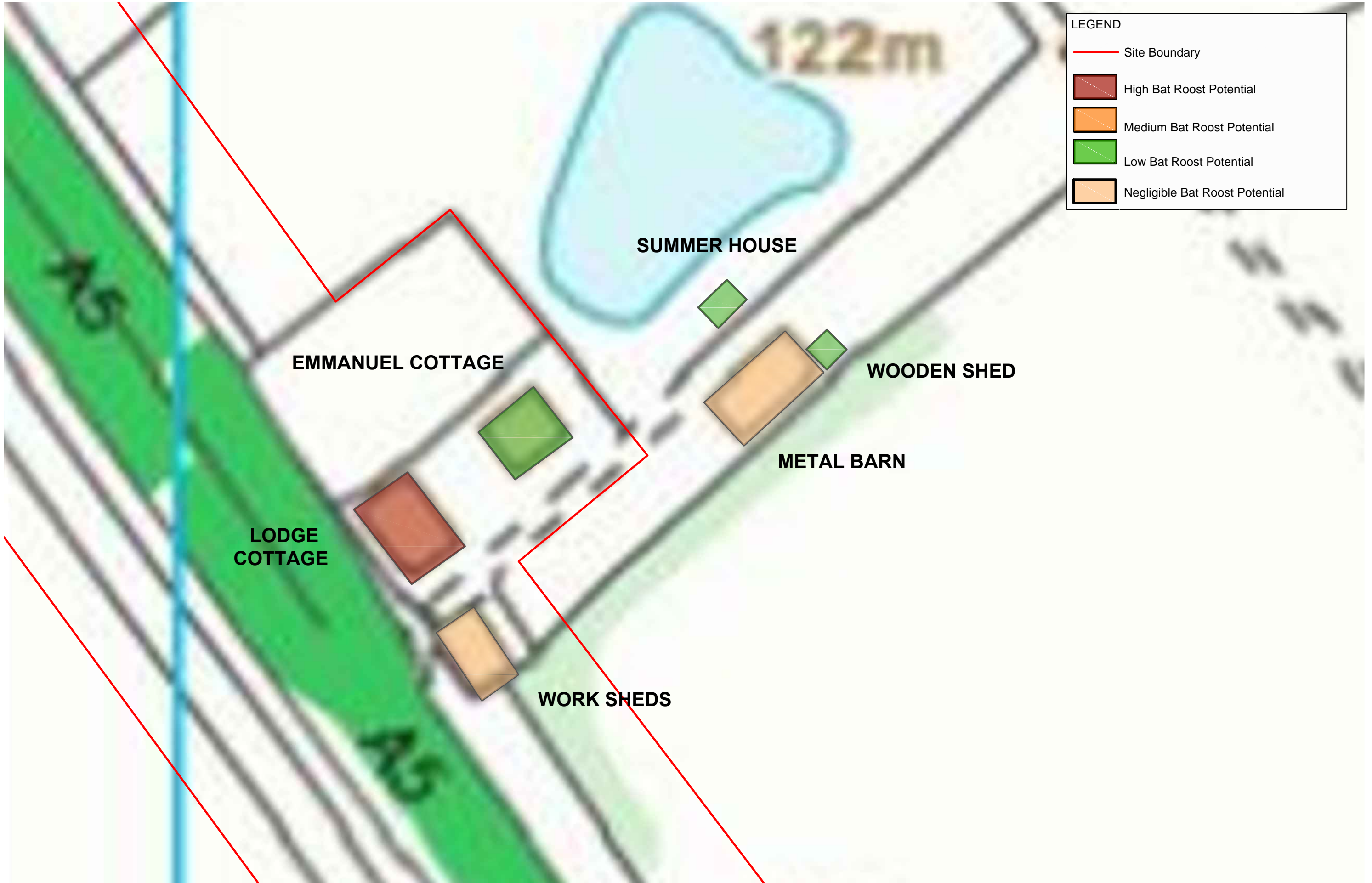
The Brick Barn



TITLE:
 Bat Roost Potential - Bittesby Farm (2014)
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale
CHK: JS	REV: 1
DATE: 14 September 2015	

PROJECT NO.: 14-0159.03
FIGURE NO.: 4a



LEGEND

- Site Boundary
- High Bat Roost Potential
- Medium Bat Roost Potential
- Low Bat Roost Potential
- Negligible Bat Roost Potential



LEGEND

- Medium Bat Roost Potential
- Low Bat Roost Potential

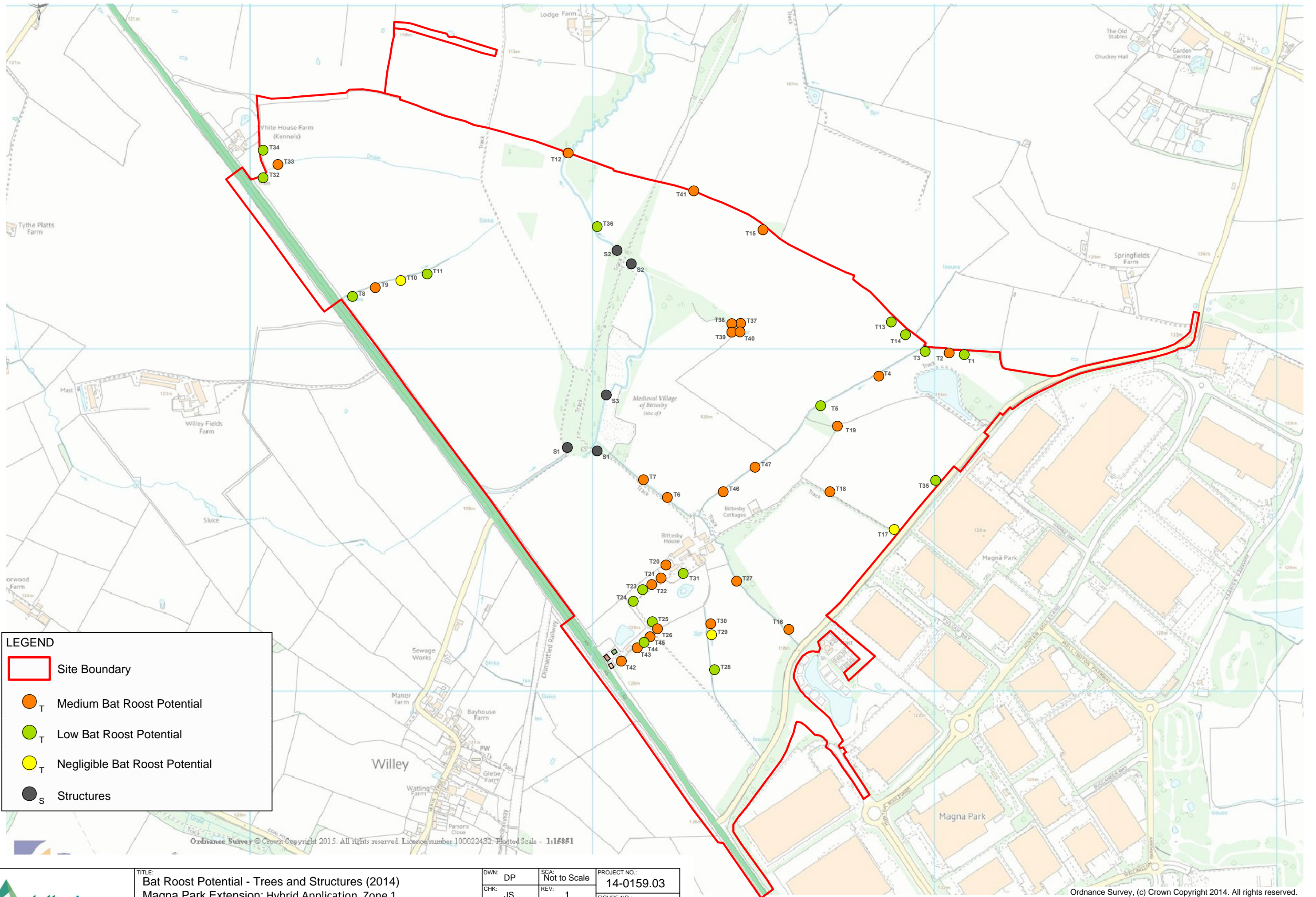
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BITTESBY COTTAGES



TITLE:
 Bat Roost Potential - Buildings (2014) Bittesby Cottages
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

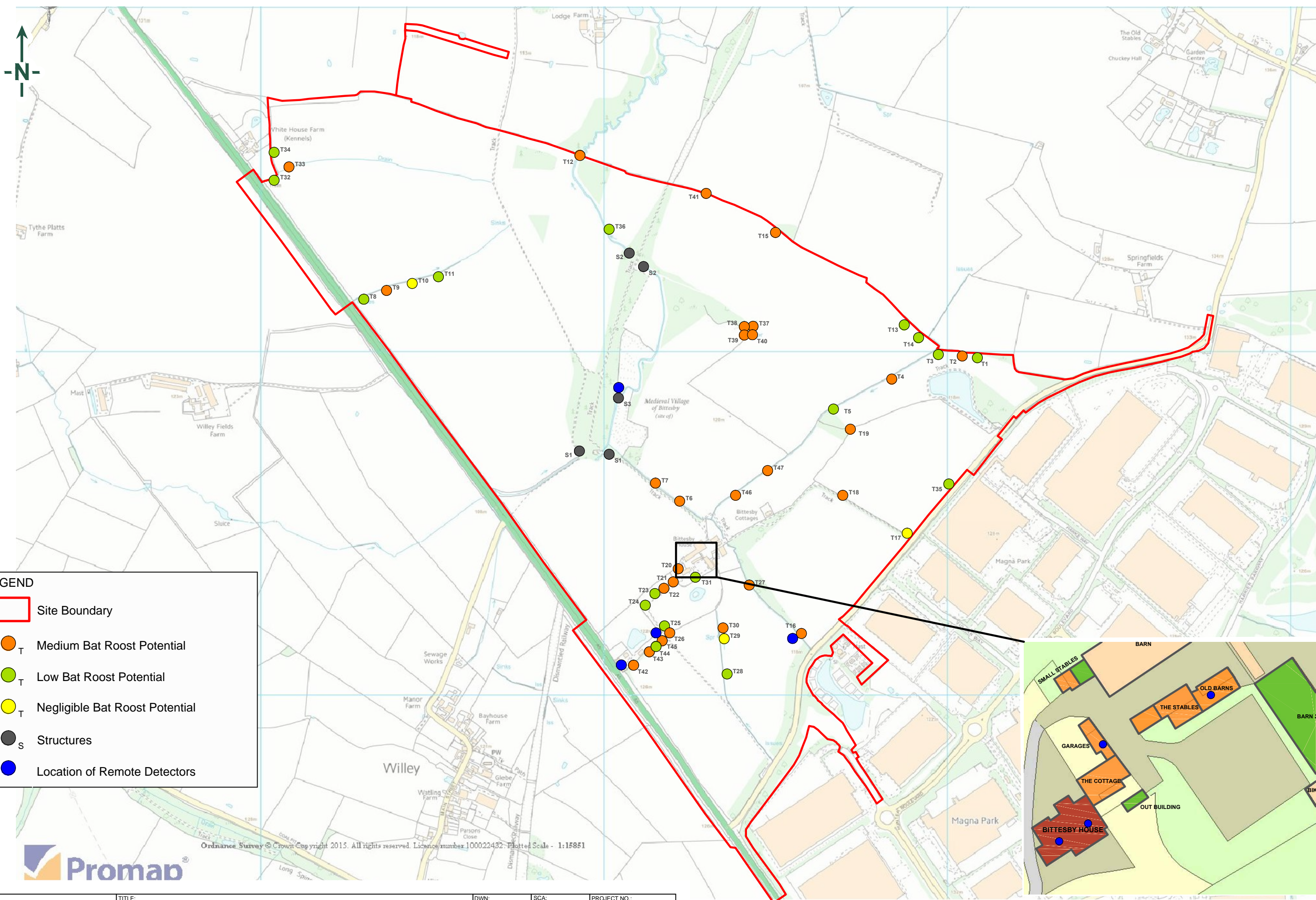
DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 4c
DATE: 14 September 2015		



TITLE:
 Bat Roost Potential - Trees and Structures (2014)
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 5
DATE: 14 September 2015		





LEGEND

- Site Boundary
- T Medium Bat Roost Potential
- T Low Bat Roost Potential
- T Negligible Bat Roost Potential
- S Structures
- Location of Remote Detectors



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TITLE: Location of Remote Detectors
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 6
DATE: 14 September 2015		








LEGEND

-  Confirmed Bat Roost 2015
-  Potential Bat Roost 2015



LEGEND

-  Site Boundary
-  Medium Bat Roost Potential
-  Low Bat Roost Potential
-  Negligible Bat Roost Potential
-  Structures

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TITLE:
 Location of Confirmed and Potential Roosts
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.03
CHK: JS	REV: 1	FIGURE NO.: 7
DATE: 14 September 2015		

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English Nature (now Natural England) (2004) Bat Mitigation Guidelines. English Nature, UK

Hundt, L. (2012) Bat surveys: Good Practice Guidelines, 2nd edition. Bat Conservation Trust.

Office of the Deputy Prime Minister (2005): Circular 06/05: Biodiversity and geological conservation - statutory obligations and their impact within the planning system.

The Conservation of Habitats and Species Regulations 2010 (as amended) HMSO

Wildlife and Countryside Act 1981 (as amended), HMSO.



Buildings

Key: p45 Common Pipistrelle

Building	Roost Potential Category	Date and Type of 1st Survey	Date and Type of 2nd Survey	Date and Type of 3rd Survey	Summary of Activity	Roosting confirmed Y / N?
Bittesby House	High	16/07/2015	22/07/2015	03/08/2015	Survey 1) Low levels of activity predominately associated with the surrounding trees on the northern and western sides, p45 and BLE were recorded during the survey. Survey 2) low levels of p45 activity mainly concentrating on the vegetation to the north of the building, no bat emergence recorded. Survey 3) low levels of p45 commuting and foraging activity , again this was concentrated on the lane of trees and trees to the north of the building	No
		Dawn	Dusk	Dusk		
The Cottage	Medium	16/07/2015	22/07/2015		Survey 1) Low levels of activity predominately associated with the surrounding trees on the northern and western aspects, p45. Survey 2) no bat activity recorded at the building, faint p45 passes heard but not seen	No
		Dawn	Dusk			
Garages	Medium	16/07/2015	22/07/2015		Survey 1) Low levels of activity predominately associated with the surrounding trees on the northern and western sides, p45. Survey 2) no bat activity recorded at these buildings apart from brief p45 commuting passes.	No
		Dawn	Dusk			
The Stables	Medium	29/06/2015	14/07/2015		Survey 1) Moderate levels of p45 activity, p45 commuting and foraging around building, noctule observed above buildings. Possible p45 roost located in the adjacent farm. Survey 2) Low levels of p45 foraging activity recorded, no evidence of roosting	No
		Dusk	Dawn			
Old Stables	Medium	29/06/2015	14/07/2015			No

		Dusk	Dawn			
					Survey 1) Moderate levels of p45 activity, p45 commuting and foraging around building, noctule observed above buildings. Possible p45 roost located in the adjacent farm. Survey 2) Low levels of p45 foraging activity recorded, no evidence of roosting.	
Small buildings	Low	30/06/2015			Low levels of foraging activity associated with trees and hedgerow to the west of the building.	No
		Dawn				
Out building	Low	16/07/2015			very low levels of activity, with the activity associated to the trees to the south of the building	No
		Dawn				
Lodge Cottage	High	13/07/2015	24/07/2015	06/08/2015	Survey 1) First bat, noctule, was heard at 21:31, the first p45 was heard at 21:57 (32 minutes after sunset), first bat was observed flying north towards the building. Foraging activity was recorded mainly over the northern garden. Survey 2) frequent p45 foraging behaviour associated with the building and surrounding vegetation, p45 was observed entering the north eastern gable apex of the building at 04:54 (17 minutes before sunrise). Survey 3) BLE was observed emerging from the eastern gable apex of building at 21:18 (30 minutes after sunset), conversely a p45 was observed entering the western gable apex at 21:41, it then emerged 20 seconds later. Myotis and noctule passes also recorded.	Yes
		Dusk	Dawn	Dusk		
Emmanuel Cottage	Low	13/07/2015			First bat, p45, heard at 21:58 (35 minutes after sunset), foraging activity was recorded within the garden to the north and also to the east of the building. Noctule were also recorded commuting during the survey.	No
		Dusk				
Summer House	Low	14/07/2015			No bat activity associated with this building	No
		Dawn				
Wooden Shed	Low	14/07/2015			No bat activity associated with this building	No
		Dawn				
Bittesby Cottages	Medium	15/07/2015	23/07/2015		Survey 1) first bat heard at 21:54 (33 minutes after sunset) on the northern aspect of the building, a p45 was heard at 21:56 (35 minutes after sunset) on the southern aspect of the buildings, low	No

		Dusk	Dawn		levels of activity mainly associated with the surrounding hedgerows. Survey 2) Very low levels of activity with p45 recorded	
Shed	Low	15/07/2015			First bat heard at 21:54 (33 minutes after sunset), low levels of activity mainly associated with the surrounding hedgerows.	No
		Dusk				
Reception	Medium	16/07/2015	23/07/2015		Survey 1) First bat, p45, heard at 21:52 (32 minutes after sunset) bat was seen flying from office to barn 1, also observed flying within barn 1, brief noctule pass. Survey 2) Low levels of p45 activity with foraging activity between the reception and Barn 2, pip45 was recorded roosting within the south western corner of the building at 04:31.	Yes
		Dusk	Dawn			
Office	Low	15/07/2015	23/07/2015		Survey 1) First bat heard at 21:52 (32 minutes after sunset), low levels of activity mainly associated with the surrounding hedgerows. Survey 2) low levels of p45 activity with only one batt recorded.	No
		Dusk	Dawn			
Barn 1	Low	16/07/2015			p45 was observed flying between the Barn 1 and Reception, also observed flying within Barn 1	No
		Dusk				
Barn 2	Low	23/07/2015			No bat activity was associated with this building, apart from brief foraging behaviour on the south western corner.	No
		Dawn				
Barn 3	Low	23/07/2015			No bat activity was associated with this building.	No
		Dawn				

Trees/ Structures

Tree / Structure Reference No.	Species	Roost Potential Category	Date and Type of 1st Survey	Date and Type of 2nd Survey	Summary of Activity	Roosting confirmed Y /N?
T1	English oak <i>Quercus robur</i>	Low	02/07/2015		p45 and noctule recorded, p45 foraging along hedge line, last bat heard at 03:48	No
			Dawn			
T2		Medium			tree no longer present	

	Ash <i>Fraxinus excelsior</i>					
T3	Ash	Low	02/07/2015		p45 and noctule recorded, p45 foraging along hedge line, with multiple passes and a peak count of two bats, last bat heard at 03:48	No
			Dawn			
T4	English oak	Medium	06/07/2015	17/07/2015	Survey 1) Single noctule heard not seen at 22:55. Survey 2) very low levels of p45 activity, no roosting was recorded.J14	Yes
			Dusk	Dawn		
T5	Ash	Low	06/07/2015		P45 emerged from the tree at 21:56 (28 min after sunset), bat flew west along hedgerow, several foraging and commuting passes along hedgerow. Noctule also recorded above site.	Yes
			Dusk			
T6	Oak species.	Medium	16/07/2015	24/07/2015	Survey 1) First bat (p45) heard at 21:51 (31 minutes after sunset) commuting north for Bittesby farm - indicating there is a roost nearby, constant activity along hedge line and drain, bat also observed within arable field to the east, noctule also recorded above the tree. Survey 2) P45 recorded foraging and commuting along hedgerow, last bat recorded at 04:42 (29 minutes before sunset, indicating a roost is nearby)	No
			Dusk	Dawn		
T7	Oak	Medium	16/07/2015	24/07/2015	Survey 1) First bat (p45) heard at 21:54 (34 minutes after sunset) commuting north from T6 - likely this is the same bat, constant activity along hedge line and drain, bat also observed within arable field to the east, two bats recorded foraging along hedgerow. Survey 2) P45 recorded foraging and commuting along hedgerow, last bat recorded at 04:27 (44 minutes before sunset), likely this is the same bat recorded at T6	No
			Dusk	Dawn		
T8	Ash	Low	03/08/2015		First bat, p45, heard at 21:51 (59 minutes after sunset), bat was observed foraging along the tree line.	No
			Dusk			

T9	Ash	Medium	03/08/2015	07/08/2015	Survey 1) First bat, p45, heard at 21:51 (59 minutes after sunset), bat was observed foraging along the tree line. Survey 2) Low levels of p45 activity recorded with the last bat heard at 04:44 (50 minutes before sunrise).	No
			Dusk	Dawn		
T11	Ash	Low	03/08/2015		Only a single p45 commuting pass heard at 21:55. No bats were observed emerging from the tree.	No
			Dusk			
T13	Ash	Low	06/08/2015		low levels of p45 activity recorded along hedge line	No
			Dusk			
T14	Ash	Low	06/08/2015		low levels of p45 activity recorded along hedge line	No
			Dusk			
T15	Ash	Medium	04/08/2015	06/08/2015	Survey 1) Low levels of p45 activity recorded along hedge line. Survey 2) no bats were recorded.	No
			Dusk	Dawn		
T16	Ash	Medium	01/07/2015	17/07/2015	Survey 1) first bat - noctule was recorded at 21:45, bat was recorded flying commuting west several pip45 passes were recorded along the hedgerow, a myotis species was also recorded. Survey 2) low levels of P45 activity p45 and noctule recorded, last bat (p45) recorded at 04:29 (33 minutes before sunrise) - possible roost nearby.	No
			Dusk	Dawn		
T18	Ash	Medium	07/07/2015	05/08/2015	Survey 1) constant pip 45 foraging activity along the hedge line, no roosting activity was recorded at the tree, last bat was heard at 04:05 (45 minutes before sunset). Survey 2) one single noctule pass was recorded at 21:39 (49 minutes after sunset).	No
			Dawn			

T19	Ash	Medium	06/07/2015		Survey 1) Low levels of P45 activity with the first bat p45 recorded at 22:00 (30 minutes after sunset) likely that this is the bat emerged from T5. Survey 2) constant p45 foraging activity recorded from the outset of the survey, up to two bats recorded foraging up and down the hedgerow, on bat (p45) was observed roosting in the tree at 04:29 (31 minutes before sunrise)	Yes
			Dusk			
T20	English oak	Medium	04/08/2015	05/08/2015	Survey 1) low levels of p45 activity associated with the trees around Bittesby House. Survey 2) low levels of p45 activity with bats concentrating on trees and hedge line	No
			Dawn	Dusk		
T21	Ash	Medium	16/07/2015	22/07/2015	Survey 1) low levels of p45 activity associated with the trees around Bittesby House. Survey 2) low levels of p45 activity with bats concentrating on trees and hedge line	No
			Dawn	Dusk		
T22	Large-Leaved Lime <i>Tilia platyphyllos</i>	Medium	04/08/2015	05/08/2015	Survey 1) Noctule, myotis and p45 activity recorded foraging along the tree line, no roosting recorded. Survey 2) intermittent foraging of p45 with first bat heard at 21:11 (16 minutes after sunset) thus indicating a roost is close by.	No
			Dawn	Dusk		
T23	Large-Leaved Lime	Low	04/08/2015		Medium levels of foraging p45 activity, noctule and myotis recorded, no roosting recorded at target tree. Last bat (noctule heard at 04:53 (37 minutes before sunrise).	No
			Dawn			
T24	Horse chestnut	Low	04/08/2015		Medium levels of foraging p45 activity, noctule and myotis recorded, no roosting recorded at target tree last bat (noctule heard at 04:53 (37 minutes before sunrise).	No
			Dawn			

T25	Horse chestnut <i>Aesculus hippocastanum</i>	Low	15/07/2015		High levels of bat activity with constant p45 activity, first bat heard at 21:52, did not emerge from this tree, peak count of two p45s. Noctule was also recorded but heard not seen	No
			Dusk			
T26	Horse chestnut	Medium	15/07/2015	04/08/2015	Survey 1) High levels of bat activity with constant p45 activity, first bat heard at 21:52, did not emerge from this tree, peak count of two p45s. Noctule was also recorded but heard not seen. Survey 2) several p45 foraging passes along the tree line. A noctule was heard and not seen as it was high above the tree line, last bat heard at 04:54 (34 minutes before sunrise).	No
			Dusk	Dawn		
T27	Ash	Medium	01/07/2015	17/07/2015	Survey 1) first bat heard, noctule, heard at 22:26 (54 minutes before sunset), first p45 heard 22:33 over one hour after sunset. Survey 2) Low levels of bat activity with only p45 and noctule recorded.	No
			Dusk	Dawn		
T28	Dead tree	Low	24/06/2015		First bat a noctule was heard at 21:49 (18 minutes after sunset), low levels of p45 was recorded commuting along the drain.	No
			Dusk			
T30	Ash	Medium	24/06/2015	01/07/2015	Survey 1) low levels of activity recorded, p45 and noctule recorded, p45 foraging around T30 and up and down the hedgerow. Survey 2) Pip45 and noctule recorded, p45 recorded foraging along the southern side of the tree, noctule observed high up.	No
			Dusk	Dawn		
T31	Beech <i>Fagus sylvatica</i>	Low	16/07/2015		No bat activity recorded	No
			Dawn			
T32	Ash	Low	04/08/2015		First bat, p45, heard at 21:32 (40 minutes after sunset), bat was observed flying south along field boundary. Several heard and not seen passes.	No
			Dusk			

T33	Ash	Medium	04/08/2015	07/08/2015	Survey 1+J21) very low levels of activity recorded, only one bat, p45 recorded at 22:08 (1 hr 16 min after sunset). Survey 2) intermittent foraging of p45, all passes were heard and not seen. Last bat recoded at 04:40 (66 minutes before sunrise)	No
			Dusk	Dawn		
T34	Ash	Low	04/08/2015		Very low levels of activity recorded, only one bat, p45 recorded at 22:08 (1 hr 16 min after sunset).	No
			Dusk			
T35	Ash	Low	07/07/2015		Very low levels of activity, noctule and p45 recorded.	No
			Dawn			
T41	Ash	Medium	04/08/2015		Survey 1) low levels of bat activity with only two bat passes recorded, a single p45 and noctule pass, the first bat (noctule) was heard at 21:18 (26 minutes after sunset) . Survey 2) only two p45 bat passes recorded, both were heard and not seen and the last bat pass was 04:39 (53 minutes before sunrise).	No
			Dusk			
T42	Horse Chestnut	Medium	14/07/2015	23/07/2015	Survey 1) constant p45 activity with also a p55 recorded, last bat was heard at 04:37 (21 minutes before sunrise), and bat was observed flying to the western send of the Lodge Cottage. Survey 2) P45 was recorded at 21:27 (16 minutes after sunset), bat appeared to emerge for the Lodge, constant foraging activity until end of survey.	No
			Dawn	Dusk		
T43	Horse Chestnut	Low	14/07/2015		Several p45 commuting passes with intermittent foraging within the field to the north and south, no evidence of roosting.	No
			Dawn			

T44	Horse Chestnut	Medium	14/07/2015	23/07/2015	Survey 1) several p45 commuting passes with intermittent foraging within the field to the north and south, no evidence of roosting. Survey 2) First bat (p45) was recorded at 21:31, likely it is the bat that emerged from the Lodge Cottage. Constant foraging activity north of the tree, associated with grassland and pond.	No
			Dawn	Dusk		
T45	Horse Chestnut	Medium	14/07/2015	23/07/2015	Survey 1) several p45 commuting passes with intermittent foraging within the field to the north and south, no evidence of roosting. Survey 2) First bat a p45 was heard at 21:31, high levels of foraging north of the tree and field boundary. BLE also recorded on two occasions; first was at 22:16 high above the tree and second was observed at 22:29 commuting east along the hedgerow south of the tree.	No
			Dawn	Dusk		
T46	Ash	Medium	05/08/2015	07/08/2015	Survey 1) first bat, p45 heard at 21:37 (47 minutes after sunset), several foraging passes observed along the hedge line. Survey 2) several foraging passes of p45 along the hedge line, no evidence of roosting recorded. Survey 2) low levels of p45 foraging and commuting behaviour associated with the trees and hedgerows.	No
			Dusk	Dawn		
T47	Ash	Medium	05/08/2015	07/08/2015	Survey 1) first bat, p45 heard at 21:40 (50 minutes after sunset), several foraging passes observed along the hedge line. Survey 2) several foraging passes of p45 along the hedge line, no evidence of roosting recorded. Survey 2) low levels of p45 foraging and commuting behaviour associated with the trees and hedgerows.	No
			Dusk	Dawn		
S1	Tunnel	Medium	23/07/2015	05/08/2015	Survey 1) Moderate levels of p45 foraging activity with the first p45 heard at 21:30 (15 minutes after sunset) p45 using the tunnel	No



			Dusk	Dawn	to forage. Survey 2) low levels of p45 foraging activity with foraging concentrated above the tunnel entrance.	
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**Magna Park Extension: Hybrid Application, Zone 1
Delta-Simons Project No. 14-0159.03**



Photograph 1 – Eastern gable end of Lodge Cottage, roost location within red circle



Photograph 2 – South eastern corner of Reception Building, roost location within red circle



Appendix I-6: Wintering Bird Survey

**Magna Park Extension: Hybrid Application, Zone
1**

For IDI Gazeley

Delta-Simons Project No. 14-0159.04

Issued: September 2015

EXECUTIVE SUMMARY
APPENDIX I-6: WINTERING BIRD SURVEY
MAGNA PARK EXTENSION – HYBRID APPLICATION, ZONE 1
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.04

Purpose	Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley (the 'Client') to undertake Wintering Bird Surveys of land situated off Mere Lane to the west of Lutterworth in Leicestershire that forms Zone 1 of the proposed development (the 'Site'). The surveys were undertaken between October 2014 and February 2015 (inclusive). The surveys were undertaken in order to inform a planning application for the Site.
Current Site Status	The Site comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.
Proposed Development	An outline planning application will be submitted for up to 427,350 square metres (m ²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m ² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m ² , an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m ² , Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m ² , and an Innovation Centre of up to 2,325 m ² . The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.
Results	<p>Forty-nine species were recorded on-Site during the winter bird surveys. Two Schedule 1 species on the Wildlife and Countryside Act (1981, as amended) were identified with ten Red List Birds of Conservation Concern (BoCC) and 13 Amber list BoCC recorded. The majority of bird activity was located within the boundary hedgerows and field margins.</p> <p>Overall the wintering birds assemblage recorded during the surveys is considered to be of Site value due to its relatively low diversity and numbers of</p>

	<p>birds, and the fact that the Site is likely to be used in combination with other similar habitats in the surrounding area.</p>
<p>Ecological Considerations and Recommendations</p>	<p>The field margins and hedgerows were identified as supporting the greatest range of species and number of birds on-Site. No significant populations of wintering birds have been recorded on-Site. Most species recorded are both commonly occurring locally and widespread within the county. The overwintering assemblage is considered to be no greater than local nature conservation value with emphasis on those species associated with hedgerows and field margins rather than those of open arable fields.</p> <p>The proposed retention of boundary hedgerows, where possible, and the planting of further hedgerows and trees, along with the inclusion of species-rich grassland areas and extensive wetland in the northern area of the Site, adding to that present at Mere Lane Lagoon, which will also be enhanced at the north-eastern extent of the Site, will help the Site become more favourable to some bird species once habitats have matured. The loss of open arable field habitats will lead to minor negative impacts upon typical farmland bird species that were recorded infrequently during the survey visits. Through the enhancement of habitats present on-Site, and the inclusion of new habitats, there is the potential to support further bird species of conservation concern over-winter.</p>
<p>This Winter Bird Survey Report Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This Executive Summary should be read in conjunction with the full Report.</p>	

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1.0 INTRODUCTION

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley ('the Client') to undertake Wintering Bird Surveys of land off Mere Lane to the west of Lutterworth in Leicestershire, land that forms Zone 1 of the proposed development (hereafter referred to as the "Site"). This follows the recommendations of the Extended Phase 1 Habitat Survey undertaken in September 2014 (Delta-Simons August 2015, 14-0159.02). The survey was undertaken in order to inform a planning application for the Site. The Site Location is shown in Figure 1.

The aims of the wintering bird surveys were to:

- △ Provide information on the existing ecological conditions on-Site with regards to wintering birds;
- △ Identify potential constraints and/ or opportunities that wintering birds may pose to any future development plans ; and
- △ Identify further ecological survey works that may be required to ensure that wintering birds are fully considered within the proposals.

1.2 Site Description

Zone 1, is an approximately 220 ha triangular parcel of predominantly agricultural land to the north and north-west of Magna Park, Lutterworth. Zone 1 is linked to and extends Magna Park. Its boundaries are created by the A5 to the south and west, Mere Lane to the east and the ridgeline hedgerows that follow the parish boundary to the north.

It comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic

and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.

The Site layout is shown in Figure 2.

1.3 Proposed Development

An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m², Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

The proposed development plan is included as Figure 3.

2.0 LEGISLATION

2.1 Birds

All wild birds are protected under Section 1 of the Wildlife and Countryside Act (WCA) 1981 (as amended). Subsection 1(1) makes it an offence to intentionally kill, injure, or take any wild bird, take, damage or destroy the nest of any such bird whilst it is in use or being built; or take or destroy an egg of any such wild bird. It is, further, an offence to either intentionally, or recklessly, disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird. The law covers all species of wild birds including common, pest or opportunistic species.

2.2 Planning

With reference to the National Planning Policy Framework (NPPF), the Office of the Deputy Prime Minister Circular (2005) advises that ecological surveys are undertaken before planning permission is determined. The circular states “*The need to ensure that ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances*” (see References, Appendix I).

3.0 NOMENCLATURE

3.1 Fauna and Flora

The common name only of floral and faunal species is given in the main text of this report, however, Latin names are used for species where no common name is available. A full list of all species recorded on-Site during the surveys is given in Appendix II with their Latin names. All common birds names follow the nomenclature of Dudley et al. (2006).

4.0 METHODOLOGY

4.1 Background

During the non-breeding season for winter farmland birds (October-March) many birds still remain approximately within their summer breeding ranges and, in some species their numbers are supplemented by the arrival of continental birds. These migrants arrive in Britain in late autumn and stay until spring. With the leaves fallen from trees, the birds are more conspicuous in winter, they also call and sing periodically and can be observed from some distance away.

The position of birds and numbers can be mapped onto field sheets and their frequency of occurrence and distribution can be assessed.

For the study at the Site, a transect route for typical farmland habitat was adopted, to assess the presence or absence of bird species during the winter months and to obtain approximate measures for relative abundance.

4.2 Data Search

A data search was undertaken by both the Leicestershire and Rutland Environmental Records Centre (LRERC) and the Warwickshire Biological Records Centre (WBRC) to identify statutory and non-statutory sites and protected and notable species of birds within a 3 km radius of the centre of the Site. In addition, a search for designated sites for nature conservation on, or within 3 km of, the Site was performed using the Multi-Agency Geographic Information for the Countryside (MAGIC).

4.3 Field Survey

Field survey methods were based upon, and adapted from generic wintering bird monitoring methods given in Gilbert et al. (1998). The Site was visited twice a month between October 2014 and February 2015, inclusive. During each visit a transect route was walked and all birds seen or heard within the survey area were identified and recorded. The visits took between four and five hours depending on weather conditions and bird numbers encountered.

The surveys were undertaken by Peter Morrell an experienced Ornithologist. The surveys avoided days with adverse weather conditions, including snow and frozen ground.

4.4 Assessment Methodology

Wintering bird populations at the Site are assessed in terms of their local, national and international status. A number of factors are considered in terms of National status, these include the UK Biodiversity Action Plan and a number of specialist reports.

The Directive of the Conservation of Wild Birds (EC birds directive) list 95 species of birds which are in danger of extinction, are rare, have restricted local distribution, or are vulnerable to specific changes in their habitat. These species are afforded enhanced legal protection and EU member states have a responsibility to maintain the populations of these species at a level that corresponds to their ecological, scientific and cultural requirements (Article 2). This directive is transposed into English law by the Habitats and species Regulations 2010.

A report on 'Birds of Conservation Concern (BoCC)' allocates nearly 250 birds that regularly occur in the UK to one of three lists (Eaton et al. 2009). Those on the Red List are of high conservation concern whose populations or range is rapidly declining, recently or historically, and those of a global conservation concern. Birds on the Amber List are of medium conservation concern, whose population is in moderate decline, rare breeders, internationally important and localised species and those of an unfavourable conservation status in Europe. Bird species on the Green List are at a favourable conservation status. Bird species listed on the UK Biodiversity Action Plan largely overlap with those on the Red List.

Schedule 1 of the WCA (1981, as amended) affords enhanced statutory protection to a range of breeding bird species. Birds on Schedule 1 of the WCA are a material consideration as part of planning applications, as required by Planning Policy Statement 9 (PPS 9). Planning authorities are obliged to attach appropriate planning conditions or enter into planning obligations to secure the protection of these birds. Measures must be taken to assess whether Schedule 1 birds are present and if so, to ensure their habitats are protected through the planning process.

Based upon the above criteria each species is assigned an ecological value (Appendix III).

5.0 RESULTS

5.1 Data Search

5.1.2 Birds

Both the LRERC and WBRC data searches revealed records of protected or notable bird species within 3 km of the centre of the Site, including barn owl *Tyto alba*, marsh harrier *Circus aeruginosus*, hen harrier *Circus cyaneus*, quail *Coturnix coturnix*, hobby *Falco Subbuteo*, fieldfare *Turdus pilaris*, brambling *Fringilla montifringilla* and red kite *Milvus milvus* which are all listed on Schedule 1 of the WCA 1981 (as amended).

5.2 Field Surveys

The attributes of the surveys themselves are shown in Table 1. The surveys ran from October 2014 to February 2015 inclusive, with two surveys per month. The surveys were timed to test the hypothesis that birds were using the Site on a regular basis. The weather for all of the survey visits was suitable, with none of the following weather conditions encountered on any of the surveys: Fog, heavy rain or snow- which could have led to birds not being adequately recorded due to poor visibility. The results of the birds of surveys are listed in full in Appendix IV.

Table 1 – Attributes of Winter Bird Survey

Date	Survey Length (hrs)	Time from - to	Weather
27/10/14	4	08:30-12:30	Wind F2-3 SSW, dry, overcast (7/8 cloud cover) 15°C
31/10/14	4	08:30-12:30	Wind F1-2 S dry, high broken cloud, brightening later (6/8 -2/8 cloud cover) 16°C
19/11/14	4	08:30-12:30	Wind F1 E, dry, overcast (8/8 cloud cover) 8°C
27/11/14	4	08:30-12:30	Wind F1 SSW, drizzle at first, dry later (8/8 cloud cover) 8°C
04/12/14	4	08:30-12:30	Wind F1 NE, dry, overcast (8/8 cloud cover) 5°C
18/12/14	4	08:30-12:30	Wind F2-3 SW, dry, overcast (7/8 cloud cover) 13°C
08/01/15	4	08:30-12:30	Wind F1-2 WSW, Rain at first then brightening up (8/8-2/8 cloud cover) 8°C
22/01/15	4	08:30-12:30	Wind F1 E, Misty at first then sunny (8/8-2/8 cloud cover) -2 to 4°C
05/02/15	4	08:30-12:30	Wind F1-2NNE, snow flurries at first then light rain (8/8 cloud cover) 2°C
10/02/15	4	08:30-12:30	Wind F1 SW, sunny at first, then overcast (3/8 - 8/8 cloud cover) 4°C

5.3 Assessment

Table 2 shows the species recorded on Site during the course of the winter bird survey and their conservation status. Note England Biodiversity Priority Species (EBPS) were previously UK Biodiversity Action Plan (UKBAP) priority species.

Table 2 Conservation Status of Birds Recorded on Site

Species	Schedule 1	Red List	Amber List	Green List	EBPS	LBAP
Mute swan				✓		
Mallard			✓			
Tufted duck			✓			
Red-legged partridge				✓		
Grey partridge		✓			✓	
Pheasant				✓		
Grey heron				✓		

Sparrowhawk				✓		
Buzzard				✓		
Kestrel			✓			
Coot				✓		
Golden plover			✓			
Lapwing		✓			✓	
Snipe			✓			
Black-headed gull			✓			
Woodpigeon			✓			
Green woodpecker			✓			
Great spotted woodpecker				✓		
Skylark		✓			✓	
Meadow pipit			✓			
Pied wagtail				✓		
Wren				✓		
Dunnock			✓		✓	
Robin				✓		
Blackbird				✓		
Fieldfare	✓	✓				
Song thrush		✓			✓	
Redwing	✓	✓				
Mistle thrush			✓			
Goldcrest				✓		
Long-tailed tit				✓		
Blue tit				✓		
Great tit				✓		
Coal tit				✓		
Jay				✓		
Magpie				✓		
Jackdaw				✓		
Rook				✓		
Carrion crow				✓		
Starling		✓			✓	

Tree sparrow		✓			✓	
Chaffinch				✓		
Greenfinch				✓		
Goldfinch				✓		
Siskin				✓		
Linnet		✓			✓	
Bullfinch			✓		✓	
Yellowhammer		✓			✓	
Reed bunting			✓		✓	

All species assessed to being of Local Value or higher are given in Table 3 below. All species not listed in Table 3 are considered to be of Negligible or Site Value and are listed in full within Appendix V.

Table 3 Overall Assessment of Ecological Value of Wintering Birds on Site

Species	Species Assessment	Value
Mallard	A peak count of 142 recorded in November 2015	Local
Buzzard	Up to two individuals were recorded during seven surveys	Local
Coot	A peak count of 29 individuals recorded in November 2014	Local
Black-headed gull	A maximum count of 12 recorded during the ten surveys	Local
Wood pigeon	A peak count of 81 recorded in February 2015	Local
Blackbird	A maximum of 77 individuals recorded during the ten surveys	Local
Fieldfare	A peak count of 150 during six surveys	Local
Song thrush	A maximum count of three individuals recorded during five surveys	Local
Redwing	A peak count of 23 during five surveys	Local
Magpie	A maximum of 20 recorded during nine surveys	Local
Jackdaw	16 recorded in October 2014 and 16 recorded in January 2015	Local
Rook	Flock of 30 recorded in October 2014	Local
Carrion crow	A maximum count of 25 individuals recorded during the ten surveys	Local

Starling	A peak count of 30 recoded during four surveys	Local
Goldfinch	A peak count of 60 recoded during four surveys	Local
Siskin	A peak count of 67 recoded during seven surveys	Local
Linnet	A peak count of 92 recoded during nine surveys	Local
Bullfinch	A maximum count of three individuals recorded during five surveys	Local
Yellowhammer	A peak count of 137 recoded during the ten surveys	Local
Reed bunting	A peak count of 47 recoded during the ten surveys	Local

A total of 49 species were recorded within the survey Site over the course of the winter bird survey. Two Schedule 1 (WCA 1981, as amended) species were recorded on Site, fieldfare and redwing.

A total of ten Red list species, eight of which are UK EBP priority species, were recorded during the ten surveys, including lapwing, skylark, fieldfare, song thrush, redwing, starling, houses sparrow, linnet, grey partridge and yellowhammer. All were associated with the arable and hedgerow habitats. Thirteen Amber list species were recorded on Site, including high numbers of mallard – more than 140 individuals were recorded on Mere Lane Lagoon at the north-eastern extent of the Site during the survey undertaken in November 2014. A flock of 47 golden plover was recorded in December 2014. The flock circled the arable fields in the north of the Site a number of times but never landed.

A further 25 Green list species were recorded within a variety of habitats, including arable, hedgerows, woodland and open water, which are distributed across the Site.

The public footpaths at the Site are occasionally used by dog walkers, and as a result it is subject to generally low levels of disturbance particularly along farm tracks and field margins.

Overall the wintering birds assemblage recorded during the surveys is considered to be of Site value due to its relatively low diversity and low numbers of birds, and the fact that the Site is likely to be used in combination with other surrounding similar habitats.

6.0 ECOLOGICAL CONSIDERATIONS AND RECOMMENDATIONS

6.1 Ecological Considerations

The value of the Site to wintering birds is considered to be variable. Two habitats areas have been identified in terms of attracting higher numbers of birds and the more specialist species. These areas are detailed below:

6.1.1 Hedgerows

Although the majority of hedgerows throughout the Site were generally poor in structure and provided minimal cover and foraging opportunities, hedgerows within the north-eastern and south-western extents of the Site had been subjected to less frequent management, and were of varying structure, providing more opportunities for wintering birds. Generalist species such as blue tit, great tit and blackbird were recorded here in greater frequency than elsewhere on Site. Additionally, hedgerows within these areas comprised a high percentage of berry bearing species providing foraging opportunities for redwing and fieldfare.

6.1.2 Field margins

These areas bordering the arable fields held the greatest variety of species on Site, with good numbers of UK EBP species or BoCC being recorded. The margins provide suitable undisturbed foraging and sheltering opportunities to many of the generalist species recorded within the local area.

6.2 Impacts of Habitats Loss/ Change

The significance of the impact on bird species is based on an understanding of each species ecological requirements and their distribution, rarity and vulnerability as indicated by current guidance (e.g. RSPB Red and Amber listed BoCC 3 (2009); UK EBP and Local BAP species) and legislation. In identifying particular sensitive or important receptors the above guidance, in addition to the current status of birds in Leicestershire have been used. Populations of the 2 Schedule 1, 10 Red listed, and 11 UK EBP bird species are arguably the most sensitive to changes in habitat. The habitat requirements, numbers recorded, and nature conservation value of these species have been taken into consideration. In addition, impacts arising from the proposed development in terms of habitat loss have been assessed against the development proposals set out in the Site development plan.

The Site provides overwintering habitat for a bird assemblage dominated by species preferring wetland, open arable habitats, hedgerows and woodland. The habitats of greatest value include the open water of the Lagoon in the north-eastern extent of the Site, the taller less-frequently managed hedgerows and grassland field margins where most bird activity was noted. No significant populations of wintering birds have been recorded on Site. Most species are commonly occurring in the local area, and widespread within the county. A small number of Schedule 1, BoCC Red and Amber listed UK EBP species have been recorded, however, none have been recorded in significant numbers. Therefore, the overwintering assemblage is considered to be no greater than Site nature conservation value with emphasis on those species associated with hedgerows and field margins rather than those of open arable fields.

Through the retention of the majority of field boundary hedgerows, and the planting of further hedgerows, shrubs and trees within the proposed landscaping plan, together with creation of wildflower meadows and extensive wetland within the northern area of the Site, it is considered the majority of species using these habitats will not be adversely impacted upon through habitat change. Furthermore, in some instances the Site will become more favourable to some species, such as song thrush, once habitats have matured. The loss of open arable field habitats will lead to minor negative impacts upon skylark, linnets and yellowhammers. Other birds traditionally associated with arable habitats, such as lapwings, were recorded infrequently during the surveys. Through the retention of the Mere Lane Lagoon to the north-eastern extent of the Site, and the inclusion of extensive wetland, including willow carr, reedbed and wet meadow habitats, the Site has the potential to support further BoCC in winter, such as snipe and reed bunting, which are known to occur within the wetland habitats associated with the Site.

7.0 LIMITATIONS OF SURVEY

7.1 Limitations

This report details birds recorded during the survey and anecdotal evidence of sightings. It does not detail any bird species that may appear at other times of the year and were, therefore, not evident at the time of survey visits. Some species that might use the Site on occasion, or be apparent at other times of year, or only in certain years, would not have been detected.

The surveys covered the whole wintering bird season and the number of surveys was in-line with standard methods (generally two surveys per month), and, therefore, this level of survey was considered sufficient given the level of activity found, species recorded on Site, and the survey objectives.

This report provides provisional an ecological baseline for the Site with regards to wintering birds and should not be considered to be conclusive until detailed development plans have been confirmed.

The behaviour of animals can be unpredictable and may not conform to standard patterns recorded in current scientific literature. This report, therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or, that they will not occur in locations or habitats that appear unsuitable.

7.2 Disclaimer

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Ecology Consultant. Delta-Simons does not warrant or guarantee that the Site is free of Bats or other protected species.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1.0 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and

responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

This Report was prepared by:



Pete Morrell
Senior Ecologist

16/09/15
Date

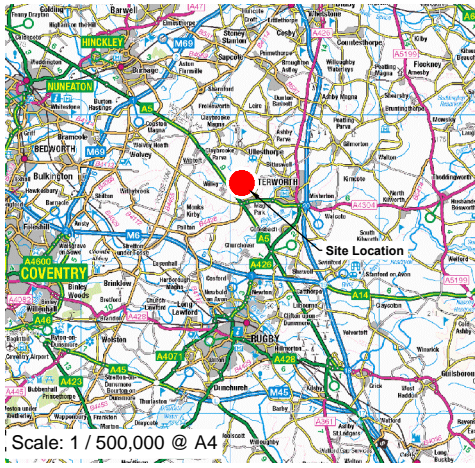
This Report was reviewed and authorised by:




Charlotte Sanderson
Ecology Unit Manager

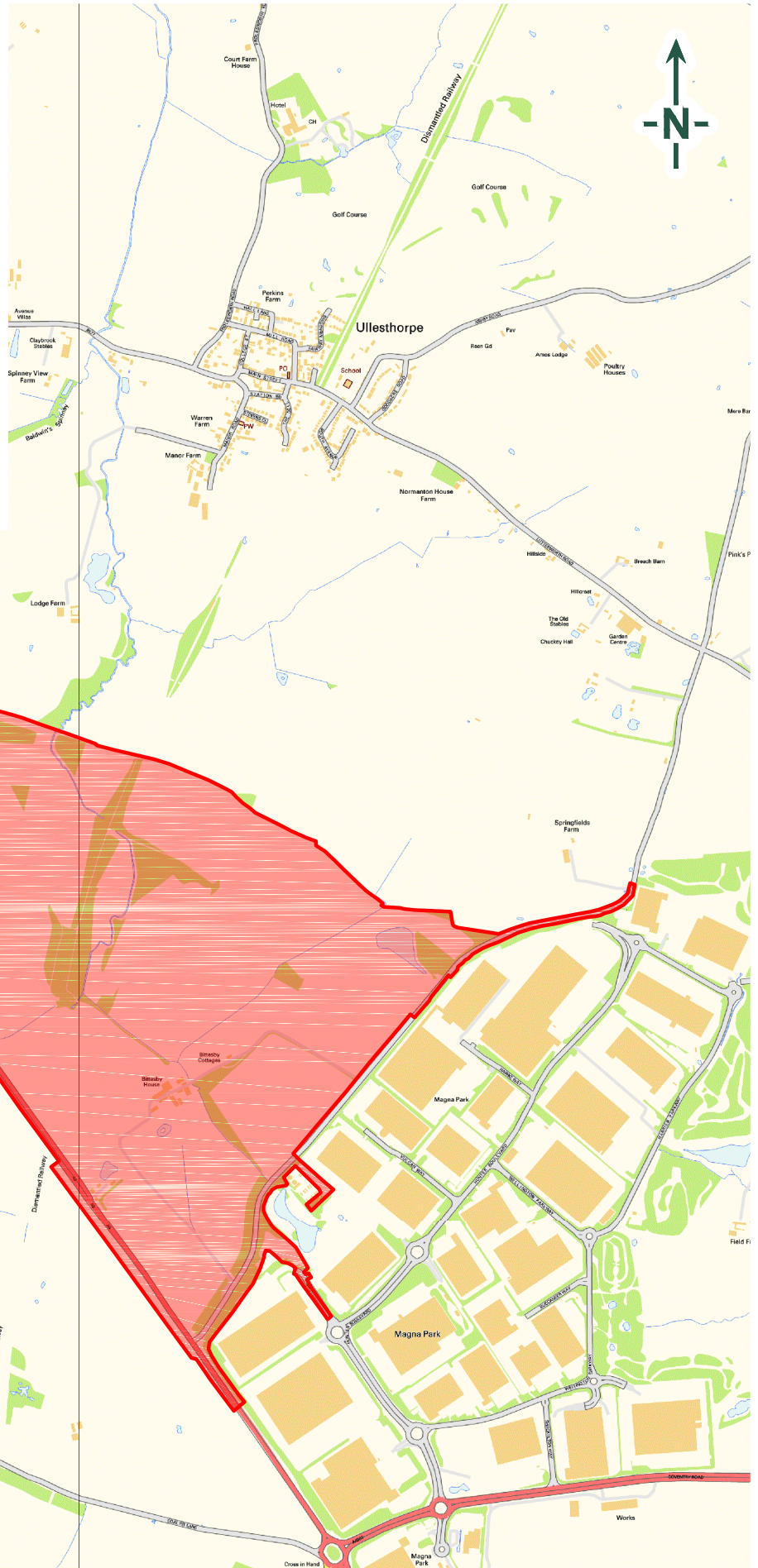
16/09/15
Date





LEGEND

 Site Boundary



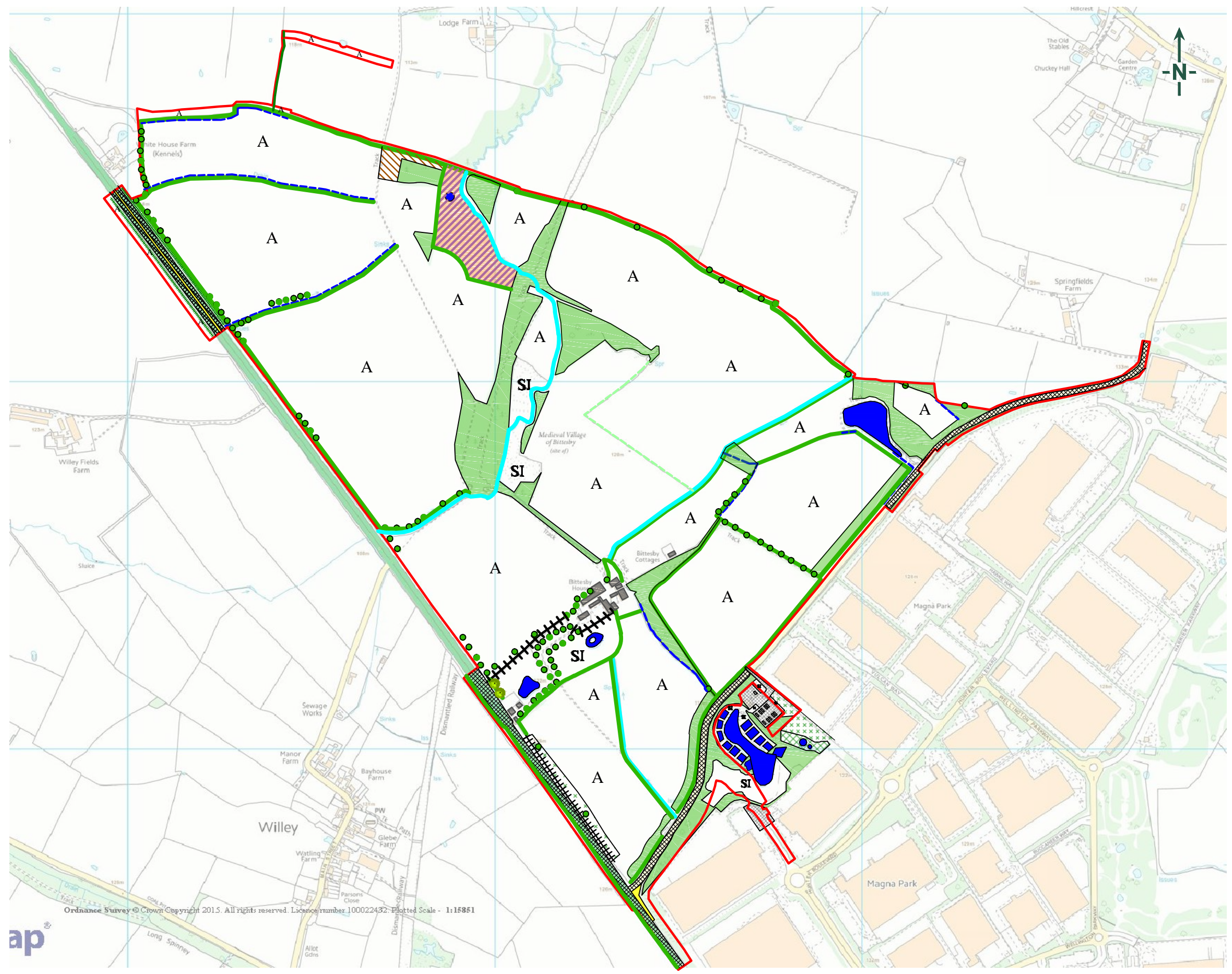
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TITLE:
Site Location Plan
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN: DP
 SCA: To Scale @ A4
 CHK: JS
 REV: 1
 DATE: 14 September 2015

PROJECT NO.:
14-0159.04
 FIGURE NO.:
1



LEGEND

	Site Boundary
	Broadleaved Plantation Woodland (A1.1.2)
	Scattered Broadleaved Trees (A3.1)
	Scattered Coniferous Trees (A3.2)
	Marsh Grassland (B5)
	Poor Semi Improved Grassland (B6)
	Tall Ruderal (C3.1)
	Standing Water (G1)
	Running Water (G2)
	Arable (J1.1)
	Amenity Grassland (J1.2)
	Intact Hedgerow - Species Poor (J2.1.2)
	Defunct Hedgerow - Species Poor (J2.2.2)
	Fence (J2.4)
	Dry Ditch (J2.6)
	Scattered Scrub (A2.2)
	Species Poor Hedgerow with Trees (J2.3.2)
	Dense Scrub (A2.1)
	Buildings (J3.6)
	Hard Standing (J4.1)

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TITLE:
 Site Layout Plan
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.04
CHK: JS	REV: 1	FIGURE NO.: 2
DATE: 14 September 2015		



- GENERAL NOTES:
1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERING AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
 3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
 4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERRED TO THE CLIENT IMMEDIATELY.
 5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 6. ALL LEVELS IN METRES.
 7. DO NOT SCALE OFF THIS DRAWING.
 8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
 9. THE CONTENT OF THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST PROJECT GOMR REGISTER.

NO	14/09/2015	FOR COMMENT	1/18	DN
REV	Date	Description	Rev	Drawn/Chk
 grant associates Landscape Architecture, Urban Design, Creative Ecology 21 Mill Street, Bath BA1 1UT T: +44 (0) 1225 325664 F: +44 (0) 1225 428165 E: info@grant-associates.co.uk				
CLIENT IDI Gazeley				
PROJECT Magna Park Extension OPA				
TITLE Illustrative Masterplan				
Author	Drawn	Check	Rev	Comment
14/09/2015	JS	10/09/2015	1/18	DN
FOR COMMENT				
Drawing No.	Rev			
MLP410-AL-A01-MP-Q-001	00			



TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Planning Application
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.04
CHK: JS	REV: 1	FIGURE NO.: 3
DATE: 14 September 2015		





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**APPENDIX II
SPECIES LIST**

English Name	Latin Name
Mute swan	<i>Cygnus olor</i>
Mallard	<i>Anas platyrhynchos</i>
Tufted duck	<i>Aythya fuligula</i>
Red-legged partridge	<i>Alectris rufa</i>
Grey partridge	<i>Perdix perdix</i>
Pheasant	<i>Phasianus colchicus</i>
Grey Heron	<i>Ardea cinerea</i>
Sparrowhawk	<i>Accipiter nisus</i>
Buzzard	<i>Buteo buteo</i>
Kestrel	<i>Falco tinnunculus</i>
Coot	<i>Fulica atra</i>
Golden plover	<i>Pluvialis apricaria</i>
Lapwing	<i>Vanellus vanellus</i>
Snipe	<i>Gallinago gallinago</i>
Black-headed gull	<i>Chroicocephalus ridibundus</i>
Wood pigeon	<i>Columba palumbus</i>
Green woodpecker	<i>Picus viridis</i>
Great spotted woodpecker	<i>Dendrocopos major</i>
Skylark	<i>Alauda arvensis</i>
Meadow pipit	<i>Anthus pratensis</i>
Pied wagtail	<i>Motacilla alba</i>
Wren	<i>Troglodytes troglodytes</i>
Dunnock	<i>Prunella modularis</i>
Robin	<i>Erithacus rubecula</i>
Blackbird	<i>Turdus merula</i>
Fieldfare	<i>Turdus pilaris</i>
Song thrush	<i>Turdus philomelos</i>
Redwing	<i>Turdus iliacus</i>
Mistle thrush	<i>Turdus viscivorus</i>
Goldcrest	<i>Regulus ignicapillus</i>
Long-tailed tit	<i>Aegithalos caudatus</i>
Blue tit	<i>Cyanistes caeruleus</i>
Great tit	<i>Parus major</i>
Coal tit	<i>Parus ater</i>
Jay	<i>Garrulus glandarius</i>
Magpie	<i>Pica pica</i>
Jackdaw	<i>Corvus monedula</i>
Rook	<i>Corvus frugilegus</i>
Carrion crow	<i>Corvus corone</i>

Starling	<i>Sturnus vulgaris</i>
Tree sparrow	<i>Passer montanus</i>
Chaffinch	<i>Fringilla coelebs</i>
Goldfinch	<i>Carduelis carduelis</i>
Greenfinch	<i>Chloris chloris</i>
Siskin	<i>Carduelis spinus</i>
Linnet	<i>Carduelis cannabina</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Yellowhammer	<i>Emberiza citrinella</i>
Reed bunting	<i>Emberiza schoeniclus</i>



APPENDIX III DEFINING ECOLOGICAL VALUES

Chartered Institute of Ecology and Environmental Management

The examples contained in the table below are only for general guidance and other considerations may apply, e.g. features of low value in isolation but which are subject to cumulative national decline may be afforded higher values in certain circumstances. These examples have been tailored to be specific to birds.

Level of Ecological Value	Examples of Criteria
International	<ul style="list-style-type: none"> △ An internationally designated site or candidate site (SPA, pSPA, Ramsar site) △ A sustainable population of an internationally important species △ Sites supporting a breeding population of internationally important species or supplying a critical element of their habitat requirements
National	<ul style="list-style-type: none"> △ A nationally designated site (SSSI, ASSI, NNR, MNR) or a discrete area that meets the selection criteria for national designation (e.g. SSSI selection guidelines) △ A sustainable population of a nationally important species or a site supporting such a species, i.e. a species listed on Schedules 1 of the W&CA (as amended), which is a UK Red-listed Bird of Conservation Concern (BoCC) that is not listed as being of unfavourable conservation status in Europe, of uncertain conservation status or of global concern in the UK BAP
Regional	<ul style="list-style-type: none"> △ A sustainable population of a species listed as being nationally scarce, or in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation. Sites supporting a breeding population of such a species or supplying a critical element of their habitat requirements △ Sites, which exceed the County-level designations but fall short of national selection guidelines, where these occur

County/ Metropolitan	<ul style="list-style-type: none"> △ County/Metropolitan sites and other sites which meet the ecological selection criteria for designation △ A sustainable population of a species that is listed in a county/metropolitan 'red data book' or LBAP on account of its regional rarity or localisation. Also sites supplying a critical element of their habitat requirements
District	<ul style="list-style-type: none"> △ A population of a species that is listed in a district/borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation. Also sites supporting a breeding population of such a species or supplying a critical element of their requirements
Local	<ul style="list-style-type: none"> △ A good assemblage of species, which may include low numbers of Amber or Red-listed BoCC
Site	<ul style="list-style-type: none"> △ Low numbers of common species of Green-listed BoCC △ Low numbers or infrequent use by Amber or Red-listed BOCC
Negligible	<ul style="list-style-type: none"> △ Individual sighting of common species of Green-listed BoCC





APPENDIX IV

RESULTS OF WINTERING BIRD SURVEY

Table 1: 22nd October 2014

Species	Count	Location
Mallard	6	Mere Lane Lagoon
Pheasant	2	Arable fields
Grey heron	1	Mere Lane Lagoon
Buzzard	2	Fly over
Kestrel	2	Field margins
Wood pigeon	18	Woodlands
Green woodpecker	2	Woodlands
Pied wagtail	2	Field margins
Wren	8	Field margins
Dunnock	8	Hedgerows/ Woodland
Robin	13	Hedgerows/ Woodland
Blackbird	29	Hedgerows/ Woodland
Fieldfare	150	Arable fields
Blue tit	13	Hedgerows/ Woodland
Great tit	12	Hedgerows/ Woodland
Coal tit	2	Hedgerows/ Woodland
Magpie	7	Field margins
Jackdaw	16	Arable fields
Carrion crow	11	Arable fields
Starling	1	Field margins
Chaffinch	6	Hedgerows/ Woodland
Siskin	10	Hedgerows/ Arable fields
Linnet	11	Hedgerows/ Arable fields
Yellowhammer	38	Hedgerows/ Arable fields
Reed bunting	23	Hedgerows/ Arable fields

Table 2: 31st October 2014

Species	Count	Location
Mute swan	2	Mere Lane Lagoon
Mallard	69	Mere Lane Lagoon
Tufted duck	1	Mere Lane Lagoon
Red-legged partridge	6	Field margins
Pheasant	2	Field margins
Sparrowhawk	1	Woodland
Buzzard	2	Flyover
Kestrel	1	Field margins
Coot	15	Mere Lane Lagoon
Black-headed gull	4	Mere Lane Lagoon
Wood pigeon	15	Arable fields
Great spotted woodpecker	1	Woodland
Skylark	6	Arable fields
Pied wagtail	1	Field margins
Wren	19	Hedgerows/ Woodland
Dunnock	4	Hedgerows/ Woodland
Robin	12	Hedgerows/ Woodland
Blackbird	45	Hedgerows/ Woodland
Fieldfare	130	Arable fields
Redwing	8	Arable fields
Long-tailed tit	21	Hedgerows/ Woodland
Blue tit	15	Hedgerows/ Woodland
Great tit	9	Hedgerows/ Woodland
Jay	1	Woodland
Magpie	13	Field margins
Rook	30	Arable fields
Carrion crow	5	Arable fields
Tree sparrow	3	Hedgerows
Chaffinch	18	Hedgerows/ Woodland
Linnet	13	Hedgerows/ Arable fields
Yellowhammer	7	Hedgerows/ Arable fields
Reed bunting	1	Hedgerows/ Arable fields

Table 3: 19th November 2014

Species	Count	Location
Mute swan	2	Mere Lane Lagoon
Mallard	135	Mere Lane Lagoon
Red-legged partridge	4	Arable fields
Sparrowhawk	2	Woodland
Buzzard	2	Fly over
Kestrel	2	Field margins
Coot	11	Mere Lane Lagoon
Black-headed gull	12	Mere Lane Lagoon
Wood pigeon	29	Arable fields
Pied wagtail	2	Arable fields
Wren	15	Hedgerows/ Woodland
Dunnock	5	Hedgerows/ Woodland
Robin	8	Hedgerows/ Woodland
Blackbird	53	Hedgerows/ Woodland
Song thrush	3	Hedgerows/ Woodland
Redwing	17	Hedgerows/ Woodland
Mistle thrush	1	Arable fields
Blue tit	8	Arable fields
Great tit	7	Arable fields
Jay	2	Arable fields
Magpie	11	Field margins
Carrion crow	20	Arable fields
Starling	18	Arable fields
Chaffinch	20	Hedgerows/ Arable fields
Goldfinch	12	Hedgerows/ Arable fields
Siskin	3	Hedgerows/ Arable fields
Bullfinch	1	Hedgerows/ Arable fields
Yellowhammer	3	Hedgerows/ Arable fields
Reed bunting	4	Hedgerows/ Arable fields

Table 4: 27th November 2014

Species	Count	Location
Mute swan	1	Mere Lane Lagoon
Mallard	142	Mere Lane Lagoon
Grey Heron	1	Mere Lane Lagoon
Buzzard	1	Arable fields
Kestrel	1	Field margins
Coot	17	Mere Lane Lagoon
Snipe	2	Mere Lane Lagoon
Wood pigeon	14	Arable fields
Pied wagtail	1	Arable fields
Wren	18	Hedgerows/ Woodland
Duncock	6	Hedgerows/ Woodland
Robin	9	Hedgerows/ Woodland
Blackbird	64	Hedgerows/ Woodland
Fieldfare	89	Hedgerows/ Woodland
Song thrush	1	Hedgerows/ Woodland
Redwing	23	Hedgerows/ Arable fields
Goldcrest	2	Hedgerows/ Woodland
Long-tailed tit	7	Hedgerows/ Woodland
Blue tit	19	Hedgerows/ Woodland
Great tit	16	Hedgerows/ Woodland
Coal tit	1	Hedgerows/ Woodland
Jay	1	Woodland
Magpie	16	Field margins
Carrion crow	10	Arable fields
Chaffinch	58	Hedgerows/ Arable fields
Goldfinch	15	Hedgerows/ Arable fields
Siskin	67	Hedgerows/ Arable fields
Linnet	20	Hedgerows/ Arable fields
Bullfinch	3	Hedgerows/ Arable fields
Yellowhammer	137	Hedgerows/ Arable fields
Reed bunting	7	Hedgerows/ Arable fields

Table 5: 4th December 2014

Species	Count	Location
Mallard	130	Mere Lane Lagoon
Red-legged partridge	3	Arable fields
Grey Heron	1	Mere Lane Lagoon
Sparrowhawk	1	Fly over
Kestrel	1	Field margins
Coot	29	Mere Lane Lagoon
Lapwing	2	Arable fields
Snipe	3	Field margins
Black-headed gull	5	Mere Lane Lagoon
Wood pigeon	16	Arable fields
Green woodpecker	2	Woodland
Skylark	1	Arable fields
Wren	12	Hedgerows/ Woodland
Dunnock	4	Hedgerows/ Woodland
Robin	12	Hedgerows/ Woodland
Blackbird	77	Hedgerows/ Woodland
Fieldfare	73	Arable fields
Song thrush	1	Hedgerows/ Woodland
Redwing	28	Arable fields
Goldcrest	2	Hedgerows/ Woodland
Long-tailed tit	14	Hedgerows/ Woodland
Blue tit	7	Hedgerows/ Woodland
Great tit	7	Hedgerows/ Woodland
Jay	2	Woodland
Magpie	3	Field margins
Carrion crow	14	Arable fields
Starling	30	Arable fields
Chaffinch	51	Hedgerows/ Arable fields
Goldfinch	39	Hedgerows/ Arable fields
Siskin	39	Hedgerows/ Arable fields
Linnet	30	Hedgerows/ Arable fields
Bullfinch	1	Hedgerows/ Arable fields
Yellowhammer	13	Hedgerows/ Arable fields
Reed bunting	8	Hedgerows/ Arable fields

Table 6: 18th December 2014

Species	Count	Location
Mallard	135	Mere Lane Lagoon
Tufted duck	3	Mere Lane Lagoon
Sparrowhawk	1	Woodland
Buzzard	1	Fly over
Coot	12	Mere Lane Lagoon
Golden plover	47	Flyover
Wood pigeon	10	Arable fields
Green woodpecker	2	Woodland
Meadow pipit	1	Field margins
Pied wagtail	4	Field margins
Wren	11	Hedgerows/ Woodland
Dunnock	7	Hedgerows/ Woodland
Robin	2	Hedgerows/ Woodland
Blackbird	53	Hedgerows/ Woodland
Fieldfare	17	Hedgerows/ Woodland
Mistle thrush	1	Hedgerows/ Woodland
Long-tailed tit	6	Hedgerows/ Woodland
Blue tit	6	Hedgerows/ Woodland
Great tit	5	Hedgerows/ Woodland
Jay	1	Woodland
Magpie	20	Field margins
Carrion crow	25	Arable fields
Starling	22	Arable fields
Chaffinch	18	Hedgerows/ Arable fields
Greenfinch	1	Hedgerows/ Arable fields
Goldfinch	60	Hedgerows/ Arable fields
Siskin	16	Hedgerows/ Arable fields
Linnet	11	Hedgerows/ Arable fields
Yellowhammer	9	Hedgerows/ Arable fields

Table 7: 8th January 2015

Species	Count	Location
Mute swan	1	Mere Lane Lagoon
Mallard	4	Mere Lane Lagoon
Grey partridge	1	Arable fields
Sparrowhawk	1	Woodland
Buzzard	1	Fly over
Kestrel	1	Field margins
Coot	2	Mere Lane Lagoon
Wood pigeon	37	Woodland
Green woodpecker	1	Woodland
Pied wagtail	1	Arable fields
Wren	13	Hedgerows/ Woodland
Dunnock	8	Hedgerows/ Woodland
Robin	6	Hedgerows/ Woodland
Blackbird	43	Hedgerows/ Woodland
Fieldfare	7	Hedgerows/ Woodland
Redwing	14	Hedgerows/ Woodland
Mistle thrush	2	Hedgerows/ Woodland
Blue tit	6	Hedgerows/ Woodland
Great tit	6	Hedgerows/ Woodland
Magpie	16	Field margins
Rook	1	Arable fields
Carrion crow	16	Arable fields
Chaffinch	22	Hedgerows/ Arable fields
Goldfinch	3	Hedgerows/ Arable fields
Siskin	10	Hedgerows/ Arable fields
Linnet	14	Hedgerows/ Arable fields
Bullfinch	1	Hedgerows/ Arable fields
Yellowhammer	8	Hedgerows/ Arable fields
Reed bunting	7	Hedgerows/ Arable fields

Table 8: 22nd January 2015

Species	Count	Location
Mallard	6	Mere Lane Lagoon
Pheasant	2	Arable fields
Grey Heron	1	Mere Lane Lagoon
Buzzard	2	Fly over
Kestrel	2	Field margins
Coot	2	Mere Lane Lagoon
Wood pigeon	18	Arable fields
Green woodpecker	2	Woodland
Pied wagtail	1	Arable fields
Wren	8	Hedgerows/ Woodland
Dunnock	8	Hedgerows/ Woodland
Robin	13	Hedgerows/ Woodland
Blackbird	29	Hedgerows/ Woodland
Blue tit	13	Hedgerows/ Woodland
Great tit	12	Hedgerows/ Woodland
Magpie	7	Field margins
Jackdaw	16	Arable fields
Carrion crow	11	Arable fields
Chaffinch	6	Hedgerows/ Arable fields
Siskin	10	Hedgerows/ Arable fields
Linnet	11	Hedgerows/ Arable fields
Yellowhammer	38	Hedgerows/ Arable fields
Reed bunting	23	Hedgerows/ Arable fields

Table 9: 5th February 2015

Species	Count	Location
Mallard	3	Mere Lane Lagoon
Red-legged partridge	4	Arable fields
Coot	8	Mere Lane Lagoon
Black-headed gull	1	Mere Lane Lagoon
Wood pigeon	18	Arable fields
Green woodpecker	2	Woodland
Pied wagtail	1	Arable fields
Wren	12	Hedgerows/ Woodland
Dunnock	5	Hedgerows/ Woodland
Robin	5	Hedgerows/ Woodland
Blackbird	37	Hedgerows/ Woodland
Song thrush	2	Hedgerows/ Woodland
Blue tit	6	Hedgerows/ Woodland
Great tit	6	Hedgerows/ Woodland
Carrion crow	7	Arable fields
Chaffinch	38	Hedgerows/ Arable fields
Goldfinch	8	Hedgerows/ Arable fields
Linnet	56	Hedgerows/ Arable fields
Yellowhammer	95	Hedgerows/ Arable fields
Reed bunting	47	Hedgerows/ Arable fields

Table 10: 19th February 2015

Species	Count	Location
Mute swan	1	Mere Lane Lagoon
Mallard	11	Mere Lane Lagoon
Red-legged partridge	2	Field margins
Sparrowhawk	1	Woodland
Kestrel	1	Field margins
Coot	8	Mere Lane Lagoon
Wood pigeon	81	Woodland
Green woodpecker	2	Woodland
Skylark	2	Arable fields
Wren	14	Hedgerows/ Woodland
Dunnock	3	Hedgerows/ Woodland
Robin	8	Hedgerows/ Woodland
Blackbird	46	Hedgerows/ Woodland
Song thrush	1	Hedgerows/ Woodland
Blue tit	8	Hedgerows/ Woodland
Great tit	10	Hedgerows/ Woodland
Jay	1	Woodland
Magpie	3	Field margins
Carrion crow	14	Arable fields
Chaffinch	20	Hedgerows/ Arable fields
Goldfinch	15	Hedgerows/ Arable fields
Linnet	92	Hedgerows/ Arable fields
Bullfinch	1	Hedgerows/ Arable fields
Yellowhammer	114	Hedgerows/ Arable fields
Reed bunting	41	Hedgerows/ Arable fields



EVALUATION OF ALL BIRD SPECIES RECORDED ON SITE
Table 1:Species Value

Species	Species Assessment	Value
Mute swan	Up to two individuals recorded during the surveys	Site
Mallard	A peak count of 142 recorded in November 2014	Local
Tufted duck	One individual recorded in October 2014 and three recorded in December 2014	Site
Red-legged partridge	A maximum of six recorded during the ten surveys	Site
Grey partridge	One individual recorded in January 2015	Site
Pheasant	Four individuals recorded in October 2014 and two individuals recorded in January 2015	Site
Grey Heron	A single individual recorded four times during the ten surveys	Site
Sparrowhawk	Up to two individuals were recorded during six surveys	Site
Buzzard	Up to two individuals were recorded during seven surveys	Local
Kestrel	Up to two individuals were recorded during eight surveys	Site
Coot	A peak count of 29 individuals recorded in November 2014	Local
Golden plover	Flock over 47 recorded flying over site in December 2014	Negligible
Lapwing	Two individuals recorded in December 2014	Negligible
Snipe	Two individuals recorded in November 2014 and tree recorded in December 2014	Site
Black-headed gull	A maximum count of 12 recorded during the ten surveys	Local
Wood pigeon	A peak count of 81 recorded in February 2015	Local
Green woodpecker	Up to two individuals were recorded during seven surveys	Site

Greater-spotted woodpecker	One individual recorded in October 2014	Site
Skylark	Up to six individuals were recorded during three surveys	Site
Meadow pipit	One individual recorded in December 2014	Site
Pied wagtail	Up to four individuals were recorded during eight surveys	Site
Wren	A maximum count of 19 individuals recorded during the ten surveys	Site
Dunnock	A maximum count of eight individuals recorded during the ten surveys	Site
Robin	A maximum of 13 individuals recorded during the ten surveys	Site
Blackbird	A maximum of 77 individuals recorded during the ten surveys	Local
Fieldfare	A peak count of 150 during six surveys	Local
Song thrush	A maximum count of three individuals recorded during five surveys	Local
Redwing	A peak count of 23 during five surveys	Local
Mistle thrush	A maximum count of two individuals recorded during three surveys	Site
Goldcrest	Two individuals recorded in November 2014 and two individuals recorded in December 2014	Site
Long-tailed tit	A peak count of 21 during three surveys	Site
Blue tit	A maximum of 19 individuals recorded during the ten surveys	Site
Great tit	A maximum of 16 individuals recorded during the ten surveys	Site
Coal tit	Two individuals recorded in October 2014 and two individuals recorded in November 2014	Site
Jay	A maximum count of two individuals recorded during six surveys	Site
Magpie	A maximum of 20 recorded during nine surveys	Local
Jackdaw	16 recorded in October 2014 and 16 recorded in January 2015	Local
Rook	Flock of 30 recorded in October 2014	Local

Carrion crow	A maximum count of 25 individuals recorded during the ten surveys	Local
Starling	A peak count of 30 recoded during four surveys	Local
Tree sparrow	Tree individuals recorded in October 2014	Site
Chaffinch	A maximum count of 58 individuals recorded during the ten surveys	Site
Greenfinch	A single individual recorded in December 2014	Site
Goldfinch	A peak count of 60 recoded during four surveys	Local
Siskin	A peak count of 67 recoded during seven surveys	Local
Linnet	A peak count of 92 recoded during nine surveys	Local
Bullfinch	A maximum count of three individuals recorded during five surveys	Local
Yellowhammer	A peak count of 137 recoded during the ten surveys	Local
Reed bunting	A peak count of 47 recoded during the ten surveys	Local



Appendix I-7: Confidential Badger Survey

**Magna Park Extension: Hybrid Application, Zone
1**

For IDI Gazeley

Delta Simons Project No. 14-0159.07

Issued: September 2015

APPENDIX I-7: CONFIDENTIAL BADGER SURVEY
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
FOR IDI GAZELEY
DELTA SIMONS PROJECT No. 14-0159.07
EXECUTIVE SUMMARY

Purpose	Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley ('the Client') to undertake a badger survey of land situated off Mere Lane to the west of Lutterworth in Leicestershire, which forms Zone 1 of the proposed development site (the 'Site'). The survey was undertaken to inform a planning application for the Site.
Current Site Status	The Site comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.
Proposed Development	An outline planning application will be submitted for up to 427,350 square metres (m ²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m ² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m ² , an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m ² , Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m ² , and an Innovation Centre of up to 2,325 m ² . The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

<p>Results</p>	<p>The badger survey recorded four disused setts within the Site boundary. Three of these setts were previously identified in the Extended Phase 1 Habitat Survey of the Site undertaken by Delta-Simons in September 2014. Sett 1 and 3 remained disused with no recent signs of badger activity. Sett 2, which had been noted as having two possible active entrances, showed no signs of recent badger activity at the time of the survey. In addition to these three setts, a single entrance outlier sett was recorded within a field margin on the western boundary. Furthermore, a fifth sett, Sett 5 which was active, was recorded with the pre-existing Magna Park Service farm.</p> <p>Widespread evidence of badger activity was found within the Site boundaries and across the off-Site areas to the north, close to the boundaries. Old footprints, dung, snuffle holes and mammal runs were found at the field margins predominantly to the north, north-west and north-east of the Site indicating that there is at least one family group of badgers present within the local area, such that the Site is within a badger group's territory.</p>
<p>Recommendations</p>	<p><u>Recommendation 1 (Pre-Construction Badger Survey)</u> Due to the presence of widespread badger activity on and adjacent to the Site, it is recommended that a pre-construction walkover is undertaken by a suitably qualified ecologist to check for new signs of badgers, including digging indicative of sett building. This will determine how badgers are currently using the Site, and whether or not they will be adversely impacted by the development, such that appropriate mitigation can be put in place.</p> <p><u>Recommendation 2 (Precautionary Measures)</u> As is general good practice for sites where badgers occur, any temporary excavations dug during the construction period must be left with a 45 degree angle to prevent badgers from becoming trapped or alternatively ramps installed to allow any badgers to escape.</p> <p><u>Recommendation 3 (Maintenance and Enhancement of Habitat)</u> The retention of rough grassland, scrub and wooded areas within the Site, and creation of new habitat through planting of trees, hedgerow, species-rich grassland and further woodland, will maintain foraging and commuting opportunities for badger. Several areas of suitable badger habitat are located in non-developable land on-Site (i.e. the Midlands County dismantled railway, and the site of the Bittesby medieval village). These areas will be free from artificial lighting and additional shrub/ scrub planting will be undertaken to ensure adequate cover to limit human disturbance. Areas of planting will comprise native species, including fruit producing trees to provide an additional food source for badgers.</p>
<p>This Confidential Badger Survey Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This Executive Summary should be read in conjunction with the full Report.</p>	

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APPENDIX I-7: CONFIDENTIAL BADGER SURVEY
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
FOR IDI GAZELEY
DELTA SIMONS PROJECT No. 14-0159.07

1.0 INTRODUCTION

1.1 Context and Purpose

Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley (the 'Client') to undertake a badger survey of an area of land off Mere Lane to the west of Lutterworth in Leicestershire, which forms Zone 1 of the proposed development site (hereafter referred to as 'the Site') and all accessible land within 1 km of the Site considered suitable to support badgers. The Site location is shown in Figure 1.

During the Extended Phase 1 Habitat Survey undertaken by Delta-Simons in September 2014 (report project reference 14-0159.02), three badger setts were recorded on-Site, two assessed as disused and a third showing signs of use. A number of badger latrines and snuffle holes were also recorded around the Site indicating that this species is active at the Site. Therefore, a further survey of the wider area for badgers was recommended.

The aims of the badger survey were to:

- △ Record any evidence of badger activity on the Site and within land immediately surrounding the Site;
- △ Identify any badger setts found at the time of the survey as active or disused and to categorise each sett as a main sett, subsidiary, outlier or annexe;
- △ Make an assessment of the importance of the Site and local area for badgers so that any potential impacts of the proposed development on badgers can be determined; and
- △ Provide recommendations for the most appropriate working methodologies, further surveys and/ or the need for a Natural England licence to allow for the lawful disturbance of an active badger sett.

1.2 Site Description

Zone 1, is an approximately 220 ha triangular parcel of predominantly agricultural land to the north and north-west of Magna Park, Lutterworth. Zone 1 is linked to and extends Magna Park. Its boundaries are created by the A5 to the south and west, Mere Lane to the east and the ridgeline hedgerows that follow the parish boundary to the north. It comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.

The Site layout is shown in Figure 2.

1.3 Proposed Development

An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m²,

Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

The proposed development plan is included as Figure 3.

2.0 LEGISLATION

2.1 Badgers

Badgers *Meles meles* and their setts are protected under the 1992 Protection of Badgers Act. Under this Act it is an offence to wilfully kill, injure, take, possess or cruelly ill-treat badgers, or to attempt to do so. It is also an offence to intentionally or recklessly damage, destroy, or obstruct access to any part of a sett, or to disturb an occupied sett, either by intent or negligence. When interpreting the Act, Natural England defines a sett as any structure within an area used by badgers that shows signs of having been occupied by badgers within the last 12 months.

2.2 Planning

The Office of the Deputy Prime Minister (ODPM) Circular (2005) advises that ecological surveys are undertaken before planning permission is determined. The circular states: *“The need to ensure that ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances”* (see References, Appendix I).

3.0 METHODOLOGY

3.1 Desk Search

A desk search was undertaken in 2014 by both the Leicestershire and Rutland Environmental Records Centre (LRERC) and the Warwickshire Biological Records Centre (WBRC) as part of the Extended Phase 1 Habitat Survey, and was reviewed for any records of badgers for the purpose of this survey. In addition, a desk search was also undertaken by the Leicestershire and Rutland Badger Group (LRBG) in 2015 to provide any additional records. The desk searches identified all records of badgers within a 3 km radius of the Site centre.

3.2 Review of Previous Reports

A review was undertaken of the Extended Phase 1 Habitat Survey report produced by Delta-Simons in October 2014 (Ref: 14-0159.02) following the initial survey of the Site in September 2014.

3.3 Badger Survey

A badger survey was undertaken on 13th January 2015 by three Delta-Simons ecologists, and a walkover of the Magna Park service farm was undertaken on the 26th February 2015. This involved a systematic search of suitable habitat on the Site and within a 1 km radius of the Site, where appropriate and where access allowed. Sett entrances and other signs associated with badger activity were searched for, including spoil heaps, bedding material, runs, footprints, hairs, scratching posts and feeding signs.

Each sett found was assigned to one of four sett categories in accordance with Harris *et al.* (1989) and Natural England (2009) (Table 1). The number of disused, partially used and well-used holes was recorded.

Table 1: Sett Classification

Sett Classification	Definition
Main sett	<ul style="list-style-type: none"> △ Multiple entrances (used and disused); △ Large spoil heaps; △ Continually active; and △ Well used paths between entrances and leading away from the sett.
Annex sett	<ul style="list-style-type: none"> △ Multiple entrances; △ Well-worn paths to main sett (50-150 m away); and △ Not always in use.
Subsidiary sett	<ul style="list-style-type: none"> △ Variable number of entrances; △ No paths to other setts; and △ Not always in use.
Outlier sett	<ul style="list-style-type: none"> △ 1-2 entrances; △ No defined paths to other setts; and △ Only sporadically used.

Whether or not the sett was classified as 'active' or 'disused' was determined in accordance with the latest guidance on 'Current Use' in the definition of a badger sett (Natural England, June 2009). All observations were marked on an appropriately scaled map.

4.0 RESULTS

4.1 Desk Search

The LRERC provided 21 records of badger activity within 3 km of the centre of the Site. Of these records, five were recent (within the last ten years). The LRBG provided a further eight recent records of badger activity within 3 km of the Site. The historic records are not considered to accurately represent the current status of the species in the local area, and, therefore, have not been considered further. Relevant records are summarised in Table 2 below.

Table 2: Badger Records within the Search Area

Badger Record	Date	Record Description	Distance and Direction from Nearest Site Boundary in km
Sett	2015	Active main sett 12 entrances	0.4 north-east
Sett	2005	Main sett with ten entrances	0.95 north-east
Sett	2015	Single entrance outlier sett	0.99 north-east
Sett	2015	Main sett with ten entrances	1.06 north-east
Sett	2015	Single hole outlier sett	1.08 north
Sett	2005	A eight hole main sett	1.23 north-east
Sett	2011	Sett with five entrances	1.57 south-east
Sett	2005	Four entrance sett	2.26 north-east

It is clear from the data search results that badgers are present and active within the surrounding area of the Site. Furthermore, given the presence of three main setts within an approximately 1 km radius of the Site, if two or more are active it is anticipated that more than one badger group ('clan') could be using the Site.

4.2 Review of Previous Reports

An Extended Phase 1 Habitat Survey of the Site was undertaken by Delta-Simons in September 2014 and the incidental records of badger signs recorded are shown on Figure 4. The survey reported:

- △ Sett 1 - A seven entrance subsidiary sett was situated within the north-western extent of the Site. Three of these holes were situated on the field margin while the

other four holes were in the banks of the ditch. None of the entrance holes showed no recent signs of use by badger;

- △ Sett 2 - A seven entrance subsidiary sett was recorded within the north-western extent of the Site on a field margin. At the time of the survey two holes showed signs of recent use by badger;
- △ Sett 3 - A single entrance outlier sett was recorded within the northern central extent of the Site within a field margin. At the time of the survey there were no recent signs of use by badger;
- △ Badger dung was identified at numerous locations at the Site, particularly around the field margins and around woodland habitat; and
- △ Snuffle holes were recorded within the northern extent of the Site.

4.3 Badger Survey

The results of the badger survey undertaken in January 2015 are summarised below and results of the sett examination are recorded in Table 3. Photographs are presented in Appendix III, whilst the results of the field survey are shown in Figure 4.

Table 3: Updated Status of On-Site Badger Setts 2015

Sett Number	Sett Status	Sett Description	Signs of Badger Activity	Photograph Number
Sett 1	Disused	Seven entrance subsidiary sett, no signs of recent use (i.e. bedding, digging) although badger dung was recorded in front of one of the entrances. Evidence of rabbit use.	Yes – dung indicating territorial behaviour	1, 5
Sett 2	Disused	A total of seven entrance holes were identified to be associated with this sett. Evidence of rabbit use.	No	2
Sett 3	Disused	Single entrance outlier sett located at the base of the field boundary hedgerow.	No	3
Sett 4	Disused	Single entrance outlier sett on a field boundary to the west of the Site. Disused in recent years.	No	4
Sett 5	Active	An active subsidiary sett with a total of six entrances was recorded, with five being active.	Yes – fresh bedding	No Photo

At the time of the badger survey, on 13th January 2015, Sett 1 still appeared to be disused by badger, however, badger dung was recorded at one of the entrances (Photograph 5), therefore, indicating that it is within an active badger territory. Sett 2 did not show any signs of badger activity and is now classed as disused. Sett 3 and Sett 4 were still disused. Setts 1 and 2 showed signs of being used by rabbits *Oryctolagus cuniculus*, due to fresh droppings at the entrance holes.

An old footprint was located to the north of Bittesby House towards the centre of the Site. This was heading east in the direction of the track. A snuffle hole was recorded within the south-eastern extent of the Site, whilst twelve piles of fresh dung were identified on various field boundaries at the Site. The majority of these signs were on the north, north-western and north-eastern boundaries of the Site. There was little activity within the southern extent of the Site at the time of the survey, however, previous surveys had recorded numerous dung pits in these areas (Figure 3).

The badger survey of the Magna Park service farm undertaken in February 2015 found an active subsidiary sett that was off-Site. Well-worn pathways were recorded to and from the sett entrances and fresh piles of bedding were recorded.

In addition to the Extended Phase 1 Habitat Survey, badger dung has also been recorded during Site visits carried out for the wintering bird surveys throughout December 2014 and January 2015 (Appendix II), the locations of which are shown in Figure 4.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The LRERC, WBRC and LRBG data search reported multiple recent records for badgers within a 3 km radius from the Site centre, a number of which were in close proximity to the Site such that, with the field signs found, it is anticipated that at least one badger group's territory may extend onto the Site. The closest sett recorded was approximately 400 m north-east of the Site in 2015, which was a main sett.

A total of four badger setts have been identified at the Site, with a fifth sett identified immediately beyond the Site boundary to the east of the Magna Park service farm. Setts 1 and 2, within the northern extent of the Site, were assessed as being disused by badger, however, evidence of rabbit activity was identified. Signs of possible use were recorded to be associated with Sett 2 during the Extended Phase 1 habitat Survey in autumn 2014, however, no evidence of use was identified during the Badger Survey in early winter 2015.

In addition to the three disused badger setts already recorded on--Site, a disused outlier sett (Sett 4) with a single entrance was recorded in 2015 at a field margin adjacent to the A5, along the south-western boundary of the Site. The active six entrance sett (Sett 5) is located off-Site within the service farm at Magna Park to the south-east of Mere Lane. Five of the entrances were identified as being active at the time of the survey, and there were recent signs of badger use with well-worn pathways and piles of old bedding. Fresh badger prints were also noted.

Across the wider Site to the west of Mere Lane, evidence of badger activity, in the form of an old footprint, dung, mammal runs and snuffle holes, was recorded throughout the Site. The evidence found indicates that badgers regularly use the Site for foraging and commuting between off-Site setts and other foraging habitat, however, currently there are no active setts within the Site boundary. Whilst the proposed development will result in the direct and permanent loss of some suitable foraging habitat, the retention of grassland, boundary hedgerows and woodland habitat, and additional landscape planting is considered to continue to provide opportunities for this species. The construction phase of the development, in particular deep excavations and other earthworks has the potential to pose a risk to badgers which may venture across the Site during the works and become

trapped, whilst temporary piles of earth may attract sett digging badgers that could later be disturbed or harmed by the works. Disturbance at the Site is also anticipated to increase during the operational phase of the development, as well as increased members of the public utilising the footpaths and Public Rights of Way. However, the majority of disturbance through human activity and noise is anticipated to be limited to daylight hours, therefore, having minimal impact upon badgers using the Site. Overall without mitigation in place the proposed development is considered to have a minor adverse impact on badgers that is, therefore, non-significant.

5.2 Recommendations

Recommendation 1(Pre-construction Survey)

As a precaution given the widespread badger activity recorded at, and immediately beyond the Site boundaries, it is recommended that a pre-construction walkover of the Site is undertaken by a suitably qualified ecologist in order to check for new signs of badgers, including digging indicative of sett building. The pre-construction badger survey will enable an accurate assessment to be made of whether or not any badgers and their setts will be adversely impacted upon by the development and, therefore, the requirement for any mitigation as a result of the findings.

Recommendation 2 (Precautionary Measures)

As is general good practice for sites where badgers occur, any temporary excavations dug during the construction period must be left with a 45 degree angle to prevent badgers from becoming trapped, or alternatively ramps should be installed overnight to allow any badgers to escape.

Recommendation 3 (Maintenance of Habitat)

- △ The retention of rough grassland, Site boundary hedgerows, scrub and wooded areas within the Site, especially within the northern areas, and enhancement of Site habitats through planting of trees, hedgerow, species-rich grassland, and further woodland, will maintain foraging and commuting opportunities for badger. Several areas of suitable badger habitat are located in non-developable land on-Site (i.e. the Midlands County dismantled railway, and the site of Bittesby medieval village). These areas will be free from artificial lighting and additional shrub/ scrub

planting will be undertaken to ensure adequate cover to limit human disturbance;
and

- △ Areas of planting will comprise native species with fruit producing trees included where possible, such as cherry *Prunus* sp., apple *Malus* sp. and elder *Sambucus nigra* to provide a welcome addition to badger foraging opportunities during the autumn period.

6.0 LIMITATIONS OF THE SURVEY

Access to some areas of the Bittesby Farm complex was not available at the time of the survey, however, this is not thought to be limiting to the badger survey due to the majority of this area being hardstanding and buildings. Furthermore, this area has since been accessed to complete bat survey works, and no signs of badger activity were recorded.

The behaviour of animals can be unpredictable and may not conform to characteristics recorded in current scientific literature. This Report, therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 4 of this Report, exercising the duty of care required of an experienced Ecology Consultant.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

This Report was prepared by:

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16/09/15
Date

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16/09/15
Date

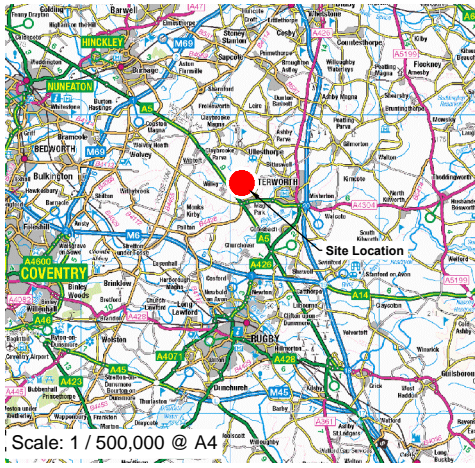
This Report was authorised by

Charlotte Sandersn


Charlotte Sandersn
Ecology Unit Manager

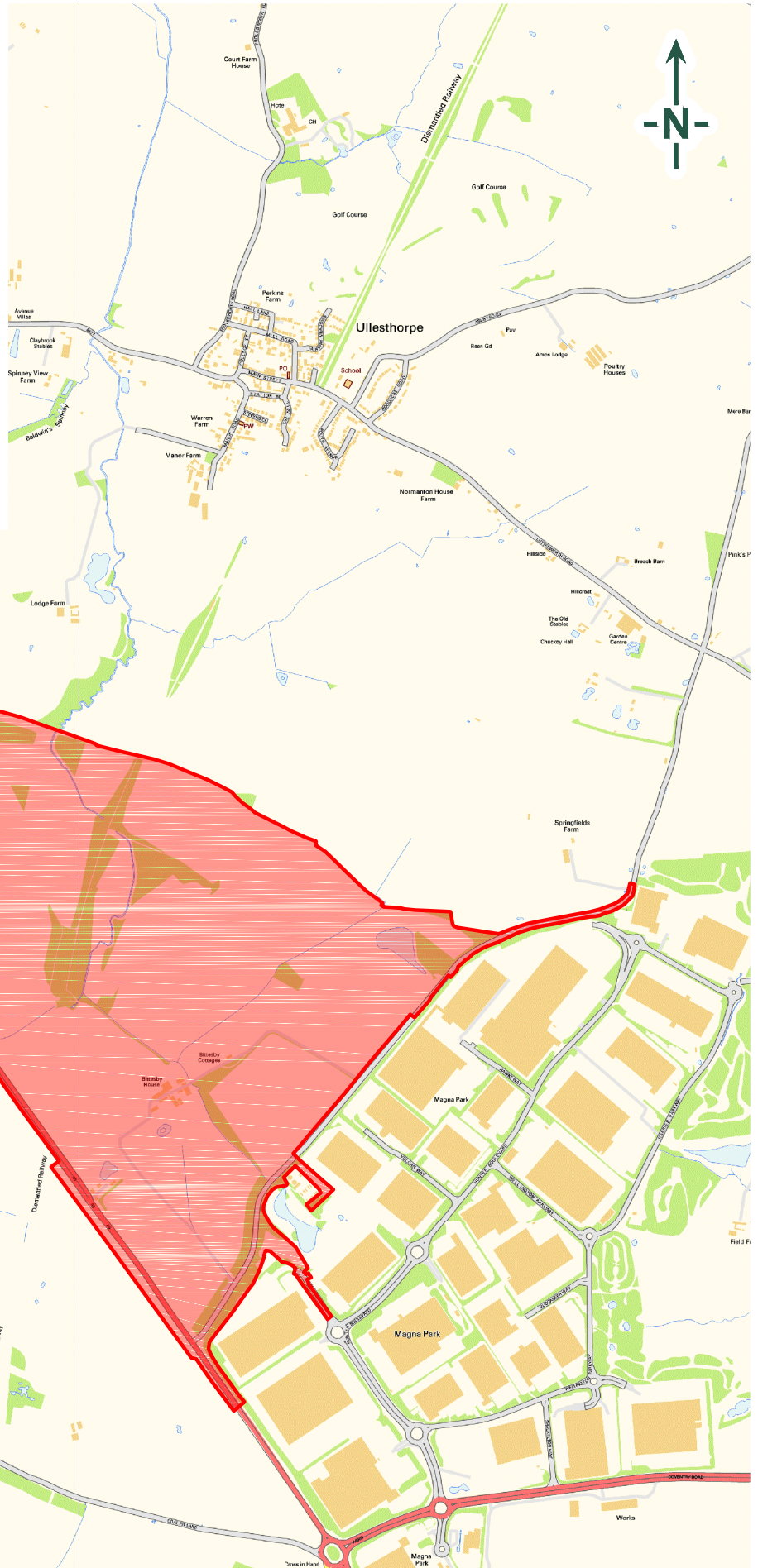
16/09/15
Date





LEGEND

 Site Boundary



Scale: 1 / 20,000 @ A4

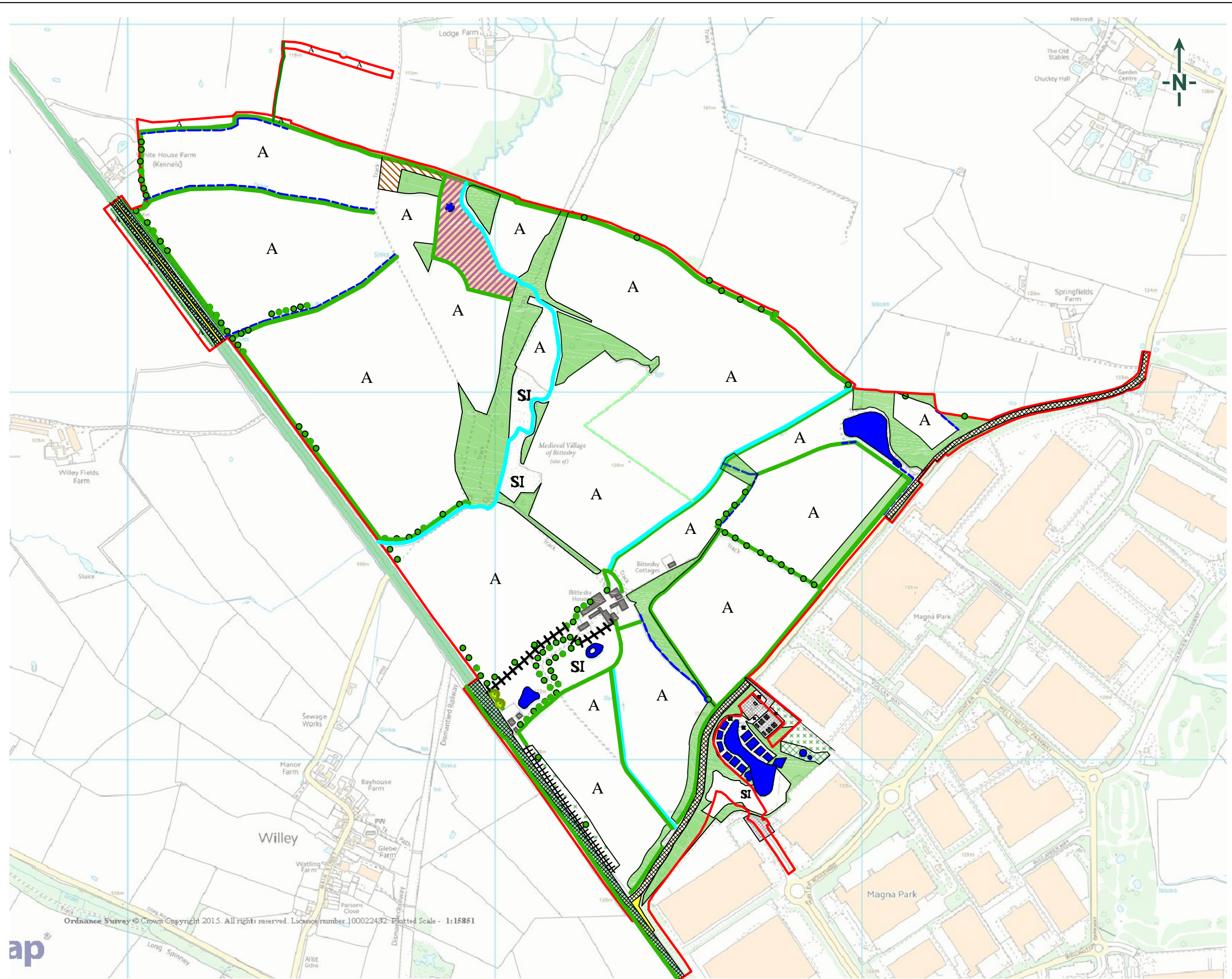
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TITLE:
Site Location Plan
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN:	DP	SCA:	To Scale @ A4
CHK:	JS	REV:	1
DATE:	14 September 2015		

PROJECT NO.:	14-0159.07
FIGURE NO.:	1



LEGEND

- Site Boundary
- Broadleaved Plantation Woodland (A1.1.2)
- Scattered Broadleaved Trees (A3.1)
- Scattered Coniferous Trees (A3.2)
- Marsh Grassland (B5)
- SI Poor Semi Improved Grassland (B6)
- Tall Ruderal (C3.1)
- Standing Water (G1)
- Running Water (G2)
- A Arable (J1.1)
- Amenity Grassland (J1.2)
- Intact Hedgerow - Species Poor (J2.1.2)
- Defunct Hedgerow - Species Poor (J2.2.2)
- Fence (J2.4)
- Dry Ditch (J2.6)
- XXXX Scattered Scrub (A2.2)
- Species Poor Hedgerow with Trees (J2.3.2)
- Dense Scrub (A2.1)
- Buildings (J3.6)
- XXXX Hard Standing (J4.1)

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TITLE:
Site Layout Plan
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.07
CHK: JS	REV: 1	FIGURE NO.:
DATE: 14 September 2015		2



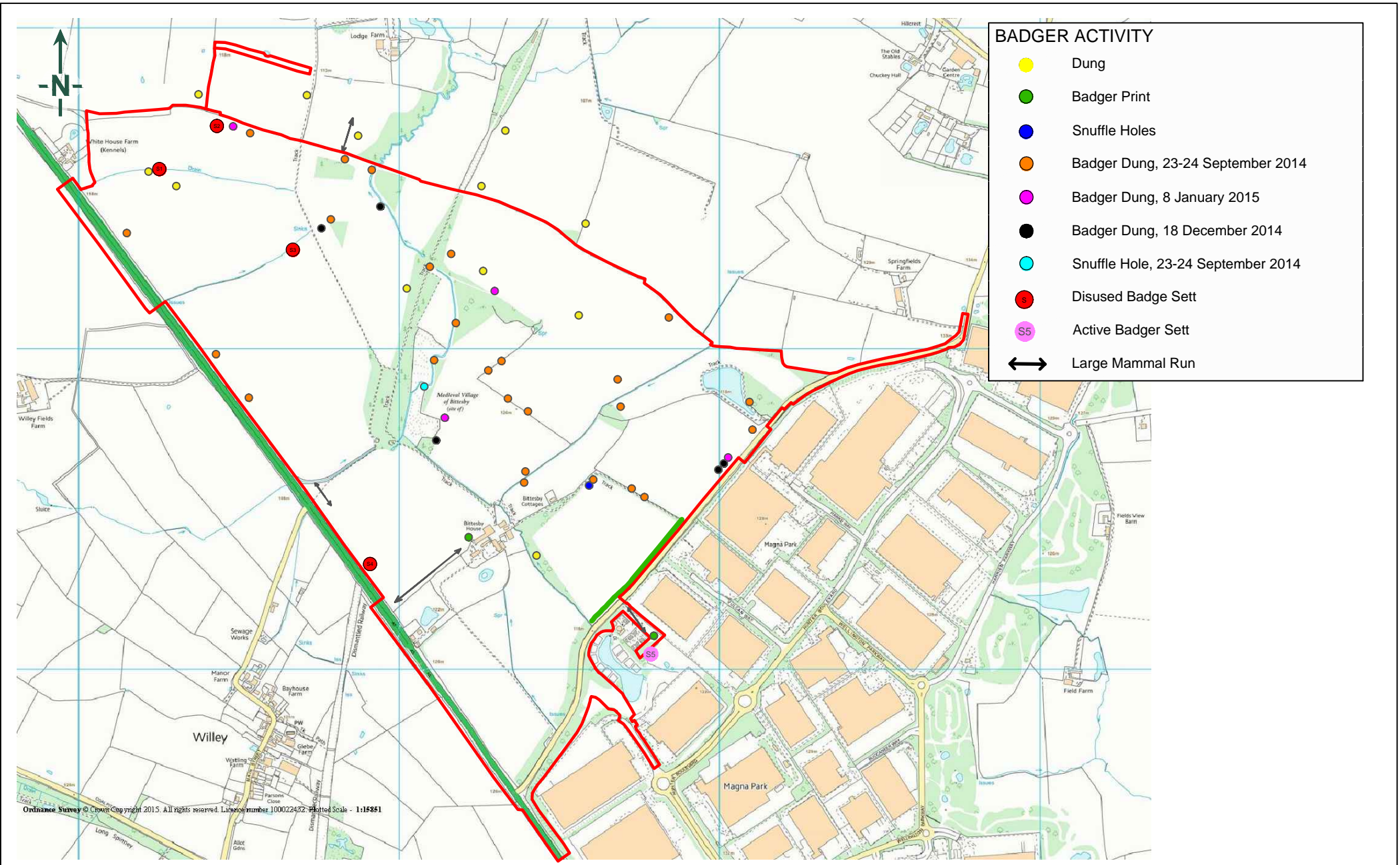
- GENERAL NOTES:
1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERING AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
 3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
 4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERRED TO THE CLIENT IMMEDIATELY.
 5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 6. ALL LEVELS IN METRES.
 7. DO NOT SCALE OFF THIS DRAWING.
 8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
 9. THE CONTENT OF THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST PROJECT GOMR REGISTER.

NO.	14/09/2015	FOR COMMENT	REV	00
DATE		Description		Drawn/CHK
grant associates Landscape Architecture, Urban Design, Creative Ecology 21 Mill Street, Bath BA1 1UT T: +44 (0) 1225 323664 F: +44 (0) 1225 428184 E: info@grant-associates.co.uk				
CLIENT IDI Gazeley				
PROJECT Magna Park Extension OPA				
TITLE Illustrative Masterplan				
Author	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Checked				
Drawn				
FOR COMMENT				
Project No.	MLP410-AL-A01-MP-Q-001			Rev
				00



TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Planning Application
 Lutterworth

DWN:	DP	SCA:	Not to Scale	PROJECT NO.:	14-0159.07
CHK:	JS	REV:	1	FIGURE NO.:	3
DATE:	14 September 2015				



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TITLE:
Badger Activity Plan 2015
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN:	DP	SCA:	Not to Scale
CHK:	JS	REV:	1
DATE:	14 September 2015		

PROJECT NO.:	14-0159.07
FIGURE NO.:	4



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Appendix II Table 1: Incidental Survey Results

Date	Survey undertaken	Surveyor	Evidence found	Location on Site	Comments
18/12/2014	Wintering Bird Survey	Pete Morrell	Badger dung	To the east of the Site, adjacent to Mere Lane	Dung appeared to be fresh
18/12/2014	Wintering Bird Survey	Pete Morrell	Badger dung	To the east of the Site, adjacent to Mere Lane	Dung appeared to be fresh
18/12/2014	Wintering Bird Survey	Pete Morrell	Badger dung	Found at the side of the track, to the north of the Site	Dung appeared to be fresh
18/12/2014	Wintering Bird Survey	Pete Morrell	Badger dung	On a field margin to the north of the Site	Dung appeared to be fresh
18/12/2014	Wintering Bird Survey	Pete Morrell	Badger dung	To the south-west of the Medieval Village of Bittesby	Dung appeared to be fresh
08/01/2015	Wintering Bird Survey	Pete Morrell	Badger dung	To the east of the Site, adjacent to Mere Lane	Dung appeared to be fresh
08/01/2015	Wintering Bird Survey	Pete Morrell	Badger dung	To the south-west of the Medieval Village of Bittesby	Dung appeared to be fresh
08/01/2015	Wintering Bird Survey	Pete Morrell	Badger dung	On the northern boundary of the Site	Dung appeared to be fresh



**Proposed Extension, Magna Park, Lutterworth
Project No. 14-0159.07**



Photograph 1 – Sett 1



Photograph 2 – Sett 2

**Proposed Extension, Magna Park, Lutterworth
Project No. 14-0159.07**



Photograph 3 – Sett 3



Photograph 4 – Sett 4

**Proposed Extension, Magna Park, Lutterworth
Project No. 14-0159.07**



Photograph 5 – Dung within the entrance hole of Sett 1



**Appendix I-8: Great Crested Newt Survey Report
Magna Park Extension: Hybrid Application, Zone
1**

For IDI Gazeley

Delta Simons Project No. 14-0159.05

Issued: September 2015

EXECUTIVE SUMMARY
GREAT CRESTED NEWT SURVEY
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.05

Purpose	Delta-Simons Environmental Consultants Ltd was instructed by IDI Gazeley (the 'Client') to undertake a Great Crested Newt (GCN) survey of all accessible waterbodies on, and within, 500 m of land situated off Mere Lane to the west of Lutterworth in Leicestershire, which forms Zone 1 of the proposed development (the 'Site') that were found to be suitable to support this species.
Current Site Status	The Site comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.
Proposed Development	An outline planning application will be submitted for up to 427,350 square metres (m ²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m ² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m ² , an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m ² , Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m ² , and an Innovation Centre of up to 2,325 m ² . The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.
Results:	A total of four on-Site ponds were assessed for their suitability to support GCNs, whilst a further 25 ponds were recorded to be within 500 m of the Site boundary and were not fragmented from it for this species. Of these off-Site ponds, Pond 19 was found to be dry, no access was gained to Pond 20, Pond 22 could not be accessed due to being surrounded by dense vegetation, and Pond 23 did not support any open water. Therefore, no further assessment was completed of those ponds. Ponds 2 and 13 were found to support dense populations of fish such that aquatic surveys were deemed unnecessary, whilst all other ponds were surveyed by Delta-Simons, other than the Magna Park Service Farm ponds since survey works were completed by Middlemarch Environmental Ltd.

	<p>No on-Site ponds were found to support GCNs. Ponds 6 - 9, 17, 18, 21 and 25 - 27 were found to support populations of GCNs, with all supporting breeding populations apart from Pond 6. Pond 6, 7, 8, 17 and 18 were found to support small populations, whilst, Ponds 9, 25, 26 and 27 supported medium breeding populations. Therefore, the GCN metapopulation for the local area is assessed to be Medium.</p>
<p>Recommendations</p>	<p><u>Recommendation 1 (Construction Considerations)</u></p> <p>Due to the risk that GCNs could be killed or injured as a result of undertaking the proposed development works, it is considered necessary to apply for a European Protected Species Licence (EPSL) from Natural England. The licence would allow for mitigation measures to be instated lawfully at the Site to ensure that newts are protected through the development works, and that the population is held at a favourable conservation status.</p> <p><u>Recommendation 2 (Other Considerations)</u></p> <p>It is understood that Mere Lane Lagoon (Ponds 3) is to be retained at the Site and, therefore, provision for smooth newts and common toad will be maintained at the Site. Works should be undertaken in a way to discourage amphibians from entering the construction zone as outlined within the Recommendations section of this Report. Works should cause minimum disruption to habitats and follow best practice procedures to ensure no pollution spillage occurs during the works, and the storage of new and waste materials does not form shelters for amphibians.</p> <p><u>Recommendation 3 (Planning and Ecological Enhancements)</u></p> <p>Following the issue of the National Planning Policy Framework (NPPF, 2012) by the Department for Communities and Local Government (DCLG), “<i>The planning system should contribute to and enhance the natural and local environment by: Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity...</i>”; For this particular development, planting and management at the Site has the potential to create valuable wet woodland, species-rich grassland and new waterbodies to provide locally important habitat and connectivity for a wide range of protected and notable species which would result in an overall increase of the biodiversity value of the Site. Retention and appropriate management of the existing hedgerows, ponds and some scrub vegetation also has the potential to maintain and enhance their value to wildlife.</p>
<p>This GCN Survey Report Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. The Executive Summary should be read in conjunction with the full report.</p>	

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APPENDIX I-8: GREAT CRESTED NEWT SURVEY
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.05

1.0 INTRODUCTION

1.1 Aim and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley (hereafter referred to as 'the Client') to undertake a Great Crested Newt (GCN) *Triturus cristatus* survey of four ponds situated within proposed development land off Mere Lane to the west of Lutterworth in Leicestershire, which forms Zone 1 of the proposed development (hereafter referred to as 'the Site'), and a further 24 ponds situated within 500 m of the Site's boundaries that have connectivity to the Site for GCNs. This follows the recommendations of the Extended Phase 1 Habitat Survey undertaken by Delta-Simons in September 2014 (Delta-Simons Project no. 14-0159.02), and was undertaken in order to support a planning application for the Site. The Site Location is shown in Figure 1.

The aim of the GCN survey was to:

- △ Determine whether GCNs are present within the on-Site waterbodies and also within the 24 ponds located within 500 m of the Site's boundaries;
- △ Where GCN are present, to assess the population class size in accordance with Natural England guidelines;
- △ Assess the results of the survey and determine the potential impact of the proposed development works on any GCNs found that may use the aquatic habitats and immediately surrounding terrestrial habitats;
- △ Provide recommendations for working methodologies, further surveys and/ or the need for a European Protected Species Licence for GCNs, from Natural England in light of the survey results; and
- △ Make any initial recommendations for mitigation following the survey with respect to GCNs and to liaise with the Natural England Local Species Officer, if necessary.

1.2 Site Description

Zone 1, is an approximately 220 ha triangular parcel of predominantly agricultural land to the north and north-west of Magna Park, Lutterworth. Zone 1 is linked to and extends Magna Park. Its boundaries are created by the A5 to the south and west, Mere Lane to the east and the ridgeline hedgerows that follow the parish boundary to the north.

It comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that is a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.

The Site layout is shown in Figure 2.

1.3 Proposed Development

An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1)

of up to 300 m², Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

The proposed development is shown in Figure 3.

2.0 LEGISLATION

All Amphibians

All amphibians are protected under the Wildlife and Countryside Act (WCA) 1981 (as amended), with some species also protected under the European Habitats and Species Directive (92/43/EC), enacted in the UK through Annex IV of the Habitats and Species Regulations 2010 (as amended). All amphibians are protected from keeping, transporting, selling or exchanging. This means that in practice reasonable measures must be taken to avoid their incidental mortality.

Great Crested Newts

The GCN is protected under Schedule 2 of the Habitats Regulations and Schedule 5 Sections 9(1) and 9(4) of the WCA 1981 (as amended). It is an offence to deliberately or recklessly kill, injure, capture or disturb these species or, to obstruct access to, damage or destroy areas where they live or breed. The legislation applies to all stages of the life cycle including eggs, larvae and juveniles. It should be noted that GCNs spend the majority of their lives on land, venturing up to 500 m (but more usually 250 m) from their breeding ponds and as such any ground works within 500 m of a breeding pond could have an adverse effect on GCNs.

Planning

The Office of the Deputy Prime Minister (ODPM) Circular (2005) advises that ecological surveys are undertaken before planning permission is determined. The circular states *“The need to ensure that ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances”* (see References, Appendix I).

3.0 METHODOLOGY

3.1 Data Search

The results of the data search received from the Leicestershire and Rutland Environmental Records Centre (LRERC) and Warwickshire Biological Records Centre (NBRC), for the initial Extended Phase 1 Habitat Survey (Delta-Simons Project no. 14-0159.02), were reviewed.

In addition, a search for designated sites for nature conservation on or within 2 km of the Site was performed using the Multi-Agency Geographic Information for the Countryside (MAGIC).

3.2 Review of Previous Surveys

Where possible, information was gathered on any previous surveys that have been conducted at the Site. The following survey reports were reviewed:

- △ Magna Park Great Crested Newt Monitoring, 2010, Ecosulis;
- △ Single Wind Turbine Proposal: Ullesthorpe, Leicestershire, 2011, Wild Frontier Ecology; and
- △ Magna Park, Lutterworth Great Crested Newt Survey, May 2015, Middlemarch Environmental Ltd.

3.3 Waterbodies Surveyed

In addition to those waterbodies identified on-Site, a search was undertaken to identify all waterbodies within 500 m of the Site that were not fragmented from it by major physical barriers to dispersal such as roads, dense conurbations and rivers. To undertake the search, aerial photographs and Ordnance Survey maps were used.

Figure 4 shows the location of the surveyed waterbodies both on the Site and within a 500 m radius of the Site boundary.

3.4 Habitat Suitability Index (HSI)

A GCN HSI assessment was carried out to evaluate the suitability of the waterbodies and their adjoining habitats for GCNs (Oldham *et al.*, 2000). It is a quantitative measure of habitat quality. The calculated HSI score for a pond should score between 0 and 1, and is derived from an assessment of ten habitat variables known to influence

the presence of newts. The HSI is categorised such that the closer to " the score is then the more suitable a pond is to support GCNs. The HSI is calculated on an individual pond basis, but takes into account surrounding terrestrial habitat and local pond density.

GCN surveys (see Section 3.5) were undertaken on all water bodies that provided an 'Average' HSI score or above (see Table 1). It was considered to be unlikely that any GCNs would be present within water bodies that scored below this threshold.

Table 1 – Categorisation of HSI Scores

HSI Score	Pond suitability for GCN
< 0.5	Poor
0.5 - 0.59	Below average
0.6 - 0.69	Average
0.7 - 0.79	Good
>0.8	Excellent

3.5 GCN Survey

3.5.1 Presence / Absence Survey

During each Site visit, the GCN presence/ absence survey was undertaken by one or more of Dr Charlotte Sanderson, Jonathan Spencer, Alex Clark and Jennifer Britt (NE Licensed GCN surveyors) and accompanied by a second suitably qualified Delta-Simons ecologist. The methodologies used and timing of all GCN surveys followed the GCN Mitigation Guidelines (English Nature, 2001). To demonstrate presence or likely absence of GCNs, a minimum of three of the following techniques was required to be used on each of four pond survey visits: Egg searching; bottle trapping; torch survey; and netting. These visits were undertaken between mid-March and mid-June, with two of these visits undertaken during the optimal period for aquatics surveys between mid-April and mid-May. Since GCNs were found in the majority of ponds surveyed during one or more of the first four visits, two further surveys were required to give a population size class estimate (See Section 3.5). Furthermore, all surveys were carried out in suitable weather conditions, in dry conditions with little wind (for torching) and, when the air temperature remained above 5° C.

3.5.2 Survey Methodology

Egg Searches

Marginal and submerged vegetation was checked for newt eggs, and the presence of folds that may conceal newt eggs. Egg searching was terminated immediately on confirmation of the presence of GCN eggs. In addition to egg searches, egg strips were inserted in ponds 3 and 6.

Bottle Trapping

Bottle traps (comprising of 2 litre plastic bottles supported by bamboo canes) were inserted into the water body approximately 1 m from the bank, with each bottle being positioned approximately 2 m from the neighbouring bottle where conditions allowed. The traps were set early evening and left in position overnight. They were then removed from the pond early the next morning and checked for the presence of amphibians. Any amphibians or other fauna were released back into the pond they were captured from.

Torch Survey

The torch count involved shining a million candle-power torch into the water bodies and identifying and recording all amphibians present, paying particular attention to the margin of the water body. This occurred after dusk which gave adequate time for the substrate in the pond to resettle after the bottle traps had been set.

Netting

Netting involved the use of a sturdy dip net with a 2 mm mesh size. Sweep netting the perimeter of the pond was undertaken for 15 minutes per 50 m perimeter section of pond.

3.6 GCN Population Size Class Estimate

Since GCNs were found to be present in a number of the pond, an additional two survey visits adopting the aforementioned techniques, were required to estimate the population size class, to give a total of six survey visits. Three of these visits were undertaken between mid-April and mid-May (peak breeding activity), to enable a robust population size class estimate.

Natural England categorises GCN population size classes from survey data where the largest count by any single method is taken as follows: 1-10 'small'; 11-100 'medium'; and 100+ 'large'.

4.0 RESULTS

4.1 Data Search

A review of the data search, undertaken by LRERC and WBRC during the previous Extended Phase 1 Habitat Survey and the MAGIC data search revealed that there are no statutory designated sites on or within a 3 km radius of the Site centre for GCNs.

Whilst there are a number of non-statutory designated sites both adjacent to and within a 3 km radius of the Site centre, none of these sites have been designated for GCNs.

No records of GCN were returned from the LRERC search for the area immediately surrounding the Site, however, numerous records were provided from across the Ullesthorpe area, with the closest record approximately 1.8 km from the Site boundary. However, Common frog *Rana temporaria*, common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris* have been recorded at several locations within the local area, including within a waterbody approximately 400 m to the north-west of the Site in 2011. The WBRC does not hold any records for the area of the County that fall within a 3 km radius of the Site centre.

4.2 Review of Previous Surveys

The 2010 Magna Park GCN monitoring report (Ecosulis) and the 2011 GCN survey report to support a turbine application (Wild Frontier Ecology) identified ten ponds within 500 m of the Site boundary that supported GCN. The 2010 monitoring report found GCN in eight ponds within proximity to Magna Park service farm, and it was also clear from this report that GCN have been recorded within the local area since 2002, as there were annual monitoring surveys undertaken from 2002 – 2010 as part of the previous GCN licenced mitigation strategy for Magna Park. GCN were recorded every year in the cluster of ponds at the Service Farm, with a peak count of 56 in Pond 25 in 2010, in Pond 6, 17 and in the two ponds off-site to the north-east of Magna Park (not surveyed by Delta-Simons nor Middlemarch Ecology in 2015), a peak count of 26. It was concluded that the Magna Park metapopulation was maintaining a favourable conservation status.

The 2011 GCN surveys to support an application for a single turbine in Ullesthorpe were undertaken of land north of the Site. A total of six ponds were surveyed and two of the ponds were confirmed to support GCN, with a peak count of 7 adults recorded

in one pond (Pond 21) and a single male recorded in Pond 10 (see Figure 4 for pond locations).

Prior to commencement of the GCN survey, it was confirmed by the Client that Middlemarch Environmental would be completing a GCN survey of ponds at Magna Park and those which fell within a 500 m radius of the Site, and had connectivity to it. The surveys were to be undertaken to support a separate development proposal for the Magna Park service farm. On completion of the survey works to support this Report, the Middlemarch Report was reviewed, and the necessary data has been included within this Report.

Middlemarch Environmental Ltd surveyed six ponds for their suitability to support GCN. During the habitat suitability assessment Pond 24 (their Pond (P) 1), was identified as being poor to support GCNs, however, further aquatic surveys were completed. Ponds 28 (their P6) and 29 (their P5), were assessed to be 'Average' and 'Good', respectively, however, no further survey works for GCNs were completed on them due to the water levels being low and the presence of dense vegetation. Ponds 27 (P2), 25 (P3) and 26 (P4) were considered to provide good or excellent suitability to support GCN. GCNs were found to be present in Ponds 25, 26 and 27, but not in Pond 24. As the three ponds were all within close proximity to each other they were considered to support the same population of GCN. The peak count of GCN within these ponds through a single technique on a single visit was 72 GCN. The presence of 72 individuals indicates that a medium population of GCN were present. The report concluded that a Natural England development licence would be required for the proposed works to continue and that 0.16 ha of vegetation suitable to support GCNs would be lost from adjacent to Pond 27. No mitigation strategy was included within their Report.

4.3 Waterbodies Surveyed

4.3.1 Waterbodies on the Site

Pond 1 was situated towards the southern extent of the Site, at OS grid reference SP 5027 8529. The pond measured approximately 1240 m² and was located within an area of semi-improved grassland. At the time of the survey, the water quality was assessed to be moderate and the pond supported occasional submerged and emergent vegetation. No fish were observed, however, their presence is considered possible. The pond was unshaded and surrounded by moderate terrestrial habitat with good connectivity to additional waterbodies and terrestrial resources.

Pond 2 was situated to the south-west of Pond 1 at OS grid reference SP 5008 8517. Pond 2 is located within a residential landscape with amenity grassland lawns. There was no aquatic vegetation and the turbidity of the water was high due to the presence of domesticated geese and also a large population of crucian carp *Carassius carassius* within the pond.

Mere Lane Lagoon (Pond 3) was situated towards the eastern corner of the Site at OS grid reference SP 5104 8589. This large open waterbody measured approximately 7800 m² and featured open water and dense marginal vegetation (Photograph 1, Appendix 2). Water quality was assessed to be moderate at the time of the survey and the pond supported occasional submerged and emergent vegetation. Numerous waterfowl were recorded on the pond during the survey and it is considered possible that fish are present. The pond was situated adjacent to a block of plantation woodland and hedgerow habitat providing good terrestrial habitat and connectivity for GCNs, if present within the local area. Arable land extends to the north and west of the pond.

Pond 4 was situated within a semi-improved grassland field towards the north of the Site, at OS grid reference SP 4987 8652. The field featured several shallow scrapes, one of which supported standing water at the time of the survey. Pond 4 measured approximately 50 m², although the water retention is considered to vary, and the pond is likely to dry out annually. Reed mace *Typha latifolia* was present and the water quality was considered to be moderate. Due to the fluctuating water levels, the presence of fish is considered to be unlikely, and no waterfowl were recorded with close proximity to the pond during the survey, nor was evidence found to indicate that they use the waterbody.

4.3.2 Waterbodies within Land Surrounding the Site

Pond 5 was situated within an arable field to the north-west of the site as OS grid reference SP 51412 85970 and is in close proximity to the Site as it is located 109 m from the Site Boundary. It was less than 35 m² in size and it is possible it dries out annually. At the time of assessment the pond was heavily vegetated with the beginnings of an algal bloom, however, it appeared to have moderate water quality. No waterfowl were recorded at the pond and it is unlikely that fish inhabit the pond.

Pond 6 was situated adjacent at the end of Springfields Farm driveway adjacent to Mere Lane, at OS grid reference SP 51769 86129, 6 m north of the Site. Pond 6 was

surrounded by hawthorn *Crataegus monogyna* scrub, oak *Quercus* sp. and ash *Fraxinus excelsior* trees, which resulted in 90% of the surface area being overshadowed by the surrounding trees (Photograph 2). No aquatic vegetation was recorded and the water was partially turbid. No waterfowl were recorded with close proximity to the pond during the survey, nor was evidence found to indicate that they use the waterbody. Evidence of fly tipping was present.

Pond 7 was located a further 20 m north of Pond 6 and 6 m from the Site at OS grid reference SP 51769 86129. The pond was rectangular in shape and less than 50 m² and was located in dense hawthorn scrub with oak, ash and alder *Alnus glutinosa* trees (Photograph 3). Egg laying vegetation present was limited. No waterfowl were recorded with close proximity to the pond during the survey, nor was evidence found to indicate that they use the waterbody.

Pond 8 was located 8 m from the Site on the eastern side of Mere Lane and to the north of Magna Park. It was oval in shape and has a surface area of approximately 100 m². The pond was surrounded by a high number of immature and semi mature willow *Salix* spp. trees. A hawthorn hedge was present between the pond and Mere lane, also evident were several log piles that had recently been built as a result of recent management activities. At the time of the survey, the water quality was assessed to be moderate and the pond supported occasional submerged and emergent vegetation (Photograph 4).

Pond 9 was located within proximity to Pond 8, at OS grid reference SP 51807 86136, and at a distance of 10 m from the northern Site boundary. The pond was surrounded by numerous immature and semi-mature willow trees. At the time of the survey, the water quality was assessed to be moderate and the pond supported occasional submerged and emergent vegetation (Photograph 5). A hawthorn hedge was present between the pond and Mere Lane. Several log piles were also noted that had recently been built. The immediate terrestrial habitat was assessed as good for GCN.

Pond 10 was situated to the north-west of the Site at a distance of 285 m from the Site boundary, at OS grid reference SP 50998 86390. It was located within an arable field and surrounded by willow trees and dense scrub. The pond was heavily shaded with very little aquatic vegetation present (Photograph 6). No waterfowl were recorded within close proximity to the pond during the survey, nor was evidence found to indicate

that they use the waterbody. A single male GCN was recorded in Pond 10 during the 2011 surveys (Wild Frontier Ecology, 2011).

Pond 11 was situated within proximity to Pond 10 at OS grid reference SP 50942 86405 and was 240 m north of the Site boundary. The pond was heavily shaded by dense hawthorn scrub. At the time of the survey, the water quality was assessed to be poor and the pond was recorded to support occasional submerged and emergent vegetation.

Pond 12 was situated 10 m from the Site boundary at OS grid reference SP 50513 86355 and was 50 m² in size, and heavily shaded with 90% of the pond surface area shaded. At the time of the survey, the water quality was assessed to be poor and the pond supported little submerged and emergent vegetation. No waterfowl were recorded within close proximity to the pond during the survey, nor was evidence found to indicate that they use the waterbody.

Pond 13 was located 430 m north-west of Lodge Farm at OS grid reference SP 50001 87074. It is a large pond > 2000 m² with very little shading and aquatic vegetation present, 20 % for the former and 10 % for the latter. The water quality was assessed as good, however the pond was densely stocked with fish.

Pond 14 was located within an arable field 50 m north of the Site at OS grid reference SP 49577 86917, the water quality was assessed as moderate. It was surrounded by dense hawthorn scrub, resulting in limited access. A small island was present within the centre of the pond, several willow trees were present.

Pond 15 was located within an arable field 25 m north of the Site at OS grid reference SP 49391 86928, the water quality was assessed as poor. It was surrounded by dense hawthorn scrub and had steep banks, resulting in limited access.

Pond 16 was located within an arable field 95 m north of the Site at OS grid reference SP 49187 86852. The pond was surrounded by dense hawthorn scrub, limiting access to the pond.

Pond 17 was located within an arable field 219 m north of the Site at OS grid reference SP 48800 86857 and at a distance of 67 m from the A5 dual carriageway. The pond

was surrounded by hawthorn scrub, resulting in limited access. Low levels of egg laying vegetation was present (Photograph 7), and three-spined sticklebacks *Gasterosteus aculeatus* were observed whilst undertaking the surveys.

Pond 18 was located 100 m north-west of the Site at OS grid reference SP 48800 86857. It had a surface area < 50 m² in size, and the water quality was assessed as moderate. It was surrounded by dense hawthorn scrub on the southern side of the pond resulting limited access. (Photograph 8) No waterfowl were recorded at the time of the assessment.

Pond 19 was dry at the time of the assessment such that no further survey was considered necessary.

Pond 20 could not be assessed due to access restrictions.

Pond 21 was located at OS grid reference SP 50656 86725, 410 m north of the Site and is connected to the Site by an intact species-poor hedgerow. It has a surface area > 100m² in size, and had a central island present (Photograph 9). The water quality appeared good, with a possibility of fish being present, whilst minor waterfowl activity was evident. The pond was only 20 % shaded by surrounding vegetation. A peak count of 7 GCN were recorded in Pond 10 during the Wild Frontier 2011 surveys.

Pond 22 was situated 50 m to the east of Pond 21 along a farm track, it was 350 m north of the Site. No visible assessment could be made due to the pond being completely surrounded by dense bramble *Rubus fruticosus* agg and hawthorn scrub. However, standing water was visible through the scrub. This pond was not surveyed further.

Pond 23 was situated 378 m north of Pond 17 within the same arable field, and at a distance of 328 m from the Site boundary. No HSI assessment was undertaken as the pond was deemed unsuitable due to the dense matt of vegetation across the waterbody's entire surface, resulting in no access to the water.

Pond 24 was situated to the east of Mere Lane, and 44 m from the Site boundary, and forms the main waterbody associated with the pumping station. The pond measured approximately 7600 m² and featured open water with moderate marginal vegetation.

Water quality appeared to be moderate at the time of the survey, however, submerged and emergent vegetation was limited. The presence of both fish and waterfowl is considered possible. Several reed beds surrounded Pond 24 as part of the pumping station filtration process. These reed beds were under ongoing management works, with some supporting dense common reed *Phragmites australis*, and others recently cleared. The majority of the reed beds supported some standing water.

Ponds 25 and 26 were created as receptor sites in 1999 as part of mitigation measures for a European Protected Species Licence (EPSL) to enable the protection of GCNs through a translocation exercise during the construction of Magna Park. The waterbodies each measured approximately 200 m². Dense scrub had encroached onto land around the ponds, obscuring view and preventing a thorough assessment.

Details on Ponds 27, 28 and 29 have been taken from the Middlemarch (2015) Report since these were not included within the Delta-Simons remit..

Pond 27 was a small pond surrounded by scattered trees, grassland and dense scrub. The pond had artificial liner, and did not support either fish or waterfowl. It was considered to dry occasionally, has no shading and good water quality. Macrophytes present were common reed and bulrush *Typha latifolia*.

Pond 28 was a kidney shaped pond choked with vegetation, which had a low water level. Any water in the pond was concentrated to a small section of the pond. The pond banks were comprised of grassland and bramble. Water quality was moderate/ poor, and no fish nor waterfowl were present.

Pond 29 was a small pond with banks that are very steep, and covered with dense bramble. There was a small area of shading present on the northern boundary of the pond. It was choked with grasses and common reed, and had a very low water level that dropped further during the surveys such that it is considered to occasionally dry. Water quality was moderate and no fish nor waterfowl were present.

4.3 HSI Score

The results of the HSI assessment are provided in Table 2 below. The overall HSI score for each individual waterbody was categorised using the criteria specified within Table 1.

Table 2 – Results of HSI Assessment

Variables of Habitat Suitability		Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6	Pond 7	Pond 8	Pond 9	Pond 10	Pond 11	Pond 12	Pond 13	Pond 14	Pond 15	Pond 16	Pond 17	Pond 18	Pond 21
SI1	Location	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SI2	Pond area	0.9	0.8	0.01	0.2	0.1	0.1	0.05	0.4	0.4	0.3	0.1	0.1	0.01	0.2	0.1	0.2	0.2	0.20	0.2
SI3	Pond drying	1	0.1	0.9	0.1	0.1	0.5	0.5	1	1	1	0.5	0.5	0.9	1	1	1	1	0.50	1
SI4	Water quality	0.67	0.33	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.33	0.33	1	0.67	0.67	0.67	0.67	0.67	0.67
SI5	Shade	1	1	1	1	1	0.4	0.8	1	1	0.8	0.4	0.4	1	1	0.6	0.3	0.9	0.60	1
SI6	Fowl	0.67	0.01	0.01	1	1	1	1	1	1	0.67	1	1	0.67	1	1	1	1	1	1
SI7	Fish	0.67	0.01	0.67	1	1	0.67	0.67	0.67	0.67	0.67	1	0.67	0.01	0.33	0.67	0.67	0.67	0.67	0.67
SI8	Ponds	0.73	0.4	1	0.82	1	1	1	1	1	1	1	0.95	1	1	1	1	1	0.95	0.8
SI9	Terrestrial habitat	0.67	0.33	0.67	0.67	0.33	0.67	1	1	1	0.67	1	0.67	0.67	0.33	0.33	0.67	0.33	0.67	0.67
SI10	Macrophytes	0.6	0.31	0.6	0.4	0.3	0.3	0.3	0.5	0.30	0.5	1	0.3	0.4	0.3	0.4	0.4	0.4	0.9	0.76
	Habitat Suitability Index	0.77	0.25	0.33	0.56	0.48	0.53	0.55	0.79	0.75	0.69	0.61	0.49	0.33	0.62	0.57	0.61	0.64	0.66	0.72

The overall HSI score for the on-Site ponds is as follows: Pond 1 was 0.77 'Good' Pond 2 was 0.25 'Poor', Mere Lane Lagoon (Pond 3) was 0.33 'Poor', and Pond 4 was 0.56 'Below Average'.

The overall HSI scores for the off-Site ponds ranged between 0.33 and 0.79. With reference to the criteria specified within the methodology (Section 3.3.2) the likelihood of GCNs occurring within four of the ponds was 'Good', in six of the ponds 'Average', in four of the ponds 'Below Average' and in five of the ponds 'Poor'. Surveys were undertaken of the majority of the ponds, despite their score, due to the past survey records of GCN within the surrounding area and the proximity of the ponds to each other. However, since Ponds 2 and 13 were heavily stocked with fish such that no further surveys were considered necessary.

Ponds 24, 25, 26, 27, 28 and 29 have been assessed separately as part of a European Protected Species Licence (EPSL) application by Middlemarch Environmental and the results provided to Delta-Simons have been summarised in Table 3 below.

Table 3 - Results of HSI Assessment of Ponds Assessed by Middlemarch Environmental in 2015

Variables of Habitat Suitability		Pond 24	Pond 25	Pond 26	Pond 27	Pond 28	Pond 29
SI1	Location	1	1	1	1	1	1
SI2	Pond area	0.01	0.4	0.01	0.3	0.1	0.1
SI3	Pond drying	0.9	1	1	1	0.5	0.5
SI4	Water quality	0.33	0.67	0.67	1	0.33	0.67
SI5	Shade	1	1	1	1	1	1
SI6	Fowl	0.67	1	1	1	1	1
SI7	Fish	0.01	1	1	1	1	1
SI8	Ponds	0.9	0.94	0.94	0.94	0.94	0.94
SI9	Terrestrial habitat	1	1	1	1	1	1
SI10	Macrophytes	0.8	0.35	0.55	0.7	1	1
	Habitat Suitability Index	0.33	0.78	0.77	0.85	0.66	0.71

The overall HSI scores for the ponds assessed by Middlemarch Environmental ranged between 0.33 and 0.85. With reference to the criteria specified within the methodology (Section 3.3.2) the likelihood of GCNs occurring in one of the ponds is 'Excellent' within three of the ponds is 'Good', in a single pond 'Average' and in one of the ponds 'Poor'.

4.4 GCN Survey

Results from the four to six survey visits to determine presence/ likely absence, and population size classes, are provided in Tables 4 and 5 below. A total of 20 ponds were surveyed in order to determine the presence / likely absence of GCN in ponds on and within 500 m of the Site by a combination of Delta-Simons and Middlemarch Environmental. Ten of the off-Site ponds were found to support GCN, with six of these ponds confirmed as breeding ponds. GCN were not found in the on-Site ponds, Pond 1, Mere Lane Lagoon (Pond 3) and Pond 4, see Figure 5.

The highest count of GCN was recorded at Pond 26 with a total of 48 adults observed during a torch survey, whilst Pond 21 had the second highest count of 33 adults. The population at Pond 21 appears to have quadrupled since the 2011 survey, as only 7 individuals were recorded then. No GCN were recorded in Pond 10.

It should be noted that a significant common toad population was recorded at Mere Lane Lagoon (Pond 3) with a total of 144 individuals counted in one evening. Pond 1 also had a high toad population with 70 adults counted in a single survey visit.

Pond 4 and the associated scrapes where not surveyed as Pond 4 had dried up before the surveys commenced and the scrapes were also considered unsuitable to support GCN due to a lack of vegetation for cover and egg laying and drying up early in the season.

It is understood from their Report that Ponds 28 and 29 on the Magna Park site were not surveyed by Middlemarch Environmental due to being choked with vegetation and having low water levels.

Table 4 – Results of the GCN Surveys 2015

Survey Method	Pond 1		Pond 3		Pond 5		Pond 6		Pond 7		Pond 8	
	GCN	Other Species (Smooth Newt = SN)	GCN	Other Species (Smooth Newt = SN)	GCN	Other Species (Smooth Newt = SN)	GCN	Other Species (Smooth Newt = SN)	GCN	Other Species (Smooth Newt = SN)	GCN	Other Species (Smooth Newt = SN)
Bottle trapping	0	2 SN	0	0	0	3 SN	0	0	1 _F	0	2 _M	0
Torch survey	0	70 toads	0	3 SN, 144 toads	0	0	0	0	2 _M	0	6 _M	3 SN
Egg searches	0	0	0	0	0	0	0	0	1	0	1	0
Bottle trapping	0	11 SN	0	0	0	0	1 _F	4 SN	0	0	3 _F	1 SN
Torch survey	0	0	0	0	0	0	0	0	0	0	6 _M 1 _F	2 SN
Egg searches	0	0	0	0	0	0	0	0	0	0	0	0
Bottle trapping	0	0	0	5 SN	0	1 SN	0	0	2 _F	0	2 _M 4 _F	3 SN
Torch survey	0	0	0	0	0	1 SN	0	3 SN	0	0	1 _F	1 SN
Egg searches	0	0	0	0	0	0	0	0	0	2 SN	0	0
Bottle trapping	0	0	0	0	0	1 SN	0	0	0	0	2 _F	4 SN
Torch survey	0	3 SN	0	0	0	0	0	0	0	1 SN	0	0
Egg searches	0	0	0	0	0	0	0	0	0	0	0	0
Bottle trapping	N/A	N/A	N/A	N/A	N/A	N/A	0	4 SN	0	0	1 _F 1 _J	0
Torch survey	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	1 SN
Egg searches	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0
Bottle trapping	N/A	N/A	N/A	N/A	N/A	N/A	0	0	2 _M	0	3 _F	4 SN
Torch survey	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0
Egg searches	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0

Table 5 –Results of Middlemarch Environmental GCN Surveys 2015

Survey Method	Pond 24		Pond 25		Pond 26		Pond 27	
	GCN	Other Species (Smooth Newt = SN)	GCN	Other Species (Smooth Newt = SN)	GCN	Other Species (Smooth Newt = SN)	GCN	Other Species (Smooth Newt = SN)
Bottle trapping	0	0	1 _M	0	0	0	0	0
Torch survey	0	0	0	0	0	0	0	0
Egg searches	0	0	0	0	0	0	0	0
Bottle trapping	0	0	0	0	0	0	0	0
Torch survey	0	0	3 _M 2 _F	0	1 _M	0	0	0
Egg searches	0	0	0	0	0	0	0	0
Bottle trapping	0	0	3 _F	0	0	0	6 _M 2 _F	0
Torch survey	0	0	1 _M	0	30 _M 18 _F	0	10 _M 9 _F	0
Egg searches	0	0	0	0	0	0	0	0
Bottle trapping	0	0	5 _M 3 _F	6 SN	0	0	5 _M 4 _F	3 SN
Torch survey	0	0	2 _M 1 _F	26 SN	0	20 SN	1 _M 3 _F	2 SN
Egg searches	0	0	0	0	0	0	0	0
Bottle trapping	N/A	N/A	1 _M 2 _F	1 SN	1 _F	1 SN	1 _M 2 _F	1 SN
Torch survey	N/A	N/A	4 _M 1 _F	3 SN	0	0	1 _M 1 _F	3 SN
Egg searches	N/A	N/A	0	0	0	0	0	0
Bottle trapping	N/A	N/A	_M 2 _F	9 SN	1 _M	0	0	1 SN
Torch survey	N/A	N/A	2 _M 1 _F	10 SN	0	0	1 _M	3 SN
Egg searches	N/A	N/A	0	0	0	0	0	0

4.4.1 GCN Population Size Class Estimate

Natural England categorises GCN population size classes from survey data where the largest count by any single method is taken as follows: 1-10 'small'; 11-100 'medium'; and 100+ 'large'.

Table 6, below, shows the population size class of GCNs for each of the ten ponds where they were recorded to be present.

Table 6 – Population Size Class Estimate for GCNs

Pond	Maximum GCN Count	Population Size
6	1	Small
7	3	Small
8	8	Small
9	17	Medium
17	4	Small
18	9	Small
21	33	Medium
25	8	Small
26	48	Medium
27	19	Medium

Pond 27 is located within 50 m of the Site at the Magna Park Service Farm and had a peak count of 19 individuals thus resulting in it being classed as a 'Medium' population. Moreover, Ponds 25 and 26 are located within 100 m of the Site boundary and had peak counts of 8 and 48 GCN, respectively, resulting in 'Small' and 'Medium' population classifications. However, for the purpose of the assessment, Middlemarch Environmental determined that due to their proximity to one another, the three ponds all support the same 'Medium' population.

Given each of their locations with respect to one another, it is apparent that the ten ponds shown in Table 6 form a GCN metapopulation, which can be classed as a 'Medium' population.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

On-Site

Ponds 1-4 are all located within the Site boundary and GCN have been confirmed to be absent from them all. However, a peak count of 144 common toads were recorded at Mere Lane Lagoon (Pond 3), and 70 common toads were also recorded in Pond 1, such that these waterbodies are considered to represent important breeding ponds for this species, an England Biodiversity Priority Species (EBP) (previously UK Biodiversity Action Plan (UKBAP) species).

Habitats on-Site include arable land, scattered broadleaved trees, pockets of broadleaved plantation woodland, intact species-poor hedgerow, semi-improved grassland and marshy grassland. Therefore, the Site is considered to support good terrestrial habitat for GCNs, with connectivity to off-Site terrestrial habitats and breeding ponds via hedgerow and woodland habitats. Mere Lane to the east of the Site is not considered to represent a barrier to dispersal for GCNs.

Land Surrounding the Site

Ten of the ponds were found to support GCN. Six of the seven ponds (Ponds 7, 8, 9, 17, 18 and 21) surveyed by Delta-Simons that hold GCNs are confirmed GCN breeding ponds. Pond 6 only supported a single female GCN such that it is considered as a non-breeding pond for this species, despite being located within the cluster of ponds that form a Medium metapopulation.

Middlemarch Environmental consider that the three ponds found to support GCNs at the Magna Park Service Farm (Ponds 25, 26 and 27) are part of a single GCN population due to the proximity of the ponds to one another. Pond 26 held the most GCNs of any pond surveyed within a 500 m radius of the Site, with a peak count of 48 individuals. The Magna Park Service Farm ponds which support GCNs are all within 100 m of the Site boundary.

Impact Assessment of Proposed Works to GCNs

The impacts/ potential impacts are listed below:

GCNs spend a relatively short time in their breeding ponds and are found for most of the year in the surrounding terrestrial habitat. Whilst most will remain close to the pond, they may disperse up to 500 m from it (English Nature, 2001) which is considered

likely to result in GCNs being found on Site. The actual distance moved will depend upon the range and quality of surrounding habitats. Where they have good alternatives they are relatively unlikely to be found in areas of hard standing and poor semi-improved grassland, although use of the latter habitat cannot be ruled out.

Pre- and during construction impacts comprising Site clearance works, changes to levels and topsoiling, followed by the construction of the buildings, installation of a drainage scheme and associated hard and soft landscaping, will cause a combination of permanent loss and temporary damage to habitats at the Site and will involve excavation works. Without appropriate mitigation, these works have the potential to injure or kill GCN's and also create temporary habitats such as spoil heaps that GCN's may attempt to use if present on the Site.

Whilst there will be widespread habitat modification works at the Site, the majority of the infrastructure and warehouse construction works will be within the western area of the Site in proximity to the A5. This will limit the permanent loss of terrestrial habitat used by GCNs since all of the breeding ponds are to the north-west, north, north-east and south of the Site. Furthermore, the proposed development is anticipated to have a limited fragmentation effect on GCNs dispersing between breeding ponds as a result of the proposed layout of the Site.

Following the completion of the development it is anticipated that the proposed habitat enhancement works at the Site will benefit GCNs and other amphibian species in the medium to long-term. There are not anticipated to be any significant adverse impacts in the short to long-term on the GCN population within the local area as a result of the proposed development.

5.2 Recommendations

Recommendation 1 (Construction Phase)

- △ Due to the risk that GCNs could be killed or injured as a result of undertaking the proposed development works, it is considered necessary to apply for a EPSL from Natural England. The licence would allow for mitigation measures to be instated lawfully at the Site to ensure the newts are protected and that the population remains in favourable conservation status in the long-term;
- △ It is considered likely that newt fencing will need to be installed around suitable terrestrial habitats on-Site within 250 m of off-Site GCN breeding ponds to

prevent GCNs from entering it during the construction phase. Terrestrial trapping will also be necessary to transfer any GCN caught on the Site into one or more temporary on-Site receptor areas to facilitate the construction process. The proposed location of the receptor area for the DHL Supply Chain within Zone 1 is shown on Figure 6, whilst it is anticipated that a second receptor area for other areas of Zone 1 will be located within the northern extent of the central area of the Site, immediately east of the warehouse buildings;

- △ It is anticipated that due to the proximity of the GCN ponds at the Magna Park Services Farm to the new section of road that will link the Hunter Boulevard roundabout to Mere Lane, via a roundabout, that an amphibian tunnel will be required to enable GCNs, and other amphibians, to pass beneath this road section to suitable terrestrial habitat to the south-west. In addition, a second amphibian tunnel will allow GCNs and other amphibians safer access beneath Mere Lane (see Figure 6); and
- △ When the detailed Site layout and construction plans are available a full mitigation plan can be formed. If the development does not proceed within three years a repeat survey of the waterbodies will be required to provide updated GCN population results.

Recommendation 2 (Other Considerations)

Other species of amphibian (smooth newt and common toad) were identified utilising the waterbodies during the surveys, therefore, there is a possibility of amphibians being encountered during the works. Since Mere Lane Lagoon (Pond 3) is to be retained at the Site such that provision for smooth newts and common toad is being maintained at the Site, it is recommended that the following information on amphibians should be included within any tool box talks or inductions that are provided to the construction site team:

- △ If a smooth newt or toad is discovered during the works, it should be moved (with damp hands) to an area of suitable vegetation such as rough grassland a safe distance away from the working area; and
- △ In order to discourage amphibians from the working areas and reduce the overall impact of the works on amphibians, best practice mitigation measures can be employed during construction as follows:
- △ Identification of sensitive ecological areas in advance of on-Site works, and the restriction of the movement of staff and machinery in these areas (e.g. adjacent to Mere Lane Lagoon (Pond 3) and drains). Exclusion zones should be

- established (e.g. fencing) so that these features are not inadvertently damaged during the construction phase;
- △ Any suitable terrestrial foraging or shelter habitat (e.g. areas of long, rough grass) located within 150 metres from the Ponds 1 and 3 and within the proposed working area should be cut short (15 cm) before the main Site clearance works commence to discourage amphibians from entering into the working areas. A check for amphibians within these areas should be undertaken by a suitably qualified ecologist before cutting;
 - △ Working areas, Site compounds and access tracks should be of the minimum size required for safe working. Fencing should be considered to prevent encroachment of machinery and materials onto adjacent vegetation;
 - △ Stockpiling of materials should be kept to a bare minimum and restricted to specific sites. Waste materials, including cleared vegetation should be removed from the Site and disposed of at the earliest opportunity and should not be stockpiled to prevent amphibians using this as shelter;
 - △ If materials need to be stored on-Site, they should be kept off the ground on pallets or similar or kept within storage containers to prevent amphibians sheltering underneath;
 - △ Adoption of best practices to prevent pollution and dust;
 - △ Refuel and service vehicles/machinery within a designated Site compound area with impermeable base. Use trigger delivery nozzle to refuel. Do not conduct these activities adjacent to waterbodies. All machinery should be maintained in good working order and checked regularly; and
 - △ Fuel, oil and other potential pollutants should be stored in bunded tanks in a designated Site compound area away from waterbodies. Store oil absorbent material on-Site and clear up spillages immediately.

Recommendation 3 (Planning and Ecological Enhancements)

Following the issue of the National Planning Policy Framework (NPPF, 2012) by the Department for Communities and Local Government (DCLG), “*The planning system should contribute to and enhance the natural and local environment by: Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity...*”; For this particular development, planting, creation of waterbodies and management at the Site has the potential to create valuable wet woodland, broadleaved woodland, species-rich grassland and new waterbodies to provide locally

important habitat and connectivity for a wide range of protected and notable species which would result in an overall increase of the biodiversity value of the Site. Retention and appropriate management of the existing hedgerows, ponds and some scrub vegetation also has the potential to maintain and enhance their value to wildlife.

As part of the overall enhancement of the Site for wildlife, and in particular for amphibians, the following will be implemented into the landscape design:

- △ Piles of logs or heaps of rubble will be left as daytime refuges and hibernation sites. Purpose built hibernacula can be provided adjacent to any retained waterbodies or along Site boundaries; and
- △ Areas of rough, long grass should be encouraged adjacent to any retained waterbodies, whilst this type of grassland shall be encouraged around new waterbodies at the Site to provide daytime refuges during the summer months.

6.0 LIMITATIONS OF SURVEY

The behaviour of animals can be unpredictable and may not conform to characteristics recorded in current scientific literature. This Report, therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Ecology Consultant. Delta-Simons does not warrant or guarantee that the Site is free of bats or other protected species.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1.0 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

This Report was prepared by:



Jonathan Spencer
Senior Ecologist

15/09/15

Date

This Report was reviewed and authorised by:

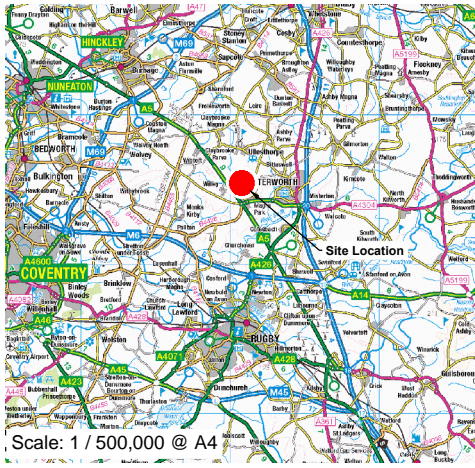


Charlotte Sanderson
Ecology Unit Manager


15/09/15

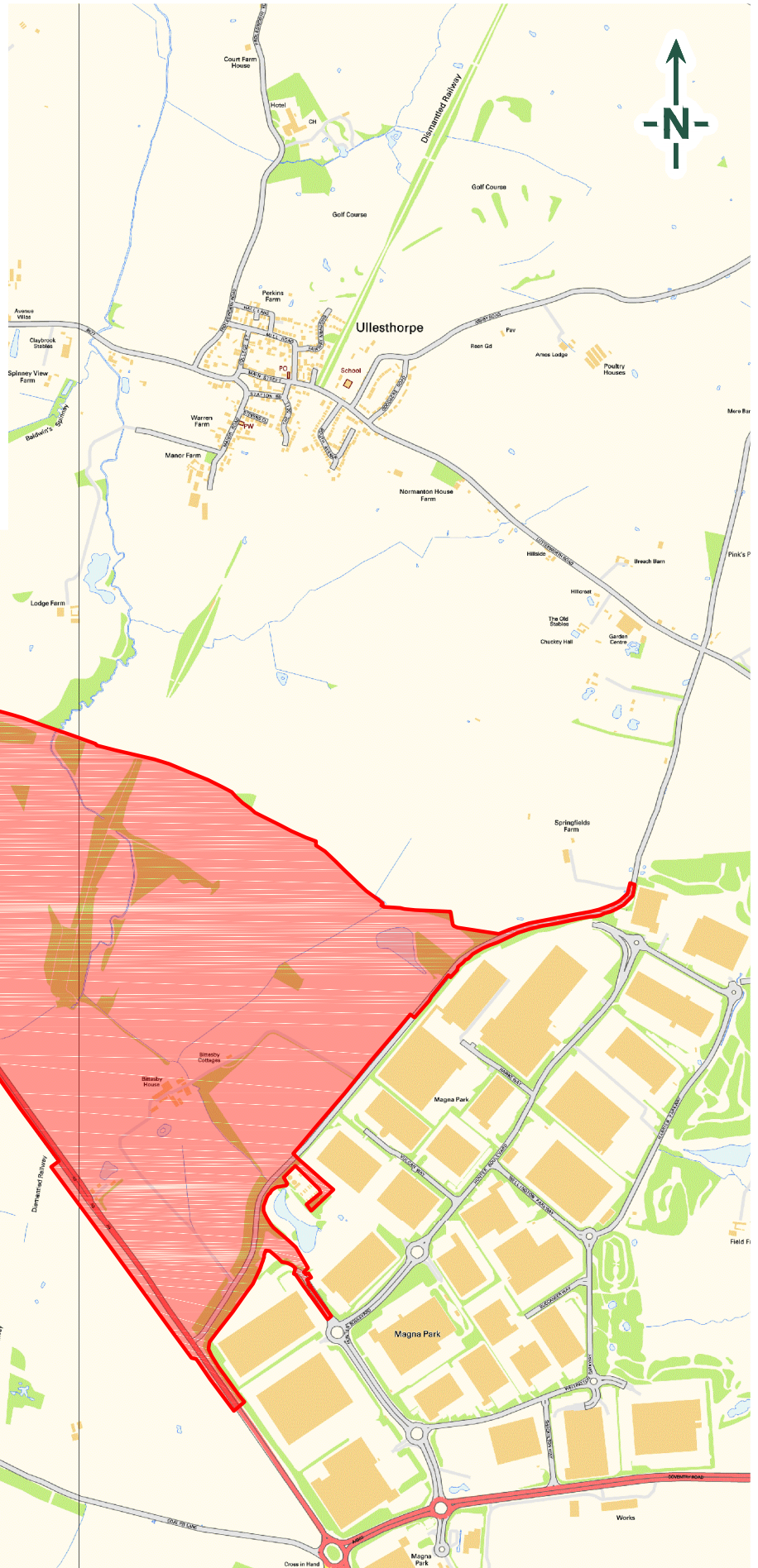
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LEGEND

 Site Boundary



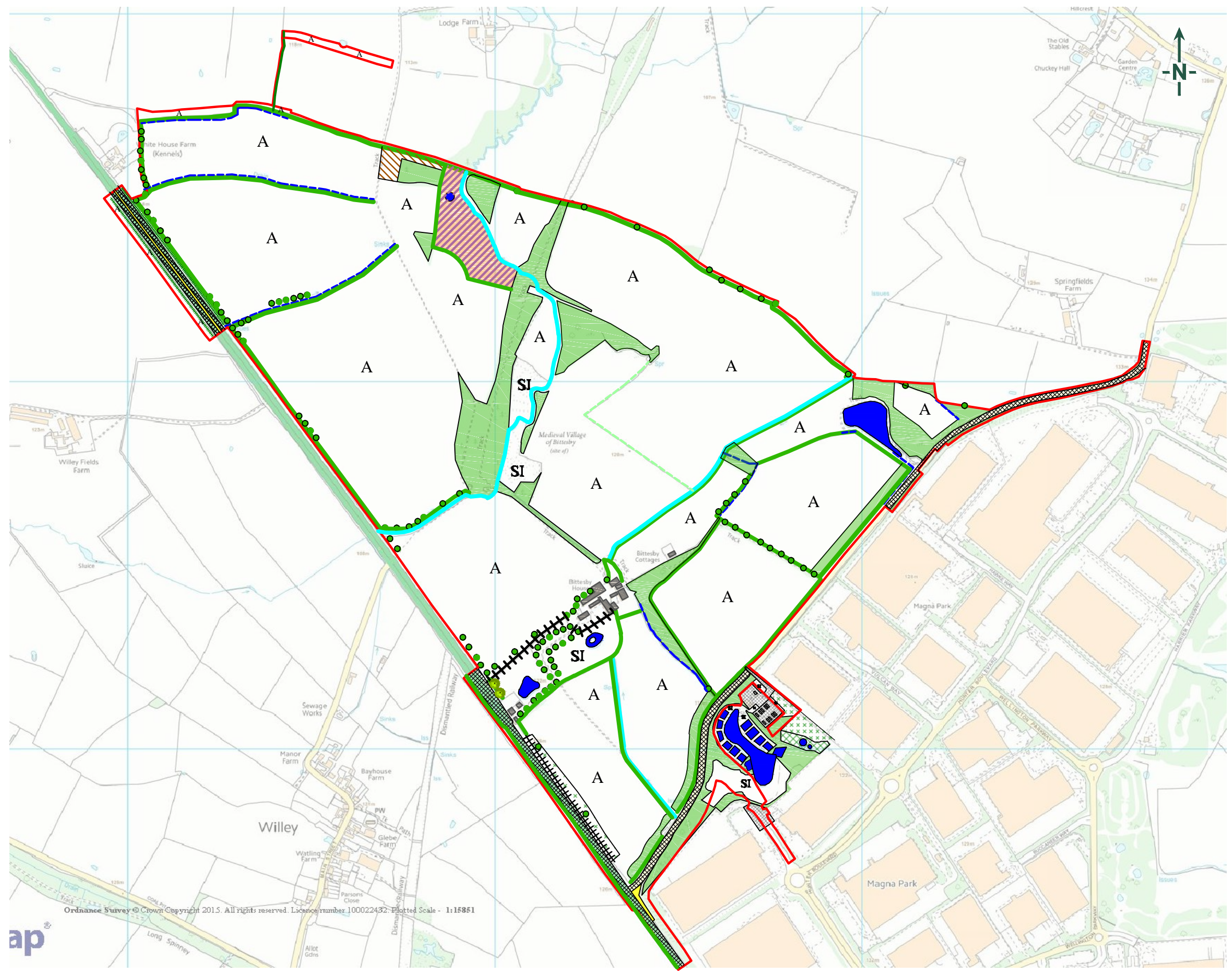
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TITLE:
Site Location Plan
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN: DP
 SCA: To Scale @ A4
 CHK: JS
 REV: 1
 DATE: 14 September 2015

PROJECT NO.:
14-0159.05
 FIGURE NO.:
1



LEGEND

	Site Boundary
	Broadleaved Plantation Woodland (A1.1.2)
	Scattered Broadleaved Trees (A3.1)
	Scattered Coniferous Trees (A3.2)
	Marsh Grassland (B5)
	Poor Semi Improved Grassland (B6)
	Tall Ruderal (C3.1)
	Standing Water (G1)
	Running Water (G2)
	Arable (J1.1)
	Amenity Grassland (J1.2)
	Intact Hedgerow - Species Poor (J2.1.2)
	Defunct Hedgerow - Species Poor (J2.2.2)
	Fence (J2.4)
	Dry Ditch (J2.6)
	Scattered Scrub (A2.2)
	Species Poor Hedgerow with Trees (J2.3.2)
	Dense Scrub (A2.1)
	Buildings (J3.6)
	Hard Standing (J4.1)

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TITLE:
Site Layout Plan
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.05
CHK: JS	REV: 1	FIGURE NO.: 2
DATE: 14 September 2015		



- GENERAL NOTES:
1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERING AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
 3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
 4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERRED TO THE CLIENT IMMEDIATELY.
 5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 6. ALL LEVELS IN METRES.
 7. DO NOT SCALE OFF THIS DRAWING.
 8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
 9. THE CONTENT OF THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST PROJECT GOMR REGISTER.



Zone 1

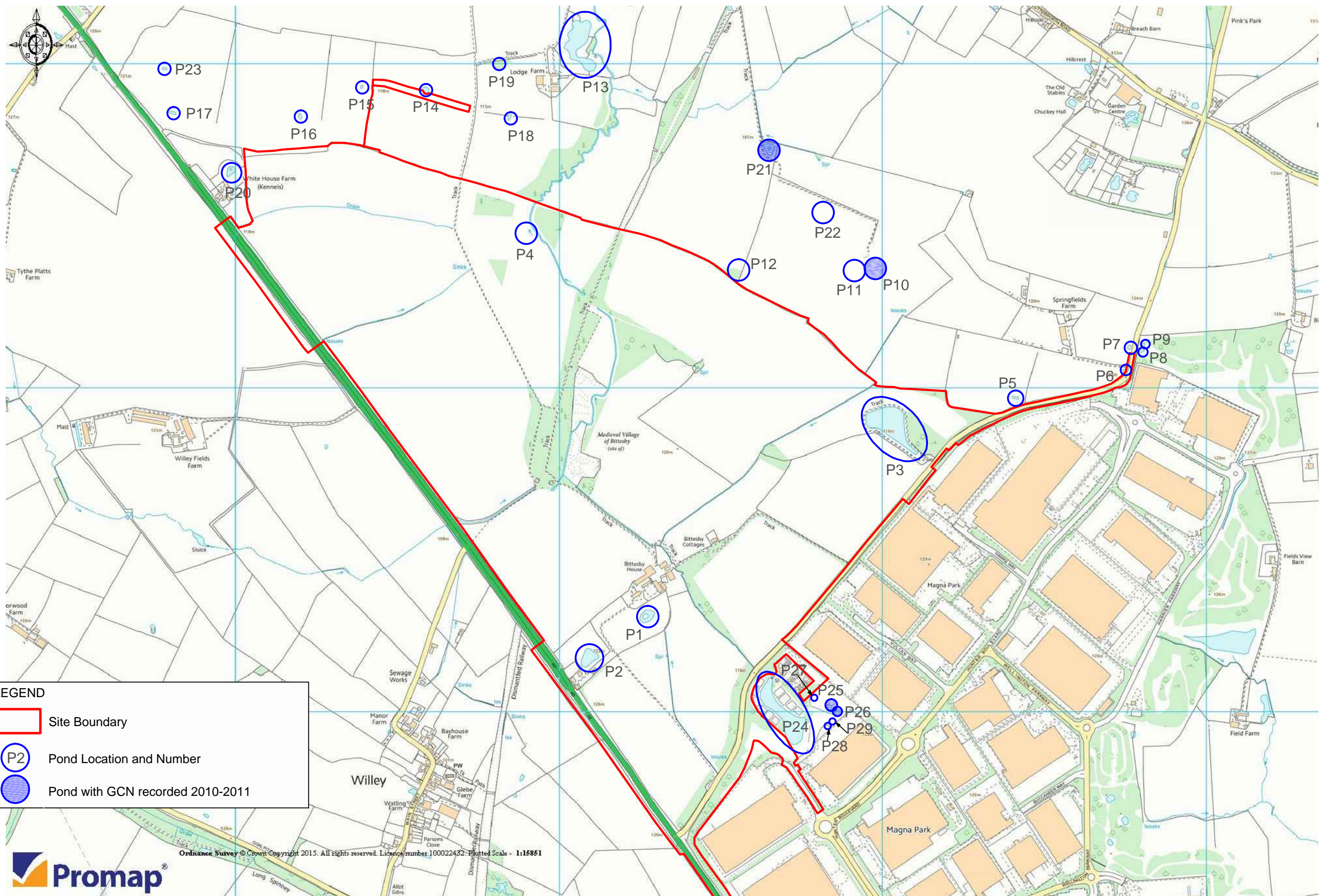
Zone 2

NO	14/09/2015	FOR COMMENT	1/18	DN
REV	Date	Description	Rev	Drawn/CHK
 Landscape Architecture, Urban Design, Creative Ecology 21 Mill Street, Bath BA1 1UT T: +44 (0) 1225 323864 F: +44 (0) 1225 428845 E: info@grant-associates.co.uk				
CLIENT IDI Gazeley				
PROJECT Magna Park Extension OPA				
TITLE Illustrative Masterplan				
Author	Drawn	Checked	Approved	Scale
14/09/2015	JS	10/09/2015	JS	DN
FOR COMMENT				
Drawing No.	Rev			
MLP410-AL-A01-MP-0-001	00			



TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Planning Application
 Lutterworth

DWN:	DP	SCA:	Not to Scale	PROJECT NO.:	14-0159.05
CHK:	JS	REV:	1	FIGURE NO.:	3
DATE:	14 September 2015				



LEGEND

- Site Boundary
- P2 Pond Location and Number
- P2 Pond with GCN recorded 2010-2011

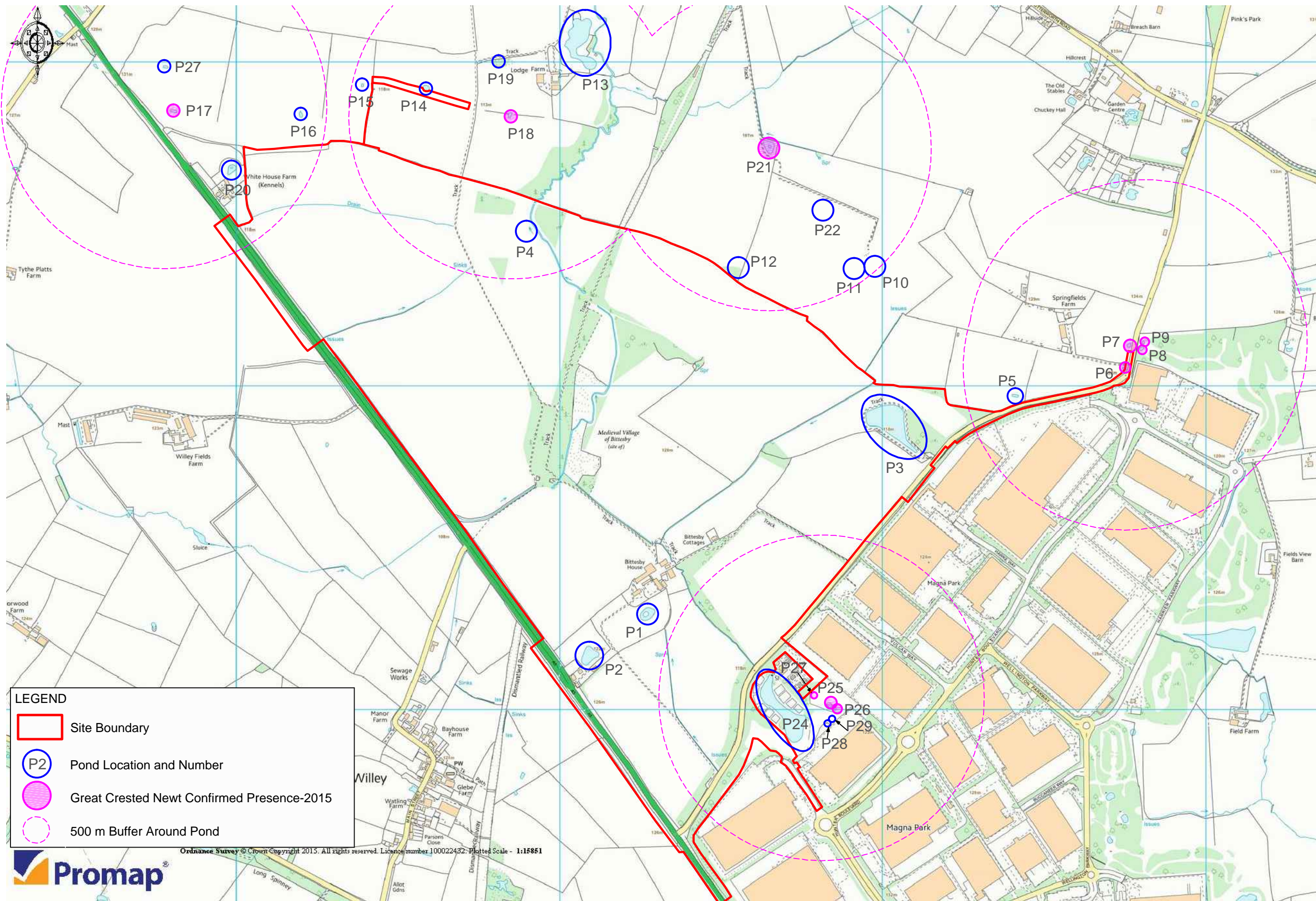


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TITLE:
 Pond Location Plan and Previous Records of Great Crested Newts
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.05
CHK: JS	REV: 1	FIGURE NO.:
DATE: 14 September 2015		4





Possible
GCN Receptor Area

GCN
Receptor Area

Amphibian
Tunnels



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**Magna Park Extension: Hybrid Application, Zone 1
Delta-Simons Project No. 14-0159.05**



Photograph 1 – Mere Lane Fisheries (Pond 3)



Photograph 2 – Pond 6

**Magna Park Extension: Hybrid Application, Zone 1
Delta-Simons Project No. 14-0159.05**



Photograph 3 – Pond 7



Photograph 4 – Pond 8

**Magna Park Extension: Hybrid Application, Zone 1
Delta-Simons Project No. 14-0159.05**



Photograph 5 – Pond 9



Photograph 6 – Pond 10

**Magna Park Extension: Hybrid Application, Zone 1
Delta-Simons Project No. 14-0159.05**



Photograph 7 – Pond 1



Photograph 8 – Pond 18

**Magna Park Extension: Hybrid Application, Zone 1
Delta-Simons Project No. 14-0159.05**



Photograph 9 – Pond 21



Appendix I-9: Riparian Mammal Survey

**Magna Park Extension: Hybrid Application, Zone
1**

For IDI Gazeley

Delta Simons Project No. 14-0159.08

Issued: September 2015

APPENDIX I-9: RIPARIAN MAMMAL SURVEY
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
FOR IDI GAZELEY
DELTA-SIMONS PROJECT NUMBER 14-0159.08
EXECUTIVE SUMMARY

Purpose	Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley ('the Client') to undertake a riparian mammal survey of an area of land situated off Mere Lane to the north-west of Lutterworth in Leicestershire, which forms Zone 1 of the proposed development site ('the Site').
Current Site Status	The Site comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.
Proposed Development	An outline planning application will be submitted for up to 427,350 square metres (m ²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m ² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m ² , an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m ² , Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m ² , and an Innovation Centre of up to 2,325 m ² . The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

<p>Results:</p>	<p>No evidence of water vole was found at the time of the survey. Drains 1, 2 and 3 were considered unsuitable for water vole due to a lack of vegetation and low water levels. Drain 5 supported limited aquatic and marginal vegetation, and, large sections of the banks were shaded out by overhanging trees and scrub and ruderal vegetation, therefore, this ditch was also considered unsuitable for water vole. Drains 4, 6, 7 and 8 were not surveyed as they were either dry at the time of the survey, or did not support adequate an adequate water level to be used by water voles. Whilst Pond 3 offers suitable habitat for water voles, there is a lack of potential connectivity to it for this species to access it.</p> <p>An old otter spraint was found at the northern Site boundary on Drain 5. A second old spraint was found in a culvert under the A5 on Drain 5 towards the south-western extent of the Site at the time of the survey. The majority of the drainage ditches offer limited foraging opportunities for otter, furthermore, there is limited dense vegetation either along them or elsewhere on-Site to provide resting places or holts. While Pond 3 would provide adequate foraging opportunities, the pond is regularly disturbed by dog walkers and, therefore, not considered ideal habitat. Drains 2 and 5 offer possible commuting routes for otter if they still occur in the local area.</p>
<p>Recommendations</p>	<p>Recommendation 1: (Pre Construction) As a precaution, it is recommended that immediately prior to the commencement of construction works at the Site, the drains and Pond 3 are re-surveyed to ensure that if the Site is found to be within an otter's territory, an appropriate mitigation strategy can be prepared to ensure that this species is not disturbed.</p> <p>Recommendation 2: (Construction Phase) It is recommended that where the drains have to be culverted, in particular Drains 1 and 2, certain principles are followed to help limit any impact upon otters, and to retain potential commuting corridors at the Site.</p> <p>Recommendation 3: (Pollution Prevention) Contractors should adhere to the recommendations outlined in Pollution Prevention Guideline 5 (PPG 5): Works in, near or liable to affect watercourses (Environment Agency n.d.) to minimise the risk of pollution events to the adjacent water course during construction.</p>
<p>This Riparian Mammal Survey Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. The Executive Summary should be read in conjunction with the full report.</p>	

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APPENDIX I-9: RIPARIAN MAMMAL SURVEY
MAGNA PARK EXTENSION, ZONE 1
FOR IDI GAZELEY
DELTA-SIMONS PROJECT NUMBER 14-0159.08

1.0 INTRODUCTION

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley (the 'Client') to undertake a riparian mammal survey of an area of land situated off Mere Lane to the north-west of Lutterworth in Leicestershire, which forms Zone 1 of the proposed development (hereafter referred to as 'the Site'). The Site location is shown in Figure 1. At the time of the survey, the Site comprised predominately of arable fields, with occasional poor semi-improved grassland fields, bounded by hedgerows and drainage ditches. Several sections of broadleaved plantation woodland are situated within the eastern and central areas of the Site, and there are four ponds at the Site.

The aim of the riparian mammal survey was to:

- △ Examine any riparian habitats on, or immediately adjacent to, the Site for the presence of water voles *Arvicola amphibious* and/ or otters *Lutra lutra*;
- △ Record any evidence of associated activity to determine their presence or likely absence;
- △ Assess the results of the survey and determine the potential impact of the proposed development works on any water voles and/or otters that might use aquatic habitats and immediately surrounding terrestrial habitats;
- △ Where necessary provide recommendations for working methodologies, further surveys and/or the need for a European Protected Species Licence (EPSL) for otters, or Conservation Licence for water voles, from Natural England in light of the survey results; and
- △ Make any initial recommendations for mitigation following the survey with respect to water voles and/or otters to liaise with the Natural England Local Species Officer, if necessary.

1.2 Site Description

Zone 1, is an approximately 220 ha triangular parcel of predominantly agricultural land to the north and north-west of Magna Park, Lutterworth. Zone 1 is linked to and extends Magna Park. Its boundaries are created by the A5 to the south and west, Mere Lane to the east and the ridgeline hedgerows that follow the parish boundary to the north. It comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.

The Site layout is shown in Figure 2.

1.3 Proposed Development

An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m²,

Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

The proposed development plan is included as Figure 3.

2.0 LEGISLATION

2.1 Water Voles

The water vole received limited legal protection up until April 1998 through its inclusion in Schedule 5 of the Wildlife & Countryside Act (WCA) 1981 (as amended) for some offences. This protection was extended on 6th April 2008, so the water vole is now fully protected under Section 9.

Legal protection makes it an offence to:

- △ Intentionally kill, injure or take (capture) a water vole;
- △ Possess or control a live or dead water vole, or any part of a water vole;
- △ Intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection; or intentionally or recklessly disturb water voles while they are using such a place; and
- △ Sell, offer for sale or advertise for live or dead water voles.

2.2 Otters

Otters are fully protected through the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) as a European Protected Species (EPS). They also receive protection through their inclusion in Schedule 5 of the WCA 1981 (as amended). Under the legislation, it is an offence to deliberately capture, injure or kill an otter. It is an offence to damage or destroy a breeding site or resting place of an otter. It is also an offence to intentionally or recklessly disturb an otter while it is occupying a structure or place which it uses for shelter or protection; or obstruct access to any structure or place which it uses for that purpose.

It is an offence to deliberately disturb an otter in such a way as to be likely significantly to affect - (i) the ability of any significant group of animals of that species to survive, breed, or rear or nurture their young; or (ii) the local distribution or abundance of that species. For the purposes of this paragraph, disturbance of animals includes in particular any disturbance which is likely - (a) to impair their ability - (i) to survive, to breed or reproduce, or to rear or nurture their young; or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or (b) to affect significantly the local distribution or abundance of the species to which they belong.”

2.3 Planning

With reference to the National Planning Policy Framework (NPPF), the Circular (2005) advises that ecological surveys are undertaken before planning permission is determined. The circular states *“The need to ensure that ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances”*

3.0 METHODOLOGY

3.1 Data Search

A review of the desk search was undertaken with data obtained from both the Leicestershire and Rutland Environmental Records Centre (LRERC) and the Warwickshire Biological Records Centre (WBRC) checked for any records of water vole and otter within 3 km of the Site centre. In addition, a search of the government's Multi-Agency Geographic Information for the Countryside (MAGIC) was undertaken, to identify statutory and non-statutory sites that support water voles and otter within 3 km of the Site centre.

3.2 Review of Previous Survey Reports

A review of the Extended Phase 1 Habitat Survey (14-0159.02) written by Delta-Simons in 2014 was undertaken to inform this Report.

3.3 Water Vole Survey

The survey focused on areas along, and immediately surrounding, the banks of four drains and Pond 3 towards the centre and eastern extent of the Site. An assessment was made of the value of the habitat for water voles, and a search for evidence of water vole activity was undertaken on the 22nd April 2015 and the 6th August 2015. The methodology followed that of Strachan, Moorhouse & Gelling (2011) and involved entering the waterbody in order to undertake a fingertip search of the banks to at least 2 m from the water's edge. This allowed for the identification of field signs associated with this species, including any burrow entrances, lawns, prints, latrines, droppings, mammal runs and feeding stations that may be present at the margins of the stream, or in the case of burrows, in the bed of the stream. The location of all water vole activity was recorded.

3.4 Otter Survey

Field signs such as spraints, runs, sightings, footprints, and resting areas or holts, which are identifiable by the presence of the aforementioned field signs, and/or scratch marks, rubbing and hair around the entrance, and tunnel size, were searched for, and recorded where present, during the survey. The methodology followed Lenton et al (1980). The survey was undertaken on 22nd April 2015 and the 6th August 2015 in conjunction with the water vole survey. The banks of the drains, Pond 3 and the waterbodies themselves were surveyed.

4.0 RESULTS

4.1 Data Search

4.1.1 Habitats

The results of the MAGIC data search and the LRERC and WBRC desk search indicate that there are no statutory designated sites within a 3 km radius of the Site centre for either water voles or otter.

The LRERC data search indicates four Local Wildlife Sites (LWS) are present within 3 km of the centre of the Site, the closest being Old Manor Reedbed LWS situated approximately 800 m to the north of the Site. The records centre also indicate two candidate LWS and a Potential LWS between 1.5 km and 2 km from the Site. Numerous Parish, District and County sites have been identified within the search area. These include a designation at Parish level for the stream which bisects the Site.

The WBRC desk search indicates 14 EcoSites within 3 km of the centre of the Site, the closest being the disused railway line beyond the A5 to the west, which is a continuation of that which bisects the Site north- east – south-west.

None of the non-statutory designated sites are designated for, or known to support, water voles or otter.

No records of water vole or otter were supplied by the LRERC or WBRC.

The full results of the LRERC and WBRC data search are available to the Client upon request.

4.2 Previous Survey Results

Due to the presence of suitable habitat and burrow entrances recorded on the banks of Mere Lane Lagoon (Pond 3) during the September 2014 Extended Phase 1 Habitat Survey, it was recommended that water vole surveys should be undertaken at the Site to determine the presence or likely absence of this species, whilst the Lagoon was noted to support foraging opportunities for otters at the Site, and an old spraint was recorded on the northern Site boundary on Drain 5.

4.3 Water Vole Survey

4.3.1 Drain 1

An approximately 480 m length of Drain 1 was assessed (Figure 4). The field drain was situated towards the south of the Site. The drain had shallow sided earth banks to a height of 1 -2 m. The ditch was approximately 1 - 2 m wide and a varied water depth to a maximum of 10 cm, with an earth bottom. There was no aquatic or marginal vegetation. The bankside vegetation comprised short grasses and herb species that at the time of the survey in April 2015, were growing up through last year's dead vegetation, which overshadowed the waterbody. Arable land surrounded the ditch, and comprised a spring cereal crop, with woodland to the south of the drain. The drain was assessed as being poor water vole habitat due to the water depth, overshadowing and limited marginal and submerged vegetation (Photograph 1).

4.3.2 Drain 2

The second length of ditch, located east of Ditch 1 was approximately 350 m long and supported standing water. The drain was steep sided in places with a profile of over 45°, whilst other sections were approximately 1 – 2 m in height and under 45°. The drain was approximately 1 – 2 m in width with a maximum depth > 2 m with a silt and pebble bottom. The bankside vegetation was dominated by short grasses and bushes with occasional bankside trees, herbs and tall grasses, all of which overshadowed sections of the watercourse. There was no aquatic vegetation present at the time of the survey. It was assessed as being unsuitable to support water vole (Photograph 2).

4.3.3 Drain 3

Drain 3 (Figure 4) was completely dry at the time of the survey and therefore, assessed as not suitable for water voles (Photograph 3). At the time of the Extended Phase 1 Habitat Survey in September 2014 it had held water, however, it appeared to have been dry over the winter.

4.3.4 Drain 4

This drain was a slow running field drain which was bordered by hawthorn hedgerow and trees along the northern bank, which overshadowed it. The drain was approximately 270 m in length and had shallow sided earth banks to a height of 1-2 m with a profile of under

45°. The ditch was approximately 1 - 2 m wide and a maximum water depth of 20 cm, with a silt bottom. No aquatic or marginal vegetation was recorded. The bankside vegetation was dominated by nettles and bramble scrub with arable land surrounding it. There was limited water flow and some sections of the ditch were dry, it was, therefore, assessed as being unsuitable for water vole (Photograph 4).

4.3.5 Drain 5

Drain 5 was a long section of drain running from the centre of the Site's northern boundary southwards and splitting into two watercourses that head west and south-east at the southern extent of the dismantled Midland Counties railway embankment. The drain was extremely overgrown with tall ruderals and bramble scrub, whilst overhanging trees were present at the time of the survey (Photograph 5). There were arable fields, woodland and scrub situated on the banksides. The drain was steep sided in places with a profile of over 45°, although some lengths of the banks were under 45°. The banks were approximately 1 – 2 m in height. The drain was approximately 1 – 3 m in width with a maximum depth > 1 m with a silt and pebble bottom. The bankside vegetation was dominated by tall grasses, ruderals, bramble scrub, and bankside trees. There was no aquatic vegetation, with only occasional patches of marginal vegetation noted, since the overhanging trees and other vegetation would have shaded it out. The drain was, therefore, assessed as unsuitable for water voles.

4.3.6 Drain 6

Drain 6 situated to the north-west of the Site were not surveyed due a low water level at the time of the survey. From the status of the bankside vegetation, the water level appeared to have been low over the winter months as well.

4.3.7 Drain 7

Drain 7 was situated to the north of Drain 6, on the opposite field boundary. This drain was assessed as being unsuitable for water vole due to a low water level at the time of the survey.

4.3.8 Drain 8

Drain 8 was situated to the north of the Site, in close proximity to Drain 5. This was a section of drain situated on a grassland field boundary. This drain was assessed as being unsuitable for water vole due to a low water level at the time of the survey.

4.3.9 Mere Lane Lagoon (Pond 3)

Pond 3 was situated towards the eastern corner of the Site at OS grid reference SP 5104 8589. This large open waterbody measured approximately 7800 m² and featured open water and dense marginal vegetation (Photograph 6). Water quality was assessed to be moderate at the time of the survey and the pond supported occasional submerged and emergent vegetation. The earth banks were shallow sided with a profile of <45°. It appeared to be deep in the centre, however, the water depth appeared to increase gradually. Arable land extends to the north and west of the pond.

The Lagoon offers suitable banks for burrowing, foraging habitat within immediate vicinity to the banks with widespread cover, and water of an adequate depth to provide cover from predators for water voles. However, whilst the burrows found during the Extended Phase 1 survey were still present mostly above the water line around the Lagoon, no evidence to indicate the presence of water vole was found and, given the lack of accessibility for water vole to the Lagoon from off- or on-Site drains, they are considered to be brown rat *Rattus norvegicus*. Their locations in proximity to waterfowl feeders on the banksides support this, although no prints could be identified due to the extent of footfall by waterfowl within the area.

4.4 Otter Survey

Evidence of otters was found on Drain 5 at the time of the survey. An old otter spraint was found situated on a concrete plinth under the A5 culvert on the western boundary of the Site. A second older spraint was found on this watercourse at the northern boundary of the Site. This indicates that whilst it may not have been used in recent months, commuting otter have previously utilised Drain 5. Given that otters can have territories of up to 15-20 km, depending on habitat quality, food availability and holt sites available, the Site may be within a territory of an otter.

Whilst there were limited opportunities for shelter within the root structures or trunk cavities along some of the other drains, there was also a lack of dense scrub to provide shelter within close proximity to it, and across the wider Site. In addition, the drains surveyed offered limited foraging opportunities, with no fish present. Furthermore, none of the drains supported waterfowl, which are taken on occasion by otters. Drain 2 could provide a

commuting corridor for otter through the Site as it connects to watercourses in the wider area, which may offer better foraging and sheltering opportunities than those on-Site.

Mere Lane Lagoon (Pond 3) did offer adequate ideal foraging in the form of fish, waterfowl and common frogs *Rana temporaria*. However, given that the pond is regularly visited by dog walkers, it is unlikely that any suitable cover either in proximity to or within the wider area on-Site would be used as resting places or holts, and not as breeding sites as females will not tolerate any disturbance in the area they rear the young cubs. Any potential use of the waterbody, therefore, is likely to be by otters commuting to more suitable foraging or breeding habitat.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The Site is characterised by predominantly arable fields, with occasional poor semi-improved grassland fields, bounded by hedgerows and drainage ditches. Several sections of broadleaved plantation woodland are situated within the eastern and central areas of the Site, and there are four ponds at the Site supporting water year-round.

The results of the MAGIC data search and the LRERC and WBRC desk search indicate that there are no statutory, or non-statutory, designated sites within a 3 km radius of the Site centre, which support otter or water vole as a reason for their designation. Neither the LRERC nor the WBRC returned recent records for water vole or otter within 3 km of the Site centre.

No evidence of water vole was found along the banks of any of the drains or at Pond 3 at the time of the survey. All of the drains at the Site supported a combination of the following characteristics including overshadowing from overhanging trees, scrub and ruderals, low water levels or seasonal drying, a lack of aquatic, marginal and bankside vegetation to provide cover, and a lack of suitable foraging habitat, which made them unsuitable to support water voles. Whilst Pond 3 supports suitable habitat for water voles, this species if present off-Site in the local area cannot access it as there is no connectivity along watercourses to it.

Overall, therefore, none of the on-Site drains are considered suitable habitat for water vole, whilst this species, if present off-Site, cannot access Pond 3.

There was evidence of otter in two locations on Drain 5, an old spraint was found in the culvert under the A5 on the western Site boundary, and a second old spraint was found on the northern Site boundary. There was no evidence of otter along any of the other drains. The majority of the drains did not offer foraging opportunities, and only limited shelter was present. Pond 3 offered foraging opportunities in the form of fish, waterfowl and amphibians but the disturbance level is anticipated to be high due to the pond being frequented by dog walkers regularly. Furthermore, there is no large dense scrub patch or other places of refuge for otter to shelter on-Site.

From the current proposed development plan (Figure 3) it is anticipated that the majority of the drains and Pond 3 will be unaffected by the proposed works. Habitat loss and modification of Drains 1, 6 and 7 may be necessary to facilitate the proposed works. It is understood some of the drains will be incorporated into the overall layout design. Any retained drains would potentially be at a greater risk from pollution and disturbance, and measures would need to be implemented to ensure that they are not at risk from pollution incidents and that operational works would not encroach upon them in the future. Overall the proposed development is anticipated to have no impact upon water voles, and at most a minor adverse impact that is non-significant on otter due to the potential loss of connectivity across the Site.

5.2 Recommendations

As a precaution, it is recommended that immediately prior to the commencement of construction works at the Site, the drains and Pond 3 are re-surveyed to ensure that if the Site is found to be within an otter's territory, an appropriate mitigation strategy can be prepared to ensure that this species is not disturbed during the works.

Recommendation 2: (Construction Phase)

It is recommended that where the drains have to be culverted, in particular Drains 1 and 2, certain principles are followed to help limit any impact upon otters, and to retain potential commuting corridors at the Site (adapted from Strachan & Moorhouse, 2011):

- △ Where possible, large box culverts should be used to allow maximum light to pass through and allow more headroom above the water;
- △ Culverts with a minimum diameter of 2 m would be appropriate;
- △ The length of culverts should be kept to a minimum (no more than 18 metres); and
- △ Mammal Ledges should be provided within the culverts.

Recommendation 3 (Pollution Prevention)

Contractors should adhere to the recommendations outlined in Pollution Prevention Guideline 5 (PPG 5): Works in, near or liable to affect watercourses (Environment Agency n.d.) to minimise the risk of pollution events to the adjacent water course during construction.

6.0 LIMITATIONS OF SURVEY

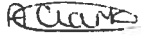
At the time of the Site inspection Delta-Simons was not able to access sections of Drain 5 due to the amount of dense vegetation on the banks, therefore, sections of this drain were not assessed during the survey. Given it was considered unsuitable to support water vole, and to not provide adequate shelter to be used as a resting place or holt by otters, this is not considered to be a sufficient constraint.

The behaviour of animals can be unpredictable and may not conform to characteristics recorded in current scientific literature. This Report therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 4 of this Report, exercising the duty of care required of an experienced Ecology Consultant. Delta-Simons does not warranty or guarantee that the Site is free of water voles or other protected species.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

This Report was prepared by:



Alexandrea Clark
Graduate Ecologist

16/09/15
Date

This Report was reviewed by:



Jonathan Spencer
Senior Ecologist

16/09/15
Date

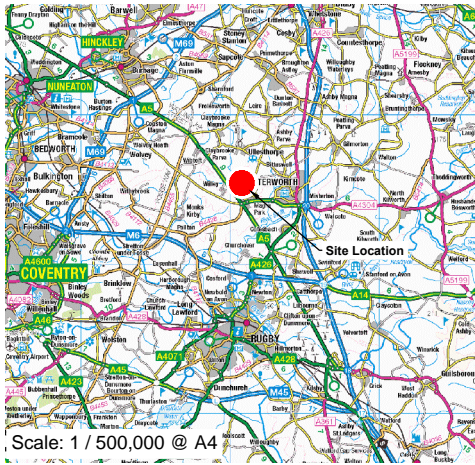
This Report was authorised by:




Charlotte Sanderson
Ecology Unit Manager

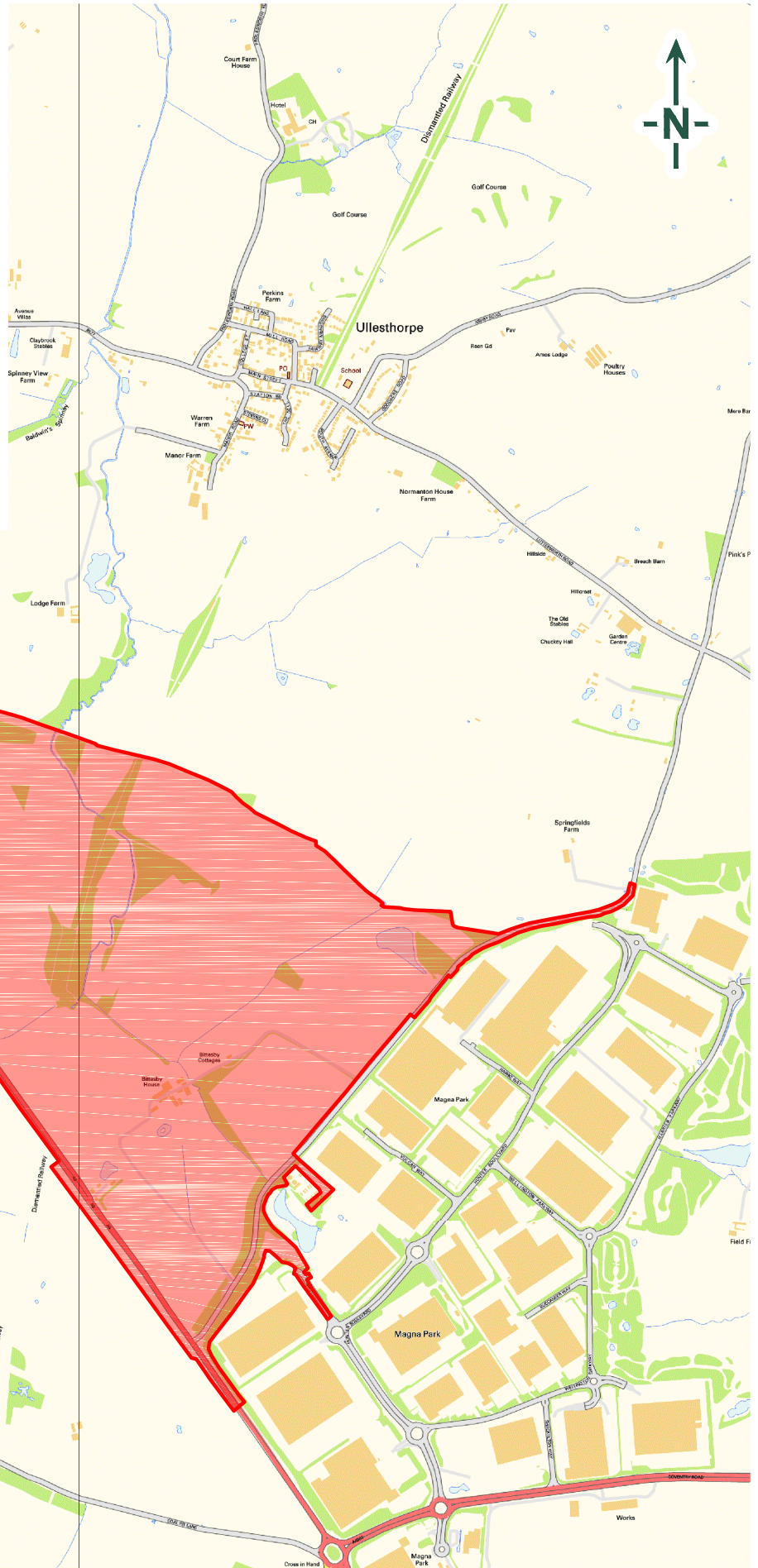
16/09/15
Date





LEGEND

 Site Boundary



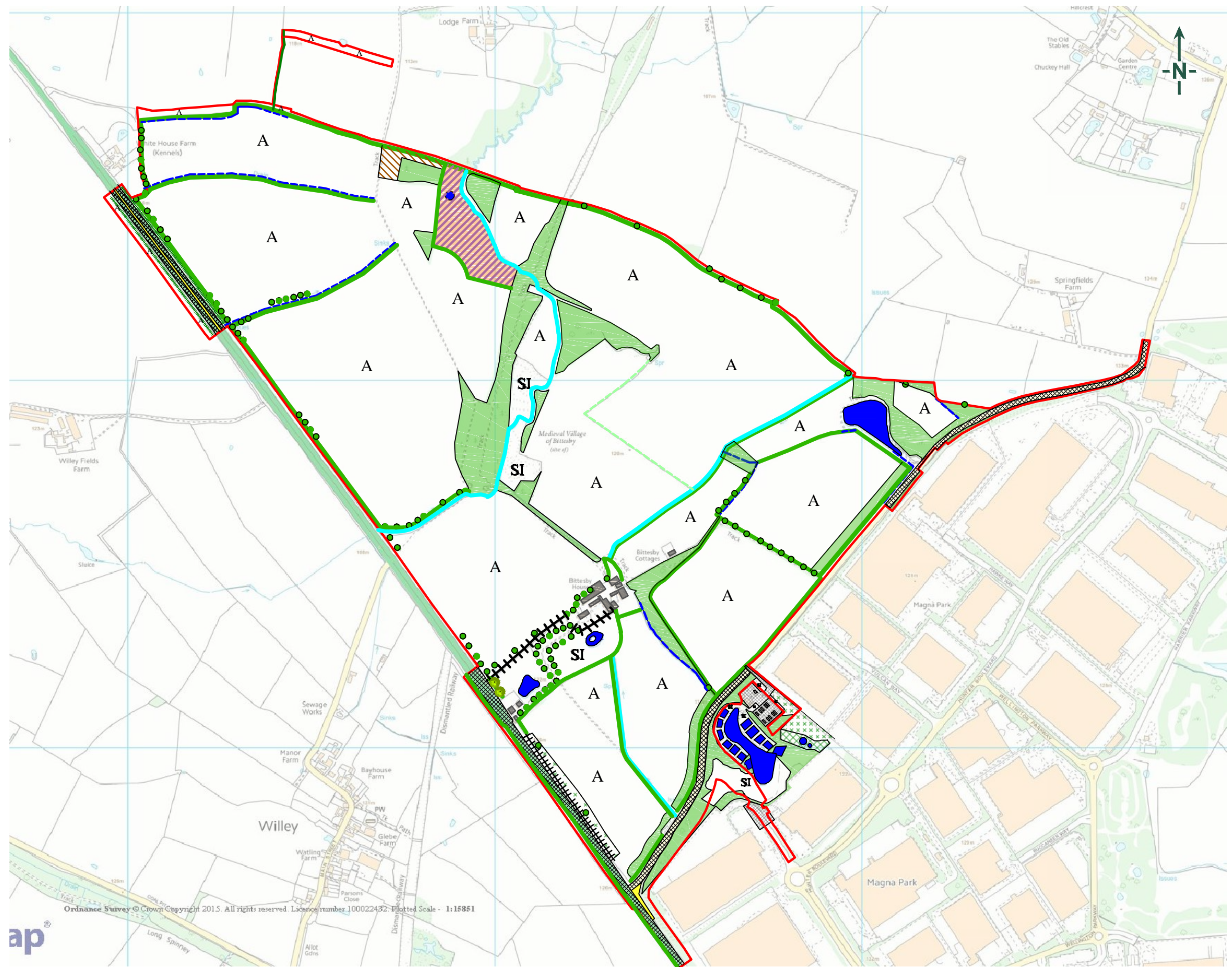
Ordnance Survey, (c) Crown Copyright 2014. All rights reserved.



TITLE:
Site Location Plan
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN: DP
 SCA: To Scale @ A4
 CHK: JS
 REV: 1
 DATE: 14 September 2015

PROJECT NO.:
14-0159.08
 FIGURE NO.:
1



LEGEND

	Site Boundary
	Broadleaved Plantation Woodland (A1.1.2)
	Scattered Broadleaved Trees (A3.1)
	Scattered Coniferous Trees (A3.2)
	Marsh Grassland (B5)
	Poor Semi Improved Grassland (B6)
	Tall Ruderal (C3.1)
	Standing Water (G1)
	Running Water (G2)
	Arable (J1.1)
	Amenity Grassland (J1.2)
	Intact Hedgerow - Species Poor (J2.1.2)
	Defunct Hedgerow - Species Poor (J2.2.2)
	Fence (J2.4)
	Dry Ditch (J2.6)
	Scattered Scrub (A2.2)
	Species Poor Hedgerow with Trees (J2.3.2)
	Dense Scrub (A2.1)
	Buildings (J3.6)
	Hard Standing (J4.1)

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TITLE:
Site Layout Plan
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.08
CHK: JS	REV: 1	FIGURE NO.: 2
DATE: 14 September 2015		



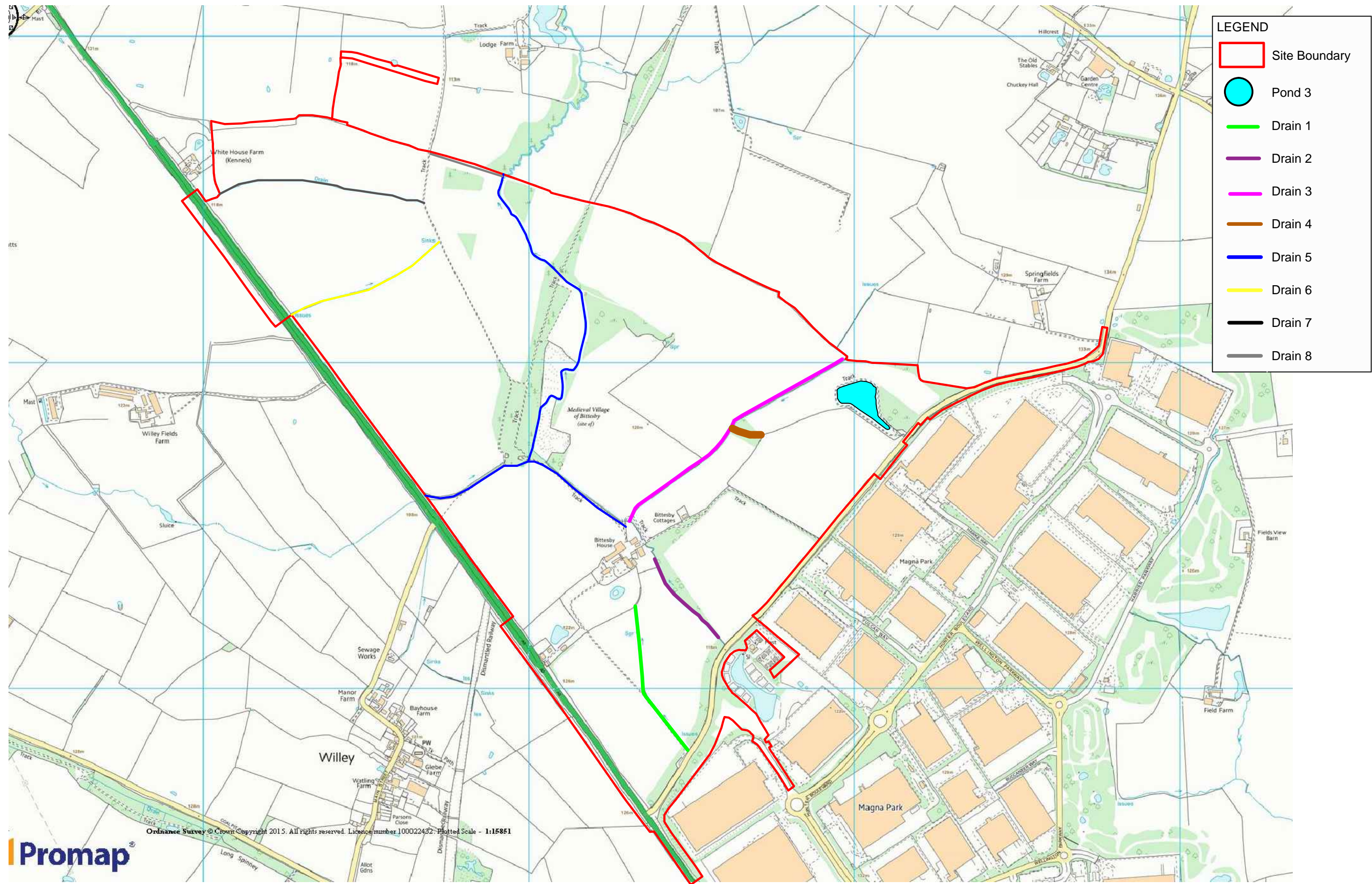
- GENERAL NOTES:
1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERING AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
 3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
 4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERRED TO THE CLIENT IMMEDIATELY.
 5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 6. ALL LEVELS IN METRES.
 7. DO NOT SCALE OFF THIS DRAWING.
 8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
 9. THE CONTENT OF THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST PROJECT GOMR REGISTER.

NO	14/09/2015	FOR COMMENT	1/18	DN
REV	Date	Description	Rev	Drawn/Chk
 grant associates Landscape Architecture, Urban Design, Creative Ecology 21 Mill Street, Bath BA1 1UT T: +44 (0) 1225 323864 F: +44 (0) 1225 428184 E: info@grant-associates.co.uk				
CLIENT IDI Gazeley				
PROJECT Magna Park Extension OPA				
TITLE Illustrative Masterplan				
Author	Drawn	Check	Rev	Comment
14/09/2015	JS	10/09/2015	1/18	DN
FOR COMMENT				
Project No.	Rev			
MPL14to-AL-A01-MP-Q-001	00			



TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Planning Application
 Lutterworth

DWN:	DP	SCA:	Not to Scale	PROJECT NO.:	14-0159.08
CHK:	JS	REV:	1	FIGURE NO.:	3
DATE:	14 September 2015				





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Lenton, E.J., Chanin, R.R.F., and Jefferies, D.J. (1980). Otter survey of England 1977-1979. Nature Conservation Council, London.



**Magna Park Extension: Hybrid Application, Zone 1
Delta-Simons Project No. 14-0159.08**



Photograph 1 – Drain 1



Photograph 2 – Drain 2

**Magna Park Extension: Hybrid Application, Zone 1
Delta-Simons Project No. 14-0159.08**



Photograph 3 – Drain 3



Photograph 4 – Drain 4

**Magna Park Extension: Hybrid Application, Zone 1
Delta-Simons Project No. 14-0159.08**



Photograph 5 – A section of Drain 5 along the woodland edge



Photograph 6 – Mere Lane Lagoon (Pond 3)



Appendix I-10: Breeding Bird Survey

**Magna Park Extension: Hybrid Application, Zone
1**

For IDI Gazeley

Delta Simons Project No. 14-0159.09

Issued: September 2015

EXECUTIVE SUMMARY
APPENDIX I-10: BREEDING BIRD SURVEY
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
DELTA SIMONS PROJECT No. 14-0159.09

Purpose	Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley (the 'Client') to undertake Breeding Bird surveys of an area of land situated off Mere Lane to the north-west of Lutterworth in Leicestershire ('the Site'). The surveys were undertaken between March and May 2015 (inclusive). The surveys were undertaken in order to inform a planning application for the Site.
Current Site Status	The Site comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.
Proposed Development	An outline planning application will be submitted for up to 427,350 square metres (m ²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m ² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m ² , an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m ² , Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m ² , and an Innovation Centre of up to 2,325 m ² . The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.
Results	Fifty-six species of birds were recorded on-Site during the breeding bird surveys. Two Schedule 1 species listed on the Wildlife and Countryside Act (WCA, 1981 as amended), were identified, along with 12 species on the Red List of Birds of Conservation Concern (BoCC), and 15 Amber list BoCC. The majority of bird activity was located within the woodland blocks, boundary hedgerows and field margins. Overall the breeding bird assemblage recorded during the surveys is considered to be of Site value due to its relatively low diversity and numbers of birds, and the fact that the Site is likely to be used in combination with other surrounding similar habitats.

<p>Ecological Considerations and Recommendations</p>	<p>The wetland areas, woodland blocks, field margins and hedgerows were identified as supporting the greatest range of bird species and numbers on-Site. No significant populations of breeding birds have been recorded on-Site. Most species recorded are both commonly occurring locally, and widespread within the county. The breeding bird assemblage is considered to be of no greater than local nature conservation value, with emphasis on those species associated with wetland areas, woodland, hedgerows and field margins, rather than those of open arable fields.</p> <p>The proposed retention of wetland areas, field boundary hedgerows, where possible, and the planting of further hedgerows and trees as shown within the landscaping plans for the Site, will help the Site become more favourable to some bird species once habitats have matured. The loss of open arable field habitats will lead to minor negative impacts upon those typical farmland bird species that were recorded infrequently during the survey visits. Through the addition of wetland habitat to the north-east and central areas of the Site, and the inclusion of alder woodland and species-rich grassland within the landscaping proposals, the Site has the potential to support further breeding bird species of conservation concern.</p>
<p>This Breeding Bird Survey Report Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This Executive Summary should be read in conjunction with the full Report.</p>	

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APPENDIX 1-10: BREEDING BIRD SURVEY
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
DELTA SIMONS PROJECT No. 14-0159.09

1.0 INTRODUCTION

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley ('the Client') to undertake Breeding Bird Surveys of land off Mere Lane to the west of Lutterworth in Leicestershire (hereafter referred to as the "Site"). This follows the recommendations of the Extended Phase 1 Habitat Survey undertaken in September 2014 (Delta-Simons August 2015, 14-0159.02). The survey was undertaken in order to inform a planning application for the Site. The Site Location is shown in Figure 1.

The aim of the breeding bird surveys was to:

- △ Identify the presence and distribution of breeding birds on the Site;
- △ Evaluate the importance of local bird populations and their habitat requirements;
- △ Evaluate the conservation importance of the Site; and
- △ To identify areas of ornithological interest and make recommendations to minimise the potential impact of development and where feasible to consider opportunities for additional habitat creation.

1.2 Site Description

Zone 1, is an approximately 220 ha triangular parcel of predominantly agricultural land to the north and north-west of Magna Park, Lutterworth. Zone 1 is linked to and extends Magna Park. Its boundaries are created by the A5 to the south and west, Mere Lane to the east and the ridgeline hedgerows that follow the parish boundary to the north.

It comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House.

To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.

The Site layout is shown in Figure 2.

1.3 Proposed Development

An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m², Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

The proposed development plan is included as Figure 3.

2.0 LEGISLATION

2.1 Birds

All wild birds are protected under Section 1 of the Wildlife and Countryside Act (WCA) 1981 (as amended). Subsection 1(1) makes it an offence to intentionally kill, injure, or take any wild bird, take, damage or destroy the nest of any such bird whilst it is in use or being built; or take or destroy an egg of any such wild bird. It is, further, an offence to either intentionally, or recklessly, disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird. The law covers all species of wild birds including common, pest or opportunistic species.

2.1.1 Status

In addition to statutory protection, some bird species are classified according to their conservation status, such as their inclusion on the Red and Amber lists of Birds of Conservation Concern (BoCC) in the UK (Eaton *et al.*, 2009):

- △ Red List (high conservation concern) species are those that are globally threatened according to IUCN criteria; those whose population has declined rapidly (50% or more) in recent years; and those that have declined historically and not shown a substantial recent recovery;
- △ Amber List (medium conservation concern) species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately (between 25% and 49%) in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations; and
- △ Green List (low conservation concern) species fulfil none of the above criteria.

2.2 Planning

With reference to the National Planning Policy Framework (NPPF), the Office of the Deputy Prime Minister Circular (2005) advises that ecological surveys are undertaken before planning permission is determined. The circular states “*The need to ensure that ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances*” (see References, Appendix 1).

3.0 NOMENCLATURE

3.1 Fauna and Flora

The common name only of flora and fauna species is given in the main text of this report, however, Latin names are used for species where no common name is available. A full list of all species recorded on Site during the surveys is given in Appendix II with their Latin names. All common birds names follow the nomenclature of Dudley et al (2006).

4.0 METHODOLOGY

4.1 Data Search

A data search was undertaken by both the Leicestershire and Rutland Environmental Records Centre (LRERC) and the Warwickshire Biological Records Centre (WBRC) to identify statutory and non-statutory sites and protected and notable species of birds within a 3 km radius of the centre of the Site. In addition, a search for designated sites for nature conservation on, or within 3 km of, the Site was performed using the Multi-Agency Geographic Information for the Countryside (MAGIC).

4.2 Breeding Bird Surveys

4.2.1 Breeding Bird Survey Methodology

The survey methodology employed was broadly based on that of territory mapping as used for the British Trust for Ornithology (BTO) Common Bird Census (CBC). Standard BTO species codes and symbols for bird activities were used to identify birds and denote activity, sex and age, where appropriate. The criteria used in the assessment of breeding birds has been adapted from the standard criteria proposed by the European Ornithological Atlas Committee (EOAC, 1979) and are grouped into three categories: Possible breeder (e.g.: birds observed in suitable habitat or singing male recorded), probable breeder (e.g.: pair in suitable habitat; territory defended; agitated behaviour or nest building), and confirmed breeder (e.g.: recently fledged young observed; adult birds carrying food for young). Birds that were considered to be not using the Site for breeding were categorised as 'non breeders' (e.g.: flying over the Site; migrant; in unsuitable habitat).

Eight visits were made to the Site during the breeding season to record and map all birds seen or heard, using CBC species codes and activity symbols (Marchant, 1983). The survey route and direction walked were also recorded on the field map to aid analysis. In addition to the eight mapping surveys, birds seen or heard during the course of the other ecology surveys on-Site between March and June 2015 are also included on the bird species list in Appendix II. All birds seen and heard on, and immediately adjacent to, the Site were recorded. An assessment was made for the potential of the habitats on-Site to support breeding birds listed on Schedule 1 of the WCA (1981, as amended).

All surveys were carried out between 06.20 and 10.30 hours by Peter Morrell, experienced Ornithologist.

4.3 Species and Assemblage

The conservation value of bird populations has been measured using two separate approaches; nature conservation value and conservation status. The CIEEM guidance on ecological impact assessment assesses nature conservation value within a geographical context. To attain each level of value, an ornithological resource or one of the features (species population or assemblage of species) should meet the criteria set out in Table 1 below. In some cases, professional judgement may be required to increase or decrease the allocation of specific value, based upon local knowledge.

The most recent county annual bird report, The Leicestershire and Rutland Bird Report (2010), as published by the Leicestershire and Rutland Ornithological Society, was consulted to inform the assessment. However, no measure of abundance which informs the county status is given in their Bird Report.

Table 1. Evaluation Criteria

Level of Ecological Value	Examples of Criteria
International	<ul style="list-style-type: none"> △ An internationally designated site or candidate site (SPA, pSPA, Ramsar site) △ A sustainable population of an internationally important species △ Sites supporting a breeding population of internationally important species or supplying a critical element of their habitat requirements
National	<ul style="list-style-type: none"> △ A nationally designated site (SSSI, ASSI, NNR, MNR) or a discrete area that meets the selection criteria for national designation (e.g. SSSI selection guidelines) △ A sustainable population of a nationally important species or a site supporting such a species, i.e. a species listed on Schedules 1 of the W&CA (as amended), which is a UK Red-listed Bird of Conservation Concern (BoCC) that is not listed as being of unfavourable conservation status in Europe, of uncertain conservation status or of global concern in the UK BAP
Regional	<ul style="list-style-type: none"> △ A sustainable population of a species listed as being nationally scarce, or in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation. Sites supporting a breeding population of such a species or supplying a critical element of their habitat requirements △ Sites, which exceed the County-level designations but fall short of national selection guidelines, where these occur
County/ Metropolitan	<ul style="list-style-type: none"> △ County/ Metropolitan sites and other sites which meet the ecological selection criteria for designation △ A sustainable population of a species that is listed in a county/ metropolitan 'red data book' or LBAP on account of its regional rarity or localisation. Also sites supplying a critical element of their habitat requirements
District	<ul style="list-style-type: none"> △ A population of a species that is listed in a district/borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation. Also sites supporting a breeding population of such a species or supplying a critical element of their requirements
Local	<ul style="list-style-type: none"> △ A good assemblage of species, which may include low numbers of Amber or Red-listed BoCC
Site Negligible	<ul style="list-style-type: none"> △ Low numbers of common species of Green-listed BoCC △ Low numbers or infrequent use by Amber or Red-listed BoCC △ Individual sighting of common species of Green-listed BoCC

5.0 RESULTS

5.1 Data Search

5.1.2 Birds

Both the LRERC and WBRC data searches revealed records of protected and notable bird species within 3 km of the centre of the Site, including barn owl *Tyto alba*, marsh harrier *Circus aeruginosus*, hen harrier *Circus cyaneus*, quail *Coturnix coturnix*, hobby *Falco Subbuteo*, fieldfare *Turdus pilaris*, brambling *Fringilla montifringilla* and red kite *Milvus milvus* which are all listed on Schedule 1 of the WCA 1981 (as amended).

5.2 Field Surveys

The weather conditions and timings of the survey visits are shown in Table 2, below. The surveys ran from mid-March 2015 until the end of June 2015, with two survey visits per month. The weather for all of the survey visits was suitable, with none of the following weather conditions encountered on any of the surveys: Fog, heavy rain or snow- which could have led to birds not being adequately recorded due to poor visibility.

Table 2 – Timings and Weather Conditions of Breeding Bird Surveys

Date	Timing	Weather
12.03.15	06:30 – 10.30 hrs	Wind F2 SSE, dry, overcast at first (8/8 -5/8 cloud cover) 7 – 12°C
25.03.15	06:20 – 10:20 hrs	Wind 2-3 NW, light rain at first, brightening later (8/8 Cloud cover) 3 – 9°C
08.04.15	06:30 – 10.30 hrs	Wind F1-2 E, dry, misty at first then sunny (3/8 – 1/8 cloud cover) 3 – 11°C
21.04.15	06:25 – 10.25 hrs	Wind F1 NE, dry, sunny (0/8 cloud cover) 2 -11 °C
07.05.15	06:20 – 10:20 hrs	Wind F1 SSW, dry, cloudy (6/8 cloud cover) 5 – 10°C
28.05.15	06:30 – 10.30 hrs	Wind F1 – 2 SE, dry, broken cloud (3/8 cloud cover) 6°C
16.06.15	06:30 – 10.30 hrs	Wind F1 S, dry, broken cloud (5/8 cloud cover) 12 – 18°C
30.06.15	06:20 – 10:20 hrs	Wind F1 -2 SSW, dry, sunny (0/8 cloud cover) 18 – 22°C

5.3 Survey Summary

A total of 56 bird species were recorded during the breeding bird surveys in 2015. Of the species observed, 27 either appear on the RSPB BoCC as declining (Red or Amber lists) and/ or are identified as priority species for nature conservation under S41 of the NERC Act. A full list of results can be found in Appendix II, and these are detailed in Table 3.

Of the 56 species recorded, five were confirmed as breeding: Mute swan, little grebe, coot, long-tailed tit and blue tit. A further 21 species were considered probable breeders, whilst the remaining 30 species were considered possible breeders or non-breeders.

Table 3 – NERC S.41 and BoCC Red/ Amber-Listed Bird Species Recorded during Breeding Bird Surveys 2015 and their Recent Status within Leicestershire

Species	Conservation Status	Breeding Status	Estimated Number of Territories on Site	Status in Leicestershire
Mallard	Amber List	Non-breeder	0	Common in winter and on passage, fairly common breeding
Tufted duck	Amber List	Non-breeder	0	Common in winter and on passage, uncommon breeding
Little grebe	Amber List	Bred	1	Uncommon to fairly common breeding
Kestrel	Amber List	Possible	0	Fairly common breeding resident
Stock dove	Amber List	Possible	0	Common resident breeding
Green woodpecker	Amber List	Possible	2	Fairly common breeding resident
Skylark	Red List NERC S.41	Probable	4	Common breeding, wintering and on passage
Swift	Amber List	Non-breeder	0	Common summer breeding visitor
Swallow	Amber List	Probable	2	Common summer breeding visitor
Meadow pipit	Amber List	Non-breeder	0	Common on passage, fairly common in winter, uncommon breeding
Yellow wagtail	Red List NERC S.41	Probable	1	Uncommon summer breeding visitor, fairly common on passage
Dunnock	Amber List NERC S.41	Probable	2	Abundant resident breeding
Wheatear	Amber List	Non-breeder	0	Uncommon on passage, very rare breeding
Fieldfare	Red List	Non-breeder	0	Common in winter, rare in summer
Song thrush	Red List NERC S.41	Probable	3	Common resident breeding
Redwing	Red List	Non-breeder	0	Common in winter
Willow tit	Red List NERC S.41	Possible	0	Common resident breeding
Whitethroat	Amber list	Probable	10	Common summer breeding visitor
Willow warbler	Amber List	Probable	5	Abundant breeding summer visitor
Starling	Red List NERC S.41	Possible	2	Abundant breeding, in winter and on passage
House sparrow	Red List NERC S.41	Non-breeder	0	Common resident breeding
Tree sparrow	Red List NERC S.41	Probable	2	Fairly common resident breeding

Linnet	Red List NERC S.41	Probable	6	Fairly common in winter, common breeding
Bullfinch	Amber List NERC S.41	Probable	2	Common resident breeding
Yellowhammer	Red List NERC S.41	Probable	12	Common resident breeding
Reed bunting	Amber List NERC S 41	Probable	2	Common resident breeding
Corn bunting	Red List NERC S.41	Possible	2	Common resident breeding

The main habitats on-Site of potential value to breeding birds included wetland, grassland field margins, arable farmland, hedgerows and trees. The following provides a summary of the breeding bird assemblage recorded within these different habitat types:

- △ Wetland habitats were present in the north-eastern extent of the Site and comprised predominantly open water and reed beds associated with Mere Lane Lagoon. The reed beds offered ideal nesting potential for warblers and waterfowl, while the open water provided foraging opportunities for coot, little grebe and mute swan, which were all observed with young during the surveys;
- △ Grassland field margins were present both around the edge of the Site, and also bisecting it, and given the varied structure, this habitat generally offered a good food source of both seeds and invertebrates for birds. A number of birds were recorded to be using this habitat, and foraging was available for invertebrate predators such as starling and song thrush;
- △ Arable habitat, depending on its management, can provide variable nesting opportunities for farmland birds which require in-field nesting habitat such as skylark, a species regularly recorded singing over the western field compartment that supported a cereal crop in spring 2015. It may also provide brood rearing habitat for gamebirds such as red-legged partridge. The homogenous nature of the arable fields on-Site and their wide margins increases their capacity to support invertebrates, which are an important source of food for raising chicks during the spring and summer months;
- △ Hedgerows are well established, and provide good connectivity both throughout the Site and to surrounding off-Site habitats. Their structural quality and species diversity contribute towards the range of foraging and nesting opportunities

- available. Bullfinch, dunnock and yellowhammer were recorded as probable breeders on-Site, and are strongly associated with this habitat; and
- △ Trees on Site provide suitable habitat for invertebrates, which are an important foraging resource for a variety of breeding birds. Cavities, present in some of the more mature specimens appeared to be used by starling for nesting. Male song thrush and yellowhammer were also recorded singing within their territories from mature trees along internal and boundary hedgerows.

6.0 ECOLOGICAL CONSIDERATIONS AND RECOMMENDATIONS

6.1 Ecological Considerations

Overall, the Site provides a limited number of habitat types which offer opportunities for breeding birds. The reed beds associated with Mere Lane Lagoon, hedgerows and trees, in particular, are considered to be the habitats of greatest value on-Site for breeding birds. The grassland field margins and arable habitat are considered to offer little value for breeding birds, which was reflected in the lack of registrations recorded here during the breeding season.

All species recorded on-Site were common or widespread within the county of Leicestershire and across the United Kingdom, with the exception of little grebe, yellow wagtail and wheatear that were present on Site in either single pairs or as individual birds. Of these species, yellow wagtail is a BoCC Red List species, and little grebe and wheatear BoCC Amber List species.

The Site supported a low number of notable bird species, including stock dove, bullfinch, dunnock, starling and yellowhammer, which were all considered as probably breeding on-Site. Other notable species were either only observed to fly over the Site, such as buzzard, or considered non-breeders as they were using the Site during feeding, such as house sparrow and mallard. Both of these species were recorded early in the breeding season.

No significant numbers, or flocks of notable species, were recorded during the surveys and the breeding bird assemblage on Site is recognised as being of no more than Site value.

6.2 Impact Assessment

The following section provides an evaluation of the survey results and an assessment of the potential impacts of the proposals. Recommendations are provided for mitigation and enhancement that take account of the likely ecological effects.

Without appropriate mitigation in place, the following potential impacts to the recorded breeding bird populations and assemblage may result from the proposals:

- △ Direct loss / change of breeding habitat; and

- △ Disturbance during construction and / or operation.

The design of the final development will provide both habitat compensation and enhancement for birds, including:

- △ Structural planting;
- △ Wetland creation;
- △ Additional grassland and wildflower meadows;
- △ Maintenance and enhancement of existing hedgerows;
- △ Maintenance and enhancement of existing mature trees; and
- △ Maintenance and enhancement of retained wildflower areas.

6.3 Habitat Loss/ Change

The potential impact of the loss or change of habitats on-Site upon breeding bird species arising from the development is based upon an understanding of each species' ecological requirements, the type of development, number of birds recorded on Site, their nature conservation status based on legislation and current guidance, their county status according to The Leicestershire Bird Report 2010 and professional judgement. The species recorded on Site which are arguably the most vulnerable to impacts from habitat loss / change are the thirteen notable species which appear on the BoCC Red list and/ or are listed as a NERC Priority Species that potentially breed on Site. The habitat requirements, species account, and nature conservation value of these species are summarised in Table 4 within Appendix III. Residual impacts arising from the proposed development in terms of habitat loss/ change have also been assessed against the development proposals set out in the Site layout and Green Infrastructure (GI) plans.

6.4 Disturbance Impacts

Construction operations have the potential to disturb birds using the Site for roosting, foraging, and breeding. Operations which could disturb breeding birds include noise and vibration from vegetation clearance works, initial ground preparation works and some construction activities such as piling, which are of low frequency but of high amplitude. Active, high level, infrequent disturbance causes most birds to be displaced for short periods (Treweek, 1999). During the breeding season, disturbance may lead to nest

desertion or the avoidance of the area, and reduce the suitability of retained nesting areas such as the hedgerows.

6.5 Mitigation

To avoid disturbance to breeding birds and to ensure legal compliance, vegetation will be removed prior to the bird-breeding season (March to August, inclusive). If this is not possible, vegetation will be checked prior to removal by an experienced ecologist. If active nests are found, vegetation will be left insitu and suitably buffered from works until all young have fledged. Specific advice will be provided by a suitably qualified ecologist prior to undertaking the clearance. This would be a statutory requirement due to the protection of all nesting birds and their nests under the WCA (1981, as amended).

Mitigation, recommended in Table 4 (Appendix III) is intended to reduce impacts on those species considered more vulnerable to development proposals, i.e. buffering of existing habitat, new planting, nest site provision, habitat creation and enhancement.

6.6 Recommended Enhancements

Any proposed habitat creation and management for the development is likely in the medium to long-term, as the functionality of the habitats become established, to provide suitable habitat for the majority of the breeding bird assemblage recorded on-Site.

The inclusion of additional woodland and shrub planting surrounding the proposed warehousing, as indicated on Figure 3, will add structural and species diversity, enhancing the Site for many of the woodland/ urban edge generalists recorded such as blackbird, chaffinch and robin. The provision of extension areas of wetland, grazing pasture and wildflower meadows will further increase the opportunities for additional bird species to be attracted to the Site during both the breeding season and over the winter period. As detailed in Table 4 (Appendix III), the proposed development is expected to have a positive residual impact upon dunnock, willow warbler and song thrush.

In addition to the recommendations for species outlined in Table 4, further enhancements will be integrated into the development proposals, including the erection of a mixture of nest box types. These boxes will either be sited on retained habitats or designed into the built environment (see Figure 3):

- △ A mixture of 30 small hole (26 mm and 32 mm) bird boxes placed throughout the Site on suitable trees and will provide nesting opportunities for blue tit and great tit. These boxes generally have a high uptake rate; and
- △ Small open fronted nest boxes (14) again should be placed throughout the Site especially on trees which support a climber such as ivy, which provides a degree of concealment. These boxes typically attract robin, blackbird and spotted flycatcher.

In combination these habitat creation and enhancement measures will make significant contributions to biodiversity in respect to birds, in accordance with the objectives of the NERC Act (2006) and the National Planning Policy Framework (NPPF).

7.0 CONCLUSION

The results of the breeding bird surveys show that the Site supports a species assemblage consisting in the most part of widespread, common and abundant species associated with farmland and woodland edge (trees, established hedgerow) habitats. No significant populations of any notable species were recorded. Given the presence of a number of NERC S41, and Red and Amber list BoCC species, the overall bird assemblage is considered to be of Site value.

The species assemblage is unlikely to change significantly in composition and diversity as a result of the proposed development since the majority of bird species recorded are known to be associated with hedgerow and woodland environments.

Loss of arable farmland is expected to have minor adverse impacts upon two farmland species recorded on-Site, namely yellowhammer and skylark, in the breeding season. However, arable farmland is an extremely abundant habitat locally, regionally and nationally, and in context, the Site is understood to be of insignificant value to these species.

It is understood that the majority of field boundary hedgerows will be retained and enhanced. In addition, habitat creation through the landscaping proposals, including areas of mixed native trees, shrub understorey and hedgerow planting, extensive wetland areas and species-rich grassland is likely to provide new opportunities for other notable species currently absent from the Site. It is, therefore, anticipated that the resultant bird assemblage that develops is likely to be at least equivalent in value to that recorded.

Although the majority of hedgerows throughout the Site were generally poor in structure and provided minimal cover and foraging opportunities, hedgerows within the north-eastern and western extents of the Site had been subject to less frequent management, and were of varying structure, providing more opportunities for nesting birds. Generalist species such as blue tit, great tit and blackbird were recorded here in greater frequency than elsewhere on Site. Additionally, these hedgerows provided an invertebrate food source for breeding birds.

8.0 LIMITATIONS OF SURVEY

8.1 Limitations

This report details birds recorded during the survey and anecdotal evidence of sightings. It does not detail any bird species that may appear at other times of the year and were, therefore, not evident at the time of survey visits. Some species that might use the Site on occasion, or be apparent at other times of year, or only in certain years, would not have been detected.

The surveys covered the main breeding bird season and the number of surveys was in-line with standard methods (generally two surveys per month), and, therefore, this level of survey was considered sufficient given the level of activity found, species recorded on Site, and the survey objectives.

This report provides a provisional ecological baseline for the Site with regards to breeding birds and should not be considered to be conclusive until detailed development plans have been confirmed.

The behaviour of animals can be unpredictable and may not conform to standard patterns recorded in current scientific literature. This report, therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or, that they will not occur in locations or habitats that appear unsuitable.

8.2 Disclaimer

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Ecology Consultant. Delta-Simons does not warrant or guarantee that the Site is free of Bats or other protected species.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1.0 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and

responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

This Report was prepared by:



Pete Morrell
Senior Ecologist

16/09/15

Date

This Report was reviewed and authorised by:

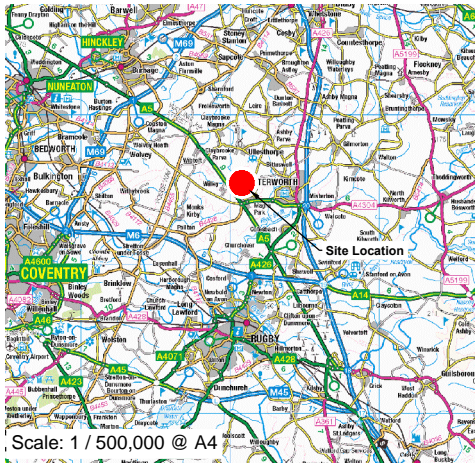


Charlotte Sanderson
Ecology Unit Manager


16/09/15

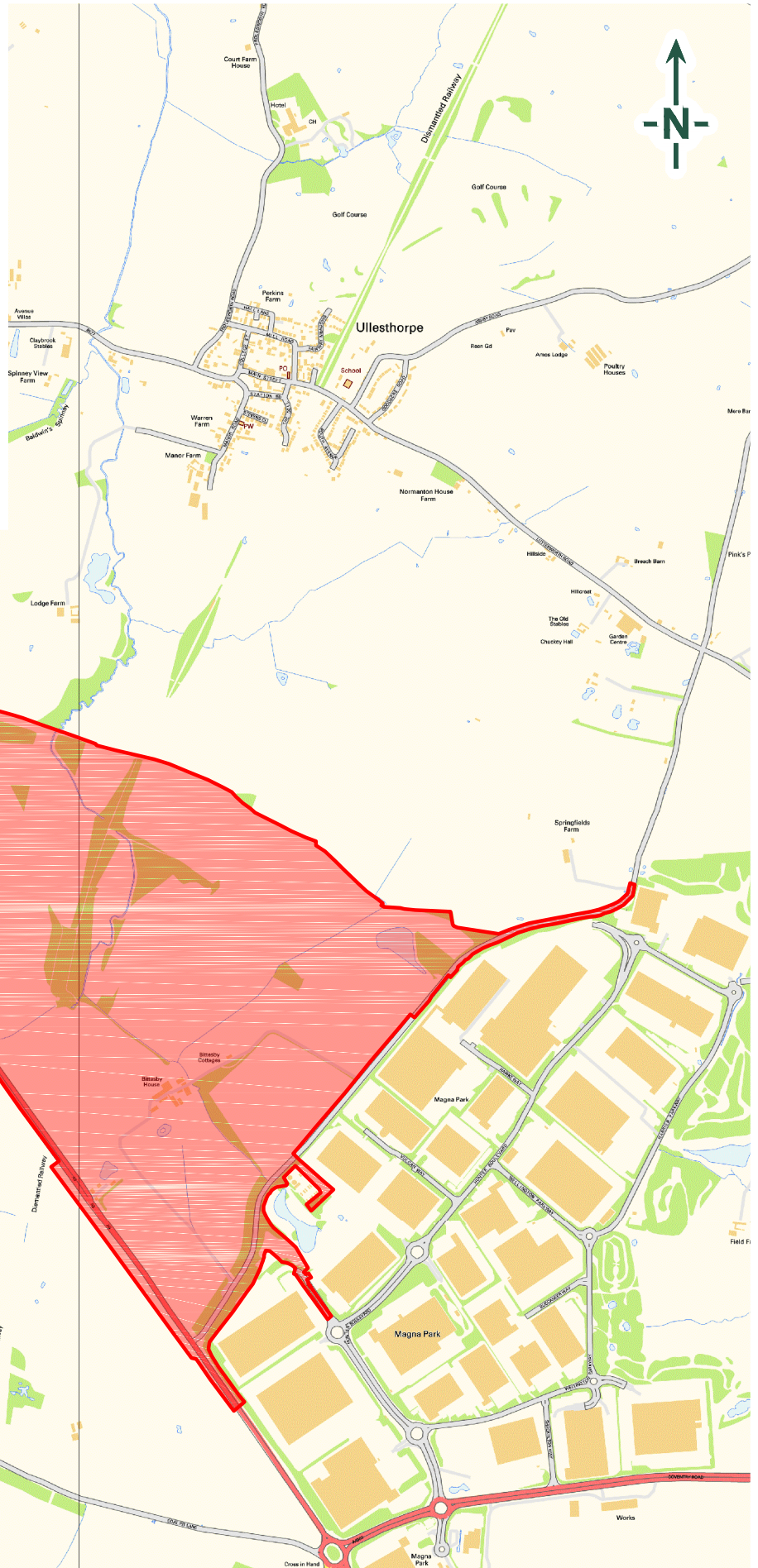
Date





LEGEND

 Site Boundary



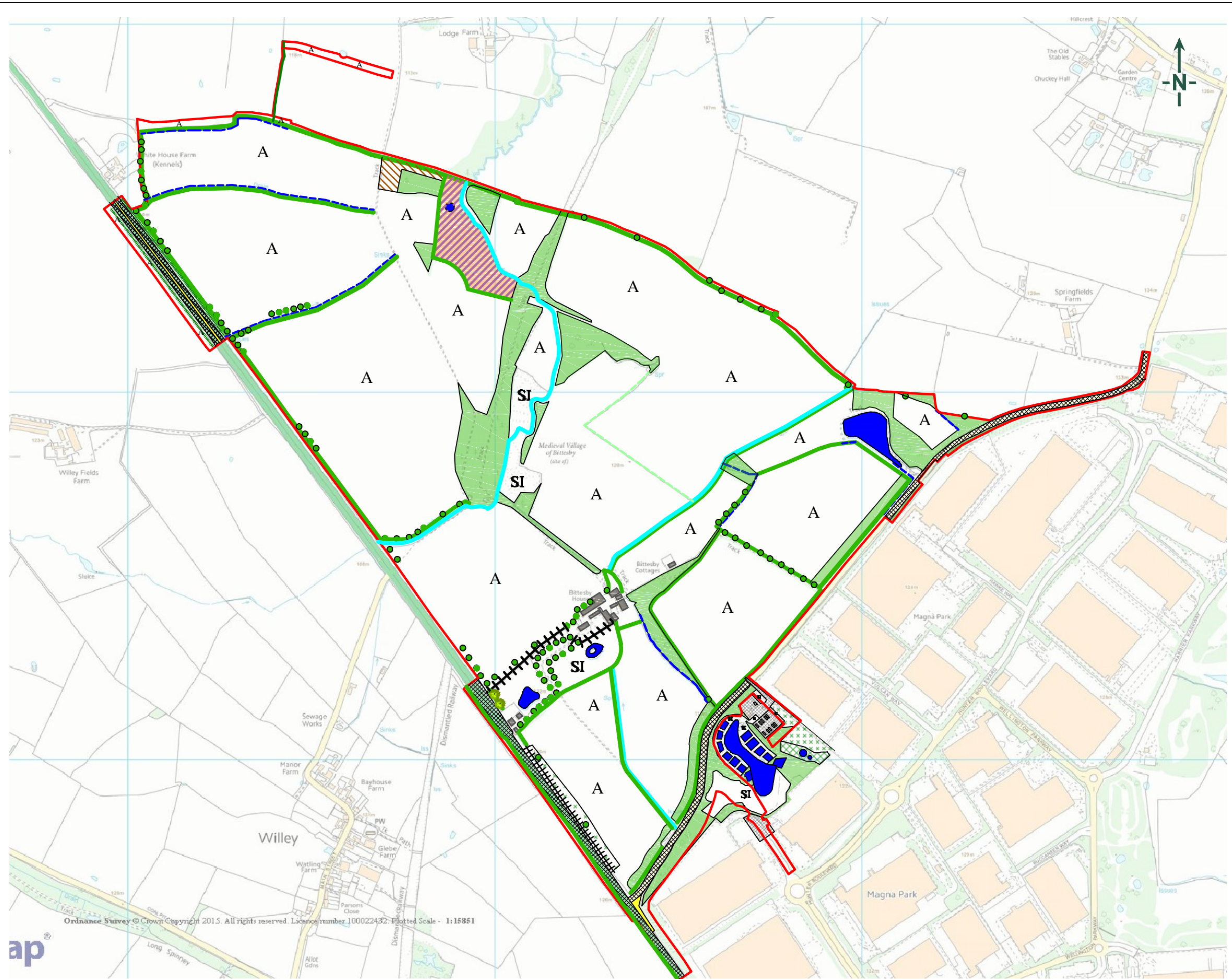
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TITLE:
Site Location Plan
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN: DP
 SCA: To Scale @ A4
 CHK: JS
 REV: 1
 DATE: 14 September 2015

PROJECT NO.:
14-0159.09
 FIGURE NO.:
1



LEGEND

- Site Boundary
- Broadleaved Plantation Woodland (A1.1.2)
- Scattered Broadleaved Trees (A3.1)
- Scattered Coniferous Trees (A3.2)
- Marsh Grassland (B5)
- SI Poor Semi Improved Grassland (B6)
- Tall Ruderal (C3.1)
- Standing Water (G1)
- Running Water (G2)
- A Arable (J1.1)
- Amenity Grassland (J1.2)
- Intact Hedgerow - Species Poor (J2.1.2)
- Defunct Hedgerow - Species Poor (J2.2.2)
- Fence (J2.4)
- Dry Ditch (J2.6)
- x x x x Scattered Scrub (A2.2)
- Species Poor Hedgerow with Trees (J2.3.2)
- Dense Scrub (A2.1)
- Buildings (J3.6)
- x x x x Hard Standing (J4.1)

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TITLE:
Site Layout Plan
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.09
CHK: JS	REV: 1	FIGURE NO.:
DATE: 01 September 2015		2



- GENERAL NOTES:
1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERING AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
 3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
 4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERRED TO THE CLIENT IMMEDIATELY.
 5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 6. ALL LEVELS IN METRES.
 7. DO NOT SCALE OFF THIS DRAWING.
 8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
 9. THE CONTENT OF THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST PROJECT GOMR REGISTER.



Zone 1

Zone 2

NO	14/09/2015	FOR COMMENT	1/18	DN
REV	Date	Description	Rev	Drawn/Chk
 Landscape Architecture, Urban Design, Creative Ecology 21 Mill Street, Bath BA1 1QT T: +44 (0) 1225 323664 F: +44 (0) 1225 428184 E: info@grant-associates.co.uk				
CLIENT IDI Gazeley				
PROJECT Magna Park Extension OPA				
TITLE Illustrative Masterplan				
Author	Drawn	Checked	Approved	Scale
14/09/2015	JS	JS	JS	DN
FOR COMMENT				
Project No.	Rev			
MLP410-AL-A01-MP-Q-001	00			



TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Planning Application
 Lutterworth

DWN:	DP	SCA:	Not to Scale	PROJECT NO.:	14-0159.09
CHK:	JS	REV:	1	FIGURE NO.:	3
DATE:	14 September 2015				





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APPENDIX II

RESULTS OF THE BREEDING BIRD SURVEY – BIRD SPECIES RECORDED AND ABUNDANCE

Species	Latin	Surve y1	Surve y2	Surve y3	Surve y4	Surve y5	Surve y6	Surve y7	Surve y8	Conservation Status (BoCC)	Breedin g status
Canada goose	<i>Branta canadensis</i>				2					Not listed	UH
Mute swan	<i>Cygnus olor</i>	2		2	2	2				Green list	NY
Mallard	<i>Anas platyrhynchos</i>	2			2	2				Amber list	U
Red-legged partridge	<i>Alectris rufa</i>	2	2					1	1	Not listed	H
Pheasant	<i>Phasianus colchicus</i>	1	2	1	1			1		Not listed	H
Little grebe	<i>Tachybaptus ruficollis</i>		1	1		2				Amber list	NY
Sparrowhawk	<i>Acciptier nisus</i>	1	1							Green list	H
Buzzard	<i>Buteo buteo</i>	3	2	2				3	2	Green list	F
Kestrel	<i>Falco tinnunculus</i>			2						Amber list	F
Coot	<i>Fulica atra</i>	11	6	6	8	15				Green list	NY, T
Stock dove	<i>Columba oenas</i>				4				1	Amber list	UH
Wood pigeon	<i>Columba palumbas</i>	4	41		7	6	7	2	5	Green list	H

Tawny owl	<i>Strix aluco</i>									Amber list	H
Great spotted woodpecker	<i>Dendrocopos major</i>									Green list	UH
Green woodpecker	<i>Picus viridis</i>	1	1	1	2	2	1		2	Amber list	UH
Skylark	<i>Alauda arvensis</i>	5	4	5	4	5	8	2	4	Red list NERC S 41	T
Swift	<i>Apus apus</i>									Amber list	F
Swallow	<i>Hirundo rustica</i>			1		1			4	Amber list	P
Meadow pipit	<i>Anthus pratensis</i>				1					Amber list	M
Yellow wagtail	<i>Motacilla flava</i>					2	1			Red list NERC S 41	P
Pied wagtail	<i>Motacilla alba</i>		1	1	2				1	Green list	H
Wren	<i>Troglodytes troglodytes</i>	12	7	18	24	19	17	16	17	Green list	T
Dunnock	<i>Prunella modularis</i>	3	4	1	1	3	1	1	1	Amber list NERC S 41	T
Robin	<i>Erithacus rubecula</i>	9	11	10	6	14	12	13	6	Green list	T
Wheatear	<i>Oenanthe oenanthe</i>			1						Amber list	M
Blackbird	<i>Turdus merula</i>	20	21	26	22	10	13	17	16	Green list	T
Fieldfare	<i>Turdus pilaris</i>	15								Red list NERC Schedule 1	M
Redwing	<i>Turdus iliacus</i>	12								Red list NERC Schedule 1	M

Song thrush	<i>Turdus philomelos</i>	3	5	2	2	4	3	1	2	Red list NERC S 41	T
Sedge warbler	<i>Acrocephalus schoenobaenus</i>					1				Green list	T
Reed warbler	<i>Acrocephalus scirpaceus</i>					2				Green list	T
Blackcap	<i>Sylvia atricapilla</i>				1		1	1		Green list	T
Garden warbler	<i>Sylvia borin</i>					1	2	1		Green list	S
Whitethroat	<i>Sylvia communis</i>				5	9	17	10	8	Amber list	T
Chiffchaff	<i>Phylloscopus collybita</i>		2	1	2	1		1	2	Green list	T
Willow warbler	<i>Phylloscopus trochilus</i>				1	7	7	3	3	Amber list	T
Long-tailed tit	<i>Aegithalos caudatus</i>	1	3		1				1	Green list	FF, T
Blue tit	<i>Cyanistes caeruleus</i>	6	7	5	7	5	4	6	3	Green list	FF, T
Great tit	<i>Parus major</i>	6		4	7	3		5	1	Green list	T
Willow tit	<i>Parus montanus</i>		1							Red list NERC S 41	H
Jay	<i>Garrulus glandarius</i>	1	1	2	1	4				Green list	UH
Magpie	<i>Pica pica</i>	8	6	3	7	2	6	12	4	Green list	UH
Jackdaw	<i>Corvus monedula</i>			8	2					Green list	UH
Rook	<i>Corvus frugilegus</i>				15					Green list	UH
Carrion crow	<i>Corvus corone</i>	9	17	7	11	9	11	2	3	Green list	UH
Starling	<i>Sturnus vulgaris</i>				2	3				Red list NERC S 41	UH

House sparrow	<i>Passer domesticus</i>	1	7							Red list NERC S 41	UH
Tree sparrow	<i>Passer montanus</i>		2	1	1	2	1	1	1	Red list NERC S 41	T
Chaffinch	<i>Fringilla coelebs</i>	32	3	11	22	10	17	11	6	Green list	T
Goldfinch	<i>Carduelis carduelis</i>		3		4			1	2	Green list	S
Siskin	<i>Carduelis spinus</i>	31	11							Green list	S
Linnet	<i>Carduelis cannabina</i>				7	11	8	11	7	Red list NERC S 41	P
Bullfinch	<i>Pyrrhula pyrrhula</i>	1	1	1	1	1				Amber list NERC S 41	P
Yellowhammer	<i>Emberiza citrinella</i>	54	22	8	12	6	12	12	12	Red list NERC S 41	P
Reed bunting	<i>Emberiza schoeniclus</i>	2	2	4				2		Amber list NERC S 41	T
Corn bunting	<i>Miliaria calandra</i>	3						1	2	Red list NERC S 41	H

Breeding Status evidence can be broken down into four sections, each with their own codes:

Confirmed breeder

- DD** – distraction display or injury feigning
- UN** – used nest or eggshells found from this season
- FL** – recently fledged young or downy young
- ON** – adults entering or leaving nest-site in circumstances indicating occupied nest
- FF** – adult carrying faecal sac or food for young
- NE** – nest containing eggs
- NY** – nest with young seen or heard

Probable breeder - Evidence accumulated during the survey indicates that the bird species is breeding on site.

- P** – pair in suitable nesting habitat
- T** – permanent territory (defended over at least 2 survey occasions)
- D** – courtship and display
- N** – visiting probable nest site

A – agitated behaviour

I – brood patch of incubating bird (from bird in hand)

B – nest building or excavating nest-hole

Possible breeder - Evidence accumulated during the survey indicates that the bird species could be breeding on site, but the evidence is less conclusive than that obtained for probable breeders.

H – observed in suitable nesting habitat

S – singing male

Non-breeder

F – flying over

M – migrant

U – summering non-breeder

UH – observed in unsuitable nesting habitat





Table 4: Evaluation of Species Considered Potentially Sensitive to Habitat Loss/ Change

Species	Habitat Requirements	Species Account	Nature Conservation Value ¹	Characterisation of Unmitigated Impact	Suggested Mitigation/ Compensation/ Enhancements/ Comments	Impact ²
Green woodpecker	Will inhabit a range of habitats including park land, orchards, groves, gardens, vineyards, heathland with scattered trees, hedgerow trees, open or broken broad leaved mixed forest with grassy fringes or clearings.	Recorded on each survey occasion to the east of the Site within plantations and along woodland edge habitat.	Site	Loss of potential nesting and foraging habitat through the loss of mature trees and grassland field margins within the site.	Retain both fallen and standing dead wood within woodland as potential nest and foraging habitats.	Negligible
Skylark	Ground nesting birds favouring open farmland habitats where short, grassy or sparse vegetation provides nesting cover and foraging opportunities. Plant and animal material taken at all times of the year, but insects especially important in summer, cereal grain and weed seeds in autumn, leaves and weed seeds in winter, and cereal grain in spring.	Single birds in May and June in middle of site in arable fields. Possible breeder.	Site	Complete loss of arable habitat within the Site which the species currently uses.	Skylarks will be lost from Site as a result of development. No opportunities exist within proposals to provide sufficient area, or type of habitat required by the species.	Negligible
Swift	Former nest-sites on crags, sea cliffs and in caves have been largely replaced by use of	Roughly 10 swifts were central area of the Site of survey area during an	Site	N/A	As mentioned surrounding feeding habitat exists, and the	Slight positive

	buildings. Apart from momentary contact with water in flight, all activity is aerial.	evening bat survey. These birds were likely to be attracted to the site by the adjacent sewage works and waterbody that are likely to be providing a good source of flying insects which this species will feed upon. No nesting habitat was available on Site.			proposal of water-bodies on Site should boost food availability further for local breeding populations. The erection of swift boxes would potentially provide nesting opportunities that weren't previously available on Site	
Yellow wagtail	Common summer visitor preferring damp meadows, edges of lakes and rivers.	Pair recorded at edge of lake	Site	Loss of potential foraging habitat through the loss of the arable landscape and grass field margins throughout the Site.	Through the retention of Mere Lane Lagoon to the north-eastern extent of the Site, and the inclusion alder carr, reedbed and wet meadow habitats within the landscaping proposals, the Site has the potential to support further yellow wagtails	Slight positive
Dunnock	Commonly favours a wide variety of scrub habitats. Has adapted to field hedgerows, farms, railway embankments, parks, gardens and vacant urban land. Feeds mainly on insects but small seeds are an important winter food.	Present throughout the Site in hedgerows. Breeding considered possible.	Site	Loss of hedgerow sections for road infrastructure which will remove some potential nesting and foraging habitat with some loss of connectivity.	The retention and maintenance of the existing hedgerows and the inclusion of further planting will benefit the species and provide a greater degree of suitable breeding and foraging habitat on site. The arable habitat which dominates the Site is of negligible value for dunnock. Open grassland proposed within the GI and residential gardens will provide further foraging and nesting opportunities.	Positive

Song thrush	Birds can exist anywhere where trees or bushes accompany open grassland or patches of dead leaves supporting ample invertebrates. Will readily take to hedgerows, railway embankments and small gardens.	Numbers of song thrush recorded remained relatively low during the survey occasions. Recorded on mature trees within hedgerows.	Site	Loss of hedgerow sections for road infrastructure which will remove some potential nesting and foraging habitat with some loss of connectivity. Loss of short grassland will result in a minor reduction in suitable foraging areas.	The retention and maintenance of existing trees and hedgerows along with the inclusion of further planting will provide enhancements to song thrush, providing further opportunities for nesting and foraging.	Positive
Willow warbler	Breeds in virtually all wooded habitats, they favour scrub and young woodland, including early coniferous and broadleaved plantation growth, coppice, alder and willow carr and heathland where birch trees are invading.	A single singing male was heard towards the south west corner of the Site on one occasion. Surrounding plantation woodland to the south-west of the Site boundary is likely to be of greater importance than those habitats present on Site.	Site	The majority of Site comprising arable, is of negligible value to the species.	Young tree plantations, edging scrub habitat and grassland will create breeding habitat. Waterbodies, ditches and the general combination of habitats that will continue to develop will improve food availability and diversity.	Slight positive
Whitethroat	Summer visitor. Widespread in Britain and Ireland although avoiding urban and mountainous areas. Most numerous in the south and east. Breeds in scrub, young plantation, along woodland edges, in glades with thick bushes, brambles, nettles or gorse and other places where there is tangled vegetation.	A moderate population of up to four individuals recorded on Site	Site	Increased anthropogenic disturbance near to hedgerows is likely to result in a decline of this species on Site. Retained scrub, woodland edge and hedgerows, and surrounding farmland. should continue to provide some breeding opportunity for this species.	Appropriate management of retained woodland edges, scrub and hedgerows should maintain some nesting and feeding habitat for this species on Site. Such management would also likely benefit yellowhammer, dunnock, linnet and other scrub dwelling species.	Slight negative
Tree sparrow	Sociable species in decline and less numerous than house sparrow. Forages on plant and insect material. Insects important during chick rearing and seeds	Tree sparrows were recorded on the western site boundary hedgerows foraging in dense scrub and	Site	Increased disturbance, loss of some hedgerow features will be detrimental for this species.	Retaining trees should be a priority as these provide potential nesting habitat. Erecting boxes on the eastern boundary with a 2.8cm diameter entrance hole and 20cm internal	Negligible

	comprise high proportion of adult diet. Breeding loosely colonial, with nests being made in tree holes, buildings and bases of large nests.	trees. Possible breeding species			box depth (RSPB2013) may increase nesting opportunities. Planting of seed bearing plants in the public open space would provide foraging habitat.	
Willow Tit	Favoured habitats include patches of elder, alder, and birch scrub and woodlands in damp, often riparian situations. In contrast to marsh tits, they will also nest in conifer plantations. Will excavate a new nest each breeding season. The nest often positioned less than a metre above the ground in a rotten stump, typically a birch	A single bird was heard calling form woodland on the northern boundary of the Site. This area of woodland is considered to provide optimal nesting habitat for willow tit as it supports a degree of rotten tree stumps in which willow tits will excavate nest sites. No evidence that breeding occurred within the Site boundary was recorded, however it is assumed that a breeding population exists within the wider area of the wet woodland to the north of the Site	Site	Habitats used by willow tits are not to be affected by development proposals.	Suitable nest boxes specially designed for willow tit containing wood shavings should be erected within the area of newly created woodland close to areas of wetland on Site to encourage breeding. Advice should be sort from an ecologist before sourcing and erecting these nest boxes as it is important to position them correctly. It is recommended that the boxes are maintained on an annual basis and require fresh wood shavings where they have been used.	Minor positive
Linnet	Nests in areas of dense scrub or hedgerows. Feeds on small to medium sized seeds. Particularly dependent on weeds of open country and waste ground.	Breeding – Absent on the first occasion but recorded in small numbers subsequently either flying over the site or in hedgerows bisecting arable fields. Wintering – Recorded on two survey occasions in small numbers	Site	Loss of potential nesting and foraging habitat through the loss of hedgerow sections and the loss of the arable landscape within the Site.	Once mature, areas within the green space where scrub patches and ruderal weedy vegetation are allowed to establish are likely to continue to provide nesting and foraging opportunities for linnet, particularly along the western boundary and lying adjacent to	Negligible

		foraging within arable fields.			further off Site arable habitat.	
Bullfinch	Nests in thick woodland undergrowth, thickets, shrubby areas and thick hedges. Many of these habitats occur on lowland farmland. Also visits gardens and orchards.	Two pairs and a number of individuals recorded within boundary hedgerows. Confirmation of breeding can be difficult for this species.	Site	Loss of quality hedgerow habitat which is of value to bullfinch for both breeding and foraging purposes. Loss of connectivity through removal of established hedgerows.	New hedgerows should be infrequently trimmed, ideally on a rotation of three or more years) to allow for a thick, tall (4m+) structure and maintain fruit production. Woodland planting will also provide nesting and foraging opportunities once matured. The inclusion of fruit trees and ash would help encourage bullfinch on to Site as these provide a reliable foraging resource. The combination of planting will provide a sufficient green corridor, and only short term negative effects anticipated.	Negligible
Yellowhammer	Traditionally based on edges of open areas of forest and fringing scrub of gorse, broom and hawthorn. Extends widely across cultivated land with hedges, plantations and paths. Feeds mainly on seed, invertebrates in the breeding season. Feeds wholly on the ground by hedges, tracks and newly sown fields.	A small probable breeding population was recorded on Site with 3 -7 individuals recorded on each of the eight visits.	Site	Loss of foraging habitat due to removal of seed producing grassland. Potential minor loss of foraging and nesting habitat in hedgerows and scrub.	Where areas can be left unmanaged and left to grow 'weedy' on Site these are likely to provide potential foraging opportunities for small numbers of yellowhammers. Likely to be lost from the Site as a possible breeding species.	Minor negative
Reed bunting	Traditional habitat is that of prolific fairly low vegetation, mainly	At least two pairs were recorded on-	Site	Loss of grassland field margins which provide relatively poor	The provision of balancing ponds and associated wetland	Slight positive

	associated with intense soil moisture. Increasingly found in cultivated drier habitats.	Site and probably bred.		opportunities for reed bunting.	features will continue to provide suitable habitat for the species.	
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1 Based upon criteria set out in Table 2 and professional judgement.

2 Assumes that any suggested or proposed mitigation, compensation or habitat enhancements are undertaken in full.



Appendix I-11: Reptile Survey

**Magna Park Extension: Hybrid Application, Zone
1**

For IDI Gazeley

Delta Simons Project No. 14-0159.06

Issued: September 2015

EXECUTIVE SUMMARY

APPENDIX I-11: REPTILE SURVEY

MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1

DELTA SIMONS PROJECT No. 14-0159.06

Purpose	<p>Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley ('the Client') to undertake a reptile survey of land to the west of Magna Park, Lutterworth that is included within Zone 1 of the 'Site'. The aim of the survey was to determine the presence or likely absence of reptiles at the Site in order to inform a planning application for the Site.</p>
Current Site Status	<p>The Site comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.</p>
Proposed Development	<p>An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m², Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping is for a public park and meadowland area of approximately 70 hectares, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.</p>
Results:	<p>A total of seven reptile survey checks were carried out across the area of the Site that was identified as being suitable habitat to support reptiles, under suitable weather conditions, between 28th May 2015 and 9th July 2015. No reptiles nor evidence to indicate their presence, was found during any of the survey visits. There are, therefore, no potential constraints to the proposals with regards to reptile species at the Site.</p>

Recommendations

Planning and Ecological Enhancements

Following the issue of the National Planning Policy Framework (NPPF, 2012) by the Department for Communities and Local Government (DCLG), “*The planning system should contribute to and enhance the natural and local environment by: Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity...*”; For this particular development, the proposed planting and landscape management at the Site has the potential to create valuable wet woodland, woodland, species-rich grassland and new waterbodies to provide locally important habitat and connectivity for a wide range of protected and notable species, including reptiles that could disperse into these habitats if they are present within the local area surrounding the Site. This would result in an overall increase in the biodiversity value of the Site. Retention and appropriate management of the existing hedgerows, ponds and some scrub vegetation also has the potential to maintain and enhance their value to wildlife.

This Reptile Survey Report Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. The Executive Summary should be read in conjunction with the full report.

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APPENDIX I-11: REPTILE SURVEY
MAGNA PARK EXTENSION: HYBRID APPLICATION, ZONE 1
FOR
IDI GAZELEY
DELTA SIMONS PROJECT No. 14-0159.06

1.0 INTRODUCTION

1.1 Context and Purpose

Delta-Simons Environmental Consultants Ltd was commissioned by IDI Gazeley ('the Client') to undertake a reptile survey of suitable habitat within land to the west of Magna Park, Lutterworth that is included within Zone 1 of the 'Site'. The Site is characterised by predominantly arable fields, bounded by hedgerows and drainage ditches, and pockets of broadleaved woodland plantation. The edge of the immature woodland plantation and Mere Lane Lagoon with grassland embankments in the north-eastern area of the Site was highlighted within the Extended Phase 1 Habitat Survey undertaken by Delta-Simons in September and October 2014 (Delta-Simons Project no. 14-0159.02) as being suitable habitats to support reptile species. A Reptile Survey was completed following the recommendation made in the Extended Phase 1 Habitat Survey, and in order to support a planning application for the Site.

The purpose of the reptile survey was to:

- △ Determine the presence or likely absence of reptiles and the specific species, where present, at the Site;
- △ Make an assessment of the size of any reptile populations present;
- △ If reptiles are present determine the extent of the impact of the proposals on the population(s); and
- △ Provide recommendations for further surveys and/or mitigation measures that may be necessary.

The Site location is shown in Figure 1.

1.2 Site Description

Zone 1, is an approximately 220 hectares (ha) triangular parcel of predominantly agricultural land to the north and north-west of Magna Park, Lutterworth. Zone 1 is linked to and extends Magna Park. Its boundaries are created by the A5 to the south and west, Mere Lane to the east and the ridgeline hedgerows that follow the parish boundary to the north.

It comprises a combination of large open arable fields and smaller enclosed pastoral fields bounded by both hedgerows with broadleaved trees, and drainage ditches. There are further scattered broadleaved trees across the Site, whilst pockets of broadleaved woodland are present in the central and eastern areas of the Site. A cluster of domestic and commercial buildings within the southern area of the Site comprise Bittesby House and associated Farm, all accessed off Mere Lane, along an avenue of mature trees leading up to Bittesby House. Bittesby Cottages lie to the north-east of Bittesby House. To the south-west of these properties, and immediately to the east of the A5 road are the Lodge and Emmanuel Cottages. In the north-east of the Site, Mere Lane Lagoon, an attenuation feature for Magna Park, has previously been used as a fishing lake. This Lake feeds a watercourse that a tributary valley of the River Soar to the northern and western flanks of the Site. Two ponds are located within the south-western extent of the Site, within the grounds of Bittesby House and Lodge Cottage, respectively, whilst there are a number of recently created seasonally wet scrapes in marshy grassland to the north of the Site. Bisecting the Site centrally north-south on a wooded embankment is the dismantled Midland Counties railway line. Also included within the application boundary is the land immediately surrounding the Magna Park services farm to the north-east, west and south-west, comprising grassland and plantation woodland.

The Site layout is shown in Figure 2.

1.3 Proposed Development

An outline planning application will be submitted for up to 427,350 square metres (m²) of distribution warehousing and ancillary office space (Use Classes B8 and B1a) in Zone 1. This includes the DHL Supply Chain covering an area of 100,844 m² (Application Reference 15/00919/FUL, June 2015). Also proposed is a National Centre for Logistics

Qualifications (Use Class D1) and its campus, to cover up to 3,700 m², an Estate Office with a heritage exhibition centre and conference facility (Use Class D1) of up to 300 m², Holovis expansion building (Use Class B1a, B1b) covering an area of up to 7,000 m², and an Innovation Centre of up to 2,325 m². The proposed landscaping is for a public park and meadowland area of approximately 70 ha, an access corridor through the Site with structural landscaping, and Sustainable Urban Drainage systems (SUDs). In order to facilitate the proposed development it is proposed to demolish all existing buildings on the Site.

The proposed development plan is included as Figure 3.

2.0 LEGISLATION

2.1 Reptiles

All six native species of reptiles, including common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, adder *Vipera berus*, grass snake *Natrix natrix*, smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis* are protected under the 1981 Wildlife and Countryside Act (WCA) (as amended), from deliberate or reckless killing or injury. As such, all reasonable steps must be taken to avoid their incidental mortality when carrying out works.

Smooth snake and sand lizard receive further protection under the Conservation of Habitats and Species Regulations 2010, which makes it an offence to damage or destroy places that they use for breeding, resting, shelter and protection. It is also an offence to deliberately capture, injure or kill these species, and to intentionally or recklessly disturb them while occupying a structure or place it uses for shelter or protection; or to obstruct access to any structure or place which it uses for that purpose. Further it is illegal to damage/destroy a breeding site or deliberately take/destroy the eggs of such an animal.

2.2 Planning

The Office of the Deputy Prime Minister (ODPM) Circular (2005) advises that ecological surveys are undertaken before planning permission is determined. The circular states “*The need to ensure that ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances*” (see References, Appendix I).

3.0 METHODOLOGY

3.1 Desk Search

The results of the data searches received from the Leicestershire and Rutland Environmental Records Centre (LRERC) and Warwickshire Biological Records Centre (WBRC) for the initial Extended Phase 1 Habitat Survey (Delta-Simons Project no. 14-0159.02) were reviewed to identify statutory and non-statutory sites designated for, or that support reptiles, and reptile species records within a 3 km radius of the centre of the Site were reviewed.

In addition, a search for designated sites for nature conservation on, or within 3 km of, the Site that are designated for, or support reptile species was performed using the Multi-Agency Geographic Information for the Countryside (MAGIC).

3.2 Habitat Suitability Assessment

During the Extended Phase 1 Habitat survey visits to the Site the different habitat types present were recorded, and areas of suitable habitat for reptiles were determined. An assessment was made of the micro-habitats present which informed the most appropriate and effective placement of artificial refugia across the Site.

3.3 Reptile Survey

Survey methodologies followed recommendations in the Herpetofauna Workers' Manual (Gent & Gibson 2003) and comprised the placement and seven checks of artificial refugia within areas of suitable reptile habitat across the Site.

A total of 70 artificial refugia were placed at the Site (Figure 4) in order to ensure a minimum density of 10 refugia per hectare as recommended by the Herpetofauna Groups of Britain and Ireland (HGBI, 1998). These comprised a mixture of corrugated bitumen roofing sheets, corrugated metal sheeting and roofing felt tiles, each measuring 0.5 m x 0.5 m. After allowing 14 days for the artificial refugia to settle into the sward they were all checked, above and below, on seven separate occasions for reptiles. In addition to checking artificial refugia, a cold search of natural refugia and on-Site debris was also undertaken during each check. This involved any rocks or debris being overturned to check for reptiles. Any reptiles found were identified and where possible a rough age

category and sex was determined. The location of any reptiles found was recorded in order to determine the general usage of the Site by reptile species.

The survey was undertaken by a suitably qualified ecologist during appropriate weather conditions between 28th May 2015 and 9th July 2015. A viable survey was considered to be within a temperature range of between 10 - 20 °C (Edgar *et al.*, 2010) with no heavy rain or considerable overnight frost.

4.0 RESULTS

4.1 Desk Search

The results of the MAGIC data search and the LRERC and WBRC desk searches indicate that there are no statutory or non-statutory designated sites within 3 km of the Site centre that have a reptile interest.

The desk search did not reveal any records of reptiles within 3 km of the Site centre.

4.2 Habitat Suitability Assessment

Much of the Application Site is arable land and was assessed as unsuitable habitat to support reptiles, whilst the dismantled Midland Counties railway line that bisects the Site north-south supports suitable habitat for reptiles, but will not remain unaffected by the proposed development works such that a reptile survey was not considered necessary. In the north-eastern corner of the Site is a sloped grassland and bramble *Rubus fruticosus* agg scrub bank around the northern side of Mere Lane Lagoon, which was deemed suitable habitat for reptiles. An area of young plantation woodland in proximity to the Lagoon, which at the time of the survey supported short broadleaved tree saplings in tree guards, surrounded by grassland with widespread teasel *Dipsacus fullonum*, was also assessed as having potential to support reptiles.

Following this assessment of habitat suitability and variation during a walkover of the Site, the artificial refugia were placed in a variety of micro-habitats within the north-eastern area the Site. Their locations are shown in Figure 2 and habitat details are given in Table 1 below.

Table 1: Number and Associated Micro-Habitats Supporting Artificial Refugia

Group	Micro-Habitat	Number of Refugia
A	Immature woodland plantation edge and grassland embankment	30
B	Rough grassland	40

4.3 Refugia Survey

The dates that the survey checks were undertaken and weather conditions are given in Table 2 below:

Table 2 – Survey Timings and Weather

Reptile Check	Date	Start Time	Weather Conditions	Cloud Cover	Temperature	Wind
No. 1	28/05/2015	09.00	Dry	50%	13°C	Still
No. 2	11/06/2015	10.30	Dry	50%	16°C	Still
No. 3	24/06/2015	10.00	Dry	70%	14°C	Still
No. 4	30/06/2015	09.00	Dry	10%	15°C	Still
No. 5	02/07/2015	11.00	Dry	100%	15°C	Still
No. 6	07/07/2015	10.30	Dry	10%	17°C	Slight breeze
No. 7	09/07/2015	09.30	Dry	30%	16°C	Still

No reptiles were recorded, and no evidence of reptile presence, such as shed skins etc. was found during any of the seven refugia checks. Common toad *Bufo bufo* were recorded beneath artificial refugia on five of the survey visits, with a peak count of five individuals recorded during the 6th reptile survey visit. These findings are consistent with the results of the Great Crested Newt (GCN) survey report (Ref 14-0159.05), which found that the adjacent waterbody, Mere Lane Lagoon, supported a large breeding population of this species.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Despite the presence of suitable basking, foraging and shelter, and potential hibernation habitat within the north-eastern area of the Site, no evidence of reptiles was recorded during the surveys. The weather conditions during the checks were considered suitable for recording reptile activity. It is, therefore, considered unlikely that those areas of the Site due to be impacted upon by the proposed development works support a population of a reptile species.

No further reptile surveys are considered necessary and no restrictions to the proposed development in relation to reptiles have been identified, therefore, there are no further recommendations relating to mitigation for reptiles at the Site.

A small population of common toad were recorded during the survey visits, beneath the refugia, however since a peak count of 144 individuals were recorded whilst undertaking the GCN survey of Mere Lane Lagoon in Spring 2015, it is expected that toads would be found in proximity to it.

5.2 Recommendations

Planning and Ecological Enhancements

Following the issue of the NPPF (2012) by the DCLG, “*The planning system should contribute to and enhance the natural and local environment by: Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity...*”; For this particular development, planting and management at the Site has the potential to create valuable species-rich grassland, woodland and further waterbodies, which will provide locally important habitat and connectivity for a wide range of protected and notable species, including reptiles, which if present within the surrounding area could disperse onto the Site. This would result in an overall increase of the biodiversity value of the Site. Retention and appropriate management of the existing hedgerows, Mere Lane Lagoon, and areas of scrub has the potential to maintain and enhance their value to wildlife.

As part of the overall enhancement of the Site for wildlife, and in particular to encourage reptiles, the following will be implemented into the landscape design:

- △ Piles of logs or heaps of rubble should be left as daytime refuges and hibernation sites. Purpose built hibernacula will be provided adjacent to any retained waterbodies and in other suitable locations along the Site boundaries; and
- △ Areas of rough, long grass will be encouraged adjacent to any retained waterbodies and around new waterbodies to be created to provide daytime refuges during the summer months.

6.0 LIMITATIONS OF THE SURVEY


Over the course of the reptile surveys, a small number of the artificial refugia were removed from the Site by the general public, however, the density continued to be above that recommended as standard practice such that their loss was not considered to impact on the overall survey results.

The behaviour of animals can be unpredictable and may not conform to characteristics recorded in current scientific literature. This Report, therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 4 of this Report, exercising the duty of care required of an experienced Ecology Consultant.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

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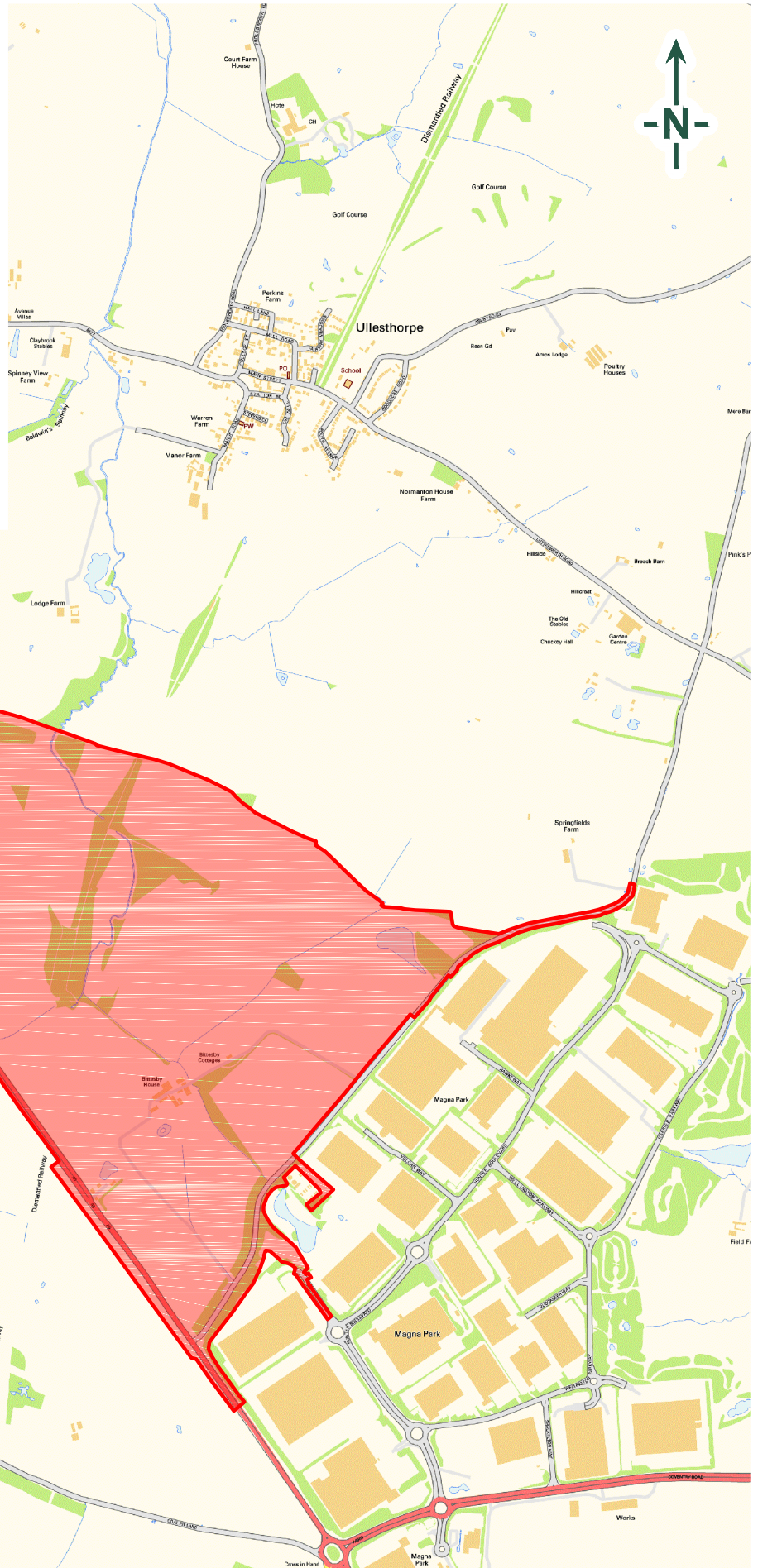
Date





LEGEND

 Site Boundary



Scale: 1 / 20,000 @ A4

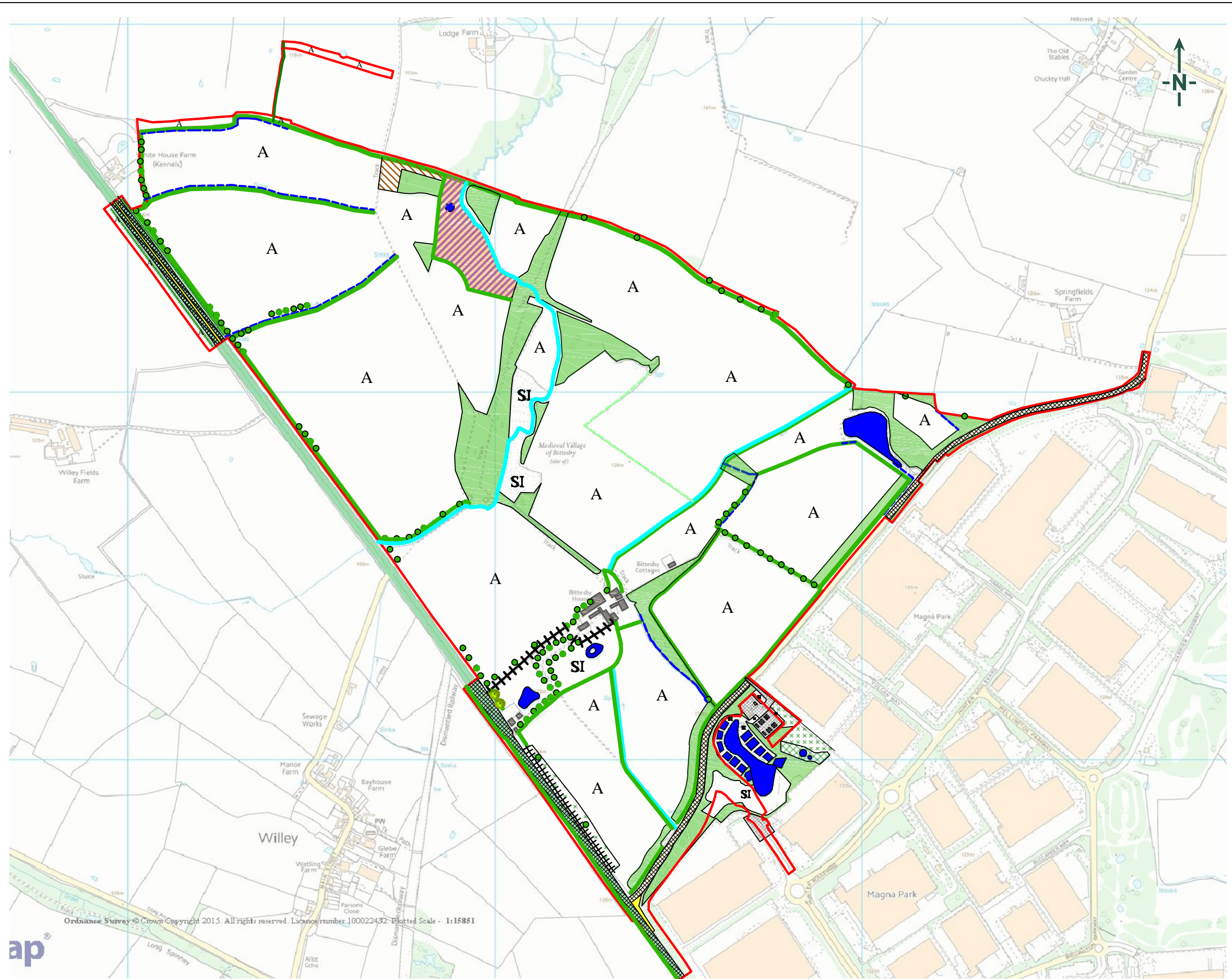
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TITLE:
Site Location Plan
Magna Park Extension: Hybrid Application, Zone 1
Lutterworth

DWN:	DP	SCA:	To Scale @ A4
CHK:	JS	REV:	1
DATE:	14 September 2015		

PROJECT NO.:	14-0159.06
FIGURE NO.:	1



LEGEND

	Site Boundary
	Broadleaved Plantation Woodland (A1.1.2)
	Scattered Broadleaved Trees (A3.1)
	Scattered Coniferous Trees (A3.2)
	Marsh Grassland (B5)
	Poor Semi Improved Grassland (B6)
	Tall Ruderal (C3.1)
	Standing Water (G1)
	Running Water (G2)
	Arable (J1.1)
	Amenity Grassland (J1.2)
	Intact Hedgerow - Species Poor (J2.1.2)
	Defunct Hedgerow - Species Poor (J2.2.2)
	Fence (J2.4)
	Dry Ditch (J2.6)
	Scattered Scrub (A2.2)
	Species Poor Hedgerow with Trees (J2.3.2)
	Dense Scrub (A2.1)
	Buildings (J3.6)
	Hard Standing (J4.1)

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TITLE:
 Site Layout Plan
 Magna Park Extension: Hybrid Application, Zone 1
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.06
CHK: JS	REV: 1	FIGURE NO.: 2
DATE: 14 September 2015		



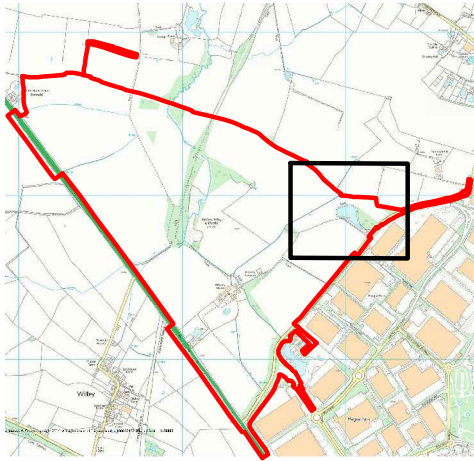
- GENERAL NOTES:
1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERING AND ARCHITECTURE DRAWINGS AND SPECIFICATIONS.
 3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
 4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERRED TO THE CLIENT IMMEDIATELY.
 5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 6. ALL LEVELS IN METRES.
 7. DO NOT SCALE OFF THIS DRAWING.
 8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
 9. THE CONTENT OF THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST PROJECT GOMR REGISTER.

NO	14/09/2015	FOR COMMENT	1/18	DN
REV	Date	Description	Rev	Drawn/Chk
 Landscape Architecture, Urban Design, Creative Ecology 21 Mill Street, Bath BA1 1QT T: +44 (0) 1225 323814 F: +44 (0) 1225 428184 E: info@grant-associates.co.uk				
CLIENT IDI Gazeley				
PROJECT Magna Park Extension OPA				
TITLE Illustrative Masterplan				
Author	Drawn	Check	Drawn	Appr.
14/09/2015	JS	103/09/2015	JS	DN
FOR COMMENT				
Drawing No.	Rev			
MLP14to-AL-A01-MP-Q-001	00			



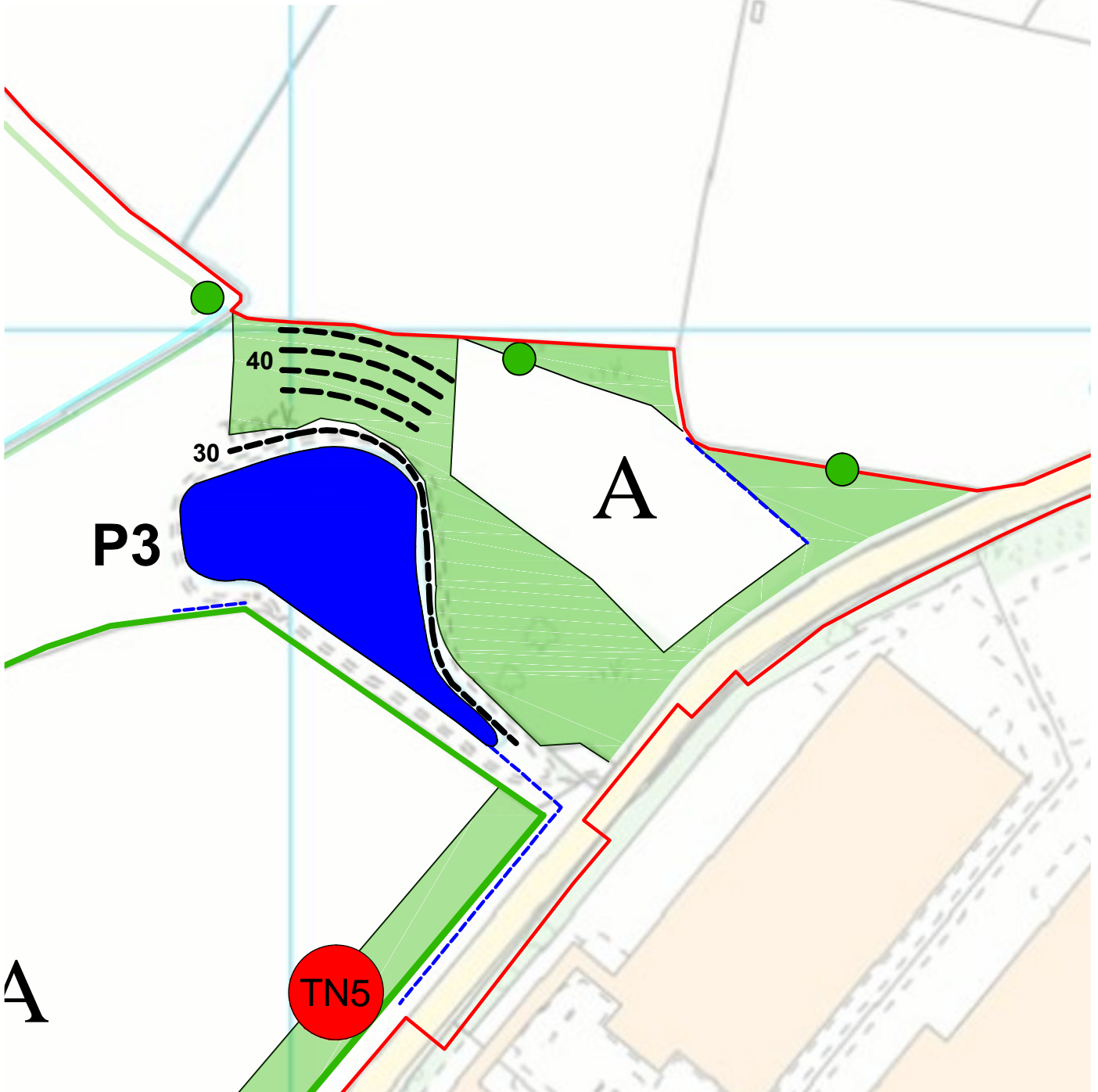
TITLE:
 Proposed Development Plan
 Magna Park Extension: Hybrid Planning Application
 Lutterworth

DWN: DP	SCA: Not to Scale	PROJECT NO.: 14-0159.06
CHK: JS	REV: 1	FIGURE NO.: 3
DATE: 14 September 2015		



LEGEND

- Site Boundary
- Broadleaved Plantation Woodland (A1.2.2)
- Scattered Broadleaved Trees (A3.1)
- Standing Water (G1)
- A Arable (J1.1)
- Intact Hedgerow - Species Pool (J2.1.2)
- Dry Ditch (J2.6)
- Location and Number of Artificial Refugia



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Appendix I-12: Biodiversity Assessment

Magna Park

For IDI Gazeley

Delta-Simons Project No. 14-0159.10

Issued: September 2015

EXECUTIVE SUMMARY
APPENDIX I-12: BIODIVERSITY ASSESSMENT
MAGNA PARK
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.10

Purpose	Delta-Simons Environmental Consultants Ltd was instructed by IDI Gazeley ('the Client') to undertake a Biodiversity Assessment of the existing Magna Park near Lutterworth, Leicestershire ('the Site'). A walkover survey was undertaken on 20 th October 2014. The purpose of the assessment is to provide a review of the success of the Magna Park development in terms of its nature conservation/ biodiversity value, as well as identifying potential improvements to these aspects that could be carried forward within the proposed extension of Magna Park. The aim being to increase the biodiversity value of the Site in order to benefit the local environment, in line with the Client's commitment to improve environmental performance.
Context and Setting	Magna Park comprises a warehouse and distribution centre covering an area of approximately 270 hectares near Lutterworth in Leicestershire that was built on the former RAF Bitteswell site. The Site supports large warehouse buildings, service yards and access routes with extensive landscaping throughout. Planting is incorporated around each unit boundary and within all common areas. The landscaping at the Site has been designed to increase its biodiversity value, as well as providing an aesthetically pleasing layout for the Sites users.
Key Management Recommendations for the Existing Park	<ul style="list-style-type: none"> △ Any new planting undertaken should comprise native shrubs and trees and care must be taken to avoid planting those species listed on Schedule 9 of the Wildlife and Countryside Act (1981, as amended), as invasive species; △ Where possible, some areas of planting at the Site, including sections of hedgerow, shrub beds and grassland, should be put into a relaxed management regime in order to maximise pollen, nectar and fruit sources for wildlife, and to provide an increased level of shelter and nesting habitat; △ Annual management should be undertaken in winter of scrub and trees surrounding the waterbodies at the Site in order to ensure that excessive over-shading does not occur; △ More frequent management of the banks of the ditches and swales to minimise disruption to water flow; and △ Annual management of the woodland would ensure light penetration through to the ground flora, which would increase the diversity of species, and selective thinning and coppicing would benefit the woodland and associated fauna.
Key Design and Management Recommendations for the Proposed Extension	<ul style="list-style-type: none"> △ Any new planting undertaken should comprise native shrubs and trees and care must be taken to avoid planting those species listed on Schedule 9 of the Wildlife and Countryside Act (1981, as amended), as invasive species; △ Maintenance of connectivity through and around the proposed Site extension is key to ensure no fragmentation of habitats for fauna; △ Security lighting at the Site should be limited as far as is practicable. Where possible LEDs should be used to minimise light spill, and lighting onto areas of vegetation and vegetated corridors should be

	<p>avoided;</p> <ul style="list-style-type: none"> △ Consideration should be given to Great Crested Newts (GCNs) known to be present at Magna Park and, therefore, likely to occur within the extension land, to ensure that adequate aquatic and terrestrial habitat enhancement works are included within the proposals to compensate for any terrestrial habitat loss. Road schemes should also be designed to minimise fragmentation of habitats for this species through the inclusion of amphibian tunnels, where necessary, and permanent amphibian fencing to deter them from accessing roads. It will be necessary to complete any works for GCNs under a European Protected Species Licence (EPSL) from Natural England; and △ Once the landscape plans have been agreed for the proposed extension, as with the existing Magna Park, ongoing management will be key to ensure that biodiversity gains are achieved at the Site.
Long-Term Strategy	<p>Monitoring surveys every 1-3 years would provide the information necessary to enable the success of the management regime to be reviewed, such that any enhancements could be made where necessary, whilst it would also enable the efforts made with respect to biodiversity to be documented.</p>
<p>This Biodiversity Assessment Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This Executive Summary should be read in conjunction with the full Report.</p>	

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APPENDIX I-12: BIODIVERSITY ASSESSMENT
MAGNA PARK
FOR IDI GAZELEY
DELTA-SIMONS PROJECT No. 14-0159.10

1.0 INTRODUCTION

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was instructed by IDI Gazeley (hereafter referred to as 'the Client') to undertake a Biodiversity Assessment of the existing Magna Park near Lutterworth, Leicestershire (the 'Site'). The purpose of the assessment is to provide a review of the success of the Magna Park development in terms of its nature conservation / biodiversity value, as well as identifying potential improvements to these aspects that could be carried forward within the proposed extension of Magna Park. The aim being to increase the biodiversity value of the Site, in order to benefit the local environment in line with the Client's commitment to improve environmental performance.

Following a Site walkover by two Delta-Simons ecologists on 20th October 2014 to gain information on the current Site status, and additional protected species surveys in the surrounding area, this Report provides information on the existing features at the Site, and recommendations for potential improvements to benefit both habitats and faunal species at the Site. Recommendations are also made for further surveys and monitoring that would provide detailed information on what species are present at the Site, and the outcome of any improvement measures implemented.

1.2 Current Site Status

Magna Park comprises a warehouse and distribution centre covering an area of approximately 270 hectares near Lutterworth in Leicestershire that was built on the former RAF Bitteswell site. The Site supports large warehouse buildings, service yards and access routes with extensive landscaping throughout. Planting is incorporated around each unit boundary and within all common areas. Approximately 40 hectares of woodland is established around the northern and eastern boundaries of the Site. A total of 15 ponds are also present at the Site, within the woodland habitat and within a conservation area to the south-west of the Site.

To facilitate the expansion of Magna Park a Protected Species Licence for Great Crested Newts (GCNs) was sought in 2006 from the then English Nature (now Natural England). GCN surveys have since been undertaken at the Site as part of mitigation monitoring for GCNs (see Ecosulis Report, November 2010). These surveys were undertaken between 2002 and 2010 and the last survey reported that four ponds supported a small GCN population, and four supported a medium population, furthermore, it was concluded that the favourable conservation status of GCNs at the Site had been maintained through the monitoring period.

The landscaping at the Site has been designed to increase its biodiversity value, as well as providing an aesthetically pleasing layout for the Sites users. Current management practice states that *'the ideal is that everyone should see the park at its "best" at all times throughout the year. It should look cared for, just mown and with sharp edges, and without disfiguring litter'*. The emphasis of the park is sustainability and, therefore, it is targeted that all biodegradable materials should be composted or recycled as chippings for use as mulches.

The Site location is shown in Figure 1, whilst Site layout and key habitat features are shown in Figure 2.

2.0 HABITAT ASSESSMENT

2.1 Decorative Trees and Shrubs

2.1.1 Species Diversity

The Site currently incorporates significant landscaping, including shrubs, trees and hedgerows along individual unit boundaries and within common areas (Photograph 1). The planting has been implemented to be aesthetically pleasing, creating natural screening to the buildings as well as enhancing the biodiversity value of the Site. The landscaping incorporates numerous native species and those of known value to wildlife, which helps to integrate the Site into the surrounding area, increases the biodiversity of the Site, and provides resources for wildlife. Native shrubs and trees can provide important sources of food, shelter and connectivity for a wide range of species. They can produce seeds and berries which are eaten by birds and small mammals, as well as attracting a diverse range of invertebrates. In turn this also provides a potential food source for local birds and bats. Table 1 below provides a list of native species identified at the Site during the survey:

Table 1: Native Shrub, Tree and Hedgerow Species Identified at the Site

Common Name	Latin Name
Silver birch	<i>Betula pendula</i>
Alder	<i>Alnus glutinosa</i>
Hawthorn	<i>Crataegus monogyna</i>
Spindle	<i>Euonymus europaeus</i>
Small-leaved lime	<i>Tilia cordata</i>
Ash	<i>Fraxinus excelsior</i>
Wild cherry	<i>Prunus avium</i>
English oak	<i>Quercus robur</i>
Hornbeam	<i>Carpinus betulus</i>
Common privet	<i>Ligustrum vulgare</i>
Common dogwood	<i>Cornus sanguinea</i>
Elder	<i>Sambucus nigra</i>
Common hazel	<i>Corylus avellana</i>
Willow	<i>Salix</i> sp.
Honeysuckle	<i>Lonicera periclymenum</i>

Aspen	<i>Populus tremula</i>
Field rose	<i>Rosa arvensis</i>
Lavender	<i>Lavandula angustifolia</i>
Holly	<i>Ilex aquifolium</i>
Blackthorn	<i>Prunus spinosa</i>
Yew	<i>Taxus baccata</i>
Potentilla	<i>Potentilla</i> sp.
Raspberry	<i>Rubus idaeus</i>
Downy birch	<i>Betula pubescens</i>
Field maple	<i>Acer campestre</i>
Crab apple	<i>Malus sylvestris</i>

In addition, a number of non-native species are present at the Site, some of which contribute little value to wildlife, with no provision of foraging opportunities. Of particular note is the presence of Japanese rose *Rosa rugosa* and entire leaved cotoneaster *Cotoneaster integrifolius* which are both listed under Schedule 9 of the Wildlife and Countryside Act (1981) as amended as invasive non-native plant species. As such it is an offence to plant or otherwise allow these species to grow in the wild. Whilst it is not an offence to plant these species within managed landscape planting, and the legislation that covers these species was introduced in recent years, Japanese rose is a vigorously suckering shrub, whilst the cotoneaster also spreads vigorously, such that both form extensive and dense thickets which can smother native species, reducing biodiversity and dominating areas of amenity planting. Control of these species to prevent them from dominating areas of landscaping on-Site, and to prevent their spread off-Site is essential.

Snowberry *Symphoricarpos albus* is also present at the Site. This species is not covered by any UK legislation, however, it is recognised as a non-native invasive species. The vigorous, fast spreading, dense shrubby growth suppresses all but the most shade tolerant species, reducing diversity within areas of planting.

Other non-native shrub and tree species are incorporated throughout the Site. Whilst these are of visual value in terms of both structure and colour, they are of limited value to wildlife and native alternatives could be selected to increase biodiversity value at the Site.

2.1.2 Management Regime

The shrubs and trees at the Site have the potential to offer nesting opportunities and shelter for birds, amphibians and small mammals, such as voles and hedgehogs, as well as connectivity and commuting corridors throughout the wider landscape. However, some areas of the Site are primarily managed for decorative purposes, resulting in closely trimmed vegetation and sharp edges, particularly at the base of shrubs and at the transition point to adjacent grassland (Photograph 2). The current management plan (which is under review) sets out the pruning of shrubs according to their character, location and desired structure. The pruning of decorative landscaping on an annual basis restricts their value to wildlife. This is because most tree and shrub flowers and berries are produced on year old twigs and, therefore, annual cutting removes these twigs and consequently vital foraging opportunities for wildlife. Areas receiving a more relaxed management regime, including rotational trimming are, therefore, of greater value to wildlife.

Whilst the decorative planting provides some connectivity through the Site for fauna, particularly the less intensively managed areas, the overall design and layout of Magna Park is such that the roads bisect the Site and create dispersal barriers for a range of faunal species. This is unavoidable due to the use of the Site and access necessities. However, as stated earlier, the current objectives of the management regime for the decorative planting means that bare ground is left beneath shrubbery and a bare ground strip separating it from the adjacent grassland (Photograph 3). This reduces the value of the vegetation as connective corridors as it lacks shelter and offers only limited foraging opportunities along the edges. Alternatively relaxing the management regime would mean that hedges and shrubbery with ground vegetation at the base could provide shelter for a range of faunal species. Introducing perennial flowering plants would provide nectar and pollen for bees and other invertebrates, whilst tussocky grassland would provide shelter for invertebrates, amphibians, reptiles and small mammals.

In order to retain the 'best' look of the planting and for health and safety reasons, all dead wood within the decorative planting is removed. Whilst this reduces valuable habitat for a range of faunal species in these locations, the dead wood is placed within the woodland at the Site in order to create habitat piles, important to invertebrates, amphibians, reptiles and small mammals. This is a valuable practice both to reduce waste and to create important habitat.

2.2 Woodland

2.2.1 Current Status

Of the approximately 40 hectares of woodland area situated to the north and east of the Site (Photograph 4), 20.75 hectares was planted as woodland with grassland rides and access routes. Due to its age, the majority of the woodland has received limited management to date in order that it can establish with a range of native species. The current management plan for the Site is under review and is understood to include woodland management in the future, including targeted thinning of individual trees and rotational coppicing of hazel. This will encourage further growth and reduce competition, as well as allowing natural light to penetrate through the canopy layer and encourage increased ground flora diversity.

2.2.2 Proposed Management Regime

At least annual monitoring of the density of the trees, and of tree health should be undertaken. Dead branches and trees should not be immediately removed unless they pose a health and safety risk. If this is the case then the wood can be chopped up and stacked in piles to create hibernacula for invertebrates, amphibians and reptiles. Dead wood is a key habitat for many invertebrates, lichens and mosses, consequently providing foraging and nesting material for birds. Cavities within the decaying wood can also provide opportunities for nesting birds and roosting bats.

Ground flora diversity could also be encouraged to provide structural diversity and increase biodiversity. Common nettles *Urtica dioica* should be managed such that they are not left to spread throughout the woodland habitat and out-compete other ground flora. However, nettles do support a wide range of invertebrates and some patches should be retained in order to provide opportunities for wildlife. Certain moth and butterfly species are attracted to nettles such as the small tortoiseshell *Aglais urticae* and peacock *Inachis io* butterflies as their larvae feed in silken tents at the top of the nettle stems. Nettle patches can also provide suitable conditions for overwintering aphids, which swarm around fresh spring nettles and provide early food for predators such as ladybirds. If the invertebrate diversity and density can be increased, it will as a consequence provide food for birds, bats, amphibians and small mammals, such as hedgehogs and shrews. In late summer the flowers offer further opportunities of nectar and the seeds provide food for birds, such as house sparrows *Passer domesticus* and chaffinches *Fringilla coelebs*.

Where nettles are vigorous and unwanted, placing a layer of mulch can help control weed growth and also provide opportunities for wildlife. The mulch will help to maintain moisture in the soil below, creating ideal conditions for earthworms and other ground dwelling insects. The mulch will slowly decay, adding organic matter and nutrients to the soil.

The woodland habitat is a key area for wildlife at the Site providing resources and connectivity, and receive little disturbance from human activity. Artificial lighting around the woodlands is limited and management regimes can be established to minimise interference, whilst creating the most valuable environment for a range of faunal species.

The woodland habitat provides ideal shelter for a range of larger wildlife species including suitable foraging and sett digging opportunities for badger.

2.3 Boundary Hedgerows

2.3.1 Current Status

Much of the original hedgerow along the western and southern Site boundaries has been retained following the development of Magna Park. This comprises a range of native species and forms a landscape buffer strip around the park. The boundary hedgerows provide ideal corridors for wildlife, connecting valuable habitat at each end of the development. Although managed in width and height, the hedgerows are largely 'natural' with ground flora including grasses, grassland flora and ruderals at the base. This provides valuable connectivity and shelter as well as foraging opportunities for birds, amphibians, reptiles, small mammals and bats. The structure of the hedgerows is also suitable to support nesting birds.

2.3.2 Management Regime

It is understood that current management practice involves an annual flail cut of the majority of the hedgerows. Most tree and shrub flowers and berries are produced on year old twigs and, therefore, annual cutting removes these twigs and consequently vital foraging opportunities for wildlife. A more relaxed management regime, including rotational trimming on a 2-3 years basis would increase the value of the habitats for wildlife and provide suitable habitat for species which prefer uncut vegetation.

2.4 Ponds

2.4.1 Current Status

A total of 15 ponds were identified on-Site from aerial photographs. Six of the ponds were assessed during the survey. The remaining ponds within the northern woodland at the Site were not accessible, whilst three ponds within the conservation area were surrounded by dense scrub vegetation, preventing a full visual assessment. The assessed ponds were found to be of different ecological values and, therefore, each require specific management to increase their suitability to support a greater diversity of wildlife species. The pond assessments and recommended enhancement measures were guided by the GCN Mitigation Guidelines.¹

Four ponds are situated within the southern-most woodland section to the east of the Site, one of which supported limited standing water at the time of the survey and was heavily shaded by surrounding scrub and woodland vegetation (Photograph 5). The pond subsequently featured extensive leaf litter and poor water quality, offering limited value to wildlife. The other three ponds were also surrounded by dense woodland vegetation, supporting significant leaf litter and being heavily shaded. Water levels appeared to vary throughout the year with the potential for drying during hot summers. Overall water quality was considered to be poor, largely due to the silting of the pond bases and shading from the adjacent vegetation (Photograph 6). Aquatic vegetation in all three ponds was limited to reedmace *Typha latifolia* and occasional duckweed *Lemnaceae* sp. The irregular shape of the ponds and varied depths provide opportunities for breeding amphibians, whilst the surrounding terrestrial habitat is considered ideal to support amphibians.

However, the quality of the ponds could be improved in order to increase their suitability to support a range of wildlife. Warm ponds are favourable to amphibians for growth and development of juveniles. Whilst woodland vegetation can act as a windbreak and create a warm microclimate around the pond, control of adjacent vegetation is essential and ideally no more than 60 % of the shoreline should be shaded. This could be achieved by thinning the trees within 3 m of the shoreline. This can also encourage aquatic plants and an improvement in water quality. Future

¹ English Nature (2001). Great crested newt mitigation guidelines. English Nature (now Natural England). Peterborough.

management for the ponds should also consider de-silting the waterbodies and clearing the fallen vegetation, where necessary.

Three larger water bodies are present at the Site, one providing predominately a drainage function within the eastern extent of the Park, whilst the second acts as a lagoon within a foul water treatment plant system at the western Site boundary (Photograph 7), and the third in the south-eastern corner of the Site is recreational, and at the time of the survey was seen to support waterfowl and may contain fish. The water bodies feature large areas of clear open water with dense marginal vegetation including aquatic species as well as surrounding grassland and scrub. Particularly surrounding the water treatment lagoon, willow and birch scrub has self-seeded close to the banks and is beginning to encroach the banks and create additional shading to the pond. The ponds are considered to provide suitable habitat for a range of wildlife and future management and monitoring of both aquatic and surrounding terrestrial vegetation will be important to managing their ecological value. Maintaining areas of open water as well as egg laying opportunities within margin plans for both amphibians and aquatic invertebrates is essential. The banks may also be suitable to support water vole, particularly as both ponds are connected to ditches.

Two ponds within the conservation area to the west of the Site were not visible at the time of the inspection due to surrounding scrub vegetation. It is recommended that they are incorporated into the future management of the Site and that the ponds and surrounding terrestrial habitats are improved in line with their function to support GCNs. Aquatic and marginal planting may be required to enhance the ponds for breeding amphibians.

2.4.2 General Advice

The best time for pond management is late October and early November (autumn/early winter) as the water levels should be low at this time, and wet ground in winter can make work difficult and machinery can become stuck or cause excessive damage to the surrounding ground. Furthermore, any GCNs that may be present in the local area will be in hibernation in terrestrial habitat. Management undertaken in spring and summer has the potential to disturb wildlife both within the pond and the surrounding terrestrial vegetation. Work undertaken in mid-winter should be considered carefully, because if the ponds are suitable to support

amphibians, the work may expose hibernating species to extreme cold. If GCN are known to be, or have the potential to be present at a pond, works must be avoided from early March – late September (inclusive), and in order to ensure that this species is not disturbed, works should be supervised by a GCN licenced ecologist.

Any works to remove or manage trees and shrubs should be undertaken either before early March or after late July in order to avoid affecting birds during the main period in which they are nesting. If, however, works are required during the nesting bird season the habitats should first be checked by a suitably qualified ecologist to ensure no nests will be harmed.

2.5 Reed beds

A total of ten reed beds are associated with the foul water treatment plant in the south-western corner of the Site. At the time of the survey these were under review and were undergoing renovation / improvement works to remove self-set alder and willow saplings and to replant the reed (Photograph 8). The current management plan sets out the maintenance schedule for these reed beds including the removal of invasive non aquatic plants, removal of litter, thinning / replanting of reeds on a three year rotation and annual cutting of reeds during late winter. In order to maintain the primary function of the reed beds as a water filtration system, and to encourage their value to wildlife, appropriate and continued management is essential.

2.6 Ditch and Swale

2.6.1 Current Status

A ditch enters the Site at the eastern boundary, runs into an on-Site pond and continues northward adjacent to Harrier Parkway. At the time of the survey, the ditch supported a limited depth of slow flowing water. The ditch measured approximately 2 m wide with steep sloping banks at the edge of the pond, levelling to moderate slopes within the northern extent. The banks supported a variety of shrubs and trees including sycamore, willow, alder, dogwood and silver birch. These areas appeared largely unmanaged and had begun to encroach into the ditch, creating over shaded and dense vegetation (Photograph 9). Grass species also encroached below the water level and disrupted the water flow. Towards the northern extent of the ditch adjacent shrub planting comprises more ornamental, non-native species. This provides little value to wildlife and could instead use native specimens.

2.6.2 Proposed Management

The ditch has the potential to provide suitable habitat for a range of species but does require some restoration/ management works to improve its current state.

Future management of the ditch should consider maintenance of the bankside vegetation to ensure unobstructed water flow, improve the visual impact, as well as retaining suitable vegetation for sheltering and foraging wildlife. Grass cuttings have been placed adjacent to the ditch which provides ideal habitat for some wildlife, particularly for grass snake if present in the local area. However, these should not be allowed to enter the waterbody.

Two swale features were present within the grassland to the front of the estate office. At the time of the survey, these featured bare ground with little vegetation and no standing water (Photograph 10). It is recommended that the objective and effectiveness of these potential SUDs are reviewed, and if required the design and management regime altered as SUDs can provide ideal opportunities for wildlife enhancements, particularly for amphibians and aquatic invertebrates.

Any ponds, water courses or drainage features incorporated into the proposed Magna Park extension should consider design and location in order to maximise their benefit to wildlife. Management should aim to retain the primary function whilst being sensitive to, and of benefit to, wildlife.

2.7 Grassland

2.7.1 Amenity Grassland and Management

A range of grassland habitats occur at the Site, including amenity grassland verges along the routes of the access roads and pedestrian footpaths, grassland access within the woodland habitat and open space around the waterbodies. The current management scheme identifies areas for varied cutting regime. In order to maintain the 'neat' look of the park the amenity grassland along the roadsides is subject to 14 cuts a year to a height of 25-60 mm (Photograph 11). Herbicide and fertiliser are applied annually.

The grassland is of negligible value for wildlife. The sward is too short to provide shelter or connectivity for species dispersal, and the regular cutting prevents any grassland flora producing flowers or seeds. Consequently these areas of grassland

lack species diversity. Ideally areas of amenity roadside grassland would be cut less often along the edges adjacent to shrub or hedgerow vegetation, allowing a longer sward and development of connective habitat at the base of the adjacent vegetation. This would also allow the growth of floral species and provision for pollinating invertebrates.

2.7.2 Improved Grassland and Management

Selected areas of grassland are currently identified for retention at a medium height, with a monthly cut between April-October. Whilst this allows for a better sward structure to develop, the regular cutting during the summer months restricts the growth of wildflower species and reduces the opportunities for species to seed (Photograph 12). This limits the success of wildflower species and reduces the diversity of the grassland. Grassland within the woodland habitat is maintained to allow access for the staff and visitors to Magna Park, however, the retention of infrequently managed designated areas and strips immediately adjacent to the woodland edge would improve opportunities for wildlife and species diversity. Furthermore, there would also then be the potential to incorporate flowering bulbs there.

2.7.3 Meadow Grassland and Management

The management plan for the Site (currently being reviewed) indicates the presence of meadow grass with wildflowers. Management of this habitat is loosely based on traditional hay cut in late March/ early April followed by a second cut from late June/ September. The cuttings are left to shed seed before the material is collected and deposited in a habitat pile elsewhere on-Site. At the time of the survey the presence of wildflower species within the grassland at the Site were recorded to be infrequent such that the success of individual species is anticipated to be poor. Monitoring should be undertaken of any wildflower meadow grassland in order to establish individual species success rate, and to determine the requirement for re-seeding (possibly with an alternative mix) or an amended management scheme to maximise the benefit of the habitat.

Long grass habitat has also been identified within the conservation area, and is managed in accordance with the presence of GCN (Photograph 13). The grassland is cut annually in order to produce a long tussocky sward, providing shelter, foraging opportunities and connectivity to other suitable habitats. Management of this type around key conservation habitats is essential to maximising the benefit for local

wildlife. However, it was noted at the time of the survey that extensive bramble cover was present within this area. Whilst they do provide some cover, log and rock piles are a more effective alternative, and it is recommended that they are cut back to enable the grassland habitat to thrive.

3.0 FAUNAL SPECIES

3.1 Birds

3.1.1. Management for Birds

The majority of the decorative shrubs around the Site are well managed to a relatively low level, reducing their suitability for nesting birds. Furthermore, the hedgerows are maintained to a height and width which is not ideal for nesting activity. Disturbance at the Site, both through general activities and regular landscape management may deter some species of passerine birds from nesting, whilst artificial light spill onto vegetated areas may also affect the behaviour of birds at the Site.

The trees, hedgerows and woodland habitat at the Site are established and of greater suitability to provide nesting opportunities for bird species. In addition, these areas are largely undisturbed and are considered likely to be a focus of bird activity at the Site.

Whilst the planting at the Site provides some foraging opportunities, most tree and shrub berries are produced on year old twigs and, therefore, annual cutting removes these twigs and consequently vital foraging opportunities for wildlife. An alternative more relaxed approach to the Site's management regime could increase its value to wildlife, whilst the additional planting of further native species within the landscaping would provide a greater range of opportunities.

The inclusion of artificial nest boxes within suitable locations at the Site, ideally at heights on buildings or trees of over 3 m and avoiding a southerly direction, could increase nesting opportunities for a range of bird species.

3.1.2 Management for Birds at the Extension to Magna Park

It is recommended that the proposed extension to Magna Park incorporates native species within woodland planting, shrubs and hedgerows as far as is possible. The management regime should be developed to gain the maximum benefit to birds and other wildlife. The layout of the scheme should allow for less disturbed areas from human activity, management and artificial lighting that are wholly designated for wildlife conservation.

3.2 Amphibians

3.2.1 Management for GCNs

Continued management of the conservation ponds as well as surrounding terrestrial habitat, including scrub removal, should help to maintain the favourable conservation status of GCNs at the Site. In addition, restoration of the remaining ponds and future management may increase the availability of suitable habitat for this species and other amphibians.

The road system at the Site and the large expanses of hard standing habitat create dispersal barriers for amphibian species. In addition, traffic poses a threat to amphibians at a local level through harm on the roads. Whilst it is not known whether or not amphibians are restricted from dispersing across their natural range at the Site, or are harmed on the roads, going forward it is anticipated measures will have to be introduced to prevent fragmentation and harm to amphibians as part of the mitigation measures that will be required for GCNs within the land forming the extension to Magna Park.

3.2.2 Management for GCNs at the Extension to Magna Park

There are several measures which can be implemented to reduce the impact of roads on amphibian populations, including the use of road tunnels and fencing and modification of gully pots and kerbs. Gully pots can act as traps for migrating amphibians with the high kerbs guiding animals towards the gully pots. In order to avoid this, gully pots should be placed to allow a gap of approximately 10 cm between them and the kerb. Alternatively the kerbs can be inset or specifically designed to allow amphibians to bypass the gully pots. In order to allow amphibians an easy route off a road, kerbs should be lowered at regular intervals. Road tunnels and fencing can also be used to allow amphibians to cross underneath roads. Fencing/physical barriers guide amphibians into the tunnels.

Incorporation of Sustainable Urban Drainage Systems (SUDs) into the Magna Park extension is also recommended. These systems can include filter and infiltration trenches, swales, detention basins, wetlands and ponds, and can provide considerable benefit for wildlife. SUDs can provide additional habitat, both aquatic and terrestrial and can provide connective corridors for migration. Some SUDs can also remove the risk associated with traditional gully pot drainage systems. SUDs design must meet the primary function of water management, however, there are

opportunities to enhance the biodiversity of the Site and further wildlife conservation within the scheme. In order to achieve suitable water bodies for amphibians the SUDs should consider gently sloping sides, a range of depths and an irregular shape. A series of wetland systems are of greater value than a single pond with varying sizes offering a range of conditions. The location of the SUDs can also affect their suitability to support amphibians and consideration is required with regards to terrestrial connectivity and providing alternative migration routes away from roads and other dangers.

Creation of suitable terrestrial habitat and connectivity should also be considered at the proposed extension site, including appropriately managed grassland, hedgerows and woodland habitat.

3.3 Reptiles

3.3.1 Management for Reptiles

Reptiles require a mosaic of habitats which provide opportunities for shelter, hibernation, foraging and basking. The existing woodland at Magna Park may provide suitable habitat for reptiles if present within the local area, particularly due to the combination of woodland planting, grassland rides and the use of waste plant material to create habitat piles. As discussed above, appropriate management of the wooded areas has the potential to increase suitability to support reptiles. Targeted thinning of woodland trees will allow individual trees to continue to grow and improve the health of the woodland, as well as allowing sunlight to penetrate through the canopy, encouraging ground flora and a greater structural diversity.

Whilst the grassland rides provide some structural diversity, the management of grassland habitat is important for its suitability to support reptile species. At the time of the survey, the grassland supported an even medium sward, receiving frequent management which is not ideal for reptiles (Photograph 14). In order to improve this habitat, it is recommended that areas of grassland, particularly along the woodland edge are infrequently managed to create a rough tussocky sward with a dense 'thatch' at the base. This will provide added shelter and foraging opportunities for reptiles and other wildlife. Restoration and management of the woodland ponds may also enhance the Sites suitability to support grass snake, whilst grassland management around the remaining ponds at the Site would increase connectivity and available suitable habitat. In areas managed for reptiles, mowing of grassland should

ideally be undertaken annually between November and December when they are in hibernation in order to avoid disturbance.

Creation of habitat piles and placement of grass clippings is an important provision for reptiles throughout the Site and can create hibernation piles as well as opportunities for grass snake egg-laying heaps.

3.3.2 Management for Reptiles at the Extension to Magna Park

It is recommended that within the plans for the proposed extension to Magna Park the inclusion of habitat features suitable to support reptile species, including the use of woodland habitat, ponds and grassland to create a mosaic of structures and opportunities is considered. These areas should receive appropriate management for reptiles and other wildlife and should be balanced with the requirement for a 'neat' look around the park. Connectivity between these habitats should also be considered within the design to ensure the maximum benefit to wildlife.

3.4 Bats

3.4.1 Management for Bats

The trees at the Site within the decorative planting are all immature or semi-mature in age and lack features suitable to support roosting bats. Furthermore, artificial lighting in these areas is likely to discourage roosting bats, were opportunities available. The woodland habitat is also relatively young with few trees of sufficient stature to support suitable features such as rot holes, storm damage and lifted bark, suitable for roosting bats. As the woodland establishes further and with appropriate future management, this habitat has the potential to provide an ideal environment for both roosting and foraging bats.

Further opportunities for roosting bats could be provided by erecting bat boxes at suitable locations throughout the Site. Artificial bat boxes can be installed within the woodland habitat where disturbance from human activity, noise and light spill is a minimum. Bat boxes are available in a variety of designs and constructions to suit different species and the type of roost. Simple bat boxes can also be made from suitable exterior timber. All bat boxes should be installed at a minimum height of 3 m and avoiding a northerly aspect.

3.4.2 Lighting and Bats

Studies have shown that although some species of bats do feed around artificial lighting it has a detrimental effect on the natural feeding patterns of most species and many will avoid artificial light. In addition, artificial light may affect bat emergence times, cause bats to abandon roosts (by disrupting commuting routes away from roosts) and force them away from foraging areas and commuting routes (e.g. BCT and the Institute of Lighting Engineers, 2009). Invertebrate, bird and small mammal behavior has also been recorded to be affected by artificial lighting.

The existing Magna Park produces significant artificial light pollution both along the roads and around the warehouses. Although it is understood that Magna Park is in active use 24 hours a day and that lighting is required for security and safety, it is considered that a more sensitive scheme could be implemented to reduce light levels, particularly around vegetation and wildlife corridors. During bat surveys that were undertaken within the land adjacent to the Site in September 2014 the difference in light levels between units was notable and a Site wide approach to a sensitive lighting scheme could have significant effects on the wildlife use of the Site.

There are several methods by which light can be targeted and light trespass avoided in order to minimise adverse impacts to bats and other wildlife. These measures should be considered within the proposed extension to Magna Park. Where possible lighting around sensitive features should be avoided or kept to a minimum. Lamps with a low UV component should be used. Insects are particularly sensitive to UV light and are attracted in large numbers to lights with a high UV component. This has the effect of reducing insect availability in adjacent dark areas impacting the ability of light-avoiding bats to feed. Lighting should be directed to the target area only and light trespass onto linear vegetation avoided. Design of the luminaire, the luminaire aiming angles and optical control should be such as to minimize glare. If appropriate, physical barriers such as cowls, hoods, louvers and shields should be considered to avoid light trespass onto vegetative corridors, and, the use of highly directional Light Emitting Diodes (LEDS) should be considered.

3.4.3 Management for Bats at the Extension to Magna Park

It is recommended that the proposed extension to Magna Park considers the inclusion of habitat features suitable to support roosting, foraging and commuting bats, including the creation of woodland habitat, ponds and hedgerows to form a

mosaic of structures and opportunities. These areas should receive appropriate management to retain their value as bat habitat. The design of the proposed development should consider connectivity throughout the Site with suitable habitat features particularly in areas less disturbed by human activity and where artificial lighting can be kept to a minimal.

3.5 Invertebrates

3.5.1 Management for Invertebrates

Native flowering shrubs and wildflower grassland as discussed above have the potential to increase invertebrate diversity, including moths, butterflies and bees that require a source of nectar. Care should be taken in any future planting to ensure that a range of floral species are planted that flower at different times of the year to ensure that a nectar source is available from early spring until late autumn for invertebrates.

Small log piles within woodland or adjacent to hedgerows also provide opportunities for a variety of different invertebrates, as well as foraging for small mammals, reptiles and amphibians. Increased invertebrate activity also provides prey for birds and bats.

3.5.2 Management for invertebrates at the Extension to Magna Park

It is recommended that within the proposed extension to Magna Park consideration is given to the inclusion of habitat features suitable to support invertebrates, including the seeding of wildflower grassland and planting of native shrubs managed to encourage the provision of nectar. Care should be taken to ensure that a range of floral species are planted that flower at different times of the year to ensure that a nectar source is available from early spring until late autumn for invertebrates. Habitat piles should also be incorporated at the Site to provide additional opportunities for invertebrates.

3.6 Hedgehogs

3.6.1 Management for Hedgehogs

Creating habitat piles within the woodland habitat at the Site creates suitable shelter and hibernation sites for hedgehogs, particularly with the inclusion of leaf litter. Leaving the lower limbs of shrubs and hedgerows in situ at the Site creates cover for this species and, therefore, less 'tidy' areas would be particularly beneficial.

3.6.2 Management for Hedgehogs at the Extension to Magna Park

It is recommended that the management plan for the proposed extension to Magna Park continues to create habitat piles with logs and leaf litter. These should be placed in undisturbed locations. In addition, allowing fallen vegetation to gather at the base of hedgerows during autumn and winter can provide ideal habitat for hibernating and sheltering hedgehogs.

4.0 FURTHER SURVEYS AND MONITORING

Further surveys can be undertaken in order to determine the species assemblage present at the Site as well as to monitor the effects of any enhancement measures implemented. The surveys can not only provide useful results to inform staff and public of what the Site supports but can also inform further ecological enhancements and improved management at the Site.

4.1 Birds

In order to determine the species of birds using the Site, a Breeding Bird Survey and Winter Bird Survey can be undertaken. This involves an experienced ornithologist walking the Site on a number of occasions, and watching from set vantage points and recording any birds present at these key times of year.

4.2 Amphibians

As part of the future European Protected Species Licence (EPSL) for the Site to enable improvements to the services farm, and potentially for the proposed development, GCN surveys and monitoring will be required, however, in order to determine the continued presence of GCNs, and other amphibian species across the wider Site in the future, aquatic surveys could be undertaken of the ponds. This would require at least one of the surveyors to be a licenced GCN surveyor.

4.3 Reptiles

Monitoring surveys can be undertaken of suitable habitat in order to determine the presence and estimated populations of reptile species at the Site. The survey results can then be used to inform future management practices at the Site.

4.4 Bats

Further surveys and monitoring may be required as part of mitigation measures for the proposed extension to Magna Park, however, any bat boxes that are installed at the Site should be checked annually by a licenced bat ecologist during the active bat season (April- October, inclusive) to determine the use of the Site by roosting bats.

In addition, the use of the Site by commuting and foraging bats can be determined by dusk transect surveys. This would involve experienced bat ecologists walking the Site starting at dusk for up to three hours during the active bat season, and recording

and mapping all bat activity. This would determine the different species that use the Site, how they use it, and their abundance at the Site.

4.5 Other Faunal Species

In addition to those listed above, further surveys can be undertaken to monitor the use of the Site by other faunal species, including badgers, water vole, otter and invertebrates. This would provide information on the value of the Site to a range of wildlife and inform future management practices at the Site.

This Report was prepared by:



Jennifer Britt
Ecologist

17/09/15
Date

This Report was reviewed by:



Charlotte Sanderson
Ecology Unit Manager

17/09/15
Date

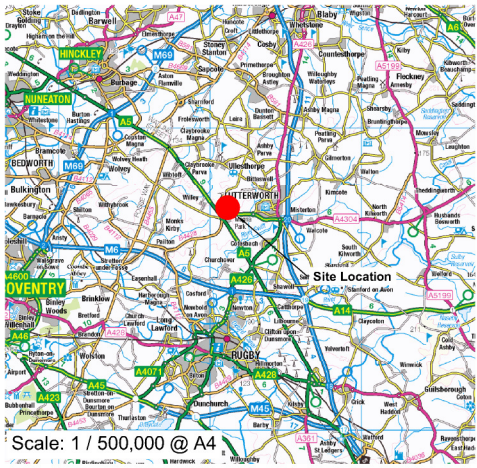
This Report was authorised by:



Alex Ferguson
Operations Director

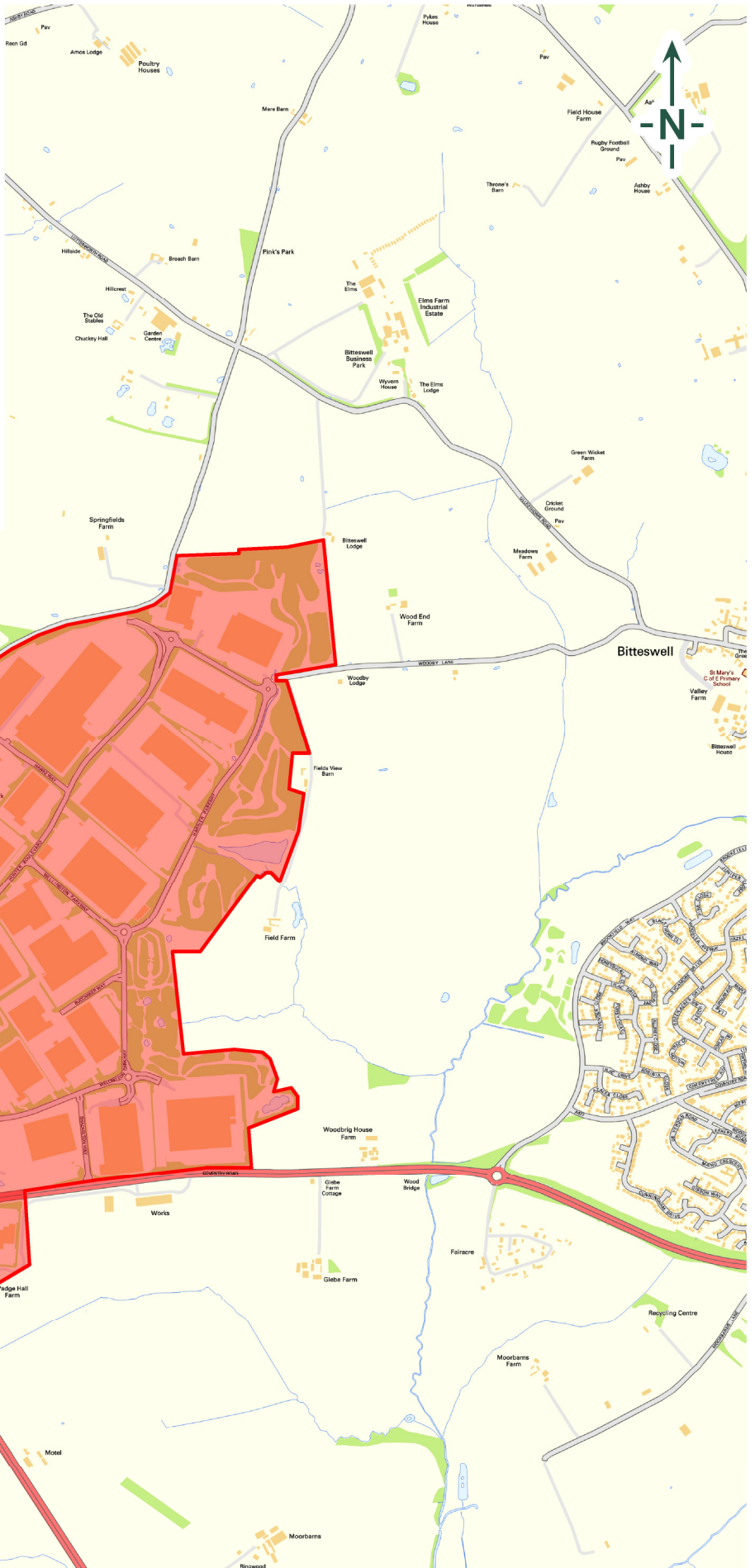
17/09/15
Date





LEGEND

 Site Boundary



Scale: 1 / 20,000 @ A4

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TITLE:
Site Location Map
Magna Park
Lutterworth

DRAWN BY: JB	SCALE: To Scale@A4
CHECKED BY: CS	REVISION: 1
DATE: 2 March 2015	

PROJECT NO: 14-0159.10
FIGURE NO: 1



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TITLE:
Site Layout Map
Magna Park
Lutterworth

DRAWN BY: JB	SCALE: Not to Scale
CHECKED BY: CS	REVISION: 1
DATE: 2 March 2015	

PROJECT NO: 14-0159.10
FIGURE NO: 2



**Magna Park, Lutterworth
Delta-Simons Project No. 14-0159.10**



Photograph 1 – Shrubs, trees and hedgerows along individual unit boundaries and within common areas



Photograph 2 – Shrubs primarily managed for decorative purposes

**Magna Park, Lutterworth
Delta-Simons Project No. 14-0159.10**



Photograph 3 – Decorative planting managed with bare ground strip to adjacent amenity grassland



Photograph 4 – Woodland habitat to the east of the Site

**Magna Park, Lutterworth
Delta-Simons Project No. 14-0159.10**



Photograph 5 – Heavily shaded pond with surrounding scrub and woodland vegetation



Photograph 6 – Heavily shaded, vegetated and silted pond within woodland habitat

**Magna Park, Lutterworth
Delta-Simons Project No. 14-0159.10**



Photograph 7 – Lagoon within a foul water treatment plant system at the western Site boundary



Photograph 8 – Reed bed undergoing renovation / improvement works

**Magna Park, Lutterworth
Delta-Simons Project No. 14-0159.10**



Photograph 9 – Heavily vegetated ditch within eastern extent of the Site



Photograph 10 – Swale feature within the eastern extent of the Site

**Magna Park, Lutterworth
Delta-Simons Project No. 14-0159.10**



Photograph 11 –Amenity grassland along the roadside verges



Photograph 12 – Medium height grassland within the eastern extent of the Site

**Magna Park, Lutterworth
Delta-Simons Project No. 14-0159.10**



Photograph 13 – Long grass habitat



Photograph 14 – Grassland clearing within woodland habitat