

LAND AT BARROW HILL QUARRY, EARL SHILTON

Ecological Impact Assessment (EcIA)



Client:

A T Contracting and Plant Hire
Ltd.

Report Reference:

RSE_5294_R2_V2_ECIA

Issue Date:

June 2023

This report contains confidential information relating to the location of Badger setts. Due to the sensitive nature of this information, all reference to badgers should be redacted from the report prior to its release into the public domain and its circulation restricted.

PROJECT

Client: AT Contracting & Plant Ltd.

Project: Land at Barrow Hill Quarry, Earl Shilton

Reference RSE_5294_R1_V2_ECIA

Report Title Ecological Impact Assessment

DOCUMENT CONTROL

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Revisions:

East Midlands: West Midlands: Yorkshire

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1 EXECUTIVE SUMMARY

1.1 Background

- i RammSanderson Ecology Ltd. was instructed by AT Contracting & Plant Hire Ltd. to carry out an Ecological Impact Assessment (EclA) on land at Barrow Hill Quarry, Earl Shilton, to assess the likely effects of developmental proposals on ecological features onsite. This report will be used to inform a planning proposal for the construction of holiday lodges onsite and provide information to submit within a planning application.
- ii The site is a disused quarry located on the outskirts of Earl Shilton, Leicestershire. It is comprised of dense/continuous scrub, forming a mosaic structure with areas of hard standing, tall ruderal, ephemeral/short perennial, and poor semi-improved grassland.

1.1.2 Designated Sites

- i No significant impacts upon designated sites are anticipated as a result of the proposals. The site is 2km from the nearest SSSI and is a small-scale development which is expected to have little impact on the surrounding area. Moreover, the proposals are not of a type to be included within any Impact Risk Zones for any statutory designated sites within five kilometres. Provided discharge water guidelines are followed, there are not anticipated to be any significant impacts on nearby SSSI's.

1.1.3 Habitats

- i The site was considered as having potential for being an Open Mosaic on Previously Developed Land which is a Priority Habitat under the NERC Act, 2006. However, when assessing the site against Open Mosaic Habitat (OMH) criteria, the site did not meet the criteria required to be classified under this broad habitat type. This is as habitats present were in poor condition due to excessive unsolicited use of the site by dirt bike riders. Furthermore, as the flora present was indicative of nutrient-rich soils, it is unlikely that the site will develop into an OMH that would be deemed of good quality.
- ii Of the habitats present, dense continuous scrub and bare ground constituted the largest areas, with small parcels of semi-improved grassland, tall ruderal, ephemeral/ short perennial also being present. These habitats were considered to be of limited botanical interest, however, they were noted for their potential to support a range of protected/priority fauna. A bare rock face was also present on the north-eastern boundary of the site. This meets the criteria as a priority habitat in Leicestershire and Rutland's local Biodiversity Action Plan. This rock face is to be retained under client proposals as well as the majority of scrub present with lost habitats being those of limited ecological value.
- iii Invasive floral species are also present onsite with Japanese knotweed (*Reynoutria japonica*) being found along the north-eastern boundary. Cotoneaster (*Cotoneaster sp.*) were also present amongst patches of scrub alongside the south-western boundary. These species are listed under Schedule 9 of the Wildlife and Countryside Act (1981, as amended), for which it is an offence to cause the spread of these species in the wild. For the Japanese knotweed, a specialist remediation strategy will be required prior to development. This is not considered necessary for cotoneaster and horsetail present as they occur in low densities. However, it is important their removal is conducted care and a precautionary approach undertaken to prevent their spread.

1.1.4 Great Crested Newt (GCN)

- i The terrestrial habitats onsite, such as scrub, grassland, tall ruderal, and brash/deadwood piles, provide some refugia and commuting habitat for great crested newt (*Triturus cristatus*).
- ii There are six waterbodies within the Zone of Influence (500m): a large waterbody directly adjacent (c. 20m) to the southern boundary; two ponds within 250m; and three ponds between 250 and 500m.

- iii The waterbody to the south of the boundary was subject to a Habitat Suitability Index (HSI) assessment for GCN and scored 'poor'. It was therefore scoped out of further consideration. It was not possible to assess the remaining five waterbodies for their GCN suitability due to land access issues. It is therefore unknown whether these habitats are utilised by breeding GCN and so suitable terrestrial habitats onsite may harbour GCN.
- iv As it is an offence to deliberately cause the destruction of GCN habitat with the species being protected under Schedule 5 of the Wildlife and Countryside Act, 1981, an enquiry was submitted to Natural England's District Level Licensing scheme. As stated on the gov.uk website, "By joining a district level licensing scheme, you comply with your legal duty to protect great crested newts by paying for off-site compensation ponds instead of carrying out detailed surveys and applying for a mitigation licence." The site fell within Leicestershire and within the amber zone meaning it was suitable for the scheme.
- ii Subsequently, an Impact Assessment and Conservation Payment Certificate (DLL-ENQ-LEIC-00067) was issued to the client on 23/02/2023. Once planning permission is granted, the licence application can be made. Following approval of the licence application and payment, work can begin. With a District Level Licence in place there is no legal requirement translocation or specific precautionary methods of working. However, where possible, impacts to individuals should be avoided and, where they are identified, an ecologist should be contacted to remove them from the works area.

1.1.5 Bats

- i No buildings or trees were present onsite that had potential for supporting roosting bats.
- ii The dense scrub, adjacent large waterbody and lack of artificial lighting onsite makes the site moderately suitable for bat foraging and commuting, as assessed according to the Bat Conservation Guidelines. There is also good connectivity to the wider landscape via hedgerows along adjacent field margins. As such, further surveys were conducted to monitor the levels of bat activity onsite to determine the degree of impact development plans will bring about upon localised bat populations.
- iii Low levels of bat activity were recorded during surveys and static recording onsite. Activity was relatively consistent across the site with commuting and foraging activity occurring over areas of scrub and along adjacent hedgerows. Common pipistrelle and *Nyctalus sp.* were the most commonly encountered bats across activity surveys with rare recordings of *Myotis sp.* and *Nathusius pipistrelle* also being noted.
- iv As much of the scrub habitat is to be retained and with tree planting also set to occur onsite under current proposals, works are considered to have a minimal impact on local bat populations. This is however provided a strict lighting strategy is adopted for the site that is sympathetic towards nocturnal fauna which will help prevent adverse impacts on bat activity.

1.1.6 Birds

- i The dense scrub, ephemeral grassland and tall ruderal habitats onsite provide suitable habitat for breeding birds. Additionally, the bare rock face located on the north-eastern site boundary and the large waterbody c.20m to the south also possess suitable towards certain species of breeding birds. As such, two breeding bird surveys (BBS) were performed during spring/summer 2022.
- ii the BBS results found only a common and widespread bird assemblage with low numbers of species of amber and red conservation concern. The majority of the habitats which are of value to breeding birds (scrub, tall ruderal and ephemeral grassland) are to be removed within the current proposals. Impacts however are unlikely to extend beyond a local level due to the size of the site and due to the small number of birds on site.
- iii Any vegetation clearance should take place outside the bird nesting season to ensure compliance with the general protection afforded to wild birds under the Wildlife and Countryside Act 1981 (as amended). If this is

unavoidable, the scrub should be carefully checked, by a suitably qualified ecologist, prior to removal. Where active nests are found, working restrictions would be put in place until follow up survey can demonstrate that all chicks have fledged. This will reduce impacts to a negligible level.

1.1.7 Reptiles

Due to the presence of habitats and features such as scrub, grassland, and brash/deadwood and rubble piles, the site provides opportunities for reptile refuge, foraging, and commuting. The habitats are not representative of the wider landscape, which is predominantly arable land, and so the site could represent a core habitat for any reptile species using it.

- v Seven reptile surveys were subsequently performed onsite to establish the presence of reptile species onsite. No reptiles were discovered during these surveys suggesting the likely absence of these species. Despite this, there still remains the residual risk that transient reptiles may be present onsite during works and so it is recommended that a Precautionary Method of Works (PMW) is adhered to.

1.1.8 Water Vole, Otter and White-Clawed Crayfish

- i There were no watercourses or ponds onsite, however a small stream was located c.115m south-west of the site boundary, and a lake was also present c. 20m south of the site boundary which may offer habitat to water vole (*Arvicola amphibius*), otter (*Lutra lutra*) within the locality.
- ii The site is not adequately connected to the nearby watercourse to provide suitable habitat for white-clawed crayfish (*Austropotamobius pallipes*). In addition, there are records of signal crayfish (*Pacifastacus leniusculus*) within 2km of the site, which is an invasive species that is known to outcompete the native crayfish. Surveys were therefore considered unnecessary with the species being scoped out of further consideration.
- iii While there remains a chance that otter and water vole may pass through the site, this is deemed to be low risk and so no further surveys were recommended. The greatest risks from the development to these species are via the pollution of nearby waterbodies through surface runoff. Adherence to Pollution Prevention Guidelines (Environment Agency, 2007) is therefore considered essential.

1.1.9 Badgers

- i Badger field signs were recorded during survey visits onsite, including the discovery of a large mammal hole indicative of the species along the southern site boundary. Several well-used mammal paths were also found leading from a parcel of scrub to the south which indicated frequent use. Trail cameras were subsequently deployed to determine which species were using these features and the frequency with which they were being used. Footage confirmed semi-frequent use of the site by badgers however they were not confirmed to be using the mammal hole identified. Nevertheless, this hole is still considered to be an outlier badger sett that is infrequently used.
- vi As it was not possible to fully survey the scrub habitat present due to it being too dense, there remains a possibility that badger setts could be present onsite. As such, it is strongly recommended that any scrub clearance should be conducted under an Ecological Clerk of Works (ECOW). In the event a sett is discovered, works within 30 metres of the sett would cease until further data could be gained about its usage and appropriate mitigation measures are implemented.
- vii Works are also due to get within 10m of the potential outlier sett and so it may be necessary to perform an update activity survey of this sett immediately prior to nearby works commencing to ensure no badgers are present.
- ii PMW should also be followed to ensure no harm or injury is incurred as a result of other onsite works which could contravene protective legislation for the species.

1.1.10 Terrestrial Invertebrates

- i Due to the sites suitability for supporting terrestrial invertebrates an invertebrate scoping survey was carried out on 22nd June 2022 by Conops Entomology Ltd.
- ii It was concluded that, as the site is highly disturbed and habitats are relatively small in extent, it is unlikely that many groups of invertebrates will be present nor hold significant populations or diversity. As such, no further surveys were deemed necessary.
- iii Whilst development of the site may result in the loss of some habitat for terrestrial invertebrates, it is not considered likely that this will have a significant impact on populations or species of conservation concern. It is also worth noting that tree planting and wildflower sowing due to take place onsite will provide increased foraging and refugia habitats for invertebrates. The building-up of log piles or the installation insect 'hotels' could further enhance the site for invertebrates likely increasing localised populations which would be of benefit to many other faunal groups present such as bats and badgers.

1.1.11 Principal Species

- i Several brown hare (*Lepus europaeus*) sightings have been recorded throughout survey work onsite. Moreover, the site contains suitable habitat for hedgehogs (*Erinaceus europaeus*) and common toads with these being Species of Principal Importance (NERC Act, 2006). Adherence to the PMW practices imposed for badger and reptiles will minimise the impacts of construction on these species to negligible levels.

1.1.12 Biodiversity

- i Following input of habitat data into the DEFRA Metric 3.1, it has been considered there will be quantified net gain in biodiversity of 1.02 habitat units (10.1%) and 0.43 linear units (100%). This meets the minimum 10% biodiversity net gain necessitated by Hinckley and Bosworth County Council. This has been brought about by plans to create two new ponds with marginal grassland and scrub habitat as well as conducting planting of native trees species across the site. In addition, the provision of this habitat creation/enhancement also presents the opportunity to create habitat provisions for a variety of species, such as bat and bird boxes, as well as herpetofauna hibernacula/refugia.

1.1.13 Compensation and Enhancements

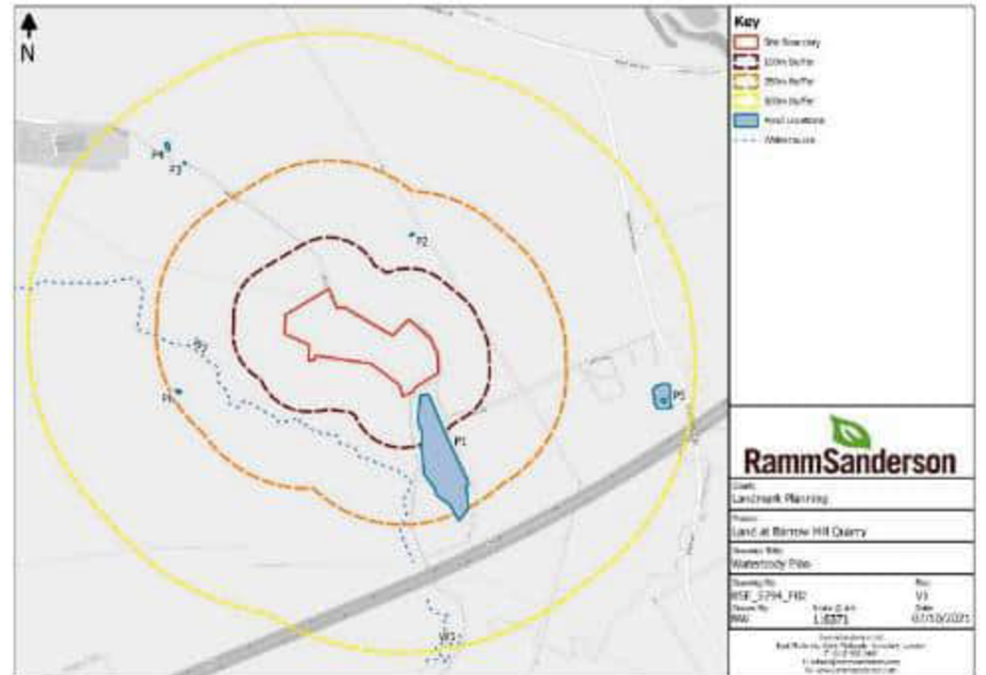
- i Large portions of bramble scrub present are due to be retained under client proposals which is where most baseline biodiversity units for the site were held. However, no enhancements are due to take place on existing habitats under current client plans.
- ii Compensation for the loss of habitats onsite is proposed with the creation of two balancing ponds, one to the east of site and the other to the west, which provides 0.51 biodiversity units. Marginal planting is also due take place around these ponds with parcels of mixed scrub and neutral grassland being proposed. The neutral grassland creation brings about an increase in 0.58 biodiversity units, with mixed scrub creation providing a further 1.97 units. Modified grassland is also due to be planted across site bringing about 3.41 biodiversity units. Furthermore, a small patch of bramble scrub will be created on the eastern site boundary which will provide 0.08 units. Additional tree planting across the site constituted in a further gain in biodiversity units bringing about 2.21 units.
- iii Although no linear habitats were present onsite, the creation of lines of trees in various locations across site brought about 0.43 linear units.
- iv Additional enhancements recommended that are easily achievable within the development are the incorporation of bat and bird nesting boxes which can be installed on holiday pods or existing trees onsite.

1.1.14 Monitoring

- v No monitoring is required for the proposals to be compliant with legislation and policy.

1.1.15 Conclusion

- i Compensation and enhancement measures in their current form will provide a net gain in biodiversity post development that is sufficient to meet the requirements of Hinckley and Bosworth County Council provided other areas are satisfied regarding protected and priority species that may be present.
- ii Overall proposals are therefore considered to have no effect on the biodiversity conservation objectives for any important ecological features and is compliant with relevant national and international legislation and policy relating to ecology.

Figure 1: Ecological Constraints and Opportunities Plan 	High Risk Item: <i>Further survey requirements or effect on European Protected Species requiring either mitigation or further survey</i> Japanese knotweed is present on the site along the north-eastern boundary. <i>Cotoneaster</i> sp. is also present amongst the scrub patches alongside the south-western boundary. See Figure 1. These plants are non-native species listed on Schedule 9 of the Wildlife and Countryside Act (1981), meaning it is an offence to cause them to spread. Therefore, they should be removed before works commence. This should be undertaken by a suitably qualified specialist contractor. If this is not possible prior to works commencing, a 7m buffer should be erected around the areas of knotweed to prevent its spread. A GCN DLL will be applied for to legitimise works once planning has been approved with the Impact Assessment and Conservation Payment Certificate (DLL-ENQ-LEIC-00053) was issued to the client on 23/02/2023. Moderate Risk Item: <i>Mitigation required for protected or notable species</i> An inactive badger sett was found to the south of the site and camera monitoring determined that badgers are present on the site. Whilst no active setts were detected, it is recommended that scrub around historic sett record is retained and a Precautionary Method of Works should be adhered to during any scrub clearance elsewhere on site.
Figure 2: Pond Reference Plan 	Low risk Item: <i>Mitigation / Works procedures adopted for potential species which may pass through site during construction phases</i> The site, due to the presence of habitats and features such as scrub, grassland, and brash/deadwood and rubble piles (see figure 1), provides opportunities for reptile refuge, foraging and commuting. The habitats and features on the site are not representative of the wider landscape, which is largely arable land, therefore, the site could represent a core habitat for any reptile species that use it. A suite of reptile surveys was conducted and no reptiles were detected. A Precautionary Method of Works is recommended during clearance of piles or scrub. Whilst there were no structures suitable for bat roosting on the site, the areas of scrub and adjacent large waterbody, in addition to the lack of artificial lighting, makes the site moderately suitable for bat foraging and commuting. Transect surveys and static detector monitoring was conducted and a range of species were present on the site. A sensitive lighting scheme is recommended. The areas of dense scrub across the site, in addition to the bare rock faces on the north-eastern boundary and the large waterbody to the south of the site, provide suitable habitat for breeding birds. Breeding bird surveys were conducted and found only a common and widespread bird assemblage with low numbers of species of amber and red conservation concern. Any vegetation clearance should take place outside the bird nesting season. If this is unavoidable, the scrub should be carefully checked by a suitably qualified ecologist, prior to removal. The brash/deadwood piles on site provide opportunities for hedgehog, brown hare, common toad, common frog, and smooth newt to take refuge. A Precautionary Method of Works should be adhered to during any clearance of these piles. It is recommended that pollution prevention guidelines are followed to avoid adverse impacts to watercourses as a result of the development. Enhancement Possibility: <i>possible enhancements suitable for this site given its context</i> Within areas of greenspace, native wildflowers can be planted. Any tree or scrub planting should include native species, such as hazel and oak. Ash and elm should be avoided due to prevalence of disease in these species. Other enhancements for wildlife that could be easily incorporated include: bat and bird boxes on trees or buildings; hedgehog nest boxes; insect 'hotels' and refugia.

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2 INTRODUCTION AND BACKGROUND

2.1 Purpose and Scope of this Report

- i RammSanderson Ecology Ltd was commissioned by AT Contracting & Plant Ltd. to assess the potential for protected species and habitats to be present on the site of a proposed development of 36 residential holiday lodges and a management building with associated vehicular accesses, parking, surface water balancing and landscaping on land at the disused Barrow Hill Quarry, Earl Shilton.
- ii To complete an EclA of the proposals, a desk-based assessment, Extended Phase 1 Habitat Survey and protected species assessments were carried out based upon the findings of the Preliminary Ecological Appraisal (PEA), RSE_5294_R1_V1. This report is a stand-alone EclA which has been prepared following current guidance (CIEEM, 2018) and can be used to lawfully determine a planning application in line with current planning policy¹. This report does not form part of a wider discipline Environmental Impact Assessment (EIA) of Environmental Statement (ES), nor does it confer the need for any such documentation.
- iii The study area was defined depending on the proposals, desk study and applicable legislation (Appendix 1) as shown in the enclosed Site Location Plan (Figure 3) and Phase 1 Habitat plan (Appendix 5) plus a buffer zone extended to include the Zone of Influence (see section below) of the proposals.
- iv This ecological impact assessment is based on a review of the development proposals provided by the Client (Appendix 3), desk study data (third party information) and surveys of the site. The aims of this report are to:
 - Classify the habitat types at the site based on standard Phase 1 Habitat survey methodology;
 - Evaluate any potential for protected species to be present;
 - Identify any ecological constraints that may affect the scheme design;
 - Provide recommendations for any further actions that might be required (for example, to monitor badger setts periodically through construction);
 - Identify likely significant effects on ecological receptors;
 - Assess if the proposals are compliant with legislation and policy relating to biodiversity; and
 - Identify opportunities for ecological enhancement to provide net biodiversity gain in line with the Environment Act 2021 and the National Planning Policy Framework (NPPF, 2021).
- v This report pertains to these results only; recommendations included within this report are the professional opinion of an experienced ecologist and therefore the view of RammSanderson Ecology Ltd.
- vi The surveys and desk-based assessments undertaken as part of this review and subsequent report including the Ecological Constraints and Opportunities Plan are prepared in accordance with the British Standard for Biodiversity Code of Practice for Planning and Development (BS42020:2013) and follow current guidance (CIEEM, 2018).

2.2 Zone of Influence

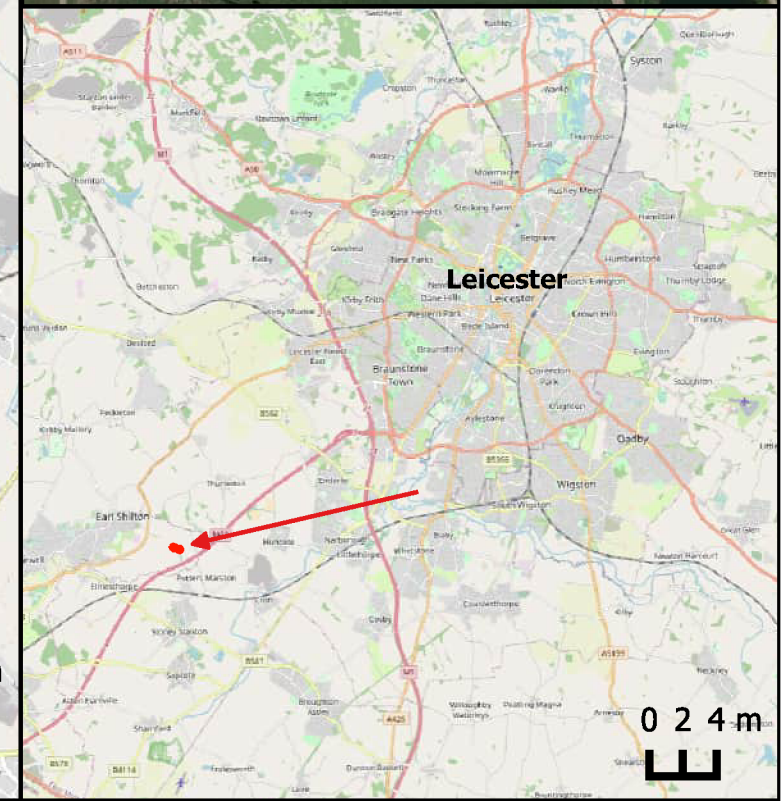
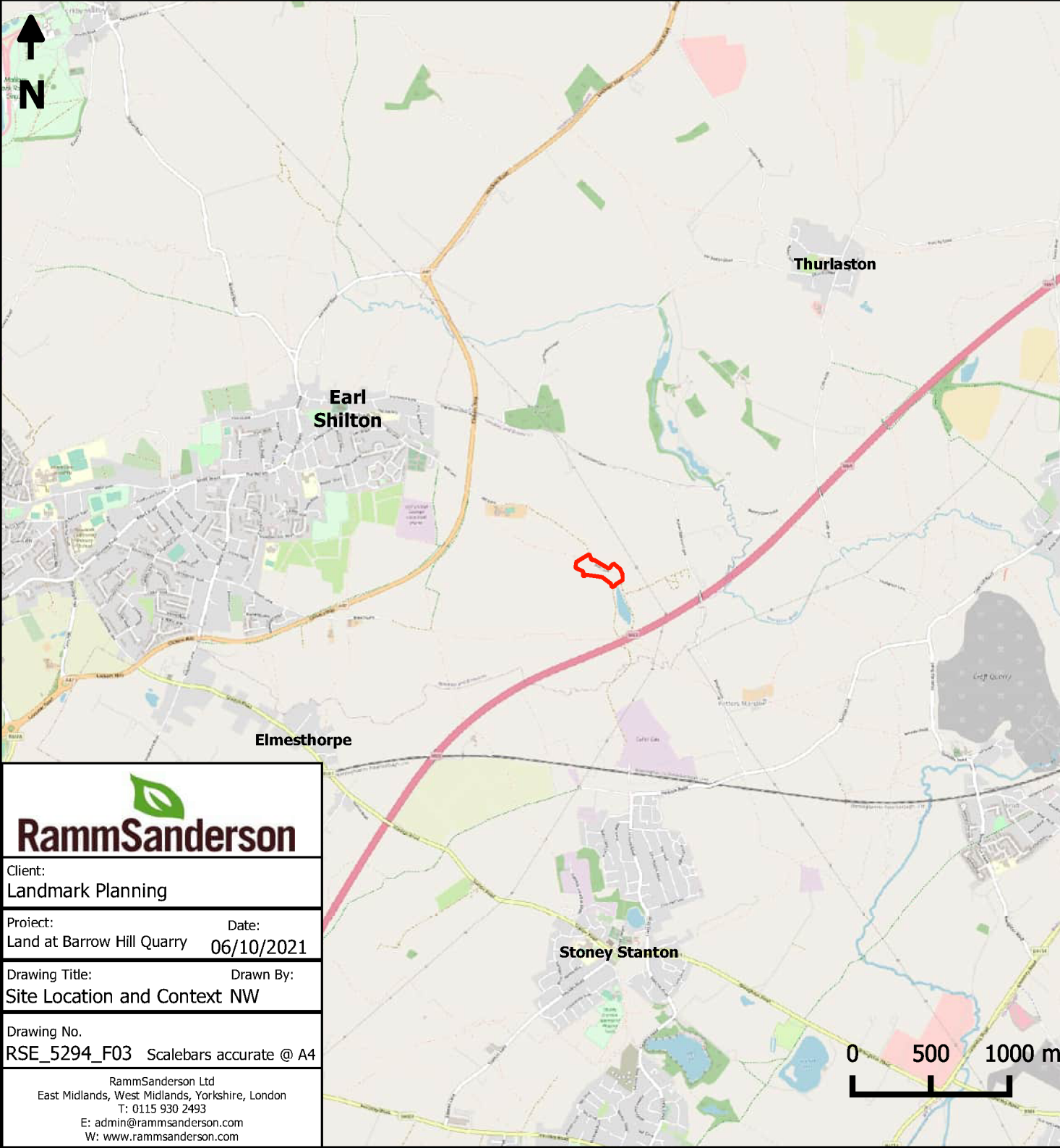
- i The Zone of Influence is used to describe the geographic extent of potential impacts of a proposed development. The Zone is determined by the development proposals in relation to individual species ecological requirements indicated in best practice guidelines.

¹ Office of the Deputy Prime Minister Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within The Planning System

- ii In relation to great crested newts (GCN), the zone of influence is considered to be up to 500m from the site boundaries, as this is the distance that Natural England would require to be considered in relation to GCN licensing.
- iii For badgers, the zone of influence is typically 30-50m from the site boundary as this is the distance within which a sett can be damaged or disturbed by heavy machinery.
- iv For designated sites, the Zone of Influence can be up to 10km from the site and this is termed the Impact Risk Zone (IRZ). Where sites occur within an IRZ the requirement for a Habitat's Regulations Assessment or Environmental Impact Assessment may be triggered.

2.3 Site Context and Location

- i The site is located on land at the disused Barrow Hill Quarry, to the south-east of Earl Shilton, Leicestershire (central grid reference: SP 4876 9715). The site is mostly surrounded by arable land, with a large waterbody and the M69 to the south.



**RammSanderson**

Client:
Landmark Planning

Project:
Land at Barrow Hill Quarry

Drawing Title:
Site Location and Context NW

Drawing No.
RSE_5294_F03

Date:
06/10/2021

Drawn By:

Scalebars accurate @ A4

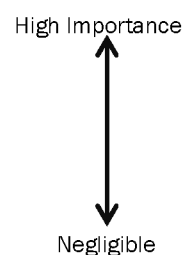
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3 METHODOLOGY

3.1 Ecological Impact Assessment

- i The ecological impact assessment is based on the standard best practice methodology provided by the Guidelines for Ecological impact Assessment (CIEEM, 2018). The assessment identifies important sites, habitats, species and other ecological features that are of conservation value based on factors such as legal protection, statutory or local site designations such as Sites of Special Scientific Interest (SSSI) or Local Wildlife Sites (LWS) or inclusion on Red Data Book Lists or Local Biodiversity Action Plans.
- ii The importance of an ecological feature is considered within a defined geographical context. The following frame of reference is used, or adapted to suit local circumstances:

- International and European
 - National
 - Regional
 - Metropolitan, County, vice-county or other local authority-wide area
 - River Basin District
 - Estuarine system/Coastal cell
 - Local
 - Below Local level e.g. on site only
- Importance



- iii Consideration of impacts at all scales is important, and essential if objectives for no net loss of biodiversity and maintenance of healthy ecosystems are to be achieved.
- iv In identifying impacts, the review considers the Client's Site proposals and any subsequent recommendations made are proportionate / appropriate to the site and have considered the Mitigation Hierarchy as identified below:

- **Avoid:** Provide advice on how the development may proceed by avoiding impacts to any species or sites by either consideration of site design or identification of an alternative option.
- **Mitigate:** Where avoidance cannot be implemented mitigation proposals are put forward to minimise impacts to species or sites as a result of the proposals. Mitigation put forward is proportionate to the site.
- **Compensate:** Where avoidance cannot be achieved any mitigation strategy will consider the requirements for site compensatory measures.
- **Enhance:** The assessment refers to planning policy guidance (e.g. NPPF) to relate the ecological value of the site and identify appropriate and proportionate ecological enhancement in line with both national and local policy.

- v For the purpose of this EclA, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' (explained in 3.1.i.) or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects are considered significant at the range of scales from international to local. A significant effect is an effect that is sufficiently important to require assessment and reporting so that the ecological consequences of the project are understood. In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).
- vi Note: The following definitions are used for the terms 'impact' and 'effect' throughout this report:

- **Impact** – Actions resulting in changes to an ecological feature. For example, the construction activities of a development removing a hedgerow.

- **Effect** – Outcome to an ecological feature from an impact. For example, the effects on a dormouse population from loss of a hedgerow.

3.2 Desk Based Assessment

- Data regarding statutory and non-statutory designated sites, plus any records of protected or Priority species and habitats was requested from the local ecological records centre and online resources, details of which are provided in Table 1 below.

Table 1: Consulted resources

Consultee/Resource	Data Sought	Search Radius from Boundary
Leicestershire & Rutland Environmental Records Centre	Non-Statutory Site Designations, protected/Priority species records	2km
www.magic.gov.uk ^{2 3}	Statutory Site Designations	20km
	NERC Act (2006) Habitats	1km

NB: Desk study data is third party controlled data, purchased or consulted for the purposes of this report only. RammSanderson Ecology Ltd cannot vouch for its accuracy and cannot be held liable for any error(s) in these data.

3.3 Phase 1 Habitat Survey

- An extended Phase 1 Habitat Survey of the site was completed to identify habitats present within the site. All habitats within and adjacent to the site boundary were described and mapped following standard Phase 1 Habitat Survey methodology (JNCC, 2016), which categorises habitat type through the identification of individual plant species.
- Nomenclature follows Stace (Stace, 2019) for vascular plant species and the DAFOR scale for relative abundance was used in the field to determine dominant plants within habitats and communities (D = dominant, A = abundant, F = frequent, O = occasional and R = rare).
- In addition to the Phase 1 Habitat Survey, a site visit by Sue Timms of Leicestershire County Council was conducted in May 2022 and provided an updated botanical assessment and assessment of habitat quality.

3.4 Protected / Priority Species Scoping Assessment

- The habitats onsite were assessed for their suitability for supporting any legally protected or priority species that would be affected by the proposed development. This includes invasive non-native plant species such as Japanese knotweed (*Reynoutria japonica*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*).
- The full scope of species assessments and survey methods are detailed in Appendix 2. Any incidental sightings of individual species or field signs such as footprints, latrines or feeding remains discovered during the survey were noted.

² Multi Agency Geographic Information for the Countryside Interactive GIS Map.

³ MAGIC resource was reviewed on the 11th October 2021

3.5 Biodiversity Impact Assessment

3.5.1 Outline Procedure

- i Biodiversity Impact Assessment of proposals was carried out in accordance with guidelines published by DEFRA and via the DEFRA Metric Calculation Tool 3.1. The existing value of individual habitats onsite is initially calculated by accurately mapping the proposed development site from information collected during a Biodiversity Scoping Assessment/Phase 1 Habitat Survey and by dividing the land into individual habitat parcels. This part of the study is informed by JNCC Phase 1 habitat and UK habitats classification systems. The distinctiveness, condition, connectivity and strategic significance of these parcels is then assessed and together with the area of each habitat, a value is assigned. A summary of how habitat distinctiveness, condition assessment, connectivity and strategic significance is determined is detailed within DEFRA best practice literature

3.5.2 Calculation

- i Once the habitat types have been input into the Biodiversity Impact Assessment calculator, along with their area, distinctiveness, condition, connectivity and strategic significance an overall score in biodiversity units is calculated.

3.5.3 Compensation

- i Once the biodiversity value of existing onsite habitats has been quantified, the value of indicatively proposed habitats to achieve a net gain as part of development must be calculated. This is calculated using the methodology applied above, taking into account the area/length of indicatively proposed habitats, their distinctiveness, condition, connectivity and strategic significance once this is established. A further two parameters are also taken into consideration at this stage. These are the time it will take to reach this target condition and the difficulty of creating/restoring each habitat type proposed. By using these parameters, the calculation takes into account that the time it takes for a habitat to establish may result in a loss of biodiversity for a period of time and also the risk of failure associated with any habitat creation/restoration.

3.6 Limitations

- i It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment.
- ii Several of the surveys conducted were noted as being significantly disturbed by the presence of dirt bike riders onsite with bat activity transects and reptile surveys being the most effected. As such, it is highly likely that significant noise disturbance created will have impacted the normal behaviours of these animals perhaps decreasing the validity of results obtained during surveys.
- iii Although bat transect and static monitoring did span five months, Bat Conservation Trust (BCT) Good practice Guidelines advise that monitoring should also include the months of April and May to factor in pre-maternity activity.
- iv Standard guidance advises that a minimum of four breeding bird surveys are undertaken. However, only two visits were conducted.
- v Due to the density of scrub habitat present, it was not possible to adequately survey the whole site for badger setts and so there remains a risk that some may be present.

3.7 Accurate lifespan of ecological data

- i The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject. The survey results contained in this report are considered accurate for approximately 2 years, notwithstanding any considerable changes to the site conditions.

4 BASELINE CONDITIONS

4.1 Surveyor Competency

- i The phase 1 survey was led by Lauri Leivers BSc, ACIEEM⁴ who has been a professional ecologist for six years and holds a FISC⁵ level 3 qualification for botany meaning she is competent to adequately perform this Preliminary Habitat Survey and update botanical walkover.
- ii Lauri also attended a site visit with Lance Wiggins (Lion Planning) and Sue Timms (Team Manager, Ecology – Leicestershire County Council) on 20th May 2022.
- iii The badger walkover and habitat condition assessment surveys were performed by Aleah Maltby MSc ACIEEM and Victoria Shone MSc. Aleah has been a professional ecologist for four years and has considerable experience performing these survey types.
- iv Bat transect and reptile surveys were led by Tom Hewison MSc and Bethany Garner MSc. These ecologists possess adequate field experience to be able to perform these survey types.
- v Breeding bird surveys were led by Amy Trewick and Joshua Browster. Amy and Joshua have been professional ecologists for over ten years and both specialise in bird surveys.
- vi The invertebrate scoping assessment was conducted by Andy Jukes, Conops Entomology, MCIEEM. Andy has over 20 years of involvement with invertebrate survey and is a Fellow of the Royal Entomological Society (FRES).
- vii All surveys were completed during suitable conditions as detailed in Table 7. Desk study results, Phase 1 plan and Phase 1 habitat description are provided in Appendix 4, Appendix 5 and Appendix 6 respectively).

4.2 Designated Sites

4.2.1 Statutory Designated Sites and Non-Statutory Designated Sites

- i The nearest statutory designated site was Croft Hill SSSI which was located 2km east-southeast of the site. This is considered to be too far afield for any impacts to occur as a result of the development onsite and so is not considered to be at any risk. Similarly, four other statutory sites were located within 5km of the site boundary with the site falling within the Impact Risk Zones (IRZ) for these statutory sites. Nevertheless, the proposals were not of a type included within the IRZ for these national designated sites and so is considered to be too far afield to incur any impacts given the proposal type at this site.
- ii The nearest non-statutorily designated sites were Thurlaston Lane Verge & Hedgerow pLWS and Earl Shilton, woodland and spoil heap S of Barrow Hill Quarry and M69 LWS, 0.6km northeast and 0.6km south-southeast of the site boundary respectively. Planned development works are not likely to impact upon these sites, due to this being a small-scale development.

4.3 Habitats⁶

- i The site is approximately 2.9 hectares in area and is located to the southeast of Earl Shilton, Leicestershire. The surrounding area is mostly comprised of arable land, with a large waterbody and the M69 to the south.

⁴ Qualification correct as of date of survey.

⁵ FISC: Field Identification Skills Certificate

⁶ Full Phase 1 survey results are displayed in Appendix 5.

- ii Habitats onsite include dense/continuous scrub, tall ruderal, ephemeral/short perennial, poor semi-improved grassland, bare rock and areas of bare ground.
- iii The table below summarises the habitat types identified on site and the potential impacts as a result of the proposals and their ecological significance.

Table 2: Phase 1 habitat types and their ecological importance

Habitat	JNCC Code	Area (m ²)	Proportion of Site Area	Ecological Importance & Outcome of Proposal
Scrub – dense/continuous	A2.1	19,292	68%	May be used by protected/priority species, such as herptiles, bats, birds, and badgers. Contributes to the site adhering to criteria for 'open mosaic on previously developed land', i.e. a Priority Habitat of the UK Biodiversity Action Plan. To be partially removed under current proposals. Some areas however to be retained.
Poor semi-improved grassland	B6	115	<1%	May be used by protected species, such as herptiles and terrestrial invertebrates. Likely to be removed in its entirety under proposals.
Tall Ruderal	C3.1	1367	5%	May be used by protected species, such as terrestrial invertebrates. Contributes to the site adhering to criteria for 'open mosaic on previously developed land', i.e. a Priority Habitat of the UK Biodiversity Action Plan. Likely to be at least partially removed due to proposals.
Inland cliff	I1.1	124	N/A	Priority habitat in Leicestershire and Rutland's Local Biodiversity Action Plan. Likely to be retained by proposals. To be retained.
Bare ground	J4	7130	25%	Contributes to the site adhering to criteria for 'open mosaic on previously developed land', i.e. a Priority Habitat of the UK Biodiversity Action Plan. To be partially retained under proposals however most will be lost under proposals.
Cultivated/disturbed land – ephemeral/short perennial	J1.3	497	2%	May be used by protected species, such as terrestrial invertebrates. Contributes to the site adhering to criteria for 'open mosaic on previously developed land', i.e. a Priority Habitat of the UK Biodiversity Action Plan.

Habitat	JNCC Code	Area (m ²)	Proportion of Site Area	Ecological Importance & Outcome of Proposal
				Likely to be at least partially removed due to proposals.
Fence	J2.4	859	N/A	To be upgraded in proposals. No ecological importance.

- iv Overall, the site has relatively low botanical value and diversity, but the habitats present have value for protected and priority fauna. It is also a distinctive area within the landscape, and likely offers habitat and refuge for species within the surrounds of intensively farmed land. Therefore, it is deemed to be of importance to retain as much of the vegetated habitats as possible within the development. Enhancements to the site in terms of biodiversity are suggested in Section 5. Provided enhancement suggestions are followed and areas of scrub are retained as 'natural screening', as per the current proposals, impacts to habitats in isolation or in combination with other developments are deemed negligible.

4.4 Protected / Priority Species/Species Groups⁷

- i The presence/likely absence of protected species to be present on site and impacted by the proposals is discussed under the headings below.

4.4.2 Great Crested Newt (GCN)

- i Terrestrial habitats on the site, such as scrub, grassland, tall ruderal, and brash/deadwood piles, provide opportunities for refuge seeking and commuting great crested newt (*Triturus cristatus*).
- ii There were no waterbodies onsite, however, there was a large lake directly adjacent (c. 20m) to the southern boundary, and an additional five ponds within 500m of site (Figure 4). The large waterbody to the south was subject to a Habitat Suitability Index (HSI) assessment for GCN. It was not possible to perform GCN HSI assessments on remaining five waterbodies due to land access issues. It should be noted that P6 was located beyond a flowing watercourse which is a barrier to GCN dispersal and so a HSI assessment of this pond would have been disproportionate regardless.

4.4.3 Great Crested Newt Habitat Suitability Index (HSI) Assessment

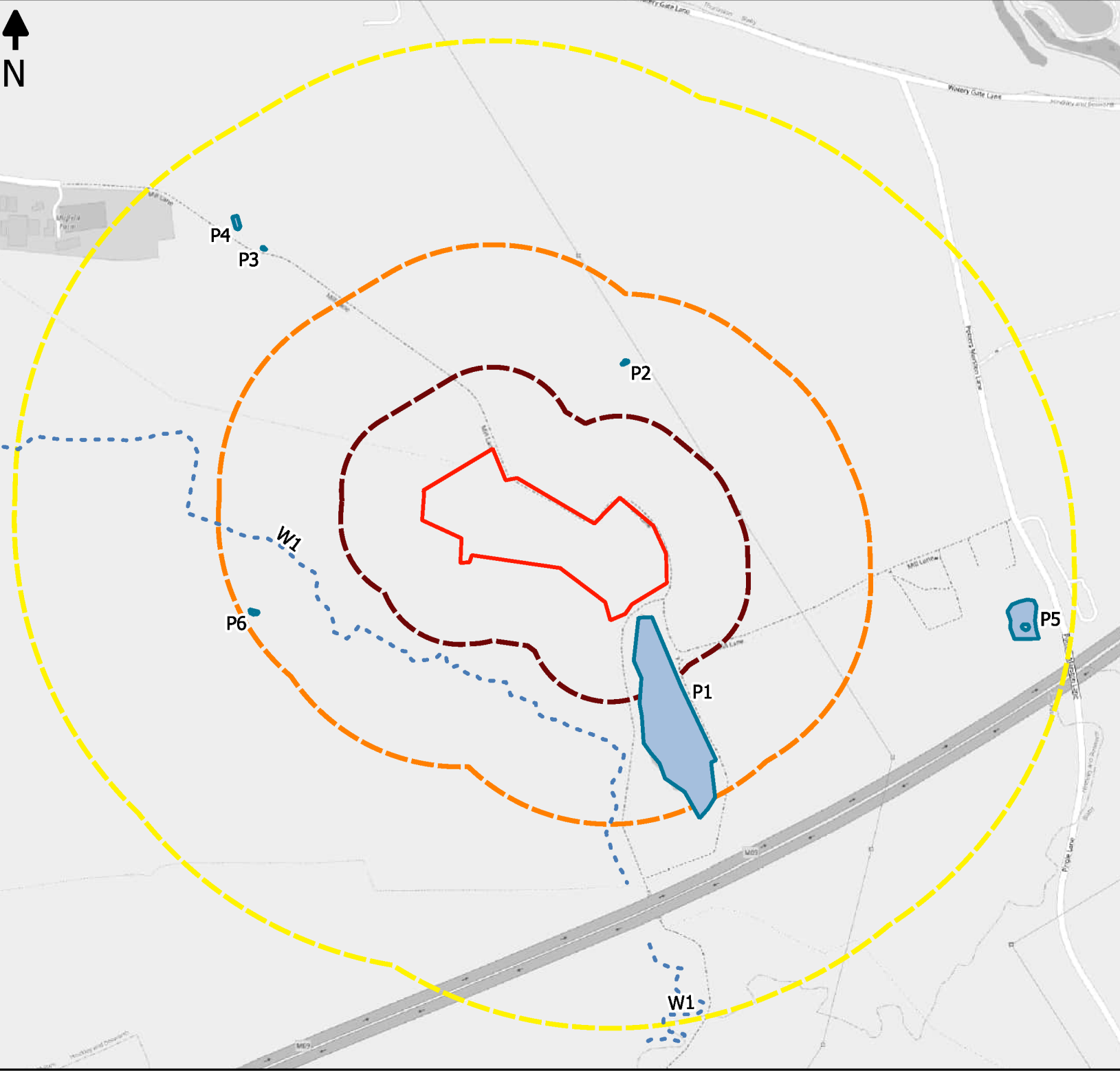
- i Waterbody P1 was subject to a GCN Habitat Suitability assessment (HSI). It was categorised as having 'Poor' suitability for supporting GCN and so an environmental DNA (e-DNA) survey was not deemed necessary. HSI assessment details can be viewed in Table 3 below. Assessments of this waterbody revealed the waterbody to be a fishing lake which was populated by stocks of large fish making it especially unsuitable towards GCN which will undoubtedly suffer predation from fish present.

⁷ Full protected species survey results are in Appendix X.

Table 3: HSI Assessment

	Location	Area (m ²)	Drying	Water quality	% shade	Waterfowl	Fish	Ponds within 1km	Terrestrial Habitat	Macrophyte cover (%)	HSI category
Category	Zone A	>6000	Never dries	Poor	0-60	Minor	Major	6	Moderate	10	Poor
Score	1	0.1	0.9	0.33	1	0.67	0.01	0.82	0.67	0.4	0.34

- ii As it was not possible to assess the remaining five waterbodies for their GCN suitability, it remains unknown whether these habitats are being utilised by breeding GCN. It is therefore possible that suitable terrestrial habitats onsite may harbour GCN and so this species was considered further.



Key

- Site Boundary
- 100m Buffer
- 250m Buffer
- 500m Buffer
- Pond Locations
- Watercourse



RammSanderson

Client: Landmark Planning		
Project: Land at Barrow Hill Quarry		
Drawing Title: Waterbody Plan		
Drawing No. RSE_5294_F04	Scale @ A4: 1:6371	Rev: V2
Drawn By: NW		Date: 03/11/2021

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4.4.4 Bats

Trees

- i No trees were present onsite that had features suitable for supporting roosting bats with only small immature trees being present.

Foraging Habitat

- i The dense continuous scrub present and large waterbody adjacent will provide good foraging habitat for localised bat populations. The site also possesses good connectivity to the surrounding landscape through hedgerows adjacent to site. This provides potential foraging and commuting habitat, as well as providing connectivity to the wider landscape. The site is also noteworthy for having a lack of artificial lighting. Most bat species are light sensitive and so this absence of light will be beneficial towards these species.
- ii A suite of bat activity transect surveys were subsequently undertaken between the months of June-October 2022, inclusive. Two static detectors were also deployed during the transects for a duration of five nights. One was located to the northwest of site amongst dense continuous scrub in a stand of young trees. The other was deployed amongst semi mature trees located on the south-eastern site boundary close to the large waterbody and next to a large spoil mound. A summary of results, activity maps and static locations can be found within Appendix 8.

4.4.5 Birds

- i A total of 17 species were recorded in the survey area, of these three were Species of Principal Importance (SPI), nine were BoCC green species, six were BoCC amber species and two were BoCC red species. There were no Schedule 1 species recorded. A potential kestrel roost was identified on site, but no individual birds were seen. The kestrel is a BoCC amber species. These can be seen in Table 4.
- ii The distribution of these per survey and by habitat can be seen in Appendix 8 as survey plans and as a heatmap.
- iii The following provides a summary of the breeding bird assemblage recorded within the different areas and habitat types on site. This is represented by species which were both landing on site and those which are flying over.
- iv Scrub on site was a dominant habitat around the site and was used by the vast majority of the species. The poor semi-improved grassland was used by two woodpigeons. The tall ruderal and ephemeral were used by a common whitethroat and robin and the bare ground used by common whitethroat, chiffchaff, sand martin, swift and wren.

Table 4 Protected, Species of Principal Importance and BoCC during Breeding Bird Surveys in 2022

Species ⁸	Schedule 1	BoCC status	Species of Principal Importance	Peak Count/No of surveys (of 2) recorded	Visit 1	Visit 2
Blackbird	N	Green	N	2/2	1	2
Blackcap	N	Green	N	1/2	4	0
Blue Tit	N	Green	N	1/2	1	0
Chiffchaff	N	Green	N	1/2	2	1
Common buzzard	N	Green	N	2/2	0	1
Dunnock	N	Amber	Y	2/2	0	2
Goldfinch	N	Green	N	2/3	0	3
Lesser whitethroat	N	Amber	N	1/3	1	0
Linnet	N	Red	Y	2/3	2	6
Magpie	N	Green	N	Same	1	1
Robin	N	Green	N	1/2	3	1
Sand martin	N	Green	N	2/2	0	1
Stock dove	N	Amber	N	1/2	2	0
Whitethroat	N	Amber	N	1/2	6	1
Woodpigeon	N	Amber	N	2/2	1	3
Wren	N	Amber	N	1/2	6	2
Yellowhammer	N	Red	Y	1/2	2	1

4.4.6 Reptiles

- i The mosaic structure of habitats onsite including scrub, grassland, bare ground, brash/deadwood and rubble piles provides very good opportunities for reptile refuge, foraging, commuting and basking. These habitats

⁸ This is both species flying over and landing on site

are not representative of the wider landscape, which is predominantly arable land, and so the site could represent a core habitat for any reptile species using it. The hedgerows adjacent also provide good connectivity with the wider countryside.

- ii Seven reptile surveys were subsequently carried out to determine the presence or likely absence of these animals onsite.
- iii No reptiles were recorded during these surveys and so it can be assumed that reptile presence is highly unlikely with the site almost certainly not forming a core area for reptiles locally.
- iv Nevertheless, it should be noted that during surveys there was a considerable amount of noise disturbance from dirt bike riders onsite. The noise and ground vibrations caused will have undoubtedly impacted reptile behaviour reducing the efficacy of results obtained. Presence therefore cannot be discounted and so there remains the residual risk for individuals to be present onsite.

4.4.7 Water Vole and Otter

- i There were no watercourses or ponds onsite, however a watercourse was located c.115m south-west of the site boundary, and a lake was also present c. 20m south of the site boundary which may offer habitat to otter (*Lutra lutra*) and water vole (*Arvicola amphibius*) within the locality.
- ii The terrestrial habitat on Site (dense scrub) would be suitable for otter and water vole refuge seeking and commuting activities. However, considering the distance from the nearest watercourse, it is considered highly unlikely that these species would commute to the Site. Therefore, further survey work was not considered necessary. Nevertheless, development works could still impact these species through pollution of these waterbodies from surface runoff and so this will be considered further.

4.4.8 Badgers

- i The badger walkover performed in June 2022 revealed one sizeable mammal hole along the southwestern site boundary. This hole was considered to be in use by badger during the time of survey in July 2022 (Figure 5). Guard hairs were found outside the entrance to the hole on a mound of fresh spoil (Figure 6). Bedding material was also found outside the hole entrance further suggesting it was in active use by badgers (Figure 7). To confirm whether this hole was indeed in use by badgers, trail cameras were deployed outside holes and along well used mammal tracks entering dense scrub habitats. Deployment of cameras was conducted in September 2022 with each being left out for a minimum period of ten nights.
- ii Footage revealed that the hole was not in use during the survey period but did confirm that badgers were accessing and utilising the site on a semi-frequent basis (Figure 8). This was reinforced by the finding of lots of badger evidence onsite including mammal runs, snuffle holes and paw-prints (Figure 9). Although no badgers were observed using the potential sett, this hole is still likely an outlier sett that is used infrequently. Furthermore, as the site is comprised of large areas of dense bramble scrub it was not possible to survey much of the site and so the presence of an active badger sett onsite cannot be ruled out.

Figure 5: Potential outlier badger sett



Figure 6: Badger guard hairs



Figure 7: Badger bedding material



Figure 8: Badger trail camera capture



Figure 9: Badger print



- iii Full locations of all the badger signs recorded onsite, including the potential sett, can be found in the map in Appendix 8 (CONFIDENTIAL).

4.4.9 Terrestrial Invertebrates

- i The site, due to its status as previously developed 'brownfield' land, and mosaic of habitats such as ephemeral short perennial, bare ground, tall ruderal, and grassland, was considered to be of value to terrestrial invertebrates. The desk study identified several records of NERC listed invertebrates within 2km of the site, the closest of which was a cinnabar (*Tyria jacobaeae*) approximately 0.9km north-west.
- ii Conops Entomology Ltd. undertook an invertebrate scoping survey on 22nd June 2022.
- iii It was concluded from this assessment that despite there being strong flowering presence, as the site is highly disturbed and habitats are relatively small in extent, it is unlikely that many groups of invertebrates will hold significant populations or diversity. However, solitary bees and wasps may display a resource of some value. Nevertheless, it is considered unlikely that species with a high conservation category, such as Red Data Book status would be recorded, and further surveys were deemed unnecessary.

4.4.10 Other Priority Fauna Species

- i The habitats onsite were suitable for brown hare (*Lepus europaeus*) and hedgehogs (*Erinaceus europaeus*). Brown hare in particular were sighted several times during survey work onsite. These species will therefore be considered further.
- ii Due to a lack of suitable habitats, the site is not considered likely to support any other legally protected or Priority species.

4.4.11 Biodiversity

- i When assessed against the DEFRA Metric 3.1 for biodiversity, the site contained 10.08 baseline biodiversity units for habitat areas and contained no linear features. Bramble scrub was assessed as being the most ecologically valuable habitat onsite bringing about 7.77 biodiversity units. Other habitats present were considered to have limited ecological value including modified grassland (0.11 units), ruderal/ephemeral (0.76 units) and vacant/derelict land/bare ground (1.43 units).

- ii Following input of habitat data into the DEFRA Metric 3.1 based on Client plans, it has been considered there will be quantified net gain in biodiversity of 1.02 habitat units (10.1%) and 0.43 linear units (100%) across the site. This meets the 10% biodiversity net gain necessitated by Hinckley and Bosworth County Council.
- iii This has been achieved by the proposed creation of new habitats that possess more ecological value than existing habitats that are to be lost. This includes the creation of two balancing ponds to the east and west of the site which results in a gain of 0.51 biodiversity units. Around these ponds parcels of mixed scrub and neutral grassland have been proposed bringing about 1.97 and 0.58 biodiversity units respectively. However, the creation of parcels of modified grassland across the site provided the largest gain in biodiversity units (3.41 units). Moreover, tree planting across site (approximately 172 trees) provided a further 2.21 biodiversity units.
- iv As a significant proportion of the bramble scrub present is due to be retained under proposals this constitutes 2.32 biodiversity units retained.
- v The planting of various lines of trees across the site also brought about a gain in 0.43 biodiversity units. Although this was not required as no linear features were present onsite, this will greatly increase the biodiversity value of the site as linear features such as these are very beneficial to a variety of priority and protected species.
- vi In addition, the provision of this habitat creation/enhancement also presents the opportunity to create habitat provisions for a variety of species, such as bat and bird boxes, as described in Section 7.

4.5 Habitat Connectivity Analysis and Closest Relevant Records

- i In assessing the site, a review of online resources and desk study data was undertaken to assesses the site with respect to its connectivity to the wider environment, particularly along linear features (rivers, railways, canals etc.) and any designated or protected sites.
- ii The site is surrounded in all direction by arable fields which are lined with hedgerows and trees. However, the closest woodlands to the south are located on the other side of the M69. Despite this, there is good connectivity and foraging for avian species such as birds and bats and for terrestrial mammals such as badgers.

5 IMPACTS AND MITIGATION (CUMULATIVE AND/OR IN ISOLATION)

5.1 Planning Application Search

- i A search was conducted of planning applications within the vicinity of the proposed developments, using the Hinkley & Bosworth Borough Council Planning Application Map Viewer⁹ and the Blaby Council Planning Application Map Viewer¹⁰. The search was limited to the five-year period preceding the date of issue of this report (due to the typical five-year lifetime of planning permission). Excluding retention applications (i.e. typically local-scale residential or commercial developments where an impact has already occurred), and withdrawn and refused applications, the following applications were identified as having the greatest potential to act in-combination with one or more of the proposed developments:
- Planning reference 21/01470/OUT - Land East of The Common Barwell Leicestershire - Residential development of 110 dwellings with associated access, open space and landscaping (outline - access only)
 - Planning reference 20/01225/FUL - Land West of Clickers Way Earl Shilton Leicestershire - Residential development for 81 dwellings with provision of access, open space and associated infrastructure
 - Planning reference 21/01511/OUT - Earl Shilton Sustainable Urban Extension (SUE) Mill Lane Earl Shilton Leicestershire - Outline application to include up to 1,000 dwellings (C3) up to 5.3 hectares for employment uses comprising a mix of B2, B8 and E(g) uses, a primary school/education uses (F1), retail floor space (E) and hot food takeaway (Sui Generis) as part of a mixed use local centre/community hub (E/F1/F2/C3), two vehicular accesses from the A47, limited access from Breach Lane, vehicular access from Mill Lane, public open space including sustainable urban drainage systems and the provision of associated infrastructure and ancillary works and demolition of former girl guide building (outline - access only)(EIA development)
- ii All of the above developments are still awaiting approval or refusal. Some mitigation for protected species has been proposed within the ecological assessments where appropriate. Two out of the three developments listed have been shown to result in a biodiversity net gain but with some losses to local wildlife site quality grassland. Negative impacts to landscape connectivity for badgers have been highlighted within the Clickers Way project, as well as potential negative impacts to water voles within the Mill Lane project. Enhancements within the Barwell project are suggested to result in positive outcomes for bats and birds and mitigation involving sensitive lighting for bats is suggested within Clickers Way.
- iii Overall, considering the habitat types (predominantly scrub and bare ground) within the current site, cumulative impacts of a loss of habitat of high biodiversity value are not anticipated. Provided mitigation and compensation measures are followed, it is not considered likely that potential cumulative impacts to bats (or any other protected species) would elevate significance. However, it is possible that potential cumulative impacts are predicted to elevate the geographic scale of impact significance for badgers, due to a loss of habitat connectivity in the wider landscape.

5.2 Habitats

- i Due to its extensive use for recreational dirt and quad-biking, the site is heavily eroded with networks of tracks and bare ground dominating the centre. The primary habitat on the site is dense/continuous scrub

⁹ <https://pa.hinkley-bosworth.gov.uk/online-applications/spatialDisplay.do?action=display&searchType=Application>

¹⁰ <https://pa.blaby.gov.uk/online-applications/spatialDisplay.do?action=display&searchType=Application>

which is dominated by bramble with few other species present. The tall herb and tall ruderal vegetation on the site are typical of nutrient enriched soils, with abundant nettles, which are also of low biodiversity value. Species indicative of species-rich grassland (occasional knapweed, musk mallow, bulbous buttercup, bird's-foot trefoil, ox-eye daisy and mouse-ear hawkweed) but these are only present in small quantities through the site indicating that habitat quality is likely in decline.

- ii Although the site does meet some of the criteria necessary for classification as Open Mosaic Habitat on Previously Developed Land habitat (a Priority Habitat under NERC Act, 2006), the poor condition of habitats (caused by erosion, bramble dominance, and presence of invasive species) means it does not fully meet classification requirements for this broad habitat type. Furthermore, it is considered unlikely that habitats present will develop into those of a higher quality whereby classification requirements can be met. This was confirmed by Sue Timms during the site meeting in May.
- iii The south-facing rock face along northern boundary provides good habitat for basking reptiles and invertebrates, adding to the biodiversity value of the site. This constitutes a priority habitat under Leicestershire and Rutland's local Biodiversity Action Plan. As such, it is to be retained within proposals and it is suggested that it is cleared of encroaching scrub.
- iv Overall, the site has relatively low botanical value and diversity, but the habitats present have value for protected and priority fauna. It is also a distinctive area within the landscape, and likely offers habitat and refuge for species within the surrounds of intensively farmed land. Therefore, it is deemed to be of importance to retain as much of the vegetated habitats as possible within the development. Enhancements to the site in terms of biodiversity are suggested in Section 7. Provided enhancement suggestions are followed and areas of scrub are retained as 'natural screening', as per the current proposals, impacts to habitats in isolation or in combination with other developments are deemed negligible.

5.2.1 Invasive Floral Species

- i The Japanese knotweed onsite should be subject to a remediation strategy in order to prevent spread within the Site and into the adjacent habitats. A 7m exclusion zone should be erected as soon as possible to prevent further spread via the underground rhizome systems. A specialist Japanese knotweed remediation strategy will be required prior to development.
- ii *Cotoneaster* (*Cotoneaster* sp.) and field horsetail (*Equisetum arvense*) were noted occasionally onsite in low densities and therefore a remediation strategy is considered disproportionate at this time. Care should however be taken when concerned with their removal and a precautionary approach should be undertaken to prevent its spread into the wider landscape.

5.3 Statutorily and Non-Statutorily Designated Sites

- i No significant impacts upon designated sites are anticipated as a result of the proposals. The site is 2km from the nearest SSSI and is only a small-scale development which is expected to have little impact on the surrounding area. Moreover, the proposals are not of a type to be included within any Impact Risk Zones for any statutory designated sites within five kilometres. Provided discharge water guidelines are followed, there are not anticipated to be any significant impacts on nearby SSSI's. Discharge guidelines are stated as: Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.

5.4 Fauna

5.4.1 Great Crested Newts

- i An enquiry was submitted to Natural England's District Level Licensing scheme. As stated on the gov.uk website, "By joining a district level licensing scheme, you comply with your legal duty to protect great crested newts by paying for off-site compensation ponds instead of carrying out detailed surveys and applying for a mitigation licence." The site fell within Leicestershire and within the amber zone meaning it was suitable for the scheme.
- ii Subsequently, an Impact Assessment and Conservation Payment Certificate (DLL-ENQ-LEIC-00067) was issued to the client on 23/02/2023. Once planning permission is granted, the licence application can be made. Following approval of the licence application and payment, work can begin.
- iii With the District Level Licence in place there is no legal requirement translocation or specific precautionary methods of working. However, where possible, impacts to individuals should be avoided and, where they are identified, an ecologist should be contacted to remove them from the works area.

5.4.2 Bats

Bat Roosts

- i Trees present onsite were deemed to be negligible in their potential to harbour roosting bats. The rock cliff present however may hold some bat roosting potential as several cracks and crevices were observed on the rock face that could be suitable for roosting bats. As this habitat is to be retained under proposals then there is considered no risks of harm being caused by development works on roosting bats provided sensitive lighting protocols are followed (detailed below).
- ii A Protected Species Licence will therefore not be required from Natural England to authorise works.

Bat Foraging Habitat

- i During transect surveys bat activity was considered to be low, being largely dominated by common pipistrelle (*Pipistrellus pipistrellus*) foraging/ commuting. Nyctalus species mainly noctule (*Nyctalus noctula*) were also recorded frequently across the site with the majority of these records consisting of commuting activity with some foraging around the centre and far north of the site. Activity was fairly consistent across the site with no section receiving significantly more activity than other parts. Several calls recorded on surveys were indicative of serotine bats (*Eptesicus serotinus*) however these were not clear enough to confidently identify to species level and so these records were classified under Nyctalus species. Myotis species and Nathusius's pipistrelle (*Pipistrellus nathusii*) calls were also noted across some of the surveys however these recordings were rare.
- ii Activity was also relatively low during the periods of static monitoring. Analysis of the data revealed that activity onsite was dominated by foraging and commuting common pipistrelle, with this species making up 57% of the recorded calls at the northern end of the site and 65% at southern end. Nyctalus species were also commonly encountered representing 34% of the calls recorded to the north and 33% to the south. Of these, over half were identified as noctule bats with some (approximately 1%) also being indicative of serotine bat calls however as before these recordings were not clear enough to be identified to species level. Other species encountered included soprano pipistrelle (*Pipistrellus pygmaeus*) (1% calls for both statics) and Myotis species (with six calls being detected in the north and only one in the south). Overall activity was similar at both ends of the site with the north receiving slightly higher levels of activity. The northern static recorded a total of 279 passes across all months with an average of 16.4 passes per night. The southern static recorded a total of 263 bat passes at an average of 13.2 passes per night.

- iii As large sections of scrub are to be retained under current proposals it is not anticipated that works will have much of a bearing on bat activity onsite. Furthermore, planting regimes proposed including tree planting and woodland creation to the southeast will enhance the value of the site towards localised bat populations increasing suitable foraging and commuting habitat. Provision of nesting boxes could also offer some roosting potential to bat species which would also help maintain the favourable conservation status of the species locally. This however is provided that sensitive lighting protocols are followed for the site.
- iii Artificial lighting can affect the way that bats use habitats in a number of ways, depending on the species. Direct bright lighting of a roost can cause bats to delay emergence from a roost and could even cause them to desert the roost or become entombed within it (BCT and ILP, 2018). The prey items for British bats are flying insects, and many flying insects are attracted to certain types of artificial light sources, especially those that emit light with an ultraviolet component or have a high blue spectral component (BCT and ILP, 2018). Some species of bat recorded are known to be attracted to insects gathered around light sources (such as pipistrelle, noctule, Leisler's and serotine), whereas other species actively avoid lit areas (such as long-eared bats, Myotis species, barbastelle and greater and lesser horseshoe bats). Lighting within the Site could therefore be expected to affect the ways that the bats in the area are able to use the Site. As a result, it is recommended that construction works are to be undertaken in daylight hours only with no night hours work permitted.
- iv Sensitive lighting onsite should follow the guidance set out in Bats and Lighting in the UK (BCT and ILP, 2018). Therefore, associated site lighting proposals must consider the following:
 - Avoid lighting where possible;
 - Install lamps and the lowest permissible density;
 - Lamps should be positioned to direct light to avoid upward spill onto any green corridors that could be used by commuting bats or features with bat roost potential;
 - LED lighting – with no/low UV component is recommended;
 - Lights with a warm colour temperature – 3000K or 2700K have significantly less impact on bats;
 - Light sources that peak higher than 550nm also reduce impacts to bats; and
 - The use of timers and dimmers to avoid lighting areas of the site all night is recommended.

5.4.3 Birds

- i The scrub and tall ruderal habitats within the site provide suitable habitat for nesting birds. The nearest records were within 30m of the site and the site was considered unsuitable to support Schedule 1 bird species owing to the lack of suitable features on site. Furthermore, the BBS results found only a common and widespread bird assemblage with low numbers of species of amber and red conservation concern. The majority of the habitats which are of value to breeding birds (scrub, tall ruderal and ephemeral grassland) are to be removed within the current proposals. Impacts however are unlikely to extend beyond a local level due to the size of the site and due to the small number of birds on site.
- ii Any vegetation clearance should take place outside the bird nesting season to ensure compliance with the general protection afforded to wild birds under the Wildlife and Countryside Act 1981 (as amended). If this is unavoidable, the scrub should be carefully checked, by a suitably qualified ecologist, prior to removal. Where active nests are found, working restrictions would be put in place until follow up survey can demonstrate that all chicks have fledged. This will reduce impacts to a negligible level.

5.4.4 Reptiles

- i Despite no reptiles being encountered during surveys onsite, presence cannot be entirely discounted due to disturbance from dirt bikers potentially affecting normal reptile behaviour decreasing their detectability during surveys. Furthermore, habitats onsite remain highly suitable to reptiles.

- ii As such, a Precautionary Method of Works (PMW) is recommended with regards to reptiles when carrying out any site vegetation clearance.
- iii Vegetation clearance works will be focused around areas of dense continuous scrub. Scrub provides reptiles with good refugia and hibernation habitat. Clearance works should ideally be conducted in temperatures above 11°C, ideally in the late morning to afternoon, when reptiles are most active. It should be carried out slowly and in a systematic manner working towards areas of retained scrub. This will allow any reptiles present to disperse into the wider environment unharmed.
- iv In the extremely unlikely event a reptile is seen during these works, they should be allowed to escape unharmed at their own pace. Only a trained ecologist should attempt to move reptiles by hand. If multiple reptiles are encountered, works should cease, and the methodology be re-evaluated. Following these methods will help reduce the likely impacts upon reptiles to negligible.

5.4.5 Water Vole, Otter and White-Clawed Crayfish

- i Despite there being suitable habitats for these species in close proximity to the site, habitats on the site itself are suboptimal and so further surveys were considered disproportionate. Contrary to this, works may have proposals may result in an increase in surface drainage and discharge into the nearby waterbody south of site. Therefore, impacts from the development upon water vole, otter and white-clawed crayfish could not be ruled out entirely. It is therefore important that Pollution Prevention Guidelines (Environment Agency, 2007) are followed to ensure works do not result in indirect harm on these species.

5.4.6 Terrestrial invertebrates

- i Whilst development of the site may result in the loss of some habitat for terrestrial invertebrates, it is not considered likely that this will have a significant impact on populations or species of conservation concern.
- ii As such, no mitigation measures are suggested. However, proposed creation of habitats onsite such as woodland and neutral grassland are deemed to provide adequate compensation for the loss of habitat imposed on invertebrates present.
- iii The build-up of log piles and compost heaps are also encouraged which will provide good refugia and foraging habitat for a variety of invertebrates. This will also provide ecological benefits to other fauna onsite such as GCN that may use these features for foraging or hibernacula habitat.

5.4.7 Badgers and Other Priority Fauna

- i The presence of an active main badger sett onsite is considered unlikely with only a potential outlier sett being found that was not in use during September 2022. Nonetheless, as proposed works are likely to get to within 10m of this sett, it may be necessary to do an update check to see if it still unoccupied immediately prior to works commencing. Moreover, due to the inaccessibility of the dense scrub present, vegetation clearance should be conducted under an Ecological Clerk of Works. In the event that a sett is discovered, works within 30 metres of the sett would cease until further data could be gained about its usage and appropriate mitigation measures are implemented. It is an offence to cause disturbance to a badger whilst it is occupying a sett. Table 5 below shows the minimum permitted distances for differing activities that can cause tunnel collapse or the abandonment of setts.
- ii Further to this, badgers are protected from killing/injury and disturbance, and therefore, it may be necessary to obtain a licence from Natural England to temporarily close the setts prior to works commencing on site. This activity is only licensable 1st July to 1st December inclusive, outside of the breeding season.

Table 5: Summary of badger disturbance distances

Distance	Activity
10m	All works to 10 metres of the nearest sett entrance must be undertaken using hand tools only. Where strimming or vegetation removal closer than this is required, a robust method statement and ecological clerk of works will be required (if roots are to be removed the 30m buffer applies).
30m	Using heavy machinery within 30 metres of any entrance to an active sett may require a licence
50-100m	In some cases such as where pile-driving drilling or blasting which cause severe vibration are intended, a larger zone, of at least 50 metres radius may be needed, together with careful timing of operations.

iii Given the suitability of the site for badgers, it is considered that hedgehog are likely to be utilising the Site for foraging. To enable this species to move freely across the site, small 15x15cm gaps could be left at the bottom of residential fencing. Precautionary measures are also recommended to reduce the risk of impacting badgers and hedgehogs, or any other mammals during the works.

iv These precautions are:

- Mammal ladders (such as a plank) or earth ramps to be placed in any open excavations at the end of each day;
- Cap off any open pipes at the end of each day;
- Cover any open holes, or install mammal ladders or earth ramps in any open excavations at the end of each day to prevent animals from becoming trapped;
- Keep all fuel and other harmful substances in a locked area;
- Ensure any spillages are treated with spill kits;
- Night work should be avoided where possible, and any flood lighting should face away from the Site boundaries; and
- If any fresh sett digging is observed notify an ecologist immediately and leave a 20m buffer around the area until an assessment can be made.

5.4.8 Biodiversity

i Following the creation of habitats and planting of native tree species onsite, there will be a significant positive impact on biodiversity at the Local scale. As the site is enveloped almost entirely by arable land, habitats created post-development will provide an 'oasis' or refuge for many protected and priority species within the localised area that is otherwise limited in its value towards biodiversity. This however is provided habitats are managed effectively and as sympathetic as possible towards wildlife as outlined in Section 7 below.

6 SUMMARY OF POTENTIAL IMPACTS

Table 6: Table Summary of Impacts

Ecological Feature	Importance (Geographic Frame of Reference)	Potential Effect	Mitigation Proposed	Proposed Mechanism to Secure	Residual Impact
Statutory Designated Sites	County or above	Excessive waste discharge	Discharge guidelines to be followed which includes any discharge of water or liquid waste of more than 20m³/day to ground (i.e. to seep away) or to surface water, such as a beck or stream. Pollution Prevention Guidelines should be adhered to in order to avoid any harm to fish residing within the watercourse. Pollution Prevention Guidelines – Works and maintenance in or near water: PPG5 (Environment Agency, 2007) includes measures to prevent silt and chemicals entering any of the nearby watercourses through the provision of spill kits and drip trays. Whilst this document has been recently withdrawn, no replacement guidance has been published.	None	Not significant, provided Precautionary Measures are followed.
Non-statutory designated sites	County	None	No	None	Not significant
Habitats including invasive and Priority flora	Local	Loss of habitats of low diversity and possible indirect effects as a result of construction. Spread of Japanese knotweed, cotoneaster and horsetail onsite and within the wider environment	A specialist Japanese knotweed remediation strategy will be required prior to development. A Precautionary approach with relation to cotoneaster and horsetail onsite to be detailed within a CEMP.	Planning Condition – details within a CEMP	Not significant
Reptiles	Local	Potential for killing/injury of individual animals during vegetation removal and construction.	Precautionary In relation to legislative protection of animals	Planning Condition – detail within a PMW / CEMP	Not significant

Ecological Feature	Importance (Geographic Frame of Reference)	Potential Effect	Mitigation Proposed	Proposed Mechanism to Secure	Residual Impact
Bats – Roosting	N/A	None	N/A	N/A	N/A
Bats – Foraging/Commuting	Local	Unlikely to be impacted by proposals as most suitable foraging habitat to be retained. Excessive light practices may have negative impacts on bat behaviour.	Replacement of vegetation with native tree species and planting of linear features to aid commuting bats. Implementation of sensitive bat lighting scheme.	Planning Condition – details within CEMP	Not significant
Great crested newts	Local	Killing/ injury/ disturbance through destruction of terrestrial habitat. Pollution of potential breeding habitat	Mitigation via District Level Licence. Pollution Prevention Guidelines to be followed.	Natural England District Level Licence	Not significant provided DLL is followed.
WWC	N/A	Pollution of nearby waterbodies.	Pollution Prevention Guidelines to be followed.	None	Not significant
Water vole	N/A	Pollution of nearby waterbodies.	Pollution Prevention Guidelines to be followed.	None	Not significant
Badgers	Local	Clearance of scrub has the potential for killing/injury/disturbance of concealed badger setts. Potential harm to transient individuals passing through the site during works.	Precautionary in relation to legislative protection of individual animals which may pass through the Site, including capping off pipework overnight and providing a sloped edge to any excavations. Clearance of dense scrub using hand tools only under supervision of an ecologist in case of concealed setts. Update activity survey of potential sett recommended prior to the commencing of nearby works. If a sett is discovered works must cease and minimum disturbance distances from the sett established. Where this is not possible, sett closure will be required under a licence from Natural England.	Planning Condition - details within a CEMP NE Licence if required	Not significant provided PMW followed
Breeding birds	Negligible	Damage or destruction of nests foraging and breeding habitat.	Precaution in relation to legislative protection of animals, including timing of works to avoid nesting season.	Planning Condition -	Not significant

Ecological Feature	Importance (Geographic Frame of Reference)	Potential Effect	Mitigation Proposed	Proposed Mechanism to Secure	Residual Impact
				details within a CEMP	
Otter	Local	Pollution of nearby waterbodies.	Pollution Prevention Guidelines to be followed.	None	Not significant
Terrestrial invertebrates	Local	Loss of suitable habitat through clearance works	None	None	Not significant
Biodiversity	Local	Removal of low diversity and common habitats that support only limited protected species.	Not considered necessary as proposals will bring about a net gain of 10.1% in biodiversity units and 100% gain in linear units.	Planning Condition – details within LEMP	Potentially significant positive impact

7 COMPENSATION & ENHANCEMENT RECOMMENDATIONS

7.1 Habitats

- i The National Planning Policy Framework and local development plan requires ecological enhancement of sites subject to development proposals to the extent that they provide a net biodiversity gain.
- ii Details concerning habitat creation and enhancement for this site can be found within the Biodiversity Impact Assessment Metric: RSE_5294_BIA_V4.
- iii Within current proposals [Appendix 3], existing scrub is retained to provide natural screening and extensive tree planting is incorporated. Additionally, two balancing ponds are due to be created to the east and west of the site. These features will be surrounded by mixed scrub and neutral grassland habitats. Areas of current bare ground alongside the proposed lodges are earmarked to be enhanced to greenspace. It is suggested that these areas incorporate the elements discussed below.

7.1.2 Tree planting

- iv Tree planting has been proposed throughout the site surrounding the lodges. The use of native species in tree planting is encouraged as these can harbour a high diversity of invertebrates. For example, English oak trees have over 400 associated invertebrate species (Kennedy & Southwood, 1984).
- v Other suggested planting of benefit to invertebrates includes:
 - Willow (*Salix sp.*);
 - Hawthorn (*Crataegus monogyna*);
 - Blackthorn (*Prunus spinosa*);
 - Hazel (*Corylus avellana*); and
- vi Other tree species that are considered suitable for the site include rowan (*Sorbus aucuparia*), silver birch (*Betula pendula*) and cherry (*Prunus avium*). All three are relatively quick growing with limited crown spread so would be beneficial in amenity areas. Rowan would provide berries for bird sustenance.
- vii Ash (*Fraxinus excelsior*) and elm (*Ulmus sp.*) should be avoided due to prevalence of disease (Ash die-back and Dutch elm disease) in these species; stocks of these species cannot be guaranteed to be free from disease.
- viii The planting of apple (*Malus sp.*) and cherry (*Prunus sp.*) trees onsite would also provide good foraging for a variety of fauna including birds, insects and badgers.
- ix The addition of fruit trees throughout the site, including apple (*Malus sp.*) and cherry (*Prunus sp.*) would also provide suitable foraging enhancements for badgers across the site.
- x Any landscape planting associated with the new development should also consider the use of native shrub species and also species which provide important sources for pollinating species such as lavender. The Royal Horticultural Society provide online resources to identify suitable plants for garden areas that are aesthetically pleasing but of significant value to local pollinators (www.rhs.org.uk/plantsforpollinators).

7.1.3 Scrub

- xi Mixed scrub is due to be planted around the proposed balancing ponds. This will create a natural screening of the ponds against potential human encroachment and will also provide suitable habitat for a variety of species including badgers, herpetofauna (amphibians and reptiles) and nesting bird species. Planting should ideally consist of a mixture of native species such as hazel, blackthorn, hawthorn, willow, box, dogwood, and buckthorn. These areas should also be managed sensitively for wildlife, with sections cleared on a rotational basis to produce clearings within this habitat.

7.1.4 Grassland creation

- i The development will likely include areas of amenity-managed 'modified' grassland. It is recommended that these areas are sown with a Flowering Lawn Mixture which contains slow growing grasses with a selection of wildflowers that respond well to regular short mowing. For example, Naturescape's N14 Flowering Lawn Mixture contains 80% grasses and 20% wildflowers, with species such as bird's-foot trefoil (*Lotus corniculatus*), selfheal (*Prunella vulgaris*), hard fescue (*Festuca Trachyphylla*), and smooth stalked meadow grass (*Poa pratensis*). This can be managed as amenity grassland since the species in the mix will tolerate close mowing to a height of c. 5cm for the majority of the year.
- ii In areas of lower footfall, suggested to the centre of the lodge complexes, it is recommended that neutral
- iii grassland is created which prioritises wildflowers and is sown with a seed mix, such as Naturescape's 'N5 Long Season Meadow Mix'. Wildflower grassland will provide a broad variety of food sources for a diverse range of invertebrates, including lepidopterans and pollinators. This will, in turn provide an ample food source for insectivores such as bats and hedgehogs.
- iv The ground could be prepared for supplementary planting with minimal effort, using a chain harrow. Any existing vegetation should be removed, and the soil should be raked to break it up, producing a fine, firm later of soil. Seeds should be sowed during autumn or spring, and if there is a dry period, the soil should be watered.
- v To achieve 'moderate' condition, a management plan should implement the following: scrub to account for
- vi <20% of the area; cover of bracken <20%; an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981); physical damage (such as excessive poaching, damage from machinery use or storage,
- vii damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. There should also be at least six species per m².

7.1.5 Ponds

- viii If the proposed balancing ponds are planted sympathetically towards wildlife, they could provide significant ecological enhancement to the site. Areas of permanent wet waterbodies and associated vegetation can provide an important invertebrate habitat area and increasing the foraging capacity of the site for fauna. The value of these ponds for wildlife can be maximised by utilising the following principles, recommended from the Freshwater Habitats Trust:
 - Creating complexes of ponds rather than single waterbodies
 - Include both permanent and seasonal ponds
 - Almost all pond slopes are at least 1:2° in gradient
 - Create broad, undulating wetland areas around and between ponds
 - Create underwater bars and shoals to benefit aquatic plant

Figure 10: Pond Complex Example

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- ix Where the ponds are designed to hold some degree of permanent standing water, they could be planted with native marginal plug plant species and with marginal vegetation, such as Naturescapes N8 Water's Edge Meadow Mixture is recommended. This comprises 24 wildflower species and 9 grass species. The species in this mix will tolerate flooding once established, and many would grow in the ponds themselves.

7.2 Protected/Principal Species

- i Provision of habitat for protected and principal species are additional enhancements that could be incorporated within the development scope.

7.2.2 Bat roost boxes

- i Bat roost boxes can be easily incorporated into the development. They are designed to mimic natural roost sites and to provide a stable environment. The Vivara Pro WoodStone Bat Box (Figure 10) can provide summer roosting spaces for bats in an urban area. It is made from a mix of concrete and wood fibre so is durable and maintains a consistent temperature. It can be attached to walls or trees and should be sited at least 3m from the ground, sheltered from strong winds, and exposed to the sun for part of the day (usually south or south-west). They are best clustered in small groups. It is also recommended that bird nest boxes be placed 1.5m below each bat box, to ensure the birds have somewhere to nest and do not inhabit the bat boxes. Tree mounted boxes should ensure entrances are free of overhanging branches. Other bat boxes are available, and suitable dimensions are 430mm high x 270mm wide x 140mm deep.

Figure 11: Vivara Pro Woodstone Bat Box



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7.2.3 Bird nest boxes

- i Bird nest boxes can also be easily incorporated into the development. The Vivara Pro Seville 32mm WoodStone Nest Box (Figure 11) is suitable for common garden birds, such as blue tits, is made of a mix of concrete and wood fibre for durability and predator protection and would make an attractive addition to trees or wooden posts. It should be installed above 3m to avoid interference from domestic cats.

Figure 12: Vivara Pro Seville 32mm WoodStone Nest Box



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7.2.4 Hedgehog nest boxes and 'highways'

- ii Hedgehog nest boxes could be installed in secluded areas of the site, in areas of dense scrub. An example hedgehog nest box is shown in Figure 12.
- iii Where any permanent fencing is to be constructed, small 15x15cm mammal holes should be installed within these fences. 'Hedgehog Highway' signs (available from the British Hedgehog Preservation Society, Figure 12) could be installed above these holes to prevent them being filled in in the future. This will help to maintain their permanency and so the connectivity for mammals, such as hedgehogs, to the site and the surrounding landscape.

Figure 13: Hedgehog nest box and highway examples



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7.2.5 Invertebrate refugia/'hotels'

- iv Insect refugia, also known as 'hotels' could be installed alongside the wildflower meadows. These are designed to provide a variety of niches for a diverse spectrum of invertebrates to inhabit, and therefore increase the terrestrial invertebrate species diversity on site. An example is the National Trust Apex Insect House (Figure 13). These are an attractive addition to areas of greenspace and provide refuges and nest building opportunities for species such as ladybirds, butterflies, and solitary bees/wasps. They can be hung on walls or sheds less than 2m from the ground or placed in sheltered positions amongst vegetation.

Figure 14: National Trust Apex Insect House

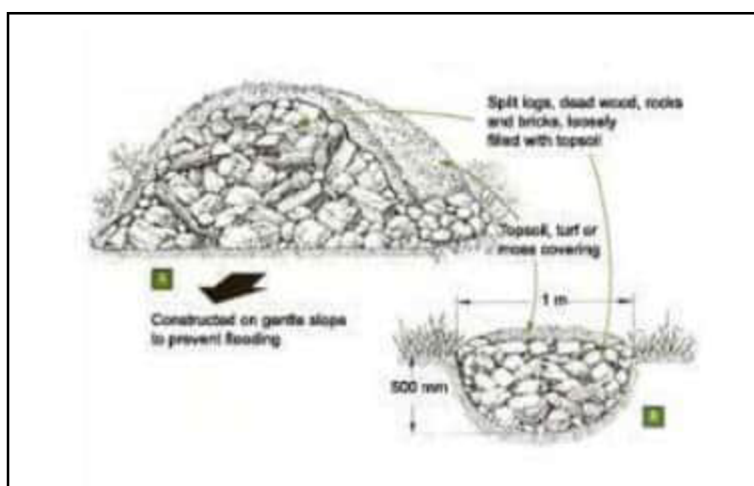


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7.2.6 Herpetofauna hibernacula

- v Log piles, rocks and dead wood under dense ground cover could also be created across the Site for herpetofauna hibernacula. These will provide important places for herpetofauna to rest during the day or during cold or dry weather. Hibernacula should be c. 2m² long, a minimum of 0.5m wide and c.1m in height and comprise log or debris piles with a cap composed of topsoil and a turf covering. An example is shown in Figure 14.

Figure 15: Herptile hibernacula example



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8 MONITORING

- i No monitoring is required for this project to be compliant with legislation and policy.

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- xxxi Gilbert G., Gibbons D.W. and Evans J. (1998). Bird Monitoring Methods: A manual of techniques for key UK species. RSPB, Bedfordshire. - See more at: <http://www.cieem.net/birds#sthash.XztkCHsC.dpuf>
- xxxii Wray et al., 2010 Valuing bats in ecological impact assessment. In Practice, 23-25.

10 LEGISLATION AND PLANNING POLICY

10.1 General & Regionally Specific Policies

i Articles of British legislation, policy guidance and both Local Biodiversity Action Plans (BAPs) and the NERC Act, 2006 are referred to throughout this report. Their context and application is explained in the relevant sections of this report. The relevant articles of legislation are:

- The National Planning Policy Framework (2021)
- ODPM Circular 06/2005 (retained as Technical Guidance on NPPF 2021)
- Local planning policies EN2, EN7 & EN10 (Bolsover District Council)
- The Conservation of Habitats & Species (Amendment) (EU Exit) Regulations 2019 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- EC Council Directive on the Conservation of Wild Birds 79/409/EEC;
- National Parks and Access to the Countryside Act 1949;
- The Protection of Badgers Act 1992;
- The Countryside and Rights of Way Act 2000;
- The Hedgerow Regulations 1997;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- Local Biodiversity Action Plan for Leicestershire and Rutland.

ii Specifically, EN3 of the Bolsover District Council States:

“Habitats for great crested newts will be protected from all impacts as a propriety in the region”

iii EN7 states:

“The council will not permit any development that doesn’t result in significant biodiversity gain at the local level.”

iv EN10 stipulates:

“...Those proposals that negatively affect trees will not be granted permission”

v In relation to these proposals relevant sections of the NPPF, 2019 are:

“promote the conservation restoration and enhancement of priority habitats and ecological networks and the protection and recovery of priority species...identify and pursue opportunities for securing measurable net gains for biodiversity (174b)”

“minimising impacts on and providing net gains for biodiversity (170d)”

“if significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused (175)”

10.2 Bats and Great Crested Newts

i Great crested newt and species of British bats are fully protected within UK Law under *Wildlife and Countryside Act 1981* (as amended) through their inclusion in Schedule 5. Under the Act, they are protected from:

- Intentional or reckless killing, injury, taking;
- Damage to or destruction of or, obstruction of access to any place of shelter, breeding or rest;

- Disturbance of an animal occupying a structure or place;
 - Possession or control (live or dead animals);
 - Selling, bartering or exchange of these species, or parts of.
- ii This law is reinforced by the UK's transposition of the EU Habitats Regulations under *The Conservation of Habitats & Species (Amendment) (EU Exit) Regulations 2019 (as amended)*. These Regulations also prohibit:
 - the deliberate killing, injuring or taking of great crested newt or bats;
 - the deliberate disturbance of any great crested newt or bat species in such a way as to be significantly likely to affect:
 - their ability to survive, hibernate, migrate, breed, or rear or nurture their young; or
 - the local distribution or abundance of that species.
 - damage or destruction of a breeding site or resting place;
 - the possession or transport of great crested newt or bats or any other part of.
- iii Under certain circumstances a licence may be granted by Natural England to permit activities that would otherwise constitute an offence. In relation to development, a scheme must have full planning permission before a licence application can be made.
- iv In addition, seven British bat species are listed as Species of Principal Importance (SPI) under the Natural Environment and Rural Communities (NERC) Act, 2006. These are barbastelle (*Barbastellus barbastellus*), Bechstein's (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared (*Plecotus auritus*), greater horseshoe (*Rhinolophus ferrumequinum*) and lesser horseshoe (*Rhinolophus hipposideros*).
- v Under the National Planning Policy Framework 2021 the presence of any protected species is a material planning consideration. The Framework states that impacts arising from development proposals must be avoided where possible or adequately mitigated/compensated for and that opportunities for ecological enhancement should be sought.

10.3 Birds

- i The Wildlife and Countryside Act 1981 (as amended) is the Priority legislation affording protection to UK wild birds. Under this legislation all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions, to recklessly or intentionally:
 - Kill, injure or take any wild bird;
 - Take, damage or destroy the nest of any wild bird while it is in use or being built;
 - Take or destroy the egg of any wild bird.
- ii For birds listed on Schedule 1 of the Act, it is an offence to disturb any bird while it is building a nest, is at or near a nest with young; or disturb the dependant young of such a bird.
- iii Species listed in Annex 1 of the EU Birds Directive 1994 (e.g. barn owl) are required to have special conservation measures taken to preserve their habitats and sites to be classified as Special Protection Areas (SPAs) where appropriate.

10.4 Reptiles

- i All reptile species are partially protected under Schedule 5 (Sections 9(1) and 9(5)) of the Wildlife and Countryside Act 1981 (as amended). This legislation protects these animals from:
 - Reckless or intentional killing and injury;
 - Selling, offering for sale, possessing or transporting for the purpose of the sale or publishing advertisements to buy or sell a protected species.

- ii In addition to the above legislation, UK rare reptiles; sand lizards (*Lacerta agilis*) and smooth snakes (*Coronella austriaca*), are listed under The Conservation of Habitats & Species (Amendment) (EU Exit) Regulations 2019 (as amended). This makes it an offence to;
- Capture, kill, injure and disturb;
 - Take or destroying eggs;
 - Damage or destroy breeding/resting places;
 - Obstruct access to resting places; and
 - Possess, advertise for sale, sell or transport for sale, live or dead (part or derivative).
- iii Where these animals are confirmed as present on land that is to be affected by development guidance recommends that:
- The animals should be protected from injury or killing during construction operations;
 - Mitigation should be provided to maintain the conservation status of the species locally;
 - Under the National Planning Policy Framework 2021 the presence of any protected species is a material planning consideration. The Framework states that impacts arising from development proposals must be avoided where possible or adequately mitigated/compensated for and that opportunities for ecological enhancement should be sought.

10.5 Water Vole

- i Water voles (*Arvicola amphibius*) are protected under Schedule 5 Section 9 of the Wildlife & Countryside Act 1981 (as amended). It is an offence to intentionally kill, injure or capture a water vole, to intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or to disturb water voles while they are using such a place.

10.6 White-clawed Crayfish

- i White-clawed crayfish (*Austropotamobius pallipes*) are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and under the Act it is an offence to intentionally take white-clawed crayfish from the wild and to sell them. This species is also protected under the Habitat Regulations 2010 (as amended), requiring the designation of Special Areas of Conservation to protect important populations of this species.

10.7 Otter

- i The European otter (*Lutra lutra*) is the only native UK otter species. It is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981. This law is reinforced by the UK's transposition of the EU Habitats Regulations under The Conservation of Habitats & Species (Amendment) (EU Exit) Regulations 2019 (as amended). Together, these Regulations make it an offence to:
- capture, kill, disturb or injure otters (on purpose or by not taking enough care)
 - damage or destroy a breeding or resting place (deliberately or by not taking enough care)
 - obstruct access to their resting or sheltering places (deliberately or by not taking enough care)
 - possess, sell, control or transport live or dead otters, or parts of otters
- ii A convicted offence could get an unlimited fine and up to 6 months in prison.

10.8 Badgers

- i Badgers (*Meles meles*) and their setts are protected by the Protection of Badgers Act 1992. This makes it an offence to:
- intentionally capture, kill or injure a badger;
 - damage, destroy or block access to their setts;
 - disturb badgers in setts;

- treat a badger cruelly;
 - deliberately send or intentionally allow a dog into a sett; and
 - bait or dig for badgers.
- ii Case law for this species contains example prosecutions of imprisonment for six months and heavy fines.

10.9 Other notable species

- i Under the NERC Act 2006, brown hare (*Lepus europaeus*), hedgehog (*Erinaceus europaeus*) and common toad (*Bufo bufo*) are categorised as a 'Species of Principal Importance' for biodiversity.

10.10 Hedgerows

- i All native hedgerows (including species-poor ones) are listed under Section 41 of the NERC Act (2006) and are a Local Biodiversity Action Plan (LBAP) habitat. All native hedgerows are considered to be of high conservation value.
- ii The Hedgerow Regulations (1997) classifies a hedgerow as 'important' if it:
 - Satisfies at least 1 of the criteria listed in Part II of Schedule 1
 - Has existed for 30 years or more
- iii Any person wishing to remove a hedgerow is required to submit a hedgerow removal notice to the LPA
- iv Items of Legislation that are pertinent regarding hedgerows include:
 - Hedgerow Regulations 1997
 - The countryside Rights of Way Act 2000
 - Natural Environment and Rural Communities Act (NERC) 2006
 - Planning Policy Statement (PPS) 9: Biodiversity and Geological Conservation
 - The Conservation of Habitats & Species Amendments (EU Exit) Regulations 2019 (as amended)

11 APPENDIX 1: SURVEY CONDITIONS

Table 7: Survey Conditions

Survey type	Date completed	Temperatures (°C)	Times	Wind speed (Beaufort Scale)	Cloud cover (Oktas Scale)	Precipitation
PEA and GCN H.S.I	08.10.21	14	11:00-13:00	1	8	0
Badger Walkover and condition assessment	28.06.22	20	10:05-13:30	2	8	0
Additional site visit (Sue Timms and Lance Wiggins)	20.05.22			Not provided		
Reptile Survey 1	02.09.22	18	16:09-16:55	1	7	0
Reptile Survey 2	05.09.22	18-19	10:01-10:32	0	2	0
Reptile Survey 3	08.09.22	17	18:11-18:42	0	7	0
Reptile Survey 4	14.09.22	18	16:00-16:35	2	1	0
Reptile Survey 5	21.09.22	16	10:11-10:35	1	8	0
Reptile Survey 6	23.09.22	12-16	10:00-12:00	1	0	0
Reptile Survey 7	28.09.22	13	10:00-12:00	3	8	0
Bat Activity Survey 1	21.06.22	19-20	21:32-23:32	0-1	0	0
Bat Activity Survey 2	18.07.22	25-29	21:19-23:19	1	1-3	0
Bat Activity Survey 3	18.08.22	19-20	20:25-23:25	2	8	0
Bat Activity Survey 4	08.09.22	13-17	19:37-21:37	0	5-6	0
Breeding Bird Survey 1	20.06.22	9	04:00-05:30	1	1	0
Breeding Bird Survey 2	07.07.22	21	19:55-20:26	1	1	0
Invertebrate Scoping Assessment	22.07.22	18		Not provided		

12 APPENDIX 2: SPECIES SPECIFIC SURVEY METHODOLOGY

12.1 Great Crested Newt (GCN) Habitat Suitability Assessment (H.S.I)

- i Waterbodies within 500m of the survey area were evaluated against the GCN HSI criteria (Oldham *et al*, 2000). The HSI provides a measure of the suitability of a water body to support GCN by assigning an overall score of between 0 and 1, which is based on ten key criteria as follows:
 - SI1 Geographic location
 - SI2 Pond area
 - SI3 Pond drying
 - SI4 Water quality
 - SI5 Shade
 - SI6 Presence of water-fowl
 - SI7 Presence of fish
 - SI8 Number of local ponds
 - SI9 Terrestrial habitat quality
 - SI10 Plant coverage
- ii In general, ponds with a higher score are more likely to support GCN than those with lower score. Suitability for GCN is determined in accordance with the scale outlined in Table 2 below.

Table 8: HSI Scoring Criteria

HSI Score	Pond Suitability
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

12.2 Bats

- i The overall value of the site and its connectivity to the wider countryside was assessed in relation to bats. The likelihood of bats roosting at the site or moving through the site between local roost sites and foraging/mating/hibernation habitats was considered.
- ii No trees or building were present onsite that harboured potential for supporting roosting bats and so no bat emergence surveys were necessary.
- iii Nevertheless, a lack of artificial lighting present, makes the site moderately suitable for bat foraging and commuting with suitable habitats being located onsite in the form of dense scrub and adjacent to site with a large lake and hedgerow network being present.
- iv As a result, site-wide bat activity surveys were conducted which were performed based on advice given within good practice guidelines published by the Bat Conservation Trust (Collins, J. Eds. 2016). Two techniques were used: walked transects and fixed point (static detector) surveys. Surveys were undertaken monthly during June-September 2022.
Walked Transects
- iii The Site was studied using available aerial photography and ordnance survey maps to assess potential flight lines within the site, including commuting corridors and foraging areas. The route focussed on those features

- offering the highest potential for bat foraging, commuting or roosting, but covered all areas due to the view across the open pasture fields.
- iv During walked transects of the site, surveyors walked the transect route, making 2-5-minute stops at predetermined intervals throughout the route. The starting point of the transect for each survey was altered to ensure coverage of different parts of the transect at different times of the night. This approach was adopted to remove any sampling bias that could be introduced into the survey data if each survey had started at the same point on the transect.
 - v Each transect survey covered the period of peak bat activity, which is considered to be from sunset until around 2 hours after sunset (dusk transect). For all surveys, surveyors used an EM Touch bat detector and iPad, which logged GPS locations and recorded the calls of all bats encountered. This equipment allowed surveyors to listen to, identify and record calls during the survey. Notes were made by the surveyor during the survey on the time of bat observations, species heard and, where possible, direction of flight and behavioural notes regarding their activity (e.g. feeding, commuting, passing, social calling).
 - vi A qualitative assessment was made of bat activity highlighting areas where bats were seen to:
 - Forage - Either occasionally or regularly: Occasional meaning one or two foraging episodes across the transect period, regular meaning foraging behaviour noted on three or more occasions during the transect survey.
 - Commute - Commuting activity would be characterised by a number of bats entering the site and flying purposefully in a direct line: e.g. following a hedge or flying across open areas.
 - Interact - These behaviours could include regular chasing, 'lekking' or bats recorded making regular social calls

Static Surveys

- vii In addition to manually walked transects, two automated bat detectors (SM2s) were installed on site. One was located to the northwest of site amongst dense continuous scrub in a stand of young trees. The other was deployed amongst semi mature trees located on the southeastern site boundary close to the large waterbody and next to a large spoil mound.
- viii Detectors were housed in waterproof containers with an unobstructed opening for the microphone. Static detectors units were installed in areas which were considered to be most impacted by the proposals.
- ix The units were set to commence recording any bat echolocation calls from 30 minutes before sunset until 30 minutes after sunrise, i.e. throughout the night. This supporting data increases the robustness of the data collected by the transect surveys as it increases coverage of the site.
- x Static detectors were deployed each month (June-October) and were left for a minimum of five consecutive nights under suitable weather conditions.
- xi Due to technical problems with static detectors, only 3 consecutive days of monitoring was recorded during September and so the statics were redeployed at the end of the month continuing into October.
- xii The results section in this report refers to 'passes' as the number of Analook sound files containing bat calls. A sound file is created when bat echolocation calls are detected by the AnaBat detector. A sound file does not necessarily correspond with the number of bats recorded but can indicate the level of bat activity. For example, if a higher number of sound files have been recorded in a given length of time, or for a given area, compared with any other then this indicates a greater level of bat activity in that time-frame and/or area. Similarly, the number of sound files per species can allow comparison of the level of activity between the different species of bats detected but does not necessarily represent a higher number of actual individuals (for example, because a single bat may fly past the bat detector more than once).

Table 9: Automated Static Detector Survey Timings and Locations

	Location 1	Location 2
Area Covered	Northwest	Southeast
Survey 1	28/06/2022 – 02/07/2022	
Number of Nights	5	5
Survey 2	12/07/2022 – 17/07/2022	
Number of Nights	5	5
Survey 3	19/08/2022 – 23/08/2022	
Number of Nights	5	5
Survey 4	08/10/2022 – 10/09/2022	
Number of Nights	3	3
Survey 5	25/09/2022 – 03/10/2022	24/09/2022 – 04/10/2022
Number of Nights	9	11

Scoring of commuting and foraging habitat

- xiii For the purposes of quantifying the data generated during the transect surveys and static monitoring the approach of Wray et al (2010) to determine the appropriate geographic frame of reference has been adopted. This approach takes into account the rarity of the species recorded, the approximate numbers of bats using the features based on survey data, the presence of nearby roosts and the potential commuting /foraging features present. One score is then taken from each column depending on the most accurate representation it provides. These are then added together to determine the overall Geographic Frame of Reference score for that species of bat.

12.3 Breeding Bird Survey

- i A breeding bird survey was carried out at the Site following a method based on the British Trust for Ornithology's (BTO) Common Bird Census (CBC) methodology¹¹. A total of two visits were carried out between June (20.06.22) and July 2022 (07/07/22).
- ii Two breeding bird surveys were carried out, the first occurring at dawn and the other at dusk. The dawn survey commenced shortly after dawn and carried on for just over an hour after. The dusk survey started during the last few hours of the day and extended beyond sunset for at least one hour. Visits were carried out in suitable weather conditions with winds less than force 3 on the Beaufort scale and no precipitation.

¹¹ Gilbert G., Gibbons D.W. and Evans J. (1998). *Bird Monitoring Methods: A manual of techniques for key UK species*. RSPB, Bedfordshire. - See more at: <http://www.cieem.net/birds#sthash.XztkCHsC.dpuf>

- iii On each visit the entirety of the Site was surveyed, with the surveyor coming within 50m of all points within the Site boundary. The location and activity of each bird detected (visually and/or aurally) was recorded.
- iv Birds were considered to be demonstrating breeding behaviour if they were singing, displaying, alarm calling, carrying food, and undertaking distraction displays or if eggs or chicks were found, at least 3 visits is needed to confirm breeding status. All birds engaged in other forms of behaviour were considered to be feeding, passing through or loafing within the Site boundary and were not, therefore, considered to be breeding in the location of the observation.
- v The location of each registration was mapped using standard two-letter BTO Codes, and bird activity was recorded using BTO behaviour codes.

12.4 Reptile Survey

- i Seven reptile surveys were undertaken during September 2022. These followed standard survey methodology as outlined in the 'Herp Workers Manual' (Gent & Gibson, 2003) and Froglife Advice Sheet 10 - 'Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation' (Froglife, 1999).
- ii This entailed the deployment of 35 reptile refugia measuring 0.5m² which were laid out on 15th July 2022 and left to 'bed in' for 48 days. The refugia were placed in areas where the habitat was considered suitable for reptiles, such as in long grassland or the edge of scrub where they would receive sun and sufficient cover to minimise disturbance.
- iii The refugia were checked on seven separate occasions during appropriate weather conditions (dry, calm and an ambient temperature 11-18°C). During each survey visit, all other parts of the site were subject to a walkover survey looking for reptiles.
- iv Refugia were removed following the completion of the surveys.

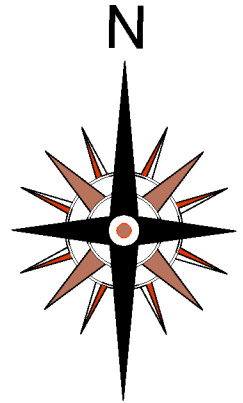
12.5 Badger Survey

- i The survey followed the advice set out by English Nature (2002) and Harris *et al* (1989) and was undertaken by a surveyor with an extensive level of experience.
- ii The Site was subject to a detailed badger survey involving searching for setts as well as evidence of badger activity. When a sett was identified, its location, along with details of the number of entrances, and consideration of the level of activity, were recorded as detailed below:
 - **Main setts:** Normally each group of Badgers has only one main sett, and so by counting all the main setts in an area you can find out how many social groups of badgers are present. Main setts usually have several holes with large spoil heaps, and the sett generally looks well used. There will be obvious paths to and from the sett and between sett entrances. In the British national badger survey the average number of holes for a main sett was twelve, although main setts may be much smaller, even a single hole in exceptional circumstances. Although normally the breeding sett, and in continuous use, it is possible to find a main sett that has become disused due to excessive interference, illegal digging, tree felling or some other reason.
 - **Annexe setts:** These are often close to a main sett, normally less than 150m away, and are connected to the main sett by one or more obvious well-worn paths. Usually they have several holes but may not be in use all the time, even if the main sett is very active. The average number of holes per annexe sett in the British survey was eight.
 - **Subsidiary setts:** These are usually at least 50m from a main sett, and do not have an obvious path connecting with another sett. They are not continuously active. The average number of holes per subsidiary sett in the British survey was four.
 - **Outlying setts:** These often have little spoil outside the holes, have no obvious path connecting them with another sett, and are only used sporadically. When not in use by badgers, they are often taken over by foxes or even rabbits. However, they can still be recognised as badger setts by the shape of the tunnel (not the actual entrance hole), which is at least 25cm in diameter and rounded or a flattened

- oval shape (i.e. broader than high). Fox and rabbit tunnels are smaller and often taller than broad. The average number of holes per outlying sett in the British survey was two.
- iii Note: These sett definitions form part of a continuum, and setts do not always fit neatly into these categories.
- iv Level of activity of each entrance is described as:
- **Well used** – clear of debris, trampled soil mounds and obviously active, with signs of activity such as presence of prints, dislodged guard hairs around the entrances – these signs indicate a sett is active and in current use.
 - **Partially used** – some associated debris or plants at the entrance. Could be used with minimal excavation and usually with signs of activity within the vicinity, for example, badger pathways. Depending on the time of year, entrances with these signs could indicate presence of badgers and may be in current use.
 - **Disused** – partially or completely blocked entrances. These signs show the sett is not in use.
- v A subjective assessment of the foraging potential of the habitats within the site was also made, based on the availability of potential food sources:
- **Good** foraging habitat: provides Badgers with a variety of foraging opportunities through the year (e.g. pasture, hedgerows, and gardens).
 - **Moderate** foraging habitat: foraging opportunities can be limited by season and management regime (e.g. arable fields, grassland leys, woodland and scrub).
 - **Poor** foraging habitat: areas that provide few foraging opportunities for Badgers (e.g. cereal crops, heathland, moorland, wetlands).
- vi The definition of 'Current Use' as used in the report refers to the presence of current or recent field signs indicating 'current use' by badgers. A sett not considered in 'current use' is when field signs have deteriorated or decayed to such an extent that they no longer indicate that the sett is in 'current use'.
- vii A sett that does not show signs of current use by badgers does not meet the definition of a badger sett under the Protection of Badgers Act (1992) (as amended) and is therefore not protected by this legislation.

Figure 16: Client Proposals

This drawing is protected under the copyright designers & patents act 1988. Do not scale, plotted dimensions only are to be taken as current information. All dimensions coordinates and levels are to be checked and confirmed on site prior to any works being undertaken.



Schedule
36 x lodges.
Plus management Building
Site area 28500sqm, 7 acres

DRAFT

Barrow Hill Quarry
Earl Shilton

Plans

Scale: 1:500@ A1 Date: Oct 2021

Dwg No. 2001 Revision: -

Brook House Consulting

BHC 72 Boston Road
Leicester
LE4 1HB

Tel: 0116 2166418 E mail: mail@brookhouseconsulting.com

Landscaping indicative only



14 APPENDIX 4: DESK STUDY RESULTS

- i Five statutorily designated sites were recorded within the search radius, the details of which are summarised in the table below. The site is located within the Impact Risk Zone (IRZ) of Croft Hill SSSI, Croft and Huncote Quarry SSSI and Croft Pasture SSSI.

Table 10: Statutorily Designated sites within 5km of Site Boundary

Site Name	Designation	Location	Brief Description
Croft Hill	SSSI	2km ESE	Croft Hill supports a nationally rare vegetation type of short, tussocky grasses in a rather open sward. The site is the largest known area of this grassland type in Leicestershire.
Croft and Huncote Quarry	SSSI	2.1km ESE	The quarries at Croft and Huncote are important in exposing tonalitic igneous rocks of Ordovician age together with attendant zeolite mineralisation, and much younger manganese mineralisation of Triassic age.
Croft Pasture	SSSI	2.2km SE	The site includes unusual Leicestershire examples of acidic mixed grassland which has affinities with certain breckland grasslands of eastern England.
Burbage Common and Woods	LNR	4km SW	The site is split between grassland (mostly unimproved acid with areas of heath) and woodland with significant scrubland habitat. The woodlands are largely semi-natural ancient woodland of oak, ash and maple with a good ground flora.
Burbage Wood and Aston Firs	SSSI	4.2km SW	The site comprises one of the best remaining examples of ash-oak-maple woodland in Leicestershire and is representative of semi-natural woodland developed on the clays of eastern England.

- ii The Site lies within 5km of four SSSI's and Burbage Common and Woods LNR. The proposals are not of a type (listed below) that is included within the IRZ for these National designated sites.

- **Infrastructure:** Airports, helipads and other aviation proposals.
- **Minerals, Oil & Gas:** Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.
- **Air Pollution:** Livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t.
- **Discharges:** Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream.

Table 11: Non-statutory designated sites within 2km of Site Boundary

Site Name	Designation	Location	Brief Description
Thurlaston Lane Verge & Hedgerow	pLWS ¹²	0.6km NE	Mesotrophic grassland & species-rich hedgerow. Grassland with 5 LWS indicators, recently mown & not fully

¹² pLWS – Potential Local Wildlife Site

Site Name	Designation	Location	Brief Description
			surveyed. Hedgerow with ditch & standards, total 11 species recorded.
Earl Shilton, woodland and spoil heap S of Barrow Hill Quarry and M69	Historic LWS ¹³	0.6km SSE	No recent data available.
Hedgerow West of Pingle Lane, Potters Marston	pLWS	0.8km SE	Hedgerow with total of 11 species recorded. Not surveyed
Pingle Lane Verges, Potters Marston	LWS	0.9km SE	Mesotrophic grassland with 10 indicator species. Not fully surveyed
Normanton Wood Hedgerow	pLWS	1.2km NW	Species-rich hedgerow, total 11 species recorded. Not surveyed.
Potters Marston Grasslands & Stream	LWS	1.4km ESE	Mesotrophic/wet grassland with 15 indicator species. Also includes adjacent streams, pond, wet woodland. Not surveyed
Stoney Stanton, Hedgerows west of Huncote Road	pLWS	1.4km S	3 hedgerows are 'Important' under the ecological criteria of the Hedgerow Regulations. Not surveyed under LWS methodology
Potters Marston, woodland and marsh by Stoney Bridge	Historic LWS	1.4km SE	Grassland
Normaton Park North	pLWS	1.5km NE	Mesotrophic grassland
Thurlaston Brook/Normanton Park	Historic LWS	1.6km N	Small river or stream
Stoney Stanton Ash	pLWS	1.6km S	Mature tree
Huncote Rd hedgerow Stoney Stanton	pLWS	1.6km SE	Hedgerow
Hay Meadow	LWS	1.6km SW	Mesotrophic grassland
Long Meadow	LWS	1.7km SE	Mesotrophic grassland
Homestead Hedgerows and Ash	LWS	1.7km SSW	Species-rich hedgerow with trees and mature Ash
Elmesthorpe, Hedgerow along stream N of railway	Historic LWS	1.7km SW	Hedgerow
Pond	Historic LWS	1.7km W	Pond

¹³ LWS – Local Wildlife Site

Site Name	Designation	Location	Brief Description
Oak Tree off Mays Farm Drive	pLWS	1.8km S	Mature Oak standard in amenity grassland, not measured
Ash Tree East of Abbott Drive	pLWS	1.8km SE	Mature Ash standard in hedgerow, not measured
Stoney Stanton, Long Meadow pond	LWS	1.8km SE	Small pond with a Potamogeton plant
Pool	Historic LWS	1.9km NW	Pond
Thurlaston, Bracknell Farm Hedgerow	Historic LWS	1.9km NW	Hedgerow
Stoney Stanton Oak	pLWS	1.9km SE	Mature tree
Hedgerow	Historic LWS	1.9km SW	Hedgerow
Grassland, Hedgerow & Tree S of M69, Thurlaston	pLWS	2km ENE	Mesotrophic/wet grassland, species-rich hedgerow & mature tree. Not surveyed. Grassland with 9 indicator species, hedgerow with total 11 species, Ash estimated >3m girth.
Recreation Ground Meadow and Pond	pLWS	2km SW	Mesotrophic grassland and pond
Trackside Meadow	LWS	2km SW	Mesotrophic grassland
Ragged Robin Marsh	LWS	2km SW	Transitional wet/mesotrophic grassland.
Stoney Stanton, off Clint Hill Drive	pLWS	2.1km S	Mesotrophic grassland
Stanton Road Verges	pLWS	2.1km SW	Mesotrophic grassland
Oaklands Hedgerows	pLWS	2.2km SW	Species-rich hedgerow with trees
Home Farm Grassland	pLWS	2.2km SW	Mesotrophic grassland
Clint Hill Quarry	Historic LWS	2.3km S	No recent data available.
Thurlaston Brook and grassland	Historic LWS	2.5km NW	Small river or stream

Site Name	Designation	Location	Brief Description
Croft Quarry	RIGS ¹⁴	2.5km SE	This site is of geological importance with exposed layers of rock from the Ordovician and Triassic period.

- iii Protected species records were received from Leicestershire and Rutland Environmental Records Centre. A summary of the records considered most relevant to the site and/or proposed development are provided in the table below. Full species records are available upon request.

Table 12: Summary of protected and Priority species records

Common Name	Scientific Name	Records	Conservation Status
Amphibians			
Great crested newts	<i>Triturus cristatus</i>	30 records, closest record 0.5km SE	EPS ¹⁵ , NERC ¹⁶ , WCA (5) ¹⁷
Smooth newt	<i>Lissotriton vulgaris</i>	14 records, closest record 0.5km SSE	Partial protection under WCA ¹⁸
Common toad	<i>Bufo bufo</i>	3 records, closest record 1.3km S	NERC, Partial Protection under WCA
Common frog	<i>Rana temporaria</i>	3 records, closest record 1.3km WNW	Partial protection under WCA
Mammal			
Daubenton's	<i>Myotis daubentonii</i>	1 record, 30m SW	EPS, WCA
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	1 record, 30m SE	EPS, WCA, NERC
Noctule	<i>Nyctalus noctula</i>	1 record, 30m SW	EPS, WCA, NERC
Pipistrelle species	<i>Pipistrellus</i>	14 records, closest record 30m SW	EPS, WCA
Brown hare	<i>Lepus europaeus</i>	14 records, closest record 0.7km NE	NERC
Brown long-eared bat	<i>Plecotus auritus</i>	6 records, closest record 1.2km NNW	EPS, WCA, NERC
Serotine	<i>Eptesicus serotinus</i>	1 record, 1.2km NNW	EPS, WCA

¹⁴ RIGS – Regionally Important Geological Site

¹⁵ EPS – European Protected Species - protected by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

¹⁶ NERC – Species of Principle Importance under Section 41 of the Natural Environment Rural Communities Act (2006) Species of Principal Conservation Importance; UKBAP & LBAP

¹⁷ WCA (5) – Schedule 5 protected species - Wildlife & Countryside Act (1981)

¹⁸ WCA – Wildlife & Countryside Act (1981) Section 5 protecting against trade or sale of species.

Common Name	Scientific Name	Records	Conservation Status
Bat species	<i>Chiroptera</i>	5 records, closest record 1.2km NNW	EPS, WCA, NERC
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	1 record, 1.6km WNW	EPS, WCA
European hedgehog	<i>Erinaceus europaeus</i>	7 records, closest record 1.6km S	NERC
Water vole	<i>Arvicola amphibius</i>	1 record, 1.7km NNE	WCA, NERC
European otter	<i>Lutra lutra</i>	1 record, 1.9km SW	EPS, WCA, NERC
Eurasian badger	<i>Meles meles</i>	14 records within 2km of the site.	PBA ¹⁹
Birds			
Duncock	<i>Prunella modularis</i>	8 records, closest record 30m SW	BoCCAmber
House martin	<i>Delichon urbicum</i>	14 records, closest record 30m SW	BoCCAmber
Linnet	<i>Linaria cannabina</i>	11 records, closest record 30m SW	BoCCRed, NERC
Sand martin	<i>Riparia riparia</i>	14 records, closest record 30m SW	BoCCGreen
Swallow	<i>Hirundo rustica</i>	9 records, closest record 30m SW	BoCCGreen
Swift	<i>Apus apus</i>	28 records, closest record 30m SW	BoCCAmber
Wren	<i>Troglodytes troglodytes</i>	12 records, closest record 30m SW	BoCCGreen
Kingfisher	<i>Alcedo atthis</i>	16 records, closest record 160m SSE	BoCCAmber, WCA (1) ²⁰
Song thrush	<i>Turdus philomelos</i>	10 records, closest record 160m SSE	BoCCRed, NERC
Skylark	<i>Alauda arvensis</i>	7 records, closest record 0.5km N	BoCCRed, NERC
Yellowhammer	<i>Emberiza citrinella</i>	20 records, closest record 0.6km WSW	BoCCRed, NERC
Bullfinch	<i>Pyrrhula pyrrhula</i>	8 records, closest record 0.6km WSW	BoCCAmber, NERC

¹⁹ PBA – Protection of Badgers Act 1992²⁰ WCA (1) – Schedule 1 protected species - Wildlife & Countryside Act (1981)

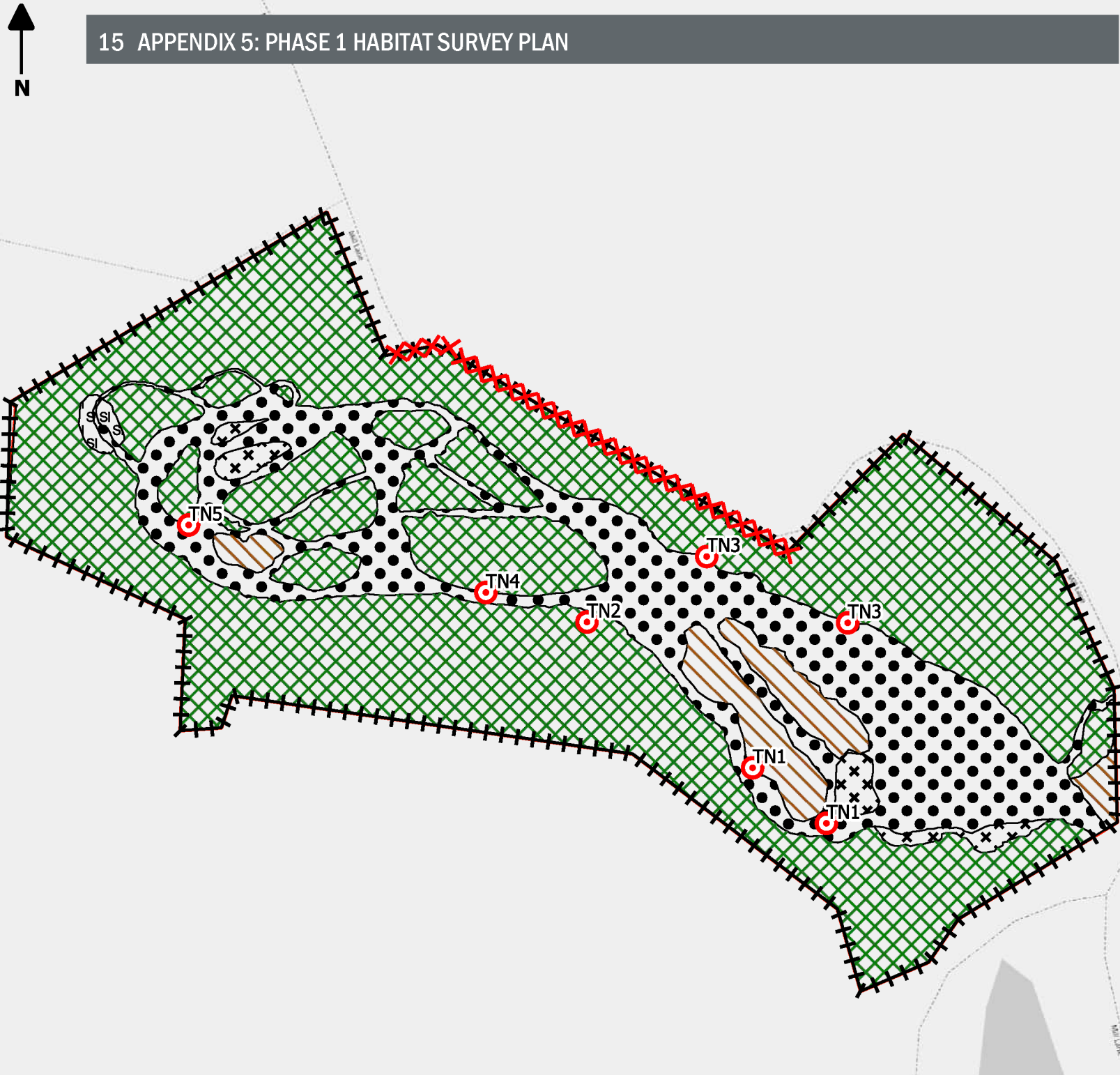
Common Name	Scientific Name	Records	Conservation Status
Lapwing	<i>Vanellus vanellus</i>	6 records, closest record 0.6km NE	BoCCRed, NERC
Reed bunting	<i>Emberiza schoeniclus</i>	11 records, closest record 0.6km WSW	BoCCAmber, NERC
Greylag goose	<i>Anser anser</i>	1 record, 0.8km NE	BoCCAmber
Yellow wagtail	<i>Motacilla flava</i>	6 records, closest record 0.8km NE	BoCCRed, NERC
Spotted flycatcher	<i>Muscicapa striata</i>	2 records, closest record 0.9km NE	BoCCRed, NERC
Lesser spotted woodpecker	<i>Dryobates minor</i>	2 records, closest record 0.9km NNW	BoCCRed, NERC
Red kite	<i>Milvus milvus</i>	4 records, closest record 1km NNW	WCA1
Green sandpiper	<i>Tringa ochropus</i>	14 records, closest record 1.1km WNW	BoCCAmber, WCA (1)
Barn owl	<i>Tyto alba</i>	16 records, closest record 1.1km SE	BoCCGreen, WCA (1)
Curlew	<i>Numenius arquata</i>	2 records, closest record 1.1km NNE	BoCCRed, NERC
Fieldfare	<i>Turdus pilaris</i>	6 records, closest record 1.1km WNW	BoCCRed, WCA (1)
Grey partridge	<i>Perdix perdix</i>	7 records, closest record 1.1km WNW	BoCCRed, NERC
Hobby	<i>Falco subbuteo</i>	12 records, closest record 1.1km SE	BoCCGreen, WCA (1)
House sparrow	<i>Passer domesticus</i>	12 records, closest record 1.1km SSE	BoCCRed, NERC
Tree sparrow	<i>Passer montanus</i>	4 records, closest record 1.1km NNE	BoCCRed, NERC
Turtle dove	<i>Streptopelia turtur</i>	10 records, closest record 1.1km SSE	BoCCRed, NERC
Little Ringed Plover	<i>Charadrius dubius</i>	10 records, closest record 1.1km E	BoCCGreen, WCA (1)
Redwing	<i>Turdus iliacus</i>	4 records, closest record 1.1km WNW	BoCCRed, WCA (1)
Starling	<i>Sturnus vulgaris</i>	12 records, closest record 1.2km NNW	BoCCRed, NERC
Herring gull	<i>Larus argentatus</i>	2 records, closest record 1.2km SE	BoCCRed, NERC

Common Name	Scientific Name	Records	Conservation Status
Black tern	<i>Chlidonias niger</i>	1 record, 1.4km ENE	BoCCGreen, WCA (1)
Lesser redpoll	<i>Acanthis cabaret</i>	5 records, closest record 1.4km E	BoCCRed, NERC
Firecrest	<i>Regulus ignicapilla</i>	2 records, closest record 1.4km E	BoCCAmber, WCA (1)
Peregrine	<i>Falco peregrinus</i>	3 records, closest record 1.5km SE	WCA (1)
Harrier species	<i>Circus</i>	1 record, 1.8km WNW	BoCCRed, WCA (1)
Merlin	<i>Falco columbarius</i>	1 record, 1.8km WNW	BoCCRed, WCA (1)
Nightjar	<i>Caprimulgus europaeus</i>	1 record, 1.8km WNW	BoCCAmber, NERC
Fish			
Brown/sea trout	<i>Salmo trutta</i>	1 record, 1.6km N	NERC
Invertebrates			
Cinnabar	<i>Tyria jacobaeae</i>	7 records, closest record 0.9km NNW	NERC
Blood-vein	<i>Timandra comae</i>	1 record, 1.1km NW	NERC
Buff Ermine	<i>Spilosoma luteum</i>	2 records, closest record 1.1km NW	NERC
Dot moth	<i>Melanchra persicariae</i>	1 record, 1.1km NW	NERC
Dusky thorn	<i>Ennomos fuscantaria</i>	1 record, 1.1km NW	NERC
Grey dagger	<i>Acronicta psi</i>	2 records, closest record 1.1km NW	NERC
Knot grass	<i>Acronicta rumicis</i>	3 records, closest record 1.1km NW	NERC
Mottled rustic	<i>Caradrina morpheus</i>	1 record, 1.1km NW	NERC
Mouse moth	<i>Amphipyra tragopoginis</i>	2 records, closest record 1.1km NW	NERC
Pale eggar	<i>Trichiura crataegi</i>	1 record, 1.1km NW	NERC
Shoulder-striped Wainscot	<i>Leucania comma</i>	1 record, 1.1km NW	NERC
Small Square-spot	<i>Diarsia rubi</i>	3 records, closest record 1.1km NW	NERC
White Ermine	<i>Spilosoma lubricipeda</i>	2 records, closest record 1.1km NW	NERC

Common Name	Scientific Name	Records	Conservation Status
Brindled beauty	<i>Lycia hirtaria</i>	1 record, 1.7km NW	NERC
Powdered quaker	<i>Orthosia gracilis</i>	1 record, 1.7km NW	NERC
Invasive Species			
Signal crayfish	<i>Pacifastacus leniusculus</i>	2 records, closest record 0.6km ESE	WCA (9)
Himalayan balsam	<i>Impatiens glandulifera</i>	7 records, closest record 0.7km NE	WCA (9)
New Zealand pigmyweed	<i>Crassula helmsii</i>	1 record, 0.7km S	WCA (9)
Canada goose	<i>Branta canadensis</i>	6 records, closest record 0.7km NE	WCA (9)
American Mink	<i>Neovison vison</i>	1 record, 0.8km W	WCA (9)
Chinese muntjac	<i>Muntiacus reevesi</i>	2 records, closest record 1.1km E	WCA (9)
Japanese knotweed	<i>Reynoutria japonica</i>	3 records, closest record 1.4km E	WCA (9) ²¹
Variegated Yellow Archangel	<i>Lamiastrum galeobdolon</i>	2 records, closest record 1.8km NW	WCA (9)
Japanese rose	<i>Rosa rugosa</i>	2 records, closest record 7.1km S*	WCA (9)
Nuttall's waterweed	<i>Elodea nuttallii</i>	1 record, 7.1km S*	WCA (9)
Wall Cotoneaster	<i>Cotoneaster horizontalis</i>	1 record, 7.1km S*	WCA (9)
Curly waterweed	<i>Lagarosiphon major</i>	2 records, closest record 11.2km SW*	WCA (9)

²¹ WCA (9) - Schedule 9 Wildlife and Countryside Act 1981 (as amended)

15 APPENDIX 5: PHASE 1 HABITAT SURVEY PLAN



Key

-  Site Boundary
-  A2.1 - Scrub - dense/continuous
-  B6 - Poor semi-improved grassland
-  C3.1 - Other tall herb and fern - ruderal
-  J1.3 - Cultivated/disturbed land - ephemeral/short perennial
-  J4 - Bare ground
-  I1.1.2 - Inland cliff - basic
-  J2.4 - Fence
-  Target Note
 - TN1: Brash/deadwood pile
 - TN2: Scrub/rubble pile
 - TN3: Japanese knotweed
 - TN4: Cotoneaster sp.
 - TN5: Location of rushes/sedges



Client:
Landmark Planning

Project:
Land at Barrow Hill Quarry

Drawing Title:
Phase 1 Habitat Plan

Drawing No.	Scale @ A4:	Rev:
RSE_5294_F17	1:1423	V1
Drawn By:		Date:
NW		03/11/2021

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16 APPENDIX 6: PHASE 1 HABITAT SURVEY RESULTS

16.1.1 Overview

- i The survey area was dominated by dense/continuous scrub, forming a mosaic structure with areas of hard standing, tall ruderal, ephemeral/short perennial, and poor semi-improved grassland. Full habitat descriptions and photos are provided in the table below. For a Phase 1 Habitat Survey Plan refer to Appendix 5 and a full species list provided in Appendix 7.
- ii Habitat types detailed below are listed in order of the JNCC (2016) Handbook. The species list provided in this report reflect only those taxa observed during the survey.

16.1.2 A2.1 Dense/ Continuous Scrub

- i Scrub dominated the site, covering the majority of the boundary and forming a mosaic structure throughout. The scrub was very dense and mostly impenetrable in places. It ranged in height from <1m to approximately 4-5m. Species included: dominant bramble (*Rubus sp.*); abundant; hawthorn (*Crataegus monogyna*) and dog rose (*Rosa canina*); frequent butterfly bush (*Buddleja davidii*) and gorse, (*Ulex sp*); occasional brome (*Bromus sp.*); goat willow (*Salix caprea*); elder (*Sambucus nigra*); and sycamore (*Acer pseudoplatanus*).

Figure 18: Dense/ continuous scrub



16.1.3 B6 Poor semi-improved grassland

- i Patches of grassland were present amongst the scrub on the north-western boundary. Sward of mixed height ranging from c.5cm-40cm. Species included: dominant false oat-grass (*Arrhenatherum elatius*), abundant perennial ryegrass (*Lolium perenne*) and cock's-foot (*Dactylis glomerata*) frequent annual meadow grass (*Poa annua*), creeping buttercup (*Ranunculus repens*) and white clover (*Trifolium repens*). Occasional ribwort plantain (*Plantago lanceolata*) Yorkshire fog (*Holcus lanatus*) and yarrow (*Achillea millefolium*).

Figure 19: Poor semi-improved grassland



16.1.4 C3.1 Tall Ruderal

- i Patches of tall ruderal were present across the site, amongst areas of scrub and bare ground, particularly towards the south-east. Species included: dominant nettle (*Urtica dioica*) abundant mugwort (*Artemisia vulgaris*), ragwort (*Jacobaea vulgaris*) and rosebay willowherb (*Chamaenerion angustifolium*) frequent broad-leaved dock (*Rumex obtusifolius*) occasional bristly oxtongue (*Helminthotheca echioides*) and rarely occurring knotgrass (*Polygonum sp.*) and coltsfoot (*Tussilago farfara*).

Figure 20: Tall ruderal



16.1.5 I1.1 Inland Cliff

- i A rock face was recorded on the northern boundary. It was roughly 4-5m high, and heavily vegetated with similar species as were apparent in the scrub and tall ruderal. This is a priority habitat in Leicestershire and Rutland's Local Biodiversity Action Plan.

Figure 21: Inland cliff



16.1.6 J4 Bare Ground

- i A network of bare ground was present across the site, particularly towards the central areas. Tracks were interspersed with pockets of vegetation. It appeared that tracks were created through heavy usage by bicycles and quad bikes and shallow ephemeral pools of water were able to form on disturbed areas. The bare ground appeared to form a successional pattern with a gradation towards scrub through ephemeral short perennial.

Figure 22: Bare ground



16.1.7 J1.3 Cultivated/disturbed land – ephemeral/short perennial

- i Ephemeral/short perennial was recorded across the site, particularly on the south-eastern side. There was no dominant species, instead a mix of species were recorded including common ragwort, stonecrop (*Sedum* sp), harebell (*Campanula rotundifolia*), evening primrose (*Oenothera biennis*), annual meadowgrass (*Poa annua*), creeping cinquefoil (*Potentilla reptans*) and pineapple weed (*Matricaria discoidea*).

Figure 23: Cultivated/disturbed land – ephemeral/short perennial



16.1.8 Boundaries

- ii In site boundaries were bordered almost entirely by barbed wire fencing apart from along the northern boundary adjacent to the existing rock face which has mesh fencing.

16.1.9 Non-Native Species

- xiv Japanese knotweed (*Reynoutria japonica*) is present on the site along the north-eastern boundary. Japanese knotweed is listed on Schedule 9 of the Wildlife and Countryside Act (1981, as amended), under which it is an offence to cause it to spread in the wild.
- xv *Cotoneaster sp.* is also present amongst the scrub patches alongside the south-western boundary. Several species of cotoneaster are Schedule 9 species, as such care should be taken with its removal and a precautionary approach should be taken to prevent its spread.

17 APPENDIX 7: PHASE 1 SPECIES LIST

Table 13: Phase 1 Species List

Common name	Scientific name	Habitat type(s) and DAFOR
Gorse	<i>Ulex sp.</i>	A2.1 Scrub – dense/continuous (Frequent)
Bramble	<i>Rubus sp.</i>	A2.1 Scrub – dense/continuous (Dominant)
Hawthorn	<i>Crataegus monogyna</i>	A2.1 Scrub – dense/continuous (Abundant)
Dog rose	<i>Rosa canina</i>	A2.1 Scrub – dense/continuous (Abundant)
Butterfly bush	<i>Buddleja davidii</i>	A2.1 Scrub – dense/continuous (Frequent)
Brome	<i>Bromus sp.</i>	A2.1 Scrub – dense/continuous (Occasional)
Goat willow	<i>Salix caprea</i>	A2.1 Scrub – dense/continuous (Occasional)
Elder	<i>Sambucus nigra</i>	A2.1 Scrub – dense/continuous (Occasional)
Sycamore	<i>Acer pseudoplatanus</i>	A2.1 Scrub – dense/continuous (Occasional)
Ribwort plantain	<i>Plantago lanceolata</i>	B.6 Poor semi-improved grassland (Occasional); C3.1 Tall Ruderal
False oat-grass	<i>Arrhenatherum elatius</i>	B.6 Poor semi-improved grassland (Dominant)
Annual meadow grass	<i>Poa annua</i>	B.6 Poor semi-improved grassland (Frequent); C3.1 Tall Ruderal; J1.3 Cultivated/disturbed land – ephemeral/short perennial
Creeping buttercup	<i>Ranunculus repens</i>	B.6 Poor semi-improved grassland (Frequent)
White clover	<i>Trifolium repens</i>	B.6 Poor semi-improved grassland (Frequent); C3.1 Tall Ruderal; J1.3 Cultivated/disturbed land – ephemeral/short perennial
Perennial ryegrass	<i>Lolium perenne</i>	B.6 Poor semi-improved grassland (Abundant)
Cock's-foot	<i>Dactylis glomerata</i>	B.6 Poor semi-improved grassland (Abundant; C3.1 Tall Ruderal
Bindweed	<i>Convolvulus sp.</i>	B.6 Poor semi-improved grassland; C3.1 Tall Ruderal
Common nettle	<i>Urtica dioica</i>	B.6 Poor semi-improved grassland; C3.1 Tall Ruderal (Dominant)
Narrowleaf cattail	<i>Typha angustifolia</i>	B.6 Poor semi-improved grassland
Yorkshire fog	<i>Holcus lanatus</i>	B.6 Poor semi-improved grassland (Occasional; C3.1 Tall Ruderal
Yarrow	<i>Achillea millefolium</i>	B.6 Poor semi-improved grassland (Occasional; C3.1 Tall Ruderal
Mugwort	<i>Artemisia vulgaris</i>	C3.1 Tall Ruderal (Abundant)

Common name	Scientific name	Habitat type(s) and DAFOR
Creeping cinquefoil	<i>Potentilla reptans</i>	C3.1 Tall Ruderal; J1.3 Cultivated/disturbed land – ephemeral/short perennial
Rosebay willowherb	<i>Chamaenerion angustifolium</i>	C3.1 Tall Ruderal (Abundant)
Hogweed	<i>Heracleum sphondylium</i>	C3.1 Tall Ruderal
Horsetail	<i>Equisetum sp.</i>	C3.1 Tall Ruderal
Knotgrass	<i>Polygonum sp.</i>	C3.1 Tall Ruderal (Rare); J1.3 Cultivated/disturbed land – ephemeral/short perennial
Creeping thistle	<i>Cirsium arvense</i>	C3.1 Tall Ruderal
Hop trefoil	<i>Trifolium campestre</i>	C3.1 Tall Ruderal
Cleavers	<i>Galium aparine</i>	C3.1 Tall Ruderal
Coltsfoot	<i>Tussilago farfara</i>	C3.1 Tall Ruderal (Rare)
Broad-leaved dock	<i>Rumex obtusifolius</i>	C3.1 Tall Ruderal (Frequent)
Bristly oxtongue	<i>Helminthotheca echioides</i>	C3.1 Tall Ruderal (Occasional); J1.3 Cultivated/disturbed land – ephemeral/short perennial
Dove's-foot crane's bill	<i>Geranium molle</i>	C3.1 Tall Ruderal
Stonecrop	<i>Sedum sp.</i>	C3.1 Tall Ruderal; J1.3 Cultivated/disturbed land – ephemeral/short perennial
Dandelion	<i>Taraxacum sp.</i>	C3.1 Tall Ruderal
Spear thistle	<i>Cirsium vulgare</i>	C3.1 Tall Ruderal
Poppy	<i>Papaver sp.</i>	C3.1 Tall Ruderal; J1.3 Cultivated/disturbed land – ephemeral/short perennial
Hedge mustard	<i>Sisymbrium officinale</i>	C3.1 Tall Ruderal
Fleabane	<i>Erigeron sp.</i>	C3.1 Tall Ruderal
Groundsel	<i>Senecio vulgaris</i>	C3.1 Tall Ruderal
Strawberry	<i>Fragaria vesca</i>	C3.1 Tall Ruderal
Mouse ear hawkweed	<i>Hieracium pilosella</i>	C3.1 Tall Ruderal; J1.3 Cultivated/disturbed land – ephemeral/short perennial
Evening primrose	<i>Oenothera biennis</i>	C3.1 Tall Ruderal; J1.3 Cultivated/disturbed land – ephemeral/short perennial
Ragwort	<i>Jacobaea vulgaris</i>	C3.1 Tall Ruderal (Abundant); J1.3 Cultivated/disturbed land – ephemeral/short perennial
Mulliein	<i>Calluna vulgaris</i>	C3.1 Tall Ruderal

Common name	Scientific name	Habitat type(s) and DAFOR
Perforate St. John's wort	<i>Hypericum perforatum</i>	C3.1 Tall Ruderal
Teasel	<i>Dipsacus sp.</i>	C3.1 Tall Ruderal
Ox eye daisy	<i>Leucanthemum vulgare</i>	C3.1 Tall Ruderal
Goatsbeard	<i>Aruncus dioicus</i>	C3.1 Tall Ruderal
Dogwood	<i>Cornus sp.</i>	C3.1 Tall Ruderal
Timothy	<i>Phleum pratense</i>	C3.1 Tall Ruderal
Ash	<i>Fraxinus excelsior</i>	C3.1 Tall Ruderal
Broad-leaved plantain	<i>Plantago major</i>	C3.1 Tall Ruderal
Red clover	<i>Trifolium pratense</i>	C3.1 Tall Ruderal
Tufted hair grass	<i>Deschampsia cespitosa</i>	C3.1 Tall Ruderal
Hard rush	<i>Juncus inflexus</i>	C3.1 Tall Ruderal
Pendulous sedge	<i>Carex pendula</i>	C3.1 Tall Ruderal
Germander speedwell	<i>Veronica chamaedrys</i>	C3.1 Tall Ruderal
Apple mint	<i>Mentha suaveolens</i>	C3.1 Tall Ruderal
Fescue	<i>Festuca sp.</i>	C3.1 Tall Ruderal; J1.3 Cultivated/disturbed land – ephemeral/short perennial
Tare	<i>Vicia sativa</i>	C3.1 Tall Ruderal
Weld	<i>Reseda luteola</i>	C3.1 Tall Ruderal
Fox-and-cubs	<i>Pilosella aurantiaca</i>	C3.1 Tall Ruderal
Harebell	<i>Campanula rotundifolia</i>	J1.3 Cultivated/disturbed land – ephemeral/short perennial
Hairy sedge	<i>Carex hirta</i>	J1.3 Cultivated/disturbed land – ephemeral/short perennial
Pineapple weed	<i>Matricaria discoidea</i>	J1.3 Cultivated/disturbed land – ephemeral/short perennial
Japanese knotweed	<i>Fallopia japonica</i>	A2.1 Scrub – dense/continuous
Cotoneaster	<i>Cotoneaster sp.</i>	A2.1 Scrub – dense/continuous
Hedge garlic	<i>Alliaria petiolata</i>	N/A – Sue Timms' species list
Cow parsley	<i>Anthriscus sylvestris</i>	N/A – Sue Timms' species list
Columbine	<i>Aquilegia</i>	N/A – Sue Timms' species list
Bryony	<i>Bryonia dioica</i>	N/A – Sue Timms' species list

Common name	Scientific name	Habitat type(s) and DAFOR
Wetted thistle	<i>Carduus crispus</i>	N/A – Sue Timms' species list
Knapweed	<i>Centaurea nigra</i> agg.	N/A – Sue Timms' species list
Red valerian	<i>Centranthus ruber</i>	N/A – Sue Timms' species list
Greater celandine	<i>Chelidonium majus</i>	N/A – Sue Timms' species list
Beaked Hawk's-beard	<i>Crepis vesicaria</i>	N/A – Sue Timms' species list
Broom	<i>Cytisus scoparius</i>	N/A – Sue Timms' species list
Teasel	<i>Dipsacus fullonum</i>	N/A – Sue Timms' species list
Great hairy willowherb	<i>Epilobium hirsutum</i>	N/A – Sue Timms' species list
Field horsetail	<i>Equisetum arvense</i>	N/A – Sue Timms' species list
Red fescue	<i>Festuca rubra</i>	N/A – Sue Timms' species list
Hedgerow cranesbill	<i>Geranium pyrenaicum</i>	N/A – Sue Timms' species list
Herb bennet	<i>Geum urbanum</i>	N/A – Sue Timms' species list
Ground ivy	<i>Glechoma hederacea</i>	N/A – Sue Timms' species list
Common cat's ear	<i>Hypochaeris radicata</i>	N/A – Sue Timms' species list
White dead-nettle	<i>Lamium album</i>	N/A – Sue Timms' species list
Bird's-foot trefoil	<i>Lotus corniculatus</i>	N/A – Sue Timms' species list
Musk mallow	<i>Malva moschata</i>	N/A – Sue Timms' species list
Black medick	<i>Medicago lupulina</i>	N/A – Sue Timms' species list
Field forget-me-not	<i>Myosotis arvensis</i>	N/A – Sue Timms' species list
Long-headed poppy	<i>Papaver dubium</i>	N/A – Sue Timms' species list
Opium poppy	<i>Papaver somniferum</i>	N/A – Sue Timms' species list
Green alkanet	<i>Pentaglottis sempervirens</i>	N/A – Sue Timms' species list
Mouse-ear hawkweed	<i>Pilosella officinarum</i>	N/A – Sue Timms' species list
Cherry	<i>Prunus avium</i>	N/A – Sue Timms' species list
Bulbous buttercup	<i>Ranunculus bulbosus</i>	N/A – Sue Timms' species list
Weld	<i>Reseda luteola</i>	N/A – Sue Timms' species list
Curled dock	<i>Rumex crispus</i>	N/A – Sue Timms' species list
Ragwort	<i>Senecio jacobaea</i>	N/A – Sue Timms' species list
Red campion	<i>Silene dioica</i>	N/A – Sue Timms' species list

Common name	Scientific name	Habitat type(s) and DAFOR
Lesser Hop-trefoil	<i>Trifolium dubium</i>	N/A – Sue Timms' species list
Gorse	<i>Ulex europaeus</i>	N/A – Sue Timms' species list
Elm species	<i>Ulmus sp.</i>	N/A – Sue Timms' species list
Mullein species	<i>Verbascum sp.</i>	N/A – Sue Timms' species list



448600

18 APPENDIX 8: PROTECTED/PRINCIPAL SPECIES SURVEY RESULTS

Key
Site Boundary
Transect route
Common Pipistrelle
Nyctalus Sp.
Noctule
Flight Direction

297200

297100

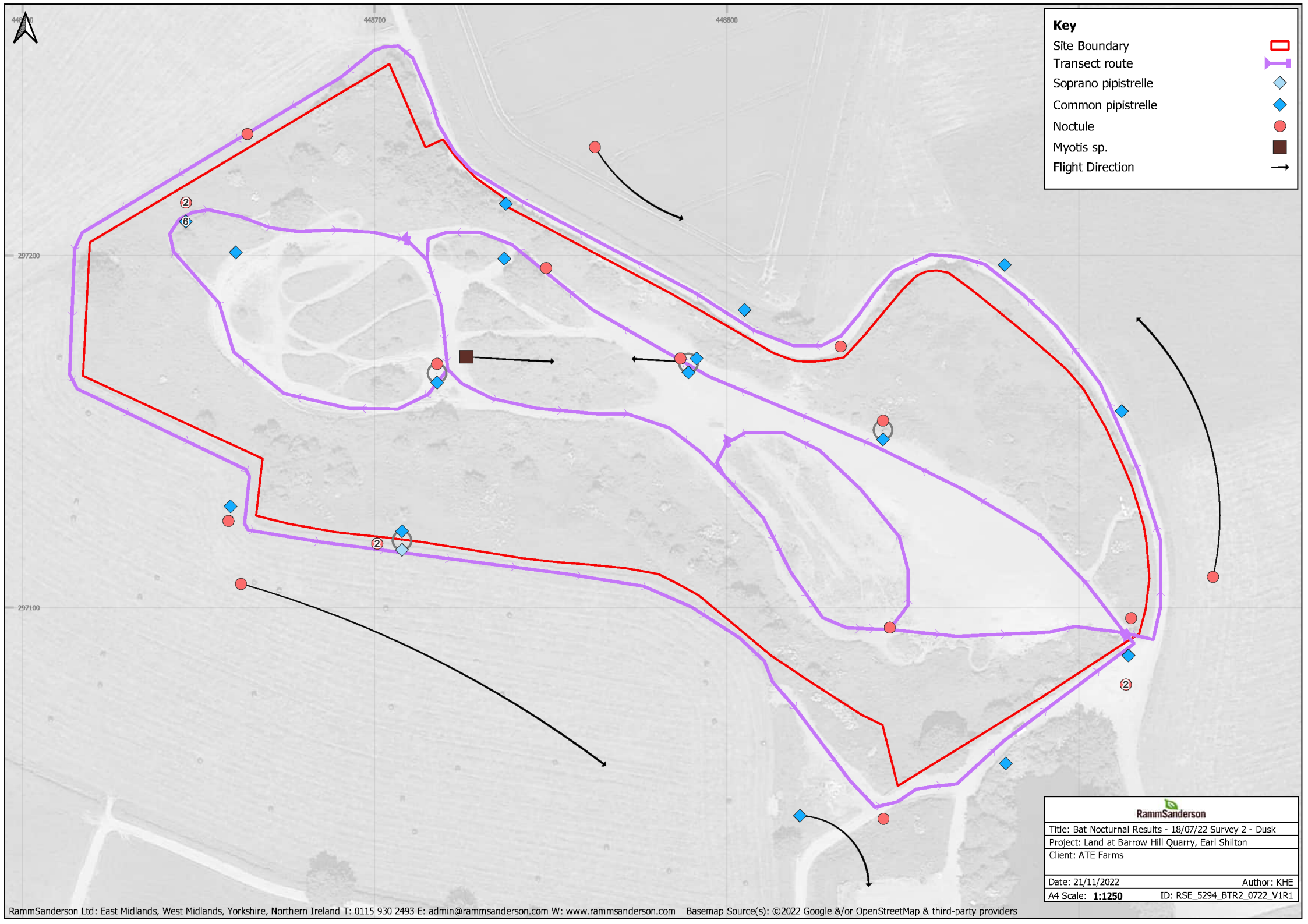
RammSanderson

Title: Bat Nocturnal Results - 21/06/22 Survey 1 - Dusk

Project: Land at Barrow Hill Quarry, Earl Shilton

Client: ATE Farms

Date: 21/11/2022	Fig:24	Author: KHE
A4 Scale: 1:1250	ID: RSE_5294_BTR1_0622_V1R1	



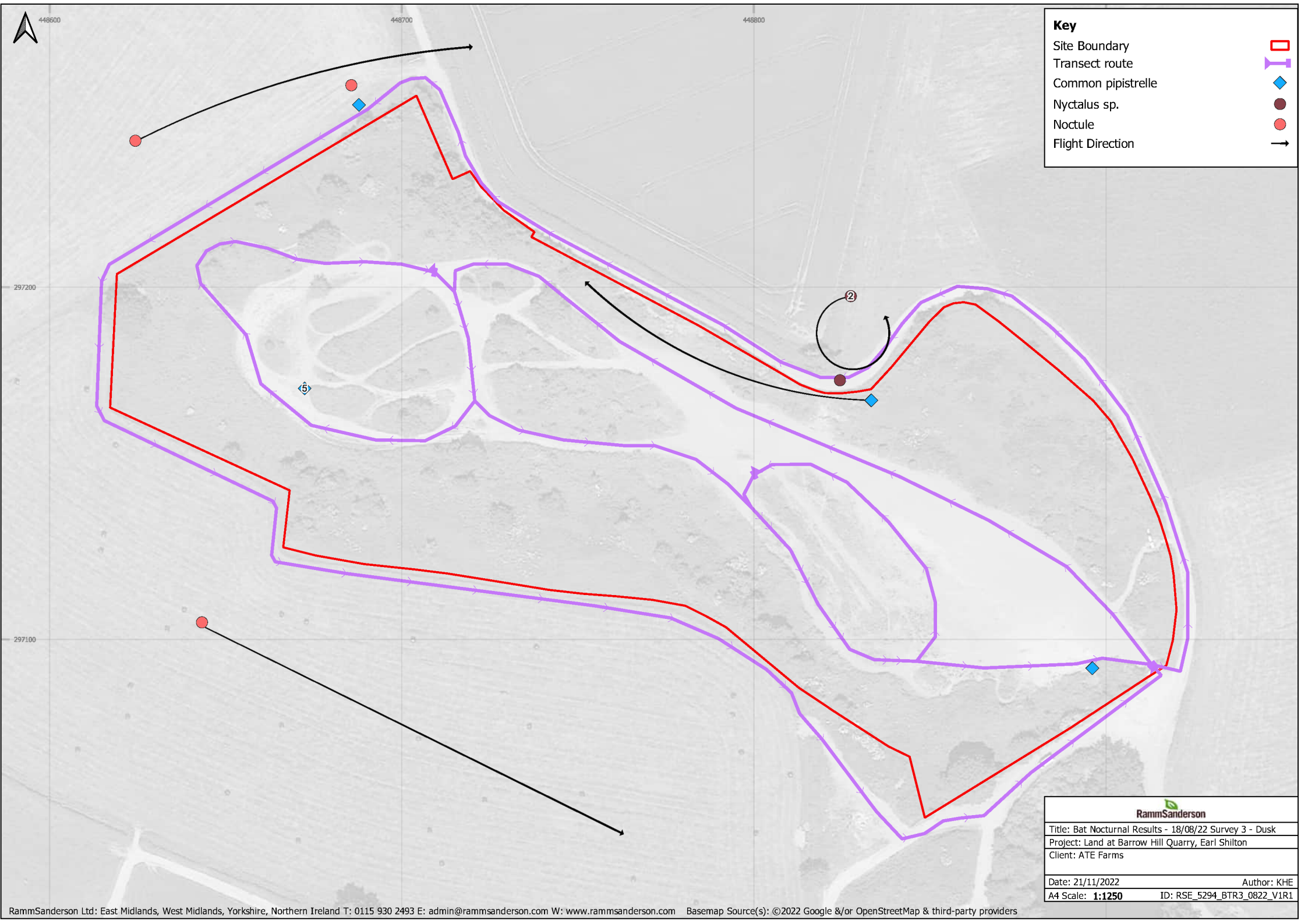
Key

- Site Boundary
- Transect route
- Soprano pipistrelle
- Common pipistrelle
- Noctule
- Myotis sp.
- Flight Direction

RammSanderson

Title: Bat Nocturnal Results - 18/07/22 Survey 2 - Dusk
Project: Land at Barrow Hill Quarry, Earl Shilton
Client: ATE Farms

Date: 21/11/2022 Author: KHE
A4 Scale: 1:1250 ID: RSE_5294_BTR2_0722_V1R1



Key

Site Boundary

Transect route

Common pipistrelle

Nyctalus sp.

Noctule

Flight Direction

RammSanderson

Title: Bat Nocturnal Results - 18/08/22 Survey 3 - Dusk

Project: Land at Barrow Hill Quarry, Earl Shilton

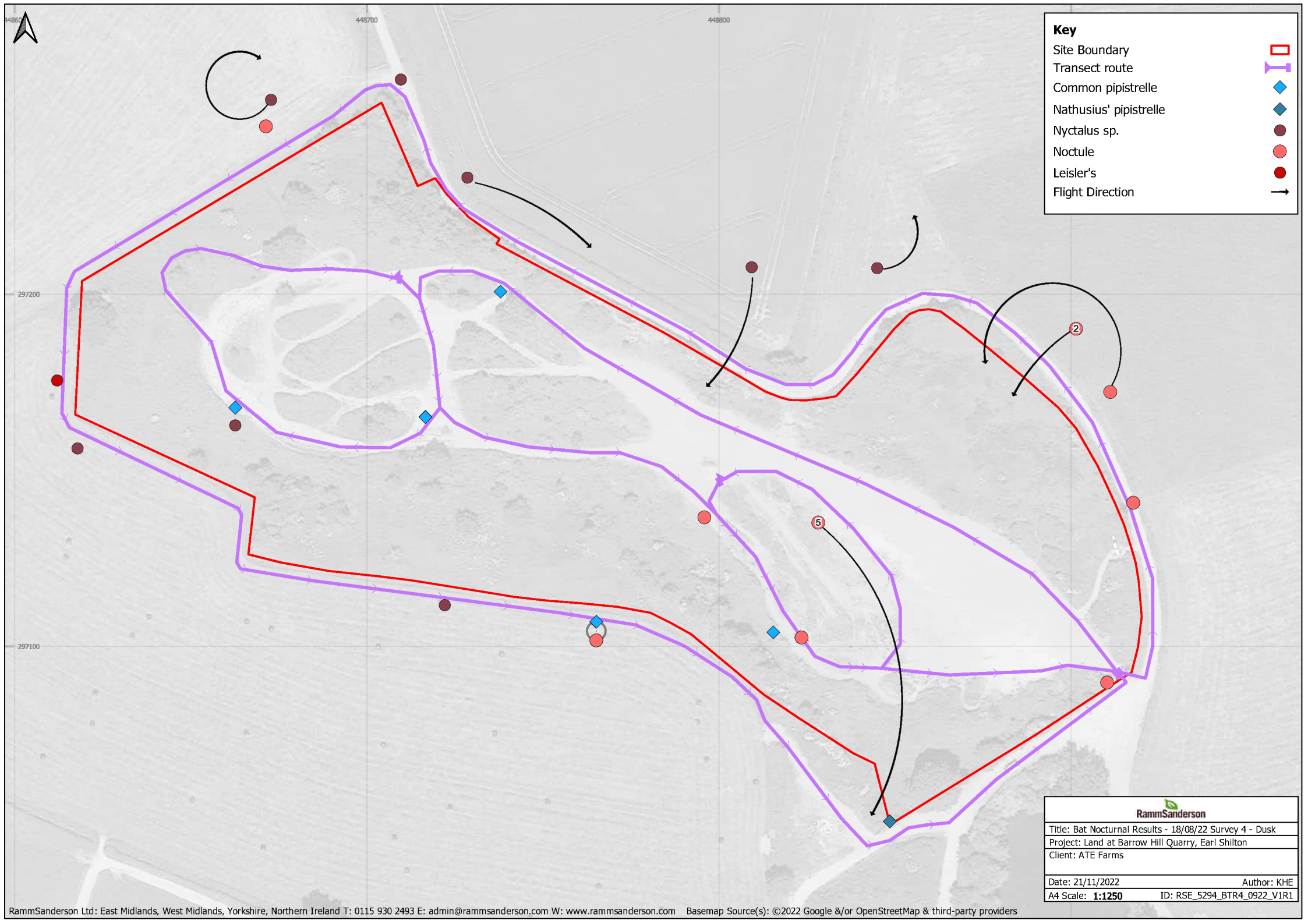
Client: ATE Farms

Date: 21/11/2022

Author: KHE

A4 Scale: 1:1250

ID: RSE_5294_BTR3_0822_V1R1



Key

Site Boundary

Transect route

Common pipistrelle

Nathusius' pipistrelle

Nyctalus sp.

Noctule

Leisler's

Flight Direction

RammSanderson

Title: Bat Nocturnal Results - 18/08/22 Survey 4 - Dusk

Project: Land at Barrow Hill Quarry, Earl Shilton

Client: ATE Farms

Date: 21/11/2022

Author: KHE

A4 Scale: 1:1250

ID: RSE_5294_BTR4_0922_V1R1



Key

- Site Boundary
- Static locations

	
Title: Bat Static Location Plan	
Project: Land at Barrow Hill Quarry, Earl Shilton	
Client: AT Contracting & Plant Ltd.	
Date: 11/11/2022	Author: TH
A4 Scale: 1:1200	ID: RSE_5294_PH1_1122_V1R1



RammSanderson		
Title: Bat Transect Heatmap - All Transects		
Project: Land at Barrow Hill Quarry, Earl Shilton		
Client: AT Contracting & Plant Hire Ltd		
Date: 02/11/2022	Fig: 29	Author: KHE
A4 Scale: 1:1500	ID: RSE_5294_BTH_1122_V1R1	

Bat Activity Survey Results

Bat Activity Transect 1 – 21.06.2022 - Dusk

- i The survey commenced at sunset which was at 21:32 continuing until 23:32. The transect was conducted under suitable weather conditions following the route outlined in Figure 19 above. The first bat encountered was at 21:56 for a noctule which was observed foraging around the centre of the site. Overall bat activity was considered to be low/moderate with most consisting of foraging common pipistrelle over areas of scrub. *Nyctalus* species were also recorded fairly frequently across the survey including bat calls that were indicative of serotine bats. A *Nathusius's* pipistrelle was also recorded foraging at 22:58 along the northern site boundary. The last bat encountered was a passing common pipistrelle at 23:30 which was heard but not seen by surveyors.

Bat Activity Transect 2 – 18.07.2022 - Dusk

- i The survey began at sunset which was at 21:19 continuing until 23:19. The transect was carried out under suitable weather conditions following the route outlined in Figure 20. Low-moderate amount of activity was recorded during this survey. The first bat recorded was at the 21:56 for a passing noctule which was observed flying over the field to the north of site. The last bat recorded was a noctule at 23:08 which was heard but not seen by the surveyors. Common and noctule were the most frequently encountered species across the survey. A *Myotis* bat was recorded at 22:29 which was observed flying in a south-easterly direction along scrub habitat in the centre of the site.

Bat Activity Transect 3 – 18.08.2022 - Dusk

- i This survey started at sunset at 20:25 continuing until 22:25. The transect was carried out under suitable weather conditions following the route outlined in Figure 21. Low amounts of activity were recorded during this survey most of which consisted of foraging *Nyctalus* sp. along a hedgerow to the north of the site boundary. These calls were indicative of serotine bats however due to the lack of clarity of these calls they could not be confidently identified to species-level. Other species recorded included common pipistrelle, noctule and Leisler's bat. The first bat recorded was at the 20:39 for a passing noctule which was observed flying over the field to the south. The last bat recorded was a common pipistrelle at 22:20 which was heard but not seen by the surveyors. This survey was noted for receiving a considerable amount of noise disturbance due to the presence of quad bike riders onsite until 21:05. This may have significantly affected bat behaviour onsite which is perhaps reflected by the very low activity levels recorded before 21:00.

Bat Activity Transect 4 – 08.09.2022 - Dusk

- i The survey commenced at sunset at 19:37 continuing for two hours ending at 21:37. The transect was conducted under suitable weather conditions following the route outlined in Figure 22. A low-moderate amount of bat activity was recorded during this survey. The first bat encountered was a noctule which was recorded foraging amongst scrub habitat to the far south of the site at 20:01. Most recorded activity consisted of *Nyctalus* bats (possibly serotine bats) foraging and commuting along the northern site boundary. Other bats species encountered included common pipistrelle, Leisler's bat and *Nathusius's* pipistrelle. The last bat recorded was at 21:20 for a common pipistrelle which was heard but not seen by surveyors.



Key

Site Boundary



Sp. Abbrev.	Species
B.	Common Blackbird
BC	Blackcap
BT	Blue Tit
CC	Common Chiffchaff
Juv	Juvenile
LI	Common Linnet
LW	Lesser Whitethroat
MG	Black-billed Magpie
R.	European Robin
SD	Stock Pigeon
SI	Common Swift
WH	Common Whitethroat
WP	Common Wood Pigeon
WR	Winter Wren
Y.	Yellowhammer

**RammSanderson**

Title: Breeding Bird Survey Plan - 20/06/22

Project: Land at Barrow Hill Quarry, Earl Shilton

Client: AT Contracting & Plant Ltd

Date: 30/09/2022

Fig:30

Author: KHE

A4 Scale: 1:1400

ID: RSE_5294_BBS_0922_V1R1



Key

Site Boundary

Target_Note

TN1 - Possible Kestrel Roost in Cliff

Sp. Abbrev.	Species
B.	Common Blackbird
BC	Blackcap
BT	Blue Tit
CC	Common Chiffchaff
LI	Common Linnet
MG	Black-billed Magpie
R.	European Robin
SD	Stock Pigeon
SI	Common Swift
WH	Common Whitethroat
WP	Common Wood Pigeon
WR	Winter Wren
Y.	Yellowhammer

RammSanderson

Title: Breeding Bird Survey Plan - 07/07/22

Project: Land at Barrow Hill Quarry, Earl Shilton

Client: AT Contracting & Plant Ltd

Date: 28/09/2022

Fig:31

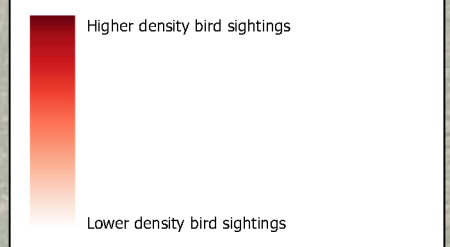
Author: KHE

A4 Scale: 1:1400

ID: RSE_5294_BBS_0922_V1R1



- Key**
- Site Boundary
 - A2.1 - Scrub - dense/continuous
 - B6 - Poor semi-improved grassland
 - C3.1 - Other tall herb and fern - ruderal
 - J1.3 - Cultivated/disturbed land - ephemeral
 - J4 - Bare ground





RammSanderson

Title: Breeding Bird Survey Heatmap (combined surveys)

Project: Land at Barrow Hill Quarry, Earl Shilton

Client: AT Contracting & Plant Ltd

Date: 28/09/2022

Fig:32

Author: KHE

A4 Scale: **1:1400**

ID: RSE_5294_BBH_0922_V1R1



Key

Site Boundary

Buffer 10m

Buffer 30m

Historic Disused Sett

Disused Sett (Identified on Survey)

Print

Hair Found

Disused Hole

Trail Cam Locations

Title: Badger Activity Plan

Project: Land at Barrow Hill Quarry, Earl Shilton

Client: AT Contracting & Plant Ltd

Date: 14/11/2022

Fig:33

Author: KHE

A4 Scale: 1:1200

ID: RSE_5294_BA_1022_V2R1



Key

- Site Boundary
- Badger Sett Buffer 30m
- Badger Sett Buffer 10m
- Bramble scrub
- Developed land; sealed surface
- Mixed scrub
- Modified grassland
- Other neutral grassland
- Other woodland; mixed
- Line of Trees (w1g6NE2)
- Proposed Tree

Badger Setts

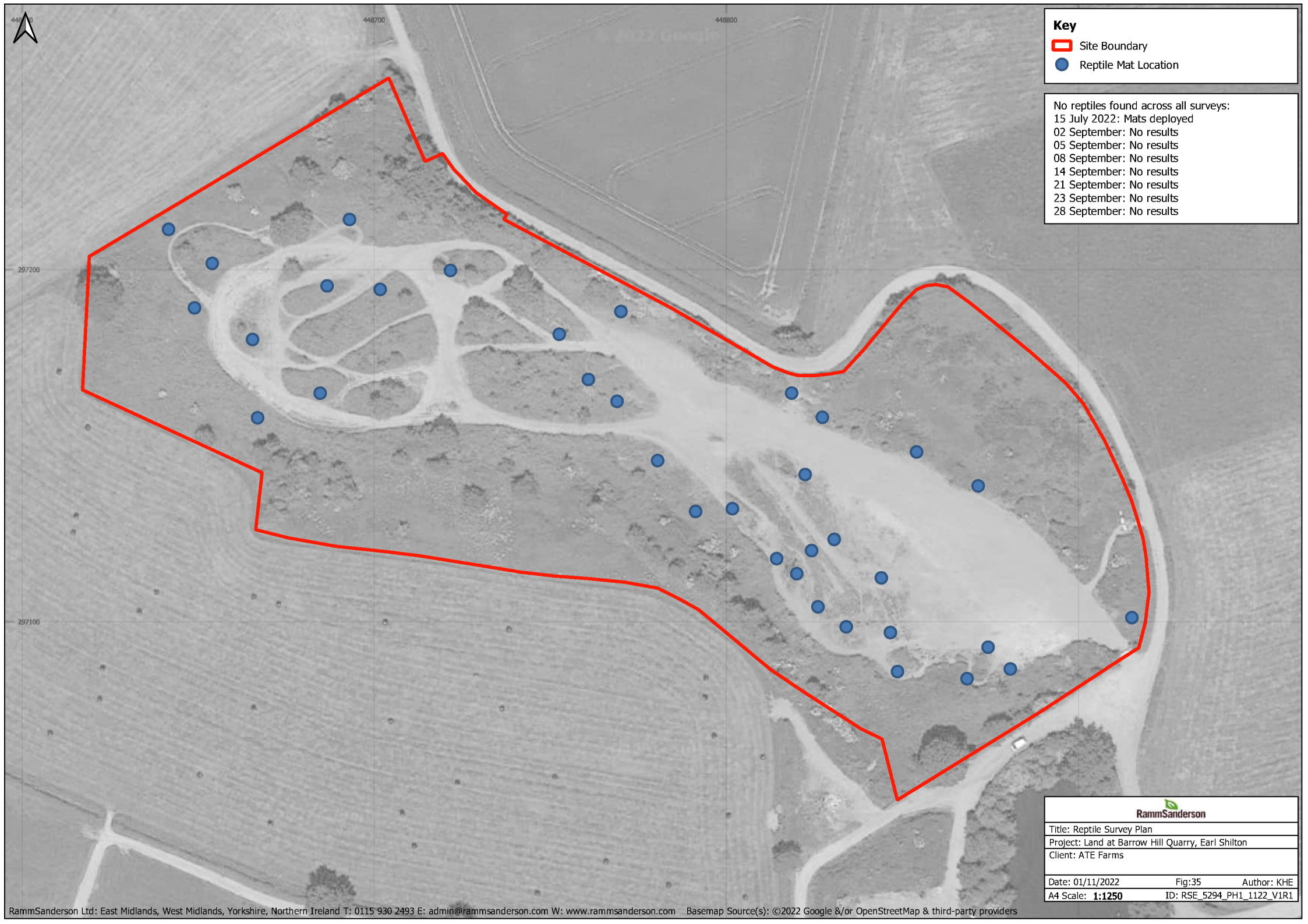
- Historic Disused Sett
- Disused Sett (Identified on Survey)



RammSanderson

Client: AT Contracting & Plant Ltd		
Project: Land at Barrow Hill Quarry, Earl Shilton		
Drawing Title: Proposed Habitat Plan with Badger Survey Results		
Drawing No. RSE_5294_34	Scale @A4: 1:1,500	Rev: V1
Drawn By: KHE	Date: 1/11/2022	

RammSanderson Ltd
East Midlands, West Midlands, Yorkshire, Northern Ireland
T: 0115 930 2493
E: admin@rammsanderson.com
W: www.rammsanderson.com



Key

Site Boundary

Reptile Mat Location

No reptiles found across all surveys:
15 July 2022: Mats deployed
02 September: No results
05 September: No results
08 September: No results
14 September: No results
21 September: No results
23 September: No results
28 September: No results

**RammSanderson**

Title: Reptile Survey Plan

Project: Land at Barrow Hill Quarry, Earl Shilton

Client: ATE Farms

Date: 01/11/2022

Fig:35

Author: KHE

A4 Scale: **1:1250**

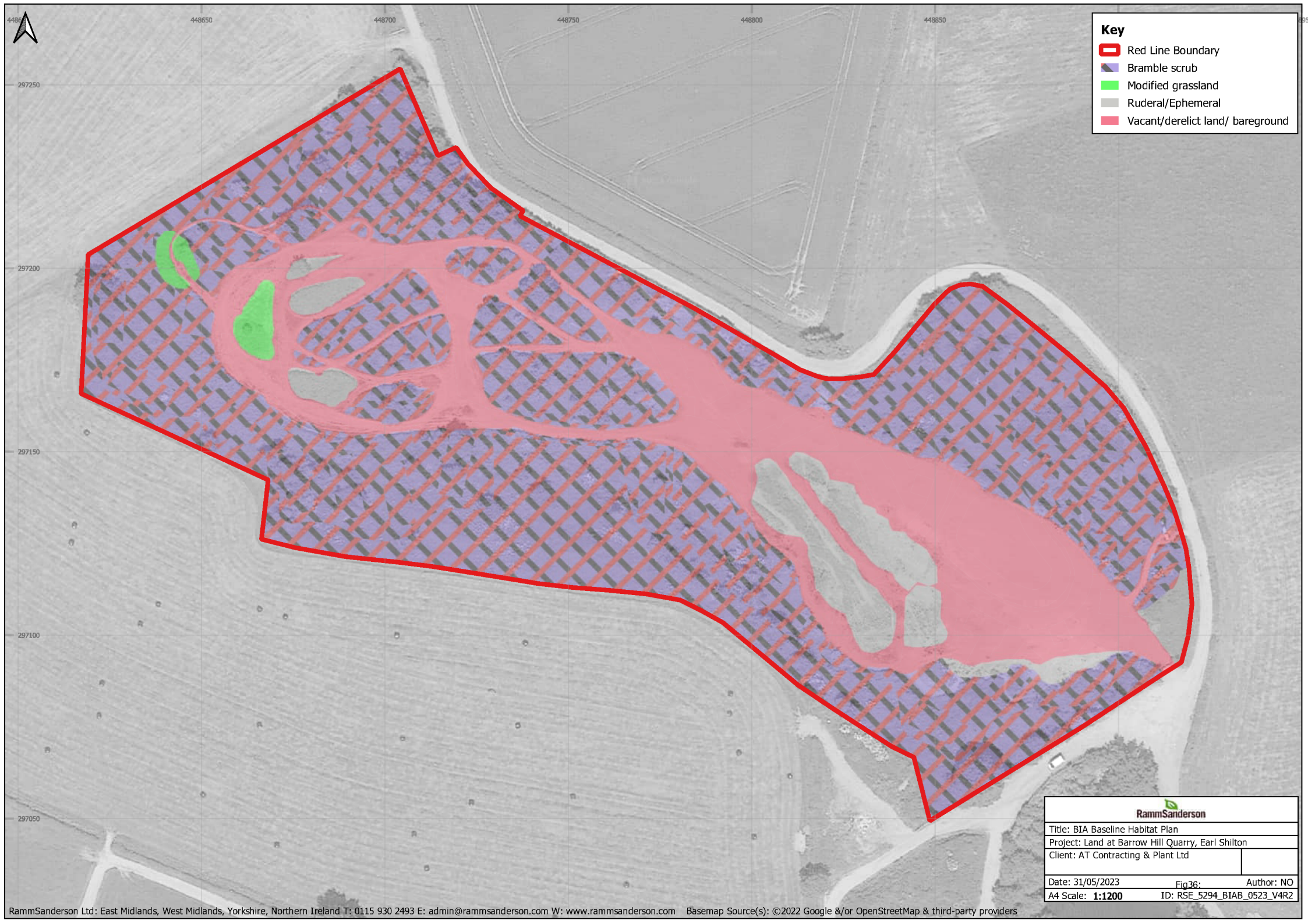
ID: RSE_5294_PH1_1122_V1R1

19 APPENDIX 9: BIODIVERSITY IMPACT ASSESSMENT (BIA) CONDITION ASSESSMENTS AND PLANS

Table 13: BIA Condition Assessments

Criteria	Pass/Fail	Further Comments
Heathland and shrub – Bramble scrub (dense)		
<i>Condition Score: Poor</i>		No assessment required – condition fixed at 'poor'
Grassland – Modified grassland (poor semi-improved grassland)		
There must be 6-8 species per m2 . If a grassland has 9 or more species per m2 it should be classified as a medium distinctiveness grassland habitat type. NB - this criterion is essential for achieving moderate condition	Pass	Approx. 7 species per m2
Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Fail	Sward approximately the same height
Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type	Pass	
Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Fail	Physical damage from anthropogenic activities such as biking
Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	Pass	
Cover of bracken is less than 20%.	Pass	
There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).	Pass	
<i>Condition Score: Moderate</i>		
Sparsely vegetated land – Ruderal/Ephemeral (Ephemeral)		

Criteria	Pass/Fail	Further Comments
Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.	Pass	
There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife).	Pass	
Does criterion 2 achieve good condition ? (see above)	Fail	
Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	Pass	
Does criterion 3 achieve good condition ? (see above)	Pass	
<i>Condition Score: Moderate</i>		
Urban – Vacant/derelict land/bare ground (bare ground)		
Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.	Fail	Little to no vegetation due to frequent use through dirt biking. Nonetheless, plant species are varied containing some non-native/invasive species. Frequency of non-natives however is low.
There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife).	Fail	
Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	Pass	
<i>Condition Score: Poor</i>		

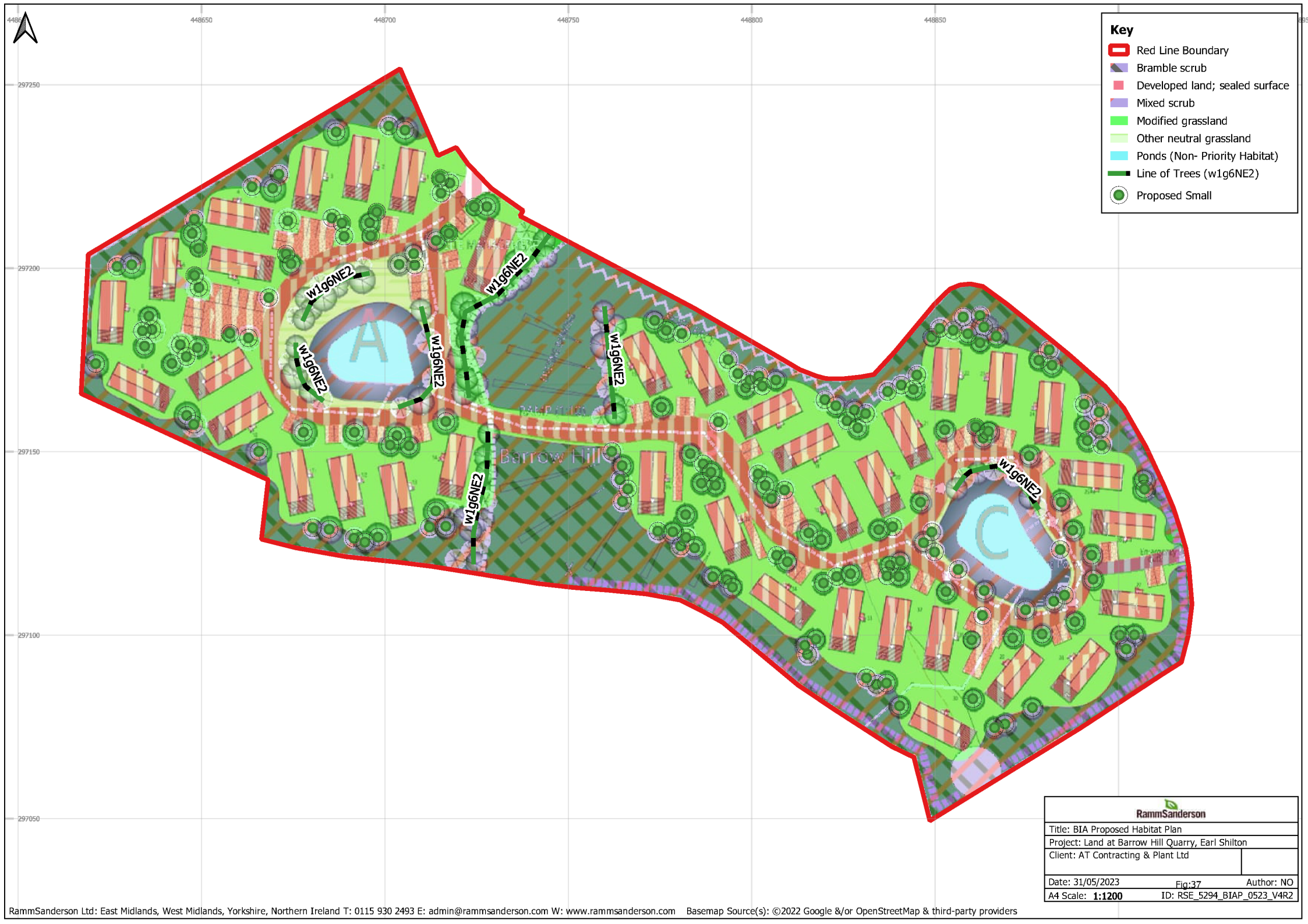


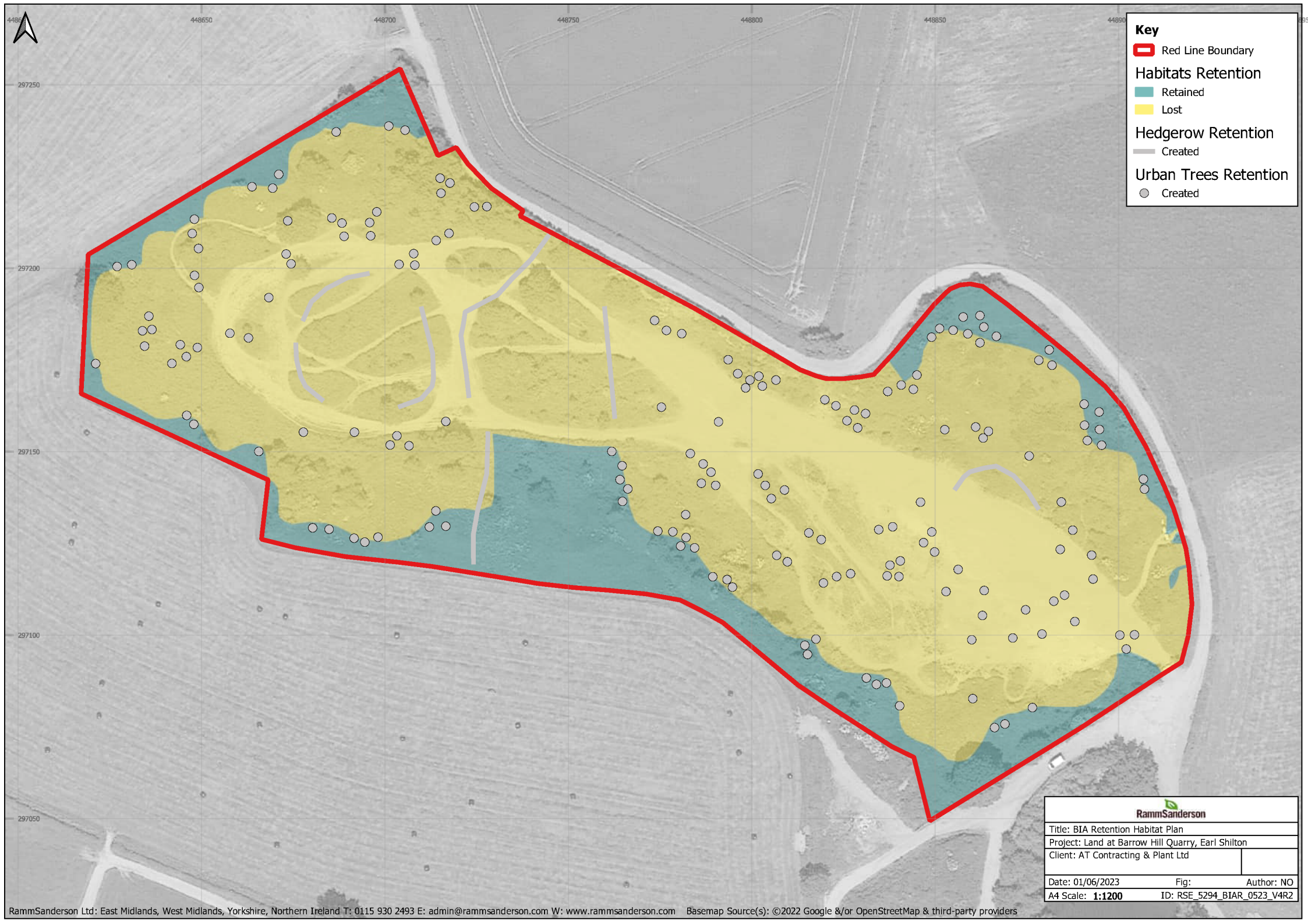
Key

-  Red Line Boundary
-  Bramble scrub
-  Modified grassland
-  Ruderal/Ephemeral
-  Vacant/derelict land/ bareground

RammSanderson

Title: BIA Baseline Habitat Plan		
Project: Land at Barrow Hill Quarry, Earl Shilton		
Client: AT Contracting & Plant Ltd		
Date: 31/05/2023	Fig36:	Author: NO
A4 Scale: 1:1200	ID: RSE_5294_BIAB_0523_V4R2	





Key

 Red Line Boundary

Habitats Retention

 Retained

 Lost

Hedgerow Retention

 Created

Urban Trees Retention

 Created

RammSanderson		
Title: BIA Retention Habitat Plan		
Project: Land at Barrow Hill Quarry, Earl Shilton		
Client: AT Contracting & Plant Ltd		
Date: 01/06/2023	Fig:	Author: NO
A4 Scale: 1:1200	ID: RSE_5294_BIAR_0523_V4R2	