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INTRODUCTION

This chapter of the ES examines those issues relating to nature conservation and ecology arising from the proposed continuation of landfill operations at the Ling Hall landfill site. The chapter describes the scope, relevant legislation, assessment methodology and the baseline conditions currently existing at the application site and its surroundings. It then considers any potential significant environmental effects the proposed development would have on this baseline environment; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual impacts after these measures have been employed.

11.1 The nature of the development that has been assessed is set out in detail in Chapter 3 above. In brief it involves the continuation of the landfilling operations for a further period of 10 years to achieve the approved restoration scheme profile.

11.2 As described in chapter 2 above, the landfill site extends for around 120 hectares and is situated off Ling Lane at Church Lawford near Rugby, Warwickshire (at National Grid Reference: SP 44900 73379) in a rural location (see Drawing LH 11/1).

Relevant Legislation and Policy

11.3 In the context of this assessment, relevant legislation includes:

- Conservation of Habitats and Species Regulations 2017;
- Wildlife and Countryside Act 1981;
- Protection of Badgers Act 1992; and
- Natural Environment and Rural Communities (NERC) Act 2006.

11.4 Summary details of this legislation is set out in Appendix 11/1.

11.5 In terms of planning policy, Chapter 5 above has set out the relevant considerations. This includes the National Planning Policy Framework and associated web based Planning Practice Guidance at the national level and the Warwickshire Waste Core Strategy (Adopted Local Plan 2013 – 2028) and Rugby Borough Council Local Plan 2011 – 2031 at the local level. Again, summary details are set out in Appendix 11/1.
Purpose of this Report

11.6 EcIA is a process of identifying, quantifying and evaluating the potential effects of development-related actions on habitats, species and ecosystems. The purpose of this Chapter of the Environmental Statement is to provide the findings of this assessment process.

11.7 The purpose of this report is to:

- describe the baseline data collection and assessment methods used;
- summarise the baseline ecological conditions;
- identify and describe all potentially significant ecological effects associated with the proposed development;
- set out the design, mitigation and compensation measures required to ensure compliance with nature conservation legislation and to address any potentially significant ecological effects;
- identify how mitigation and compensation measures will/could be delivered;
- provide an assessment of the significance of any residual effects in relation to the effects on biodiversity and the legal and policy implications;
- identify appropriate enhancement measures and how these will/could be delivered; and
- set out the requirements for post-construction monitoring.

Evidence of Technical Competence and Experience

11.8 This EcIA has been completed by Mr Andrew Law BSc (Hons), a Principal Ecologist with SLR and a Chartered Ecologist (CEcol) and Full Member of the Institute of Ecology and Environmental Management (CIEEM). Mr Law has nearly 30 years of professional experience and has completed over 100 Ecological Impact Assessments of mineral and waste sites. He undertook the Phase 1 habitat survey of the site and the bird survey and is therefore familiar with the site and its context.

11.9 Reptile and bat surveys were undertaken by Ms Pippa Dean and Ms Roisin Jones, both Project Ecologists with SLR.
METHODOLOGY

Scoping Opinion /Consultation

11.10 As noted in Chapter 4 above, Warwickshire County Council (WCC) provide a response to a request for a scoping opinion made by SLR\(^1\) on the 18\(^{th}\) June 2019. In respect of ecology, the County Ecologist considered that, in addition to undertaking a Phase 1 habitat survey, it was also necessary to consider the potential presence of protected species such as great crested newt, badger, reptile and nesting birds as well as previous mitigation and compensation measures including habitat creation, landscaping and maintenance.

11.11 WCC also considered that any losses/gains in biodiversity should be considered in the context of Biodiversity Offsetting policies and that a Biodiversity Impact Assessment (BIA) metric should be calculated using the most recent version of the WCC spreadsheet.

Baseline Data Collection

Technical Scope

11.12 The main issue for consideration in this EcIA is whether the proposed continuation of landfilling would give rise to any additional ecological effects and not whether the activities proposed are acceptable \textit{per se} as the site already has the benefit of planning permission. For example, are there areas of ecological interest within or adjacent to the site that are reliant (e.g. to attain favourable condition) upon the timing of restoration activities?

11.13 The scope of the assessment includes consideration of designated ecological sites, habitats and species of principal importance for conservation of biodiversity, Local Biodiversity Action Plan Habitats and Species and protected and notable species.

Geographical Scope

11.14 The study area in respect of the desk study exercise used a 2 km radius from the application site. This is considered to represent good practice and an appropriate distance within which to ascertain the presence of receptors such as internationally and nationally designated statutory and non-statutory ecological sites.

11.15 Landfill activities and subsequent site restoration are on-going or have now been completed in respect of a significant proportion of the application site. The relevant areas are listed below and are shown indicatively in Drawing LH 11/2.

- restored, previously tipped areas awaiting imminent restoration or other areas used for ancillary activities (shown blue); and

\(^{1}\) Proposed Variation to Condition 53 of Planning Permission R16/890805. Ling Hall Landfill Site Rugby. SLR Consulting Limited. October 2018.
• active operational areas (shown green).

11.16 As no further activities are proposed in the above areas that have the potential to affect ecological interests they have not been the focus of the EcIA and have been scoped-out from detailed survey unless relevant.

11.17 The land identified for future tipping is shown indicatively shaded in purple on Drawing LH 11/2. In the future this area would be subject to extensive works to remove vegetation and engineering operations (earth moving) to prepare it for use as a landfill cell. The southern part of this area of the site has developed a mosaic of habitats with an ecological interest, having been left largely without intervention for around ten years. It therefore has been identified as the main area of ecological study and the focus of this EcIA.

Desk Study

11.18 The objective of the desk study was to compile and review ecology data relevant to the site and local area, notably for statutory and non-statutory nature conservation sites and records of protected or otherwise notable species.

11.19 An ecological data search was requested from the Warwickshire Biological Records Centre (WBRC) to provide records of statutory and non-statutory sites and protected and otherwise notable species in respect of the application site and land within a 2 km radius of it.

11.20 An internet-based desk study was also undertaken, whereby the Multi-Agency Geographic Information for the Countryside (MAGIC) website (http://magic.gov.uk) was searched for statutory designated sites (such as Sites of Special Scientific Interest (SSSI), UK Priority Habitats, Ancient Woodland and EPS licences) within 1km.

Field Surveys – 2019 - SLR

Phase 1 Habitat Survey

11.21 An extended Phase 1 habitat survey of the application site was first undertaken on 24th April 2019 by Mr Andrew Law, CEcol, MCIEEM using standard Phase 1 Habitat survey methodology. In addition to being an experienced habitat surveyor, Mr Law holds Natural England Class Survey Licences in respect of bats (level 2), hazel dormouse and great crested newt.

11.22 Further walkovers were undertaken on the 27th June and the 16th July 2019 which focused on the vegetated parts of the purple-shaded land as shown on Drawing LH 11/2.

11.23 Target notes were used to denote particular features (such as buildings or mature trees) or as a means of providing a location for general site photographs.

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11.24 Habits and features with the potential to support protected and/or conservation priority fauna, together with any field signs of such species were searched for.

11.25 The survey area, where accessible, was searched for badger *Meles meles* setts and field signs.

11.26 Trees and built structures within the survey area were assessed during habitat surveys for their potential to support roosting bats via an external assessment at ground-level (where safe to do so), based on criteria within the third edition of the Bat Conservation Trust’s Good Practice Guidelines.\(^3\)

11.27 Ponds within the relevant zone of influence (min 250m) of the parts of the site where future works would take place were identified by reference to OS maps and freely-available aerial photographs. Where accessible, these were subject to a Habitat Suitability Index (HSI) assessment\(^4\) to gauge their potential to support great crested newt (*Triturus cristatus*).

11.28 Searches were also made for non-native invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), such as Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera*.

11.29 **Drawing LH 11/3** provides a Phase 1 habitat plan. Due to the anthropogenic nature of the site habitats it has been necessary to show certain areas as a mosaic or describe them in other ways than the standard methodology.

**Surveys for Protected and Notable Species**

11.30 The following surveys for protected and notable species were undertaken by SLR in 2019:

- Amphibians (including Great Crested Newt) – desk review, Habitat Suitability Index Calculations and eDNA testing of a site waterbody in June 2019;
- Reptiles – artificial refuge-based survey in September 2019;
- Bats – daytime building and tree inspections and summer and autumn 2019 transects and automated recording;
- Badger – walkover survey of relevant areas; and
- Breeding birds – three surveys during April, June and July 2019 of relevant areas.

**Species Scoped-Out from Further Survey**

11.31 Field surveys in respect of water vole and otter were scoped-out due to a lack of suitable habitats.

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11.32 Field surveys in respect of notable terrestrial invertebrates have not been undertaken as it was considered that the potential for notable assemblages of invertebrates to be present was low given the relatively small size and isolation of suitable habitats.

11.33 Further comment in respect of those species/groups that have been scoped-out is provided in the relevant section of this EcIA when the important features of the site are selected.

Limitations

Desk Study

11.34 Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the site. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

Field Surveys

11.35 Field surveys were generally un-constrained. Any constraints specific to certain surveys are expressed in the relevant survey reports.

Assessment Approach

11.36 The ecological evaluation and impact assessment approach used in this report is based on Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland (“CIEEM guidelines”) (CIEEM, 2018).

Important Ecological Features

11.37 Ecological features can be important for a variety of reasons. Importance may relate, for example, to the quality or extent of the site or habitats therein; habitat and / or species rarity; the extent to which such habitats and / or species are threatened throughout their range, or to their rate of decline.

Determining Importance

11.38 The importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used in this case, relying on known / published accounts of distribution and rarity where available, and professional experience:

- International;
- National (i.e. UK/ England etc.);
- Regional (i.e. West Midlands);
• County (i.e. Warwickshire); and

• Local (i.e. within circa 5km).

11.39 The above frame of reference is applied to the ecological features identified during the desk study and surveys to inform this report.

11.40 The value of habitats has been measured against published selection criteria where available. Examples of relevant criteria include: descriptions of habitats listed on Annex 1 of the Habitats Directive; descriptions of Habitats of Principal Importance for Biodiversity under Section 41 of Natural Environment and Rural Communities (NERC) Act 2006; Local Wildlife Site Selection Criteria; and Habitat Action Plans (HAPs) contained within Local Biodiversity Action Plans. Add LBAP(s) or LWS guidance specific to project where appropriate.

11.41 In assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Reference has therefore been made to published lists and criteria where available. Examples of relevant lists and criteria include: species of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive); species of principal importance for biodiversity under Section 41 of the NERC Act 2006 and Birds of Conservation Concern5.

11.42 For the purposes of this report, ecological features of local importance or greater and/or subject to legal protection have been subject to detailed assessment.

**Impact Assessment**

11.43 The impact assessment process involves the following steps:

• identifying and characterising potential impacts;

• incorporating measures to avoid and mitigate (reduce) these impacts;

• assessing the significance of any residual effects after mitigation;

• identifying appropriate compensation measures to offset significant residual effects (if required); and

• identifying opportunities for ecological enhancement.

11.44 When describing impacts, reference has been made to the following characteristics, as appropriate:

• positive or negative;

• extent;

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• magnitude;
• duration;
• timing;
• frequency; and
• reversibility.

11.45 The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action, e.g. the physical loss of habitat occupied by a species during the construction process. Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or feature, e.g. the creation of roads which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of wet grassland.

11.46 Consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance:

• Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area; and

• Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

**Significant Effects**

11.47 The concept of ecological significance is addressed in paragraphs 5.24 through to 5.28 of CIEEM guidelines. Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of EcIA, a ‘significant effect’ is an effect that either supports or undermines biodiversity conservation objectives for ‘important ecological features’ 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 can be considered significant at a wide range of scales from international to local and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

**Cumulative Effects**

11.48 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.
Avoidance, Mitigation, Compensation and Enhancement

11.49 When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

11.50 Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied residual effects are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement.

11.51 It is important for the EcIA to clearly differentiate between avoidance mitigation, compensation and enhancement and these terms are defined here as follows:

- avoidance is used where an impact has been avoided, e.g. through changes in scheme design;
- mitigation is used to refer to measures to reduce or remedy a specific negative impact in situ;
- compensation describes measures taken to offset residual effects, i.e. where mitigation in situ is not possible; and
- enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

BASELINE ECOLOGICAL CONDITIONS

Site Context and Description

11.52 Landfill-related activities or other ground disturbance of a more historical nature (mineral extraction) has taken place across the majority of the site and as such no natural habitats remain.

11.53 Upon completion of the relevant phase the land has been restored, principally back to a typical form of “restoration” grassland of which large areas now exist. The highest parts of the site to the north are maintained by sheep grazing. Other, more central areas of the site that are still in operational use are un-grazed, except by rabbits, and comprise of young trees in stockades planted into restored grassland. Around two thirds (60ha) of the site is now restored or is being actively prepared for tipping in a westerly, then north-south, direction.

11.54 A network of un-surfaced tracks lead to the tipping face and service other ancillary activities such as pad-based composting, energy generation from landfill gas and the processing of road sweepings and incinerator bottom ash. In places, there are stockpiles of materials, some of which are semi-permanent. Two lagoons are also present centrally which are operational features.
Aside from the concrete batching plant, structures are limited to portacabins and other similar-sized pre-fabricated buildings situated at the weighbridge and further north which support ancillary activities such as the generation of energy from landfill gas and the processing of road sweepings and green waste. The site contains a relict from the airfield in the form of a disused concrete air control tower/building.

The remaining land to be tipped is situated centrally and comprises of an area of land which has not been disturbed for some time. It comprises of the aforementioned two lagoons, to the south of which is an area (4.00ha) of “tailings” (deposited overburden). The latter has a distinctive undulating appearance caused by the mounding of spoil which in the last ten years has been colonised by grassland, young trees and reeds. To the south of the mounded area is a raised track running west to east below which is a corridor of low-lying land occupied by a semi-permanent pond and ditch (the extent of open water is seasonal in nature). Associated with the open water is a habitat mosaic of willow scrub, reedbed, brambles and grassland. Behind this depression to the south is a rising bank of tall ruderal vegetation which forms the edge of a previous landfill cell.

Elsewhere within the site are landfill cells that have been filled but appear to have yet to undergo restoration and which comprise of dense ruderal vegetation dominated by docks, thistles and nettles.

Statutory Designated Sites

The application site is not designated as a statutory ecological site.

The desk study found that Draycote Meadows Site of Special Scientific Interest (SSSI) is present around 1.7km to the south of the application site. The SSSI is a 4ha lowland unimproved meadow site.

No other statutory designated ecological sites are present within a 2km radius of the application site.

Statutory ecological sites are not considered further in this EcIA due to the considerable separation distance that exists between the application site and the nearest statutory designated ecological site.

Non-Statutory Designated Sites (see Drawing LH 11/1)

Non-statutory sites (Ecosite or Local Wildlife Sites) are present within a radius of 2km of the application site.

The following four sites (as shown on Drawing LH 11/1) are of most relevance to this EcIA as they form part of the boundary of the site in places and / or are within 500m of the application site and therefore have the most potential to be affected if impact pathways exist:

- 03/47 Ecosite – Ancient hedgerows around Church Lawford Airfield;
- 35/47 Local Wildlife Site - The Holdings - varied habitats including pools and woodland;
• 06/47 Local Wildlife Site – Dismantled Railway from Rugby to Leamington – grassland, tall herb and scrub; and

• 31/47 Proposed Local Wildlife Site – Lawford Heath Lane Hedge - a double hedge, species-rich and providing good cover for birds.

11.64 Of the above, only Ecosite 03/47 is considered further in this EcIA. The remaining three non-statutory sites are either separated by sufficient land to ensure that an impact is unlikely or, in the case of the pond belonging to 35/47 (TN 4), this is situated next to an area of restored grassland where no future activities are proposed.

Priority Habitat Inventories

11.65 A search of MAGIC shows that the application site contains two areas described as being “young trees” (1.47 ha total) and a separate area of deciduous woodland (1.07ha) corresponding to land bordering Lawford Heath Lane around the most central lake to the west of the site.

Ancient Woodland

11.66 According to MAGIC, there is no ancient woodland within the application site or in close proximity. The nearest ancient woodland is 850m to the north of the site’s northern boundary at Fulham Wood.

11.67 Ancient woodland is not considered further in this EcIA as it is not present within the site or nearby and there are no identified pathways that may lead to impacts upon the site identified above.

Warwickshire, Coventry and Solihull Local Biodiversity Action Plan (LBAP)

11.68 The above LBAP contains specific habitat plans in respect of the following which are potentially of relevance to this EcIA:

• mosaic habitats on previously developed land;

• quarries;

• lakes and reservoirs; and

• ponds

11.69 The LBAP contains specific species action plans in respect of the following which are potentially of relevance to this EcIA:-

• Song thrush;

• Blood-nosed beetle;

• Bats; and
• Great crested newt

Previous Ecological Surveys (last ten years)

REG Solar Farm 2014 – Approved (Implemented not Completed)

11.70 In July 2014, a solar farm was proposed by REG Solar power on behalf of Veolia. The proposed site comprised of restored grassland which has previously been landfilled to the north of the site (12 ha) and the two fields of restored grassland, one either side of the entrance to the site (c. 10 ha in total).

11.71 The scope of the ecological survey work undertaken in 2014\(^{6}\) included:

- Phase 1 habitat survey;
- habitat suitability exercise in respect of great crested newt, reptiles, water vole, breeding birds;
- a mapping exercise in respect of non-native invasive plant species;
- hedgerow survey;
- badger activity survey; and
- bat roost potential assessment.

11.72 The initial work described above was followed by specific surveys in respect of:

- Great crested newts – presence/absence survey;
- Reptiles – presence/absence survey; and
- Breeding bird surveys.

11.73 The findings of the above surveys are discussed in the relevant sections of this EcIA.

Composting Pad – September 2017 – Approved and Implemented

11.74 In September 2017, Wardell Armstrong LLP was commissioned by Veolia Environmental Services to undertake a Preliminary Ecological Appraisal (PEA)\(^{7}\) in respect of proposed site for a composting pad (3 ha) situated at SP 445 736, which is in a central location within the landfill site. The site comprised of bare ground, ephemeral and ruderal vegetation with scrub and a dry ditch.

11.75 The 2017 PEA considered the following ecological features:

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\(^7\) Ling Hall Landfill Site – Compost Pad – PEA – September 2017. Wardell Armstrong LLP. ST16255.
• statutory and non-statutory designated conservation areas;
• areas of ancient woodland;
• legally protected species;
• priority habitats and species;
• local Biodiversity Action Plan habitats and species; and
• invasive plant species.

11.76 The scope of the 2017 PEA included:
• desk study;
• extended Phase 1 habitat survey;
• habitat suitability index calculations of eight lakes, pond and ditches in respect of great crested newts; and
• observations on the potential for the site to be of value to bats, badger, birds (and recording of species seen on the day of survey), reptiles, brown hare, hedgehog and common toad.

11.77 No follow-on surveys were undertaken in respect of any protected and notable species and the composting pad was given planning permission and has since been constructed and is currently operational.

Habitats

11.78 The land identified for future tipping is shown indicatively shaded in purple on Drawing LH 11/2 and extends to c 25 ha. In the future this area would be subject to works to remove vegetation (where it has established) and earth moving to prepare it for use as an engineered landfill cell. The southern part of the purple area has developed a mosaic of habitats with an ecological interest, having been left largely without intervention for around ten years. It therefore has been identified as the main area of habitat survey and the focus of this EcIA.

11.79 The results of the Phase 1 Habitat Survey are illustrated in map form (Drawing LH 11/3).

11.80 The following main habitat types and features were recorded within the purple survey area in order of greatest extent (estimated):

• Open Mosaic Habitat on Previously Developed Lane comprising of willow carr, pioneer grassland, tall ruderal vegetation, pond/ditch, reedbed, bramble beds (c.4.15ha);
• lagoons (1.5ha); and
• bare ground, recent ruderal vegetation, tracks, site offices, hard standing, plant/machinery and active stockpiles (19.55ha).
11.81 A short description of each habitat type is provided below. Target Note photographs and brief descriptions can be found in Appendix 11/2.

**Bare ground, recent ruderal grassland, tracks and stockpiles (e.g. TN 18).**

11.82 Where vegetation is present it is typically sparse and comprises of pioneer and ruderal vegetation characterised by opportunistic species such as lesser burdock (*Actium minus*), teasel (*Dipsacus fullonum*), spear thistle (*Cirsium vulgare*), Canadian fleabane (*Erigeron canadensis*), nettle (*Urtica dioica*), weld (*Reseda luteola*), creeping cinquefoil (*Potentilla reptans*), creeping buttercup (*Ranunculus repens*) and scentless mayweed (*Tripleurospermum inodorum*).

**Open Mosaic Habitat on Previously Developed Land (OMH) comprising of bare ground, willow carr, pioneer grassland/spoil, tall ruderal vegetation, reedbed and scrub.**

11.83 A triangular-shaped area of land is present which has been previously disturbed but which for around ten years has been left to re-vegetate (Target Note 20).

11.84 The main part comprises of hummocky topography where pioneer grassland has colonised mounds of spoil; young grey and goat willow (*Salix cinerea / caprea*) and some birch (*Betula pendula*) is frequent as scattered young trees and seedlings. The grassland was found to be dominated by plant and grass species such as false oat-grass (*Arrhenatherum elatius*), colts foot (*Tussilago fara fara*), ragwort (*Senecio vulgaris*), lesser trefoil (*Trifolium dubium*), teasel (*Dipsacus fullonum*), self-heal (*Prunella vulgaris*), black medick (*Medicago lupulina*), hoary ragwort (*Senecio erucifolius*), broad-leaved willowerb (*Epilobium montanum*), dandelion (*Taraxacum officinale* agg), bramble (*Rubus fruticosus*), Perforate St John’s wort (*Hypericum perforatum*) and white clover (*Trifolium repens*) with frequent ribwort plantain (*Plantago lanceolata*), ox-eye daisy (*Leucanthemum vulgare*), bristly ox-tongue (*Helminthotheca echioides*), spear thistle (*Cirsium vulgare*), creeping cinquefoil (*Potentilla reptans*), creeping buttercup (*Ranunculus repens*), scentless mayweed (*Tripleurospermum inodorum*), and smooth tare (*Vicia tetrasperma*). Other species found less commonly included common centaury (*Centaurium erythrea*), blue fleabane (*Erigeron acer*), bird’s foot trefoil (*Lotus corniculatus*), white stonecrop (*Sedum acre*) and viper’s bugloss (*Echium vulgare*). Low spots were being colonised by common reed. Bee orchid (*Apifera aphrys*) and pyramidal orchid (*Anacamptis pyramidalis*) were also recorded in small numbers within the grassland.

11.85 To the south of TN 20 within the triangular area is a low-lying area (TN 19 and 21) with a linear ditch largely colonised by common reed (*Phragmites australis*) with patches of willow carr and swamp dominated by lesser pond sedge (*Carex acutiformis*) and hard rush (*Juncus inflexus*) in shaded areas. In more open wetland areas water plantain (*Alisma plantago laneolata*) and common spike rush (*Eleocharis palustris*) are present. The wetland is backed to the south by a slope dominated by beds of great willowerb (*Epilobium hirsutum*), dense bramble, nettle, buddleia and scattered elder (*Sambucus nigra*) and ash (*Fraxinus excelsior*).
Standing Water

11.86 The two lagoons (TN 6 and TN 7) are largely un-vegetated except for some buddleia scrub and patches of great willowherb, weld (*Reseda luteola*) and thistles.

11.87 New Zealand Pygmyweed (*Crassula helmsii*), which is an invasive plant species was recorded in the southern margin of lagoon TN 6.

Species

11.88 This section provides a description of the use of the site (or likely use of the site) by the relevant species (i.e. those which are national or local conservation priorities or protected species).

11.89 The assessment provided by this section is based on a combination of desk study information, field survey data and a professional judgement of the likely value of the habitats for each species.

Notable Plant Species

11.90 Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) and Annex IV (b) of the EU Habitats Directive make it an offence to uproot and/or sell certain species.

11.91 WBRC returned a record for the site of corn marigold (*Glebionis segetum*), a declining arable plant/weed species, from 1989 from an un-managed arable field referenced as Church Lawton Airfield.

11.92 The June 2019 walkover visit recorded the presence of a small colony of bee orchid (*Ophrys apifera*) within TN 20. Approximately 10 plants were present in pioneer grassland lining a track. The July 2019 walkover visit recorded a single spike of pyramidal orchid (*Anacamptis pyramidalis*), also in TN 20.

11.93 Neither of the above species is included in the recent Rare plant register for Warwickshire\(^8\) and they are considered to be of local interest only.

Invasive Plant Species (Schedule 9)

11.94 Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) makes it an offence to plant or cause the spread of certain plant species in the wild.

11.95 The June 2019 walkover recorded the presence of New Zealand Pygmyweed (*Crassula helmsii*) in the southern margin of lagoon TN 6.

11.96 No other non-native invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded.

Reptiles

11.97 All native species of reptile receive protection under the Wildlife and Countryside Act 1981 (as amended).

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\(^8\) Rare Plant Register for Warwickshire VC 38 (2018) BSBI.
11.98  WBRC returned records for grass snake from within a 2km radius. A 2007 records of grass snake originates from the Ling Hall “quarry extension” site (this is situated off-site to the north-east).

11.99  Surveys were undertaken in 2014 in respect of a proposed solar panel scheme. A small population (peak count 2 adults) of grass snake was recorded. The animals were recorded along the western edge of the site near to TN 12.

11.100  The 2019 Phase 1 survey found that the mosaic of dry grassland, reedbed and carr and scrub present at TN 19, 20 and 21 had the potential to support reptiles, due to the localised presence of suitable habitats and micro-climatic conditions (i.e. warm, sheltered, sunny banks). Elsewhere, opportunities were more limited. The dense area of ruderal vegetation at TN 15 was considered to be too tall (shaded) to provide the sunny conditions required by this group.

11.101  In September 2019, a reptile survey of the relevant parts of the site was undertaken by ecologists from SLR involving direct observation and the use of 60 artificial refuges in six rows. After a “bedding-in” period of 2 weeks following deployment the refugia were checked for the presence of reptiles in the morning and afternoon on seven occasions during suitable weather.

11.102  The survey in September 2019 did not record the presence of reptiles (see Appendix 11/3 for Survey Report)

Breeding Birds

11.103  The nests of all bird species, with the exception of some pests, are afforded general protection against destruction by the Wildlife and Countryside Act 1981 (as amended).

11.104  Certain species of bird are afforded special protection against disturbance or being killed through their inclusion in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

11.105  The WBRC search only returned one record for a notable bird species, a 2014 record of barn swallow, from within the 2km search radius.

11.106  A previous survey of the site was undertaken in 2014 to inform a proposed solar scheme. The presence of a Schedule 1 species (little-ringed plover) was recorded at TN 6 (although breeding was not confirmed). Of the other bird species present it was noted that between 19 and 28 breeding pairs of skylark (a red-listed species) were present within the areas of restored grassland.

11.107  As the proposals would involve the loss of the two lagoons (including TN 6) and other habitats which could support breeding birds (e.g. reedbed) a survey of the relevant parts of the site was undertaken in April, June and July 2019 by an ecologist from SLR involving a pre-defined transect route (see Appendix 11/4 for Survey Report).

11.108  The survey recorded the presence of 25 bird species, of which three were red list (song thrush, linnet and herring gull) and four were amber list (dunnock, willow warbler, mallard and swift). Of the 25 species 16 were considered to be breeding or probable breeders and nine were either possible or non-breeders. A colony of sand martins is present comprising of 10-15 pairs in the face of a stockpile.
11.109 No Schedule 1 bird species such as little-ringed plover were recorded.

11.110 The assemblage of birds recorded in 2019 is considered to be typical of a lowland site with open water, scrub and reeds. The number of red and amber listed species and the corresponding number of territories that were held was considered to be low.

**Bat Roosts**

11.111 All species of bat are highly protected by both UK and EU legislation, which is summarised below.

11.112 The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) transpose Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (Habitats Directive) into English law, making it an offence to deliberately capture, kill or disturb wild animals listed under Schedule 2 of the Regulations. It is also an offence to damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time).


- intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under schedule 1 to the act, or its dependent young while it is nesting;
- intentionally kill, injure or take any wild animal listed under schedule 5 to the act;
- intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under schedule 5 to the act; and
- intentionally or recklessly disturb certain schedule 5 animal species while they occupy a place used for shelter or protection.

11.114 Records of common pipistrelle, soprano pipistrelle, noctule and brown-long eared bat were returned by WBRC from within 2km. One record from 2000 relates to the Ling Hall site and concerns an unidentified bat which flew from a building. The location of this record does not correspond with any current buildings.

11.115 No previous surveys for bats have been undertaken within the site. Comment is made in the previous ecological assessments (2014 and 2017) that the operational areas of the site are likely to be of low value to this group for foraging.

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9 Disturbance, as defined by the Conservation of Habitats and Species Regulations 2010 (as amended), includes in particular any action which impairs the ability of animals to survive, breed, rear their young, hibernate or migrate (where relevant); or which affects significantly the local distribution or abundance of the species.
11.116 The buildings on site are not considered to have the potential to support bats. External inspections of the former airfield buildings at TN 17 have been undertaken by Mr Andrew Law, a licensed batworker from SLR (2015-10724-CLS-CLS: Level 2) and they are considered to have negligible potential to support bat roosts being open and semi-derelict.

11.117 No trees are present with the potential to support bat roosts.

11.118 No further surveys in respect of bat roosts have been considered necessary to inform this EcIA.

**Bats (foraging)**

11.119 Due to the presence of a mosaic of habitats and open water at TN 6, 7, 19, 20 and 21 it was considered necessary to assess the use which bats make of this part of the site by undertaking walked transects and automated recording at a frequently and to a method recommended by best practice when timings allowed.

11.120 The survey work comprised of walked transects in summer (August) and autumn (October) 2019 and accompanying periods of automated recording in both seasons.

11.121 The transects mainly recorded common and soprano pipistrelle species in small numbers. The automated recording devices recorded the same species with the addition of noctule and Myotis sp.

11.122 Activity levels recorded by automated devices were generally low with rare periods of greater activity by noctule bats which could have simply been generated by individual bats foraging close to the detector.

11.123 Based upon the findings of the summer and autumn 2019 surveys the absence of spring survey data is not considered to represent a significant constraint or to prevent an assessment being made of the site’s likely value to this group in this EcIA.

11.124 The site is considered to be of ecological importance to 4 common species of bat at a site level only. The site is not considered to be of importance for the conservation of large numbers of common bats or for the conservation of rarer bats (see Appendix 11/5 for Survey Report).

**Amphibians (including Great Crested Newt)**

11.125 Common species of amphibian such as smooth newt and frog are protected by the Wildlife and Countryside Act 1981 (as amended) against sale and trade only.

11.126 Great crested newts are highly protected by both UK and EU legislation, as summarised below.


- intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under schedule 1 to the act, or its dependent young while it is nesting;
- intentionally kill, injure or take any wild animal listed under schedule 5 to the act;
- intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under schedule 5 to the act; and
- intentionally or recklessly disturb certain schedule 5 animal species while they occupy a place used for shelter or protection.

11.129 WBRC returned records for common toad, great crested newt, smooth newt and common frog from within 2km. Records of toad from the Ling Hall “quarry extension” were made in 2007.

11.130 The great crested newt records provided by WBRC encompass nine sites of which all are located around 1.5km to the east of the site and are associated with the Cawston and Lawford Heath area. According to MAGIC, the land at Cawston between the A4071 and B4642 was/is being developed for housing and this required an EPS licence for GCN in 2016.

11.131 The presence of open water in the site has changed over the years in response to surface conditions, landfill activity and restoration efforts.

11.132 Pond surveys and HSI (Habitat Suitability Index) scoping (to ascertain whether waterbodies were suitable for great crested newts - GCN) has previously been undertaken at the site in 2014 (solar scheme) and 2017 (composting pad project) respectively.

11.133 Presence/absence surveys of nine ponds were undertaken in 2014, which, with the exception of Pond TN 4, were located within the site. The surveys scoped-out the large lakes at TN 10, 11, 12. The lagoons at TN 6 and 7 appear at this time to be in the early stages of construction and were scoped-out.

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20 Disturbance, as defined by the Conservation of Habitats and Species Regulations 2010 (as amended), includes in particular any action which impairs the ability of animals to survive, breed, rear their young, hibernate or migrate (where relevant); or which affects significantly the local distribution or abundance of the species.
11.134 The surveys 2014 did not record the presence of GCN. Other amphibian species recorded included smooth newt and frog. Unfortunately, the pond survey map is of a low resolution / poor quality and grid references for individual ponds are not provided. It is therefore difficult to attribute pond reference numbers to those shown on the survey map other than Ponds 1 and 2 (no longer present) and Pond 10 (TN 4) which are clear.

11.135 The ecological assessment work undertaken in 2017 in respect of a composting pad included a HSI scoring exercise of eight waterbodies. With the exception of two features, which are now permanently dry or no longer present, six waterbodies are still present which correspond to the large lakes (TN 10, 11, 12) and two lagoons (TN 6,7). In light of the negative 2014 survey result and as none of the waterbodies scored a HSI of above 0.53 (below average) and the majority were “poor” further surveys for GCN were scoped-out.

11.136 The site currently contains the following waterbodies which are relevant to this EcIA, as shown on Drawing LH 11/3:

- large lakes which originated from sand and gravel workings (i.e. TN 10 and 11);
- two lagoons used for surface water management and other purposes (i.e. TN 6,7);
- two dry ponds and dry ditch (i.e. TN 1,2,3); and
- a recently constructed surface water lagoon at TN 5/22.

11.137 Waterbodies that are present off-site include:

- a pond at TN 4; and
- a largely ephemeral area of standing water formed in a low-lying area (TN 21).

11.138 The previous surveys of the site were reviewed by SLR to determine whether the situation was likely to have changed in the intervening years. Whilst the larger lakes and lagoons are still present it was apparent that other linear features present in 2014/17 such as narrow ditches or temporary standing water are no longer present.12

11.139 The HSI values calculated in 2017 for the lakes and lagoons were considered to be still representative. These are large waterbodies, some of which are actively fished and which hold significant numbers of waterfowl, and as such they comprise a poor habitat for GCN.

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11.134 TN 12 is recorded as two separate grid referenced sites as two (inter-connected) waterbodies are present.

11.135 A comparison of the habitat plan produced in 2014 to the current situation shows that there has been a reduction in the areas of ephemeral water in ditches/swales/runnels which can be attributed to the fact that landfill activities and restoration have now largely been completed.
The pond at TN 4 (surveyed in 2014 with a negative result for GCN) and the more recently (2016) constructed surface water management lagoon present at TN 5/22 are both distant (>800m) from any proposed activities and as such can be scoped-out.

This left the feature referenced as TN 21 which comprises of seasonal open water with associated areas of carr, sedge swamp and reedbed. At times of high rainfall a significant area of the lowest lying land is flooded. Whilst the area occupied by standing water decreases when conditions are drier, a more permanent pond appears to be present to the west. No previous consideration appears to have been given to this feature/area in the previous surveys of the site undertaken in 2014 and 2017.

The aquatic and terrestrial habitats present at TN 21 were assessed for their potential to support GCN using the HSI method. A HSI score of 0.59 was calculated which is on the boundary between a “below-average” (<0.59) and an “average” (>0.60) habitat suitability score.

In view of the absence of previous survey information and the borderline HSI scope it was decided to sample the waterbody using eDNA techniques (1 kit) on the 27th June 2019. This method involves a NE licensed ecologist (A Law 2015-18616-CLS-CLS) taking 20 samples of water which are then amalgamated and analysed in a laboratory for the presence of DNA of GCN (present through skin, faeces etc).

The sample was analysed by ADAS (a Natural England accredited laboratory) in early July 2019 and an “indeterminate result” returned in respect of GCN. Samples occasionally contain a white precipitate which makes the recovery of eDNA very difficult. This precipitate can be present in such high amounts that it interferes with the eDNA extraction process meaning that degradation control (nor most likely the eDNA itself) cannot be recovered at sufficient levels for the control to be within the acceptable limits for the assay, therefore the laboratory have to classify these type of samples as indeterminate (see Appendix 11/6 for eDNA report).

In respect of the feature present at TN21, it considered that there is a low likelihood of GCN being present when the following factors are taken into account:

- the distant nature of desk study records of this species;
- the previous absence of GCN in the site and lack of suitable waterbodies;
- the recent development of the habitat (last ten years) and its isolated nature; and
- the borderline quality of the waterbody as an aquatic habitat.

Badger

Badgers and their setts are protected by the Protection of Badgers Act 1992.

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11.147 The areas of restored grassland potentially provide a foraging habitat for badger. The other areas of the site where compacted spoil is present with intermittent tree planting is considered to be of low suitability.

11.148 No field evidence of this species (including setts) was recorded within the site, where safe access could be gained.

Invertebrates

11.149 The site as a whole is considered to be unlikely to be of high importance for invertebrate species, although localised areas such as the Open Mosaic Habitat do provide nectaring, nesting and overwintering sites for this group.

11.150 No specific surveys for invertebrates were undertaken; however, species were noted when they were encountered. The following species were recorded: black-tailed skimmer dragonfly (*Orthetrum cancellatum*), common blue damselfly (*Enallagma cyathigerum*), tortoise shield-**bug** (*Eurygaster testudinaria*), the tortrix moth *Epiblema sticticana* associated with colts foot, the Crambid moth *Crambus perellla*, marbled white butterfly (*Melanargia galathea*), meadow brown butterfly (*Maniola jurtina*), small tortoiseshell (*Aglais urticae*), peacock (*Aglais io*) and field grasshopper (*Chorthippus brunneus*).

11.151 No bloody-nosed beetles (*Timarcha tenebricosa*) were recorded. In Warwickshire, this is a species that is confined to the Church Lawton area and which occurs in hedgerows and old railway lines. It is a large and therefore distinctive species in both the larval and adult phases (up to 2cm). The Phase 1 survey did not record the presence of lady’s bedstraw (*Galium verum*) or hedge bedstraw (*Galium mullugo*) which are favoured by the larval stage of this species as they have softer leaves than cleavers (*Galium aparine*).

Summary of Important Ecological Features

11.152 Table 11/1 below provides a summary listing all important ecological features for which detailed assessment or further comment is required (i.e. all features of a defined level of importance and/or subject to legal protection). The geographical context within which each is considered to be important and a summary of their legal status is also provided.

Table 11/1 - Ecological features for which detailed assessment or further comment is required.

<table>
<thead>
<tr>
<th>Description of Site, Habitat or Feature</th>
<th>Level of Importance / Legal Status of Species</th>
<th>Comment / Assessment Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sites</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-statutory sites</td>
<td>03/47 Ecosite – Ancient hedgerows around Church Lawford Airfield. See Drawing 1.</td>
<td><strong>Up to County.</strong> This Ecosite is situated around the boundary of the site (see Drawing LH 11/1). Its status as an Ecosite has been unaffected by years of quarrying and landfill operations. There are no proposals to remove hedgerows. Ecosite 03/47 is therefore scoped-out from further assessment.</td>
</tr>
</tbody>
</table>
## Habitats

**Site Habitats** – one area remains which forms a final cell(s).

- **Open Mosaic Habitat (OMH)** on Previously Developed Land (4.00) and Reedbed (0.15ha);
- Lagoons (1.5ha); and
- Spoil, tracks and other (19.55ha).

**Site-level value.** Relatively small in extent and recently formed. They exist in isolation from connected habitats of value having developed in a central location in the landfill.

OMH and reedbed are S41 UK Priority Habitats and LBAP Habitats.

The proposals would result in the loss of UK Priority Habitat Types; it is therefore appropriate to consider site habitats further in this EcIA.

## Protected, Controlled and Notable Species

### Invasive Plant Species

**Presence of an invasive aquatic plant *Crassula helmsii***

**Site level significance.** Included in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to cause the spread of this plant species in the “wild”.

Proposals to remove the lagoon feature have the potential to result in the spread of this plant species. It is therefore considered appropriate to consider this feature further in this EcIA.

### Reptiles

**Reptile survey returned a negative result.**

**Scoped-out due to likely absence confirmed through survey in 2019. Areas to the west of the site supporting small numbers of grass snake in 2014 would be unaffected by development proposals.**

### Amphibians

**Assemblage and individual species such as great crested newt.**

**UK and EU level protection.**

The presence of a notable assemblage of amphibians or large numbers of individual species including GCN is considered to be unlikely.

**Scoped-out due to likely absence based on the suitability, history, context and condition of aquatic habitats.**
<table>
<thead>
<tr>
<th>Description of Site, Habitat or Feature</th>
<th>Level of Importance / Legal Status of Species</th>
<th>Comment / Assessment Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badger</td>
<td>No evidence of this species was recorded in 2019 during baseline studies.</td>
<td>UK level of protection. Protection of Badgers Act 1992. Badgers are considered further due to the potential suitability of restored grassland as a foraging resource and the possibility that setts could be established in the 10 year period during which land fill activities are extended.</td>
</tr>
<tr>
<td>Bats</td>
<td>Structured habitats and open water suitable for foraging.</td>
<td>Site-level value. Roosts receive UK and EU level protection. No loss of roosts. Loss of foraging habitat until restoration is completed. A relatively poor assemblage of bats has been recorded comprising of common species. Levels of activity were not notable or focused on particular areas, which in this event, could be worthy of retention. Impacts would be short term before site restoration takes place. Other than in the context of site restoration bats are therefore not considered further in this EcIA.</td>
</tr>
<tr>
<td>Breeding Birds</td>
<td>Structured habitats, site features (stockpiles) and open water suitable for nesting and foraging.</td>
<td>Site-level value. The nests of birds are protected by the Wildlife and Countryside Act 1981 (as amended). Certain species receive special protection (Schedule 1). Potential loss of nesting opportunities and foraging habitat. Depending upon the timing of vegetation removal the potential exists for nests to be destroyed. As the proposals would involve the removal of the lagoons, OMH and stockpile they could affect nesting birds such as sand martin and little-ringed plover if the works were timed inappropriately (i.e. were undertaken between March and August inclusive). Breeding birds are therefore considered further in this EcIA.</td>
</tr>
<tr>
<td>Terrestrial Invertebrates</td>
<td>Areas of pioneer vegetation, reedbed, scrub and bare ground.</td>
<td>Site-level value. Potential loss of habitat. OMH habitats are of likely value to this group in a localised context and would be removed. Terrestrial invertebrates are therefore considered further in this EcIA.</td>
</tr>
</tbody>
</table>

**ASSESSMENT OF EFFECTS AND MITIGATION MEASURES**

11.153 This section of the EcIA describes the predicted effects and proposed mitigation measures of the development, focusing on the important ecological features identified previously.

11.154 The proposed development has been designed to reduce potential impacts and to retain existing features of interest where-ever possible and would be carried out in an ecologically sensitive manner in accordance with the following principles.
General

11.155 Good practice environmental and pollution control measures would be employed with regard to current best practice guidance such as, but not limited to, the following:

- CIRIS C532, “Control of water pollution from construction sites: guidance for consultants and contractors’ (2001); and

Effects on Site Habitats

11.156 The proposed works to complete landfill operations would result in the loss of c. 4.00 ha of Open Mosaic Habitat and a small area of reedbed (0.15ha). Two lagoons with standing water extending to 1.5ha would also need to be removed together with 19.55ha of ancillary land (bare ground, tracks, spoil etc) which are generally of negligible ecological value as a habitat.

11.157 Upon completion of landfill activities, the above land would have been restored to grassland and woodland under the existing scheme. As this would lead to a loss of early successional and wetland habitat it is proposed that in suitable areas the following features are created by restoration to address habitat loss and deliver biodiversity enhancements:

- Creation of two sand martin banks (min 50m long) in close association to open water;
- Creation of 1ha of reedbed/marsh;
- Creation of 4ha of species-rich lowland grassland of nature conservation value with the community types reflective of soil type and topography and scrub – Open Mosaic Habitat; and
- Creation of 1ha of carr woodland.

Invasive Plant Species

11.158 A patch of Schedule 9 plant species New Zealand Pygmyweed measuring approximately 5m x 5m has been recorded in one of the lagoon features which would need to be removed (TN 6). Due to the potential for this species to be spread by earth works or draining down it is recommended that a Method Statement is prepared which would set-out the measures to be taken to ensure that it is dealt with appropriately.

Badger

11.159 No field evidence has been recorded to suggest that badgers are present or that the site is of particular importance to this species.

11.160 The potential does, however, exist for badgers to establish setts within the period of time that landfill activities are extended. As such, a watching brief will need to be maintained with regard to landfill operations with walkover surveys in advance of works to clear and prepare land for operational activities.
**Breeding Birds**

11.161 The proposed works to complete the landfill operations would lead to the loss of habitats and features used by birds for nesting. They include a stockpile used by a sand martin colony, open water used by low numbers of waterfowl and a mosaic of carr, scrub, grassland and reeds.

11.162 Whilst the current restoration scheme would provide replacement grassland and woodland habitats these would not entirely reflect the current mix of habitats.

11.163 In terms of mitigation for habitat loss the restoration scheme would be amended to include the provision of sand martin banks near open water, ponds, reedbed, wet woodland/carr/marsh as detailed above in the site habitats section.

11.164 Removal of vegetation during the breeding season (the season is March to August inclusive) could result in the loss of nests and, as such, this should take place outside of this time period. If this is not possible then vegetation / features should be inspected beforehand by a qualified ecologist. Where active nests are present then they would be cordoned off (5m radius) and subject to regular inspections over the nesting period to ascertain when young have fledged and are independent.

**Terrestrial Invertebrates**

11.165 It is recommended that the restoration scheme is amended to include habitats of value to this group which include lowland grassland and scrub, ponds, carr woodland and reedbeds as detailed in the site habitats section.

**Cumulative Effects**

11.166 No nearby applications have been submitted, but not yet determined, which could result in cumulative effects.

**Summary of Effects**

11.167 A summary of potential impacts, proposed mitigation, residual effects and, where relevant, proposed compensation measures is provided below in Table 11/2 for each important ecological feature included in the assessment in Table 11/1. Table 11/2 also includes a summary of proposed biodiversity enhancements.
### Table 11/2 - Summary of Potential Impacts, Proposed Mitigation, Residual Effects and Proposed Compensation Measures

<table>
<thead>
<tr>
<th>Ecological Feature and Level of Value</th>
<th>Characteristics of Potential Effects, Mitigation and Residual Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operational Phase</td>
</tr>
<tr>
<td>Site Habitats</td>
<td></td>
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<tr>
<td>Site habitats have been evaluated as</td>
<td></td>
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<tr>
<td>being of “site” level value only but</td>
<td></td>
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<tr>
<td>include UK / LBAP Priority Habitat</td>
<td></td>
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<tr>
<td>Types.</td>
<td></td>
</tr>
<tr>
<td>Loss of c. 4.15ha of UK Priority</td>
<td>Moderate impact</td>
</tr>
<tr>
<td>Habitat – Open Mosaic Habitat (4ha)</td>
<td>over short-</td>
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<tr>
<td>and Reedbed (0.15).</td>
<td>medium timescales (5 years plus restoration);</td>
</tr>
<tr>
<td></td>
<td>• Permanent;</td>
</tr>
<tr>
<td></td>
<td>• One-off;</td>
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<tr>
<td></td>
<td>• Reversible</td>
</tr>
<tr>
<td></td>
<td>through restoration and provision of replacement habitats.</td>
</tr>
<tr>
<td>Ecological Feature and Level of Value</td>
<td>Characteristics of Potential Effects, Mitigation and Residual Effects</td>
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<tr>
<td>--------------------------------------</td>
<td>-------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Operational Phase</strong></td>
<td><strong>Un-mitigated effect</strong></td>
</tr>
<tr>
<td>Invasive Plants</td>
<td>Potential for New Zealand Pygmyweed to be spread during works to drain-down and infill the lagoon.</td>
</tr>
<tr>
<td>Badger</td>
<td>Potential for setts to be established in areas proposed for future landfill operations.</td>
</tr>
</tbody>
</table>

Site level importance / legal compliance.
<table>
<thead>
<tr>
<th>Ecological Feature and Level of Value</th>
<th>Characteristics of Potential Effects, Mitigation and Residual Effects</th>
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<tbody>
<tr>
<td></td>
<td>Operational Phase</td>
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</table>
| Breeding Birds                      | Loss of nesting and foraging opportunities.     | Offence under the Wildlife and Countryside Act 1981. If Schedule 1 species are present (e.g. little-ringed plover) then this would represent an additional offence under the WCA 81'. | Habitat creation (6.0ha) through restoration namely:-  
  1. 2 x sand martin banks (min 50m wide);  
  2. 2 x new wildlife ponds (0.5ha);  
  3. Creation of 1ha of reedbed/marsh;  
  4. Creation of 4ha of lowland calcareous grassland and scrub – Open Mosaic Habitat; and  
  5. Creation of 1ha of carr woodland. | Planning condition | Not significant | The proposed mix of habitats to be created through restoration would provide equivalent or better opportunities for birds to breed. |
<p>| Site level importance               | Destruction of nests. Removal of vegetation during the nesting season (the season is March to August) resulting in the destruction of active nests. |                                      |                                   |                   |                                               |                             |</p>
<table>
<thead>
<tr>
<th>Ecological Feature and Level of Value</th>
<th>Characteristics of Potential Effects, Mitigation and Residual Effects</th>
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<tr>
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<td>Operational Phase</td>
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<tr>
<td>Terrestrial Invertebrates</td>
<td>Habitat loss – pioneer grassland, bare substrates and scrub.</td>
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<td>Site level importance</td>
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<tr>
<td>Ecological Feature and Level of Value</td>
<td>Characteristics of Potential Effects, Mitigation and Residual Effects</td>
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CONCLUSIONS

11.168 An EcIA has been prepared by an experienced ecologist from SLR following guidance provided by CIEEM to assess the potential ecological effects arising from an application to extend the period of time during which landfill activities can take place at Ling Hall Landfill, Warwickshire for a further ten years.

11.169 As part of the EcIA, a desk study has been undertaken using a 2km radius to assess the presence of statutory and non-statutory ecological sites, ancient woodland, UK Priority habitats and previous records of notable and protected species.

11.170 The desk study found that the site is not designated as a statutory ecological site, such as an SSSI, or non-statutory ecological site. A non-statutory Ecosite 03/47 Ecosite (ancient hedgerows around Church Lawford Airfield) is coincident with the site boundaries in places but would remain unaffected as the relevant lengths border the restored parts of the site.

11.171 According to MAGIC, no ancient woodland is present within the site or in close proximity (i.e. <500m). An area of young trees and broad-leaved woodland corresponding to Broad UK Priority Habitat Types are shown on MAGIC as being present within restored habitats.

11.172 As part of the EcIA a Phase 1 habitat survey/walkover has been undertaken of the whole site with attention being paid to the areas of the site yet to be used for landfill activities but which would be needed in the future, should a time extension be granted.

11.173 It was found that landfill activities had been completed across the majority of the site and the land restored to grassland, lakes and young woodland.

11.174 The remaining area of land yet to be prepared for, or used as, a landfill cell is present in a central location and extends to c.25ha. The southern part of this area comprises of two lagoons and an area of pioneer dry grassland and scrub which has developed on the site of a former tailings tip. Wetter areas also exist which have been colonised by reeds and willow and which also includes a small area open water which during periods of high rainfall expands to occupy most of the lowest-lying land.

11.175 Collectively, the above areas meet the published criteria for description as Open Mosaic Habitat (OMH) and reedbed, which are UK Priority Habitat Types. They have developed where land has been used / disturbed for a purpose and then left to naturally regenerate. Typically, they only exist for short periods of time as without regular disturbance they are colonised by scrub. Due to the nature of past activities such sites can be of value to wildlife as they possess a wide variety of microhabitats and aspects which are a reflection of the varied topography and poor fertility of the soils.

11.176 The Phase 1 habitat survey found that the relevant areas had the potential to support reptiles, amphibians and breeding birds and to be of value to invertebrates and provide a resource for bats to use for foraging. Surveys of the relevant features and habitats to establish their likely importance for the protected and notable species were undertaken in 2019 to inform the preparation of the EcIA.

11.177 The surveys did not record the presence of reptiles and it is considered that the potential for large or diverse populations of amphibians (including great crested newt) to be a present is low.
Birds were found to use the habitats for nesting although the number of species of conservation concern recorded and their corresponding territories was low. A stockpile is used by sand martins for nesting. The margins of the lagoons have the potential to be used by little-ringed plover, a Schedule 1 species, however none were recorded breeding in 2014 or 2019.

The surveys did not record the presence of badger. Activity by bats was found to be by a small number (4) of common species with generally low levels of activity over the summer and autumn periods. No buildings or trees with the potential to support bat roosts were recorded.

As landfill activities have not, nor are they considered to have the potential to, affect any statutory or non-statutory ecological sites or ancient woodland it is not considered that an extension of time would alter this conclusion.

Habitats valued at a site level of importance have developed in the remaining cells and would be lost when landfill activities are completed and these include types that correspond to published profiles for UK Priority Habitats. To address this, the restoration scheme would be revised to ensure that replacement habitats of a greater extent are provided through restoration. This would deliver an enhancement (net-gain) to biodiversity compared to that which would be delivered through the existing scheme.

Significant impacts on protected and notable species have not been predicted and provided that the measures proposed in this EcIA are implemented.

In summary, it is considered that the proposed extension to the time during which landfill activities take place at Ling Hall can be undertaken without giving rise to unacceptable effects on ecological features.