The Ecology Consultancy

Land at Former Meat Factory, Great Moulton / PEA Report / Report for Bidwells

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Land at Former Meat Factory, Great Moulton

Preliminary Ecological Appraisal Survey Report for Bidwells

Job Number	7856			
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Summary of key issues

The Ecology Consultancy was commissioned to carry out a Preliminary Ecological Appraisal (PEA) comprising a Phase 1 habitat survey, protected species assessment, and ecological evaluation of Land at Former Meat Factory, Great Moulton, Norwich, NR15 2HE. The main findings of the PEA are as follows:

- The site is currently an unoccupied former meat processing factory with car parking areas and two grass paddocks. Although there are no development proposals at present, it is anticipated that, if the plot is not sold for industrial purposes, it could be put forward through the Local Plan process for allocation for residential development.
- **Habitats –** Mature broadleaved trees are present on site. From an ecological point of view this habitat should be retained where possible or replaced at a ratio of at least 1:1 with like for like species or by sections of species-rich hedgerow. Retained trees should be protected in accordance with British Standards Institution (2012) guidelines.
- **Bats –** A small cavity was present in the roof of the office building. If the office building is proposed for demolition under future development plans, then an endoscope survey carried out by a Level 2 Bat Survey Licence holder will be required. If the cavity is deemed suitable for roosting bats or evidence of roosting bats is present, then emergence/re-entry surveys should be carried out between May and August in accordance with current survey guidelines. Depending on the outcome of the surveys, specific mitigation/ compensation and licensing of certain works may be required. Finally, suitable bat foraging and commuting habitat is present on site (boundary trees, grassland); as such, future development should implement a sensitive lighting scheme to avoid impacts from artificial lighting on retained and boundary habitats.
- **Great crested newts –** habitat suitable for great crested newts is present – if habitat with suitability for great crested newts (grassland, scrub, bases of trees) are to be removed or impacted by future development then presence/ likely absence surveys of all accessible ponds within 250m of the site should be undertaken to determine the presence/absence of this species on site. If they are found to be present further survey will be required to inform an appropriate mitigation strategy.
- **Badger –** habitat suitable for badger is present on site – if future proposals include clearance of the scrub habitats on site precautionary measures should be implemented.

- **Reptiles –** Long grassland and scrub habitat with suitability for reptiles is present on site- if this habitat is to be removed then surveys will be required to determine their presence/ likely absence and to inform an appropriate mitigation strategy, as required.
- **Breeding birds** –habitat with suitability for nesting birds, including trees, and the office building, was present on site. In order to ensure compliance with legislation, these habitats and buildings should be removed between September and February inclusive (outside of the main bird breeding season). Where this is not possible, a check for nesting birds prior to clearance must be undertaken by an experienced ecologist and, if any nests are found, the nests and a suitable buffer around them, must be protected until such time as the young have left the nest. Lost nesting opportunities should be compensated for, as far as possible, in the form of bird boxes.
- **Hedgehog** – habitat suitable for hedgehog is present – if habitat with suitability to support nesting or hibernating hedgehog (dense scrub) is to be removed, precautionary measures should be implemented to avoid killing or injuring of hedgehog during the site clearance phase. Measures should also be taken to continue accommodating this species on site by providing compensatory foraging habitat to replace e.g. grassland.
- **Enhancements -** Recommendations to enhance the biodiversity value of the site in accordance with national and local planning policies comprise the inclusion of wildlife planting; new hedgerow planting, as well as the provision of bird and bat boxes and wildlife-friendly fencing.

1: Introduction

BACKGROUND TO COMMISSION

1.1 The Ecology Consultancy was commissioned by Bidwells on behalf of their client in December 2018 to carry out a Preliminary Ecological Appraisal (PEA) survey at Land at Former Meat Factory, Great Moulton, Norwich, NR15 2HE. The appraisal was carried out in order to provide an ecological baseline of the site that could be used to highlight ecological constraints at the site. This appraisal considers land within the planning application site boundary (hereon referred to as 'the site') as indicated on the plan provided by the client: Bidwells- Land at Former Meat Factory, Great Moulton, Drawing No. A.50,796 (28/11/2017), and on the Phase 1 Habitat Map in Appendix 1.

SCOPE OF THE REPORT

1.2 The aim of this appraisal is to provide baseline ecological information about the site. This will be used to identify any potential ecological constraints associated with any future development and to identify the need for additional survey work to further evaluate any impact that may risk contravention of legislation or policy relating to protected species and nature conservation. Where necessary, avoidance, mitigation/compensation and/or enhancement measures have been recommended to ensure compliance.

1.3 This appraisal is based on the following information sources:

- a desk study of the site and land within a 2km surrounding radius;
- a Phase 1 habitat survey (JNCC, 2010) of the site to identify and map the habitats present;
- a protected species assessment of the site to identify features with potential to support legally protected species; and
- an evaluation of the site's importance for nature conservation.

1.4 This appraisal has been prepared with reference to best practice guidance published by the Chartered Institute for Ecology and Environmental Management (CIEEM, 2016) and as detailed in British Standard 42020:2013 *Biodiversity - Code of Practice for Biodiversity and Development* (BSI, 2013).

1.5 The survey, assessment and report were conducted and written by Beth Holmes BSc (Hons) GradCIEEM an Ecologist with three years' experience who is competent in carrying out Phase 1 Habitat Surveys and protected species assessments.

1.6 A Habitat Map of the site produced by The Ecology Consultancy (December 2018) is provided in Appendix 1, with the accompanying Target Notes in Appendix 2.

SITE CONTEXT AND STATUS

1.7 The site is situated towards the northern end of Firth Way, opposite a junction to Frost Lane in Great Moulton, Norwich, NR15 2HE. The site is approximately 1.1 hectares (ha) in size and is centred on Ordnance Survey National Grid reference TM 16774 90265.

1.8 The site is an L shaped parcel of land comprising developed land in the south and semi-natural habitats in the north and a small area to the east. The site is bound by a strip of overgrown scrub and trees to the east, by residential properties and gardens to the south, south-east and south-west, and by arable habitat to the north.

1.9 The wider landscape comprises the residential area of Great Moulton, surrounded predominantly by an arable landscape including hedgerow field boundaries, and a parcel of woodland to the east (c. 350m).

DEVELOPMENT PROPOSALS

1.10 Although there are no development proposals at present, it is anticipated that, if the plot is not sold for industrial purposes, it could be put forward through the Local Plan process for allocation for residential development.

RELEVANT LEGISLATION AND PLANNING POLICY

1.11 The following key pieces of nature conservation legislation are relevant to this appraisal. A more detailed description of legislation is provided in Appendix 5:

- The Conservation of Habitats and Species Regulations 2017 (commonly referred to as the Habitats Regulations);
- Wildlife and Countryside Act 1981 (as amended);
- Natural Environment and Rural Communities Act 2006; and
- Wild Mammals (Protection) Act 1996.

1.12 The National Planning Policy Framework (Department of Communities and Local Government, 2018) requires local authorities to avoid and minimise impacts on biodiversity and, where possible, to provide net gains in biodiversity when taking planning decisions.

1.13 Other planning policies at the local level which are of relevance to this development include the South Norfolk District Plan. Further information is provided in Appendix 5.

2: Methodology

DESK STUDY

2.1 The following data sources were reviewed to provide information on the location of statutory designated sites[1], non-statutory designated sites[2], legally protected species[3], Species and Habitats of Principal Importance[4] and other notable species[5] and notable habitats[6] that have been recorded within a 2km radius of the site:

- Norfolk Biodiversity Information Service (NBIS), the local Biological Records Centre, principally for species records and information on non-statutory sites;
- MAGIC (http://www.magic.gov.uk/) - the Government's on-line mapping service; and
- Ordnance Survey mapping and publicly available aerial photography.

HABITAT SURVEY

2.2 A habitat survey of the site was carried out on the 06 December 2018 in cool, clear, dry conditions. It covered the entire site including boundary features. Habitats were described and mapped following standard Phase 1 habitat survey methodology (JNCC, 2010). Habitats were marked on a paper base map and subsequently digitised using ESRI ArcGIS software. Habitats were also assessed against descriptions of Habitat of Principal Importance as set-out by the JNCC (BRIG, 2008)[7].

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1 Statutory designations include Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, National Nature Reserves (NNR), Sites of Special Scientific Interest (SSSI) and Local Nature Reserves (LNR).

2 Non-statutory sites are designated by local authorities (e.g. Sites of Importance for Nature Conservation or Local Wildlife Sites).

3 **Legally protected species** include those listed in Schedules 1, 5 or 8 of the Wildlife and Countryside Act 1981; Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended); or in the Protection of Badgers Act 1992 (as amended).

4 **Species of Principal Importance** are those defined by Section 41 of the Natural Environment and Rural Communities Act, 2006.

5 **Notable species** include Species of Principal Importance under the Natural Environment and Rural Communities Act 2006; Local Biodiversity Action Plan (LBAP) species; Birds of Conservation Concern (Eaton *et al.*, 2015); and/or Red Data Book/nationally notable species (JNCC, undated).

6 **Notable habitats** include Habitats of Principal Importance under the Natural Environment and Rural Communities Act, 2006; those included in an LBAP; Ancient Woodland Inventory sites; and Important Hedgerows as defined by the Hedgerow Regulations 1997.

7 Data required to confirm that certain habitats (including rivers and ponds) meet criteria for Habitats of Principal Importance is beyond that obtained during a Phase 1 habitat survey. In these cases the potential for such habitats to meet relevant criteria is noted but further surveys to confirm this assessment may be recommended.

2.3 Records for dominant and notable plants are provided (see Appendix 4 for full list), as are incidental records of birds and other fauna noted during the course of the habitat survey.

2.4 Common names are used where widely accepted – for amphibians, birds, fish, mammals, reptiles and vascular plants. Scientific names are provided for other groups but at first mention only if there is also an accepted common name.

2.5 The site was also surveyed for the presence of invasive plant species as defined by Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). However, detailed mapping of such species is beyond the scope of this commission and the location on habitat plan are indicative only.

2.6 Target notes are used to provide information on specific features of ecological interest (e.g. a tree with bat roosting potential) or habitat features that were too small to be mapped.

PROTECTED AND NOTABLE SPECIES ASSESSMENT

2.7 The suitability of the site for legally protected species was assessed on the basis of relevant desk study records[8] combined with field observations from the habitat survey. The likely value of habitat for protected species occurrence was ranked on a scale from 'negligible' to 'present' as described in Table 2.1.

2.8 The assessment of habitat suitability for protected or notable species was based on professional judgement drawing on experience of carrying out surveys of a large number of urban and rural sites and best practice survey guidance on identifying field signs which includes that for the following species: badger (e.g. Roper, 2010); bats (Collins (ed.), 2016); hazel dormouse (Bright et al, 2006); great crested newt (Langton *et. al.* 2001); otter (Chanin, 2003); reptiles (Gent and Gibson, 2003); and water vole (Strachan *et al.* 2011).

Table 2.1: Protected species assessment categories

Category	Description
Present	Presence confirmed from the current survey or by recent, confirmed records.
High	Habitat present provides all of the known key requirements for a given species/species group. Local records are provided by desk study. The

[8] Primarily dependent on the age of the records, distance from the site and types of habitats at the site.

	site is within or close to a national or regional stronghold for a particular species. Good quality surrounding habitat and good connectivity.
Moderate	Habitat present provides all of the known key requirements for a given species/species group. Several desk study records and/or site within national distribution and with suitable surrounding habitat. Factors limiting the likelihood of occurrence may include small habitat area, barriers to movement and disturbance.
Low	Habitat present is of relatively poor quality for a given species/species group. Few or no desk study records. However, presence cannot be discounted on the basis of national distribution, nature of surrounding habitats or habitat fragmentation.
Negligible	Habitat is either absent or of very poor quality for a particular species or species group. There were no desk study records. Surrounding habitat unlikely to support wider populations of a species/species group. The site may also be outside or peripheral to known national range for a species.

2.9 The findings of this assessment establish the ecological baseline of the site and give an indication of the need for protected species surveys that are required to achieve compliance with relevant legislation should development be proposed which would affect these species. Surveys are commonly required for widespread species such as bats, great crested newt, reptiles and badger but may be necessary for other species if suitable habitat is present.

2.10 Surveys may also be recommended where a site is judged to be of low suitability for a particular species/species group. However, in some cases there may be opportunities to comply with legislation, without further survey, through precautionary measures prior to and during construction.

SITE EVALUATION

2.11 The site's ecological value has been evaluated broadly following guidance issued by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2016) which ranks the nature conservation value of a site according to a geographic scale of reference: international, national, regional, county/metropolitan, district/borough, local/parish or of value at the site scale. In evaluating the nature conservation value of the site the following factors were considered: nature conservation designations; species/habitat rarity; naturalness; fragility and connectivity to other habitats;

DATA VALIDITY AND LIMITATIONS

2.12 Every effort has been made to provide a comprehensive description of the site; however, the following limitations apply to this assessment.

- The protected species assessment provides a preliminary view of the likelihood of protected species occurring on the site. It should not be taken as providing a full and definitive survey of any protected species group. Additional surveys may be recommended if on the basis of the preliminary assessment or during subsequent surveys it is considered reasonably likely that protected species may be present.
- The ecological evaluation is preliminary and may change subject to the findings of further ecological surveys (should these be required).
- Even where data for a particular species group is provided in the desk study, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest, the area may simply be under-recorded.
- Where only four figure grid references are provided for protected species by third parties, the precise location of species records can be difficult to determine, and they could potentially be present anywhere within the given 1km x 1km square. Equally six figure grid references are accurate to the nearest 100m only.
- The Phase 1 habitat survey does not constitute a full botanical survey or provide accurate mapping of invasive plant species.
- Building and tree assessments were from ground level only.
- The survey was carried out in December which is a sub-optimal time of year to survey for plants; presence of certain species may not be evident at this time of year. However, the majority of vegetation on site was identifiable by vegetative features, enabling a robust assessment of the quality of habitats on site'.
- The extensive bramble precluded a full view of the boundaries of the grass paddocks on site and as such there is a possibility that evidence of badgers on site have been missed. To overcome this limitation precautionary measures to site clearance have been recommended within this report.
- Ecological survey data is typically valid for two years unless otherwise specified.

2.13 Despite these limitations, it is considered that this report accurately reflects the habitats present, their biodiversity values and the potential of the site to support protected and notable species.

3: Results

DESIGNATED SITES

Statutory designated nature conservation sites

3.1 The proposed development site is not subject to any statutory nature conservation designations, and there are no European Protected Sites within 2km of the site. However, there is one national statutory Site of Special Scientific Interest 1.6km north-west of the site, which is Aslacton Parish Land (see Table 3.1).

Table 3.1: Statutory Designated Site

Site Name	Distance from site and orientation	Reason for designation
Aslacton Parish Land (SSSI)	1.6 km NW	Aslacton Parish Land forms a characteristic example of a type of unimproved spring-line meadow which at one time was widely distributed in the valley of the River Tas. A range of inter-grading wet and dry grassland types are present and the flora which is rich, reflecting the variety of soil and habitat conditions, contains a number of uncommon and declining species. Uncommon plants are present including adder's tongue, common butterwort, marsh arrow-grass, yellow rattle and fragrant orchid.

3.2 The site falls within the Impact Risk Zone (IRZ) for Aslacton Parish Land (SSSI), located 1.6km to the north-west of the site.

3.3 However, residential development at the site would not require the Planning Authority to consult with Natural England as to the potential impacts on this SSSI designated site because 'residential development' does not meet the criteria set out by Natural England.

Non-statutory designated nature conservation sites

3.4 The proposed development site is not subject to any non-statutory nature conservation designations. A single non-statutory County Wildlife Sites (CWS) and a Roadside Nature Reserve (RNR) were present within 2km of the site (see Table 3.2).

Table 3.2: Non-Statutory Designated Sites

Site Name	Distance from site and orientation	Reason for designation
Muir Lane Meadow (CWS)	1.5 km SW	This is a very small area of tall marshy grassland which is ungrazed. The grassland has very sparse scattered scrub and saplings and is surrounded by tall thick hedgerows. The site is dominated by tall rank growth of false oat-grass mixed with hard rush and Yorkshire fog. Patches of common fleabane occur across the site, particularly in damper areas. Wetter areas have creeping bent, red fescue, false fox-sedge and spiked sedge. Reed canary-grass and tall fescue form small stands. Forbs include knapweed, selfheal and frequent angelica. Scrub is represented by isolated bushes, largely hawthorn and oak with bramble and dog-rose.
No. 5 (RNR)	1.6 NE	This RNR lies on both sides of the road and extends for a maximum of 590m. The verges are wide (average 4.5m). The eastern half is backed by a ditch and bank in open arable farmland, the western half by tall hedges. The road and its verges form an integral part of the landscape of Wacton Common.

Habitat inventories and landscape-scale conservation initiatives

Habitats of Principal Importance

3.5 A search of the MAGIC database revealed no Habitats of Principal Importance on the site itself.

3.6 In the wider landscape, several small parcels of broad-leaved woodland are scattered throughout the landscape within a 2km radius of the site, the closest parcel being situated 50m north-east of the site. There are also two areas of Lowland Fen, 1.5km north-west of the site (Muir Lane Meadow CWS – see Table 3.2 above) and 1.7km north-west of the site.

PHASE 1 HABITAT SURVEY

Overview

3.7 Half the site (to the south) comprised existing developed land and the other half (to the north) semi-natural habitats. In the south of the site it predominantly comprised hard standing, a large factory building, and an office building, whilst in the north of the site it comprised semi-improved grassland encroached by scrub, bounded by native broadleaved trees, and a dry pond in the north-west corner.

3.8 To the south-east there was the access track to the site and a small paddock which contained tall semi-improved grassland encroached by scrub and surrounded by

closed board panel fencing to the south, by a line of mixed trees to the east and north, and an open post and rail fence to the west.

3.9 Phase 1 habitats types are mapped in Figure 1, Appendix 1, areas are given in Table 3.3. A description of dominant and notable species and the composition of each habitat is provided below.

Table 3.3: Phase 1 Habitat Areas

Phase 1 Habitat	Extent in m^2	%
Buildings	1288	11
Hard standing	2255	20
Semi-improved grassland	4338	39
Scrub	46	29
Pond	3283	1
Scattered boundary trees	linear feature	0
TOTAL	11210	100

Habitat description

Buildings

3.10 There were two buildings on site which represented approximately 11% of the site area. The buildings comprised a large factory building (Photograph 1, Appendix 3) and an office building (Photograph 2, Appendix 2). These buildings are labelled on the Phase 1 Habitat Plan included in Appendix 1 of this report: the larger factory building is labelled B1, and the smaller office building is labelled B2.

3.11 The factory building on site was a former meat processing factory. The building was constructed of brick, with solid walls, clad with metal sheets. The roof was a mix of metal corrugate and corrugated fibre cement sheets, with a slight double pitch, and plastic window panes, supported by a steel frame. The building had several PVC windows which had an internal mesh so that the windows were sealed to avoid vermin entering. Similarly, the large roller shutter doors were trimmed with thick bristles so as to prevent animals entering. The building was in a good state of repair overall with no visible damage. The roofing sheets were tight-fitting at the overlap which meant that the building was effectively sealed.

3.12 Internally, the building had a concrete poured floor, rendered walls and ceilings. The roof was open to the rafters on the top floor with no void or crevices. In addition, there were no open joints to the steel frame.

3.13 The office building (Photograph 2, Appendix 3) was constructed from solid red brick walls with a flat bitumen-topped roof on wooden supports. The office building was in a structurally good state of repair with minor gaps around the top wall plate. The gaps led to a small void between the bitumen felt and the internal ceiling, of 10cm in height, and which spanned the breadth and width of the building.

3.14 Internally there was no loft void and all of the rooms were sealed by plaster walls to ceiling. The windows and door frames were tightly fitted.

3.15 In addition to buildings on site there was a single portable cabin and one metal storage container on site. Both of these were opened up for inspection and found to be tightly sealed structures in a good state of repair. There were no loft voids or cavity walls.

Hard standing

3.16 Hard standing areas predominantly comprised the car parking space, site access to the east of the site, and the foundations of the buildings.

Poor semi-improved grassland

3.17 Long semi-improved grassland comprised the majority of the north of the site (see Photograph 3, Appendix 3). The field had previously been used as a paddock but was unmanaged at the time of survey. The sward was dominated by cock's-foot, timothy, fescue sp., and perennial rye grass. The grassland also supported flowering herb species with dove's-foot crane's-bill, and cleavers being dominant, and occasional ribwort plantain, knapweed, prickly sow thistle, and common nettle. The edges of the grassland were heavily encroached by bramble scrub.

3.18 A smaller paddock comprising similar species composition is situated to the east of the site adjacent to the site access. This paddock is also unmanaged and overgrown with bramble scrub.

Scrub

3.19 Extensive bramble scrub (Photograph 4, Appendix 3) formed the boundary of the grasslands on site. The bramble was tall (1m), dense in structure, and extensive.

Scattered broad-leaved trees

3.20 Scattered native broad-leaved trees were present on site, forming a linear boundary to the large paddock in the north of the site. Trees comprised predominantly mature ash, English elm, hazel, elder, black poplar, and sycamore. (Photograph 5, Appendix 3).

Scattered evergreen trees

3.21 Seven mature evergreen trees (Photograph 6, Appendix 3) were present at the end of the access road and a row of cypress trees interspersed with poplar trees formed the northern boundary of the small paddock in the south-eastern corner of the site.

Pond

3.22 A pond was identified on the north-east boundary (Photograph 7, Appendix 3) of the site. The pond was dry and silted up on the day of the survey and lacked any damp areas or areas of aquatic vegetation. There was no vegetation within the base of the pond and only fallen leaves were present. The banks of the pond was dominated by common nettle, with occasional ivy and bramble.

PROTECTED AND INVASIVE SPECIES ASSESSMENT

3.23 The potential for the site to support protected species has been assessed using criteria provided in Table 3.4 based on the results of the desk study and observations made during the site survey of habitats at the site. Other legally protected species are not referred to as it is it is considered that the site does not contain habitats that would be suitable to support them. The following species/species groups are potentially present at the site:

- bats;
- great crested newts;
- breeding birds;
- reptiles;
- badger; and
- invasive species

3.24 The table also summarises relevant legislation and policies relating to protected and invasive species. Key pieces of statute are summarised in Section 1 and set out in greater detail in Appendix 5.

Table 3.4: Protected and Invasive Species Assessment

Habitat/ species	Status [9, 10]	Likelihood of occurrence
Bats	HR WCA S5 SPI LBAP	**Foraging bats - MODERATE:** The data search returned a total of 108 records of bats of nine different species within 2km of the site between 2013 and 2017. Species records comprise serotine, barbastelle, noctule, Myotis, Daubenton's bat, Natterer's bat, common pipistrelle, Nathusius' pipistrelle, soprano pipistrelle, brown long eared bat and unidentified pipistrelle bats. The boundary trees are likely to be used by foraging and commuting bat species to a certain extent, providing connectivity to off-site roosting or other higher quality foraging habitats. **Roosting bats - LOW:** The trees on the boundary of the site were in good health with no flaky bark, cavities, cracks or dead wood. As such they had negligible potential for roosting bats. The factory had negligible potential for roosting bats owing to its well-sealed structure. The office building had a potential roost feature in the ceiling void between the bitumen felt roof and the internal ceiling. There were gaps present around the wall capping which could provide potential access into this cavity for roosting bats. There was no evidence of roosting around the entrances of the gaps or on window ledges, wall and pavement bellow the feature. This feature has low bat roost potential owing to the unstable thermal qualities that the thin bitumen outer roof would offer to roosting bats. The feature would only likely to offer bats an occasional roosting site when weather conditions were suitable and therefore not likely to be able to support a high-status roost such as a maternity roost. **Given the reasons above, bats are considered further in Section 4 of this report.**
Great crested newts	HR WCA S5 SPI LBAP	**MODERATE:** The desk study returned two records of an adult male and adult female great crested newts, both found in terrestrial habitat in a garden and rubble pile, approximately 1.6km north-west from the site in the neighbouring village of Aslacton. The records are situated some distance from the site and, as such, it is considered highly unlikely that newts from the population present in this area would also utilise habitats on site. Using OS maps and aerial imagery, approximately 30 waterbodies, including the boundary pond, were identified within 500m of the site and within 250m of the site there were 13 ponds. The pond on the boundary of the site was visited for the purpose of undertaking a Habitat Suitability Index (HSI) survey; however, the pond was dry on the day of the survey. Ponds within 250m of the site were also visited but, due to their location on private land, the ponds were only viewed from the roadside, where possible. Of the 12 ponds visited, five were dry, and seven were not visible from the roadside. A search on the planning portal

[9] The following abbreviations have been used to signify the legislation regarding different species: HR = Conservation of Habitats and Species Regulations 2017; WCA S1 = Schedule 1 of the Wildlife and Countryside Act 1981 (as amended); WCA S5 = Schedule 5 of the Wildlife and Countryside Act 1981 (as amended); WCA S9 = Schedule 9 of the Wildlife and Countryside Act 1981 (as amended); PBA = Protection of Badgers Act, 1992.

[10] The following abbreviations have been used to signify the policy of conservation assessments applying to notable species: SPI = Species of Principal Importance under the NERC Act 2006; LBAP = Local Biodiversity Action Plan species; BoCC = Birds of Conservation Concern - amber list / red list (Eaton *et al.*, 2015); and/or RD/NN = red data book/nationally notable species (JNCC, undated).

Table 3.4: Protected and Invasive Species Assessment

Habitat/ species	Status [9, 10]	Likelihood of occurrence
		revealed that the closest pond (68m south-east) to the site has been surveyed several times (2010, 2015 and 2017) in relation to developments at the local public house (planning ref: 2018/0809) and great crested newts were found to be likely absent. The second closest pond to the site had previously been surveyed in 2013 and was found to contain a single adult great crested newt according to an ecology report issued in 2017 (planning ref: 2017/2743) in relation to a nearby planning application. This record was located just 100m north-east of the site boundary. If this population still exists, there is potential for newts to utilise on-site habitats, although the presence of a B-road, which lies between the two sites, would likely pose a partial barrier to newt dispersal. Suitable terrestrial habitat for great crested newts within the site was limited to the grassland/scrub areas and bases of trees. This would provide opportunities for foraging, dispersal, refuge and hibernation. The hard-standing foundations were in good condition and no hibernation opportunities such as cracks were recorded on the day of the survey. Owing to the large number of ponds in the area around the site and the recorded presence of great crested newts 100m from the site boundary, it is possible that great crested newts use the site as terrestrial habitat and, in years when the water table is higher, possibly also as breeding habitat within the boundary pond. **Given the reasons above, great crested newts are considered further in this report.**
Reptiles	WCA S5 SPI LBAP	**MODERATE:** The data search returned no records of reptiles within 2km of the site. Suitable habitats for reptiles within the site was limited to the grassland and scrub areas and the bases of the boundary trees which provide opportunities for foraging, dispersal, refuge and hibernation. The site is connected to suitable habitat in the wider landscape by arable field edges, grass field margins, garden habitat and scrub. Habitats in the wider landscape with suitability for common reptiles consist arable field margins, ditches, ponds, scrub, and small woodland blocks. It is likely that reptiles such as grass snake use the site given the habitats present on site and within the surrounding landscape. It is also considered a possibility that the grassland could support common lizard. **As there is MODERATE potential for reptiles to be present on site, this species is considered further in Section 4 of this report.**
Breeding birds	WCA Sections 1-8 SPI LBAP	**HIGH**: The data search returned a total of 196 records of 94 bird species within 2km of the site, including Birds of Conservation Concern (BoCC) red list species such as fieldfare, redwing, grasshopper warbler, skylark, house sparrow and turtle dove. The hedgerows, trees and some of the buildings on site provide suitable breeding habitat for song thrush and other garden bird species such as robin, wren, goldcrest, chaffinch, blackbirds, collared dove, woodpigeon, and goldfinch, all recorded during the survey. Three

Table 3.4: Protected and Invasive Species Assessment

Habitat/ species	Status [9, 10]	Likelihood of occurrence
	BoCC	wrens nests were recorded within the roof cavity on the office building (Target Note 1, Appendix 2), with three moss nests visible through the gap around the wall capping on the southern aspect of the building. **Given the reasons above, nesting birds are considered further in Section 4 of this report.**
Badger	Protection of Badgers Act 1992	**LOW:** The data search returned no records of badger from within a 2km radius of the site. The long grassland and scrub on site had suitability for foraging and commuting badger. The flat terrain of the former paddock on site has low suitability for sett establishment as badgers typically seek undulating terrain or earth banks to dig into; however, the extensive bramble would serve as good quality cover. The surrounding arable landscape to the north and north-west is likely to have some suitability for badger foraging, commuting and possible sett establishment. The site was searched for signs of badger such as latrines, snuffle holes, pathways, and setts, and no evidence of badger on site was found; however, the extensive bramble precluded a full view of the boundaries of the field and as such there is a possibility that evidence of badgers on site has been missed. **Considering the above there is a LOW possibility of badger using the habitats on site, and for this reason badger are considered further in this report.**
Invasive species	WCA S9	**ABSENT**: Invasive species are widespread in many habitats, commonly found on disturbed sites and along water courses; however, no species listed on Section 14 and Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were returned by the desk study and none were recorded during the site survey. **Given the reason above invasive species are not considered further in this report.**

NATURE CONSERVATION EVALUATION

3.25 The site is not subject to any nature conservation designations. It contains largely common and widespread habitats including hardstanding, buildings, and semi-improved grassland.

3.26 The site does, however, contain mature native broad-leaved trees which is a Habitat of Principal Importance under the NERC Act (2006). The mature trees along the boundaries of the site are important ecological features. Black poplar in particular is thought to be Britain's most endangered native timber tree. Trees are important stepping stones in the landscape and, given their maturity, will provide ecological value to an array of wildlife include invertebrates. Mature trees also provide important ecosystem services including reducing urban heat island effect and flood alleviation, as well as a therapeutic benefit to the public that use the area for walking.

3.27 The habitats on site were suitable for a range of noteworthy species, including Species of Principal Importance and Norfolk BAP species, as reported in the desk study or recorded as being present, or having potential to be present following the survey, as follows:

- bats species such soprano pipistrelle, a Species of Principal Importance and Norfolk BAP species;
- great crested newts;
- song thrush and other widespread but declining species of birds that are also species of conservation concern[11];
- badger;
- Invertebrates; and
- hedgehog.

3.28 The populations of the above species are likely to be of importance at a site level only. It is unlikely that the site would support rare species, or diverse assemblages or large populations of any noteworthy species.

[11] Birds of Conservation Concern - amber list / red list (Eaton *et al.*, 2015);

3.29 The habitats on site are also of importance as they provide ecosystem services, such as carbon sequestration, and flood elevation. However, as habitats occur widely in the local area, they are considered to be of site value only.

4: Potential Impacts and Recommendations

4.1 This section summarises the potential issues on habitats and notable species that may be present at this site. The impact assessment is preliminary and further detailed assessment and surveys will be required to assess impacts and design suitable mitigation, where appropriate, for future development proposals.

4.2 The following key ecological issues have been identified:

- Habitat of Principal Importance: mature broad-leaved trees, including rare black poplar are present on site: future development should implement measures to retain where possible, and/or compensate for any loss. Retained trees should be protected in line with British Standards Institution (2012) guidelines during construction and operational phases of any subsequent development;
- Habitat suitable for commuting and foraging bats was present – future use of the site should take measures to avoid excessive light spill onto retained mature trees on and adjacent to site to allow continued use of this feature;
- Habitat suitable for roosting bats was potentially present: if future development requires the office building to be demolished, an endoscope survey of the cavity between the outer roofing materials and the internal ceiling is recommended to establish suitability for roosting bats. If deemed suitable, then further activity surveys (dusk emergence/dawn re-entry) will be required to determine presence/ likely absence.
- Habitat suitable to support great crested newts in their terrestrial phase is present on site and potential breeding habitat (30 ponds) is present within 500m of the site - If future development requires the clearance of the grassland and scrub, it will be necessary to establish the presence/ likely absence of great crested newts in the 13 ponds within 250m around the site;
- Habitat suitable for common and widespread reptiles is present on site – if the grassland, scrub and the base of trees is to be affected by future development, reptile surveys will be required to establish presence/ likely absence.
- Habitat suitable for breeding birds is present on site (trees, office building, and scrub) – measures to avoid killing or injuring birds must be implemented during construction or enabling works.

- Habitat suitable for hedgehog, a Species of Principal Importance, is present – measures should be taken to continue accommodating this species on site post-works and measures must be undertaken to avoid killing or injuring hedgehog during site clearance;
- Dense scrub around the boundaries of the grassland on site may support species such as badger. Precautionary measures during scrub clearance are recommended to avoid disturbing badgers or damaging any setts that may be present.
- A range of measures should be undertaken to satisfy the requirement for ecological enhancement (biodiversity net gain) included in national and local planning policy.

CONSTRAINTS AND MITIGATION

Designated Nature Conservation Sites

4.3 Plans for the site are not known at present; however, given the size of the site and likely scale of development, no impacts on statutory or non-statutory designated sites are envisaged. Should residential development be proposed, this type of development does not fall under the criteria set out by Natural England as requiring consultation in relation to potential impacts on nearby SSSIs.

Habitats

4.4 Important ecological features, such as boundary native mature trees with suitability for a range of protected and notable species, should be retained where possible. Where clearance is necessary, then loss of these habitats should be compensated for with native species varieties (ideally using mature specimens) with high ecological value such as fruit, nut and seed-bearing trees. Where space is limited species-rich hedgerows could be planted instead of individual trees.

4.5 Suitable replacement trees should include a mix of native broad-leaved and evergreen species such as elm, ash, oak, field maple, cherry, plum, apple, rowan, hazel, yew, and holly. If black poplar trees are to be removed then these should be replaced with the same species given their conservation significance.

4.6 Native species-rich hedgerow should include at least five woody species per 30m. Suitable hedgerow species include, hawthorn, blackthorn, guelder rose, spindle, crab apple, holly, hazel, field maple, buckthorn.

Bats

4.7 All British species of bat are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017. Under this legislation it is an offence to deliberately capture, kill, injure or disturb bats or to damage, destroy or obstruct access to a bat roost. Some species of bat are also Species of Principal Importance and Norfolk BAP species.

4.8 An endoscope survey of the roof cavity of the office building, undertaken by a suitably qualified ecologist, is recommended prior to the demolition or structural works affecting the roof in order to more fully assess suitability for roosting bats. If the void is deemed suitable, or if evidence of bats is found, then further survey (emergence/re-entry) would be required to establish presence/ likely absence and/or characterise the roost.

4.9 If bats are found to be roosting within the building, any works likely to disturb bats or bat roosts may only be undertaken once the appropriate (e.g. European Protected Species Mitigation (EPSM) licence) has been obtained from Natural England. Specific mitigation and/co compensation will be required and would be informed by the survey and any licensing process.

4.10 The tree lines are likely to be used by foraging and commuting bats. Light spillage onto these features should therefore be minimised as part of any future use of the site. A sensitive lighting scheme for the development should also be informed by the results of any subsequent bat surveys on potential roosting habitats. This can be achieved by following accepted best practice (Fure, 2006; Institute of Lighting Engineers 2009; Bat Conservation Trust 2011) and should be designed with input from a suitably experienced ecologist. Some potential measures are outlined below:

- The level of artificial lighting including flood lighting should be kept to a minimum;
- Where this does not conflict with health and safety and/or security requirements, the site should be kept dark during peak bat activity periods (0 to 1.5 hours after sunset and 1.5 hours before sunrise);
- Lighting should be directed to where it is needed to minimise light spillage. This can be achieved by limiting the height of the lighting columns and by using as steep a downward angle as possible and/or a shield/hood/cowl that directs the light below the horizontal plane and restricts the lit area; and

- Artificial lighting should not directly illuminate any confirmed or potential bat roosting features or habitats of value to commuting/foraging bats. Similarly, any newly planted linear features or compensatory bat roosting features should not be directly lit.

Great crested newts

4.11 Great crested newt receive full protection under The Conservation of Habitats and Species Regulations 2017 through their inclusion on Schedule 2, which prohibits: deliberate killing, injuring or capturing; deliberate disturbance; as a) to impair their ability: (i) to survive, breed, or reproduce, or to rear or nurture young; (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; b) to affect significantly the local distribution or abundance of the species; deliberate taking or destroying of the eggs; damage or destruction of a breeding site or resting place.

4.12 Great crested newts are also protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this Act, they are protected from, intentional or reckless disturbance (at any level); intentional or reckless obstruction of access to any place of shelter or protection; and selling, offering or exposing for sale, possession or transporting for purpose of sale.

4.13 The pond on the boundary of the site was silted up and dry on the day of the survey; however, it may provide aquatic habitat at other times of the year or across years. The grassland, dry pond and scrub on site has suitability for great crested newt foraging and commuting. If clearance of these habitats is proposed by future development, presence/ likely absence surveys in the form of eDNA surveys should be carried out on all accessible ponds within 250m of the site.

4.14 If great crested newts are confirmed present in close proximity of the site, then further surveys may be necessary to inform a European Protected Species Licence or appropriate method statement to facilitate the works. Specific mitigation and/or compensation would be informed by the results of the surveys and any licensing process.

Reptiles

4.15 Common reptiles are protected solely under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). Species such as the adder, grass snake, common lizard and slow-worm are listed in respect to Section 9(1) & (5). For these species, it is prohibited to:

- Intentionally kill or injure these species
- Sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

4.16 The scrub and base of mature trees provides suitable habitat for reptile foraging, commuting, refuge and hibernation. If these habitats require removal reptile surveys should be carried out to determine the presence/ likely absence of reptiles within the site. Seven surveys using artificial refugia should be carried out between March and October, and ideally within the months of April, May and September when reptiles are more easily detectable.

4.17 If reptiles are discovered, then an appropriate mitigation strategy and compensation measures should be implemented.

Breeding birds

4.18 All wild birds and their nests are protected under the Wildlife and Countryside Act 1981 (as amended). Some species of bird are also Species of Principal Importance and Norfolk BAP species.

4.19 The scrub, trees, and office building on site provide suitable breeding bird habitat. Any scrub removal, tree works or shed demolition should be carried out between September and February inclusive to avoid any potential offences relating to breeding birds during their main bird breeding season (Newton *et al.,* 2011) but subject to the results of any further protected species surveys that may be required.

4.20 If works during the breeding season are unavoidable, for example where conflict with other protected species exists, then potential nesting habitat must be inspected 48 hours before work commences to identify active birds' nests. Should they be present, the nest and a suitable buffer of habitat around it must be retained until the young have left the nest.

4.21 Compensation for loss of nesting opportunities should be made in the form of bird boxes and planting to accommodate both crevice-nesting and scrub-nesting species. Boxes should be woodcrete which are more durable and are not subject to such extremes in temperatures as wooden versions.

4.22 Planting in the form of hedgerows and shrub should be incorporated for the loss of scrub habitat where removed. Species such as hawthorn and blackthorn are suitable replacement species for dense bramble scrub.

Badgers

4.23 Badgers and their setts are protected under the Protection of Badgers Act (1992). Under this legislation it is an offence to intentionally or recklessly damage or destroy a badger sett, or obstruct access to it, or to disturb a badger whilst it is occupying a sett.

4.24 Although it is considered unlikely that badger are present on site given the lack of any field signs, their presence cannot be ruled out owing to the large amount of scrub present surrounding the grassland edges, which precluded a thorough search of this area.

4.25 If proposals involve the removal of scrub from the site, then a precautionary approach to clearance should be adopted. The scrub should be cleared using hand tools only, working slowly from the edge of the scrub within the site working outwards towards the site boundaries. An ecologist should be present to check ahead of clearance for any possible setts. If at any point a large mammal burrow is discovered works should cease while this is inspected by the ecologist.

Hedgehogs.

4.26 Hedgehogs are a Species of Principal Importance under the NERC Act 2006 and therefore measures should be implemented to avoid harm to this species.

4.27 The site contains habitat (dense scrub, grassland and bases of trees) suitable for hedgehog foraging, refuge, and hibernation. Future development that will involve the clearance of habitat with the potential to support hedgehog should put measures in place to avoid killing and injury. Dense vegetation should be cleared by hand so that habitat can be reinstated if hedgehog breeding or hibernating nests are found.

4.28 Efforts to replace lost foraging habitat and ensure continued use of the site post-development by making any boundary or other site fencing permeable to animals moving across the site should also be made.

Environmental best practice

4.29 Future development should retain and incorporate the trees on site into the landscaping design. The retained trees should also be protected in accordance with British Standards Institution (2012) guidelines.

FURTHER SURVEY REQUIREMENTS

4.30 No further survey work is required at present given that there are no current development proposals for the site; however, further surveys have been recommended for future developments and are detailed within the constraints section of this report.

4.31 Table 4.1 lists further survey requirements as recommended in the constraints section.

Table 4.1: Further survey requirements **if habitats are to be removed**

Species/ Habitat	Survey Requirement	Number of surveys and seasonal considerations
Bats	PRA/endoscope survey of the office building	One survey visit carried out. If suitability is confirmed dusk/dawn surveys will be required thereafter. To be carried out between May and August.
Great crested newts	Presence/ likely absence survey	If works affecting the pond, grassland , scrub, trees is required then eDNA survey should be carried out on all accessible ponds within 250m of the site, carried out between mid-April to end of June.
Reptiles	Presence/ likely absence survey	If grassland/scrub is to be cleared 7 survey visits using artificial refugia during March-October, best carried out in April, May and September.
Badger	No survey	Bramble scrub removal should be carried out slowly and methodically working from the centre of the grassland outwards, checking in advance before each section to be cleared for setts. If a sett is discovered then works must stop and an ecologist consulted.
Hedgehog	No survey	Bramble scrub removal should be carried out slowly and methodically working from the centre of the grassland outwards, checking in advance before each section to be cleared for hedgehogs and their nests. If a hibernating hedgehog is discovered, then the vegetation around the animal should be retained and protected until mild weather returns and the animal moves out of the area. If active animals are found these can be removed from the works area and placed in a quiet sheltered spot off site.
Birds	No targeted further survey	Vegetation and building removal with suitability for nesting birds, carried out September to February inclusive, or following a nesting bird check.

OPPORTUNITIES FOR ECOLOGICAL ENHANCEMENT

4.32 Planning policy at the national and local level and strategic biodiversity partnerships encourage inclusion of ecological enhancements in development projects. Ecological enhancements can also contribute to green infrastructure and ecosystem services such as storm water attenuation and reducing the urban heat island effect. Although the site is not subject to a current planning application the following measures would be suitable to enhance the site's biodiversity as part of future proposals.

Pond restoration

4.33 In order to enhance the on-site water body, the scrub encroaching the banks and pond could be removed to increase the amount of open water and reduce over-shading. The brash could be retained to create a habitat pile or hibernaculum. Some excavation could also increase the chances of the pond holding water.

4.34 Planting native species to provide egg laying habitat for newts would also enhance the biodiversity value of the pond. Circa 60% of margins should be seeded with Emorsgate EP1 pond edge mixture, with remaining margins left to enable natural colonisation of local species. The banks could also be seeded with Emorsgate EM8 meadow grass mix for wetland areas to provide optimal core terrestrial habitat for amphibians.

4.35 An interpretation board could be erected at the pond to inform future residents that the pond has been created as a 'wildlife pond', prohibiting the introduction of fish and aquatic plants.

Wildlife planting

4.36 Wildlife planting including native species and/or species of recognised wildlife value[12] should be incorporated. The use of nectar-rich producing plants will attract a wider range of insects, which in turn is the food source food source for bats. Consideration should also be given to creation of species-rich native hedgerows.

4.37 Good horticultural practice should be utilised, including the use of peat-free composts, mulches and soil conditioners, native plants with local provenance and avoidance of the use of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

4.38 Landscaping should aim to maintain a green corridor around the site boundary to ensure wildlife, including hedgehogs, have access around the site to reach habitats of greater quality and extent in the wider environment.

Provision of bat roosting opportunities

4.39 Bat boxes could be installed directly onto retained mature boundary trees to provide bat roosting opportunities above and beyond what is currently there. The boxes should be installed ideally 4m above ground level on south west and/or south east aspects. By placing boxes on different aspects (it is often beneficial to have more than one box per tree) bats can move between roost sites depending on the desired conditions (e.g. boxes on south facing aspects will be warmer than those on north facing sides). Boxes should not be placed in areas which are very exposed, in frost pockets, or where there is a chance of disturbance. The access points and approach to the boxes should be clutter-free (it may be necessary to maintain vegetation to ensure this remains long-term) and should not be directly illuminated by artificial lighting. Potentially suitable models include the Schwegler 2F bat box or 1FF bat box.

Provision of bird breeding opportunities

4.40 Bird boxes made from durable woodcrete could be installed directly onto trees or buildings or built into the fabric of new buildings at a ratio of a box per residential unit. These are in addition to those required to compensate for habitat loss. Bird boxes of a mix of sizes and styles to encourage a wide range of species, should be erected so that

[12] For example The Royal Horticultural Society (RHS) Perfect for Pollinators Scheme https://www.rhs.org.uk/science/conservation-biodiversity/wildlife/encourage-wildlife-to-your-garden/plants-for-pollinators and the joint RHS/Wildlife Trust's Gardening With Wildlife In Mind Database http://www.joyofplants.com/wildlife/home.php

they are sheltered from the wind, rain and strong sunlight. Boxes should be positioned 1.5-5m above ground for safety from predators and to replicate natural nesting habitat.

References

Bidwells (2017)- Land at Former Meat Factory, Great Moulton, Drawing No. A.50,796 (28/11/2017).

Biodiversity Reporting and Information Group (2008) *UK Biodiversity Action Plan Priority Habitat Descriptions*. JNCC. Peterborough.

Bright, P., Morris, P., and Mitchell-Jones, T. (2006). *The dormouse conservation handbook Second ed.* English Nature. Peterborough.

British Standards Institution (BSI) (2012) BS 5837:2012- *Trees in relation to design, demolition and construction*. BSI, London.

British Standards Institution (2013) Biodiversity. Code of practice for planning and development: 42020. BSI, London.

Chanin P (2003). *Monitoring the Otter Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.

CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd edition. The Bat Conservation Trust, London.

Cresswell, W. & Whitworth, R. (2004). *An assessment of the efficiency of capture techniques and the value of different habitats for great crested newt Triturus cristatus.* English Nature Research Report No. 576.

Department of Communities and Local Government (2012) *National Planning Policy Framework*. DCLG. London.

Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R.D. (2015). Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708–746. http://britishbirds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf [accessed August 2018].

Gent, T. and Gibson, S. (2003) *Herpetofauna Workers Manual*. JNCC, Peterborough.

JNCC (2010) *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council. Reprinted by Joint Nature Conservation Committee, Peterborough.

Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001) *Great Crested Newt Conservation. Handbook*. Froglife, Halesworth.

MAGIC (2016) *Multi-Agency Geographic Information for the Countryside*. http://www.magic.gov.uk/ [accessed December 2018].

Roper, T (2010) *Badger*. Harper Collins, London.

Strachan, R., Moorhouse, T., and Gelling, M. 2011. Water Vole Conservation Handbook. Third Edition. Wildlife Conservation Research Unit (WildCRU): Oxford University.

Appendix 1: Habitat Map & Building Plan

Figure 1: Habitat Survey Map & Building Plan

Appendix 2: Target Notes

Target Notes List for Former Meat factory, Great Moulton from the Phase 1 habitat survey and protected and notable species assessment carried out on the 6 December 2018.

Target note (TN)	Description
1	Wrens nests X3

Appendix 3: Photographs

Photograph 1
Former Meat Processing Factory, Building B1. View from the north looking south.

Photograph 2
The Office Building. Viewed from the north-east looking south-west

Photograph 3
Semi-improved grassland paddock in the north of the site.

Photograph 4
Bramble scrub along the northern site boundary.

Photograph 5
Tree lined boundary along the north-east half of the site.

Photograph 6
Scattered evergreen trees in the south-east of the site.

Photograph 7
Dry pond on the north-west boundary.

Appendix 4: Plant Species List

Plant Species List for Former Meat Factory – Great Moulton compiled from Phase 1 habitat survey carried out on the 6 December 2018.

Scientific nomenclature and common names for vascular plants follow Stace (2010). Please note that this plant species list was generated as part of a Phase 1 habitat survey, does not constitute a full botanical survey and should be read in conjunction with the associated results section of this PEA.

Abundance was estimated using the DAFOR scale as follows:
D = dominant, A = abundant, F = frequent, O = occasional, R = rare, L = locally
c=clumped, e=edge only, g=garden origin, p=planted, y = young, s=seedling or sucker, t=tree, h=hedgerow, w=water

SCIENTIFIC NAME	COMMON NAME	ABUNDANCE	QUALIFIER
Acer campestre	Field maple	F	t
Acer pseudoplatanus	Sycamore	F	t
Centaurea nigra	Common knapweed	F	c
Corylus avellana	Hazel	F	t
Crataegus monogyna	Hawthorn	O	t
Cupressaceae	Cypress sp.	F	h
Cupressus X leylandii	Leylandii sp.	O	t
Dactylis glomerata	Cock's foot	D	e
Festuca sp.	Fescue species	D	c
Fraxinus excelsior	Ash	O	t
Galium aparine	Cleavers	O	e
Geranium molle	Dove's-foot crane's-bill	F	c
Hedera helix	Ivy	A	h
Ilex aquifolium	Holly	R	h
Lamium purpureum	Red-dead nettle	O	e
Lolium perenne	Perennial ryegrass	D	e
Phleum pratense	Timothy	O	c
Plantago lanceolata	Ribwort plantain	O	e
Populus nigra	Black poplar	O	t
Plantago lanceolata	Ribwort plantain	O	e
Rosa canina	Dog rose	F	e
Rumex obtusifolius	Broad-leaved dock	O	e
Sambucus nigra	Elder	R	h
Solanum dulcamara	Bittersweet	R	e
Sonchus asper	Prickly sow thistle	O	e
Ulmus minor 'Atinia'	English elm	R	t
Urtica dioica	Common nettle	F	e
Rubus fruticosus agg.	Bramble	D	e

Appendix 5: Legislation and Planning Policy

Important notice: This section contains details of legislation and planning policy applicable in Britain only (i.e. not including the Isle of Man, Northern Ireland, the Republic of Ireland or the Channel Islands) and is provided for general guidance only. While every effort has been made to ensure accuracy, this section should not be relied upon as a definitive statement of the law.

A NATIONAL LEGISLATION AFFORDED TO SPECIES

The objective of the EC Habitats Directive[13] is to conserve the various species of plant and animal which are considered rare across Europe. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2017 and The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended).

The Wildlife and Countryside Act 1981 (as amended) is a key piece of national legislation which implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and implements the species protection obligations of Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.

Since the passing of the Wildlife & Countryside Act 1981, various amendments have been made, details of which can be found on www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CRoW) Act (2000).

Other legislative Acts affording protection to wildlife and their habitats include:

- Deer Act 1991;
- Countryside and Rights of Way (CRoW) Act 2000;
- Natural Environment & Rural Communities (NERC) Act 2006;
- Protection of Badgers Act 1992:
- Wild Mammals (Protection) Act 1996.

Species and species groups that are protected or otherwise regulated under the aforementioned domestic and European legislation, and that are most likely to be affected by development activities, include herpetofauna (amphibians and reptiles), badger, bats, birds,

[13] Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora

dormouse, invasive plant species, otter, plants, red squirrel, water vole and white clawed crayfish.

Explanatory notes relating to species protected under The Conservation of Habitats and Species Regulations 2017 (which includes smooth snake, sand lizard, great crested newt and natterjack toad), all bat species, otter, dormouse and some plant species) are given below. **These should be read in conjunction with the relevant species sections that follow.**

- In the Directive, the term 'deliberate' is interpreted as being somewhat wider than intentional and may be thought of as including an element of recklessness.
- The Conservation of Habitats and Species Regulations 2017 does not define the act of 'migration' and therefore, as a precaution, it is recommended that short distance movement of animals for e.g. foraging, breeding or dispersal purposes are also considered.
- In order to obtain a European Protected Species Mitigation (EPSM) licence, the application must demonstrate that it meets all of the following three 'tests': i) the action(s) are necessary for the purpose of preserving public health or safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequence of primary importance for the environment; ii) that there is no satisfactory alternative and iii) that the action authorised will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

Bats

All species of bat are fully protected under The Conservation of Habitats and Species Regulations 2017 through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. all bats)
- Deliberate disturbance of bat species as:

  a) to impair their ability:

  (i) to survive, breed, or reproduce, or to rear or nurture young;

  (ii) to hibernate or migrate[3]

  b) to affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Bats are also currently protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

How is the legislation pertaining to bats liable to affect development works?

The appropriate licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Though there is no case law to date, the legislation may also be interpreted such that, in certain circumstances, important foraging areas and/or commuting routes can be regarded as being afforded de facto protection, for example, where it can be proven that the continued usage of such areas is crucial to maintaining the integrity and long-term viability of a bat roost[14].

Birds

All wild birds, their nests and eggs are protected under Sections 1-8 of the Wildlife and Countryside Act 1981 (as amended). Among other things, this makes it an offence to:

- Intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built;
- Intentionally take or destroy an egg of any wild bird:

[14] Garland & Markham (2008) Is important bat foraging and commuting habitat legally protected? Mammal News, No. **150**. The Mammal Society, Southampton.

- Sell, offer or expose for sale, have in his possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.

Certain species of bird, for example the barn owl, black redstart, hobby, bittern and kingfisher receive additional special protection under Schedule 1 of the Act and Annex 1 of the European Community Directive on the Conservation of Wild Birds (2009/147/EC). This affords them protection against:

- Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young;
- Intentional or reckless disturbance of dependent young of such a bird.

How is the legislation pertaining to birds liable to affect development works?

To avoid contravention of the Wildlife and Countryside Act 1981 (as amended), works should be planned to avoid the possibility of killing or injuring any wild bird, or damaging or destroying their nests. The most effective way to reduce the likelihood of nest destruction in particular is to undertake work outside the main bird breeding season which typically runs from March to August[15]. Where this is not feasible, it will be necessary to have any areas of suitable habitat thoroughly checked for nests prior to vegetation clearance.

Those species of bird listed on Schedule 1 are additionally protected against disturbance during the breeding season. Thus, it will be necessary to ensure that no potentially disturbing works are undertaken in the vicinity of the nest. The most effective way to avoid disturbance is to postpone works until the young have fledged. If this is not feasible, it may be possible to maintain an appropriate buffer zone or standoff around the nest.

Herpetofauna (Amphibians and Reptiles)

The sand lizard *Lacerta agilis*, smooth snake *Coronella austriaca*, natterjack toad *Epidalea calamita* and great crested newt *Triturus cristatus* receive full protection under The Conservation of Habitats and Species Regulations 2017 through their inclusion on Schedule 2. The pool frog *Pelophylax lessonae* is also afforded full protection under the same legislation. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of species listed on Schedule 2

[15] It should be noted that this is the main breeding period. Breeding activity may occur outwith this period (depending on the particular species and geographical location of the site) and thus due care and attention should be given when undertaking potentially disturbing works at any time of year.

- Deliberate disturbance of any Schedule 2 species as:

  a) to impair their ability:

  (i) to survive, breed, or reproduce, or to rear or nurture young;

  (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate

  b) to affect significantly the local distribution or abundance of the species
- Deliberate taking or destroying of the eggs of a Schedule 2 species
- Damage or destruction of a breeding site or resting place
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

With the exception of the pool frog, these species are also currently listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Other native species of herpetofauna are protected solely under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). Species such as the adder *Vipera berus*, grass snake *Natrix natrix,* common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis* are listed in respect to Section 9(1) & (5). For these species, it is prohibited to:

- Intentionally (or recklessly in Scotland) kill or injure these species
- Sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

Common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris* and palmate newt *L. helveticus* are listed in respect to Section 9(5) only which affords them protection against sale, offering or exposing for sale, possession or transport for the purpose of sale.

How is the legislation pertaining to herpetofauna liable to affect development works?

The appropriate licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect the breeding sites or resting places of those amphibian and reptile species protected under The Conservation Habitats and Species Regulations

2017. A licence will also be required for operations liable to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licences are to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Although not licensable, appropriate mitigation measures may also be required to prevent the intentional killing or injury of adder, grass snake, common lizard and slow worm, thus avoiding contravention of the Wildlife and Countryside Act 1981 (as amended).

Invasive Plant Species

Certain species of plant, including Japanese knotweed *Fallopia japonica*, giant hogweed *Heracleum mantegazzianum* and Himalayan balsam *Impatiens glandulifera* are listed on Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) in respect to Section 14(2). Such species are generally non-natives whose establishment or spread in the wild may be detrimental to native wildlife. Inclusion on Part II of Schedule 9 therefore makes it an offence to plant or otherwise cause these species to grow in the wild.

How is the legislation pertaining to invasive plants liable to affect development works?

Although it is not an offence to have these plants on your land per se, it is an offence to cause these species to grow in the wild. Therefore, if they are present on site and development activities (for example movement of spoil, disposal of cut waste or vehicular movements) have the potential to cause the further spread of these species to new areas, it will be necessary to ensure appropriate measures are in place to prevent this happening prior to the commencement of works.

Wild Mammals (Protection) Act 1996

All wild mammals are protected against intentional acts of cruelty under the above legislation. This makes it an offence to:

- Mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

To avoid possible contravention, due care and attention should be taken when carrying out works (for example operations near burrows or nests) with the potential to affect any wild mammal in this way, regardless of whether they are legally protected through other conservation legislation or not.

B NATIONAL AND EUROPEAN LEGISLATION AFFORDED TO HABITATS

Statutory Designations: National

Nationally important areas of special scientific interest, by reason of their flora, fauna, or geological or physiographical features, are notified by the countryside agencies as statutory **Sites of Special Scientific Interest** (SSSIs) under the National Sites and Access to the Countryside Act 1949 and latterly the Wildlife & Countryside Act 1981 (as amended). As well as underpinning other national designations (such as **National Nature Reserves** which are declared by the countryside agencies under the same legislation), the system also provides statutory protection for terrestrial and coastal sites which are important within a European context (Natura 2000 network) and globally (such as Wetlands of International Importance). See subsequent sections for details of these designations. Improved provisions for the protection and management of SSSIs have been introduced by the Countryside and Rights of Way Act 2000 (in England and Wales).

The Wildlife & Countryside Act 1981 (as amended) also provides for the making of **Limestone Pavement Orders**, which prohibit the disturbance and removal of limestone from such designated areas, and the designation of **Marine Nature Reserves**, for which byelaws must be made to protect them.

Statutory Designations: International

Special Protection Areas (SPAs), together with **Special Areas of Conservation** (SACs) form the **Natura 2000** network. The Government is obliged to identify and classify SPAs under the EC Birds Directive (Council Directive 2009/147/EC (formerly 79/409/EEC)) on the Conservation of Wild Birds). SPAs are areas of the most important habitat for rare (listed on Annex I of the Directive) and migratory birds within the European Union. Protection afforded SPAs in terrestrial areas and territorial marine waters out to 12 nautical miles (nm) is given by The Conservation of Habitats & Species Regulations 2017. The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended) provide a mechanism for the designation and protection of SPAs in UK offshore waters (from 12-200 nm).

The Government is obliged to identify and designate SACs under the EC Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora). These are areas which have been identified as best representing the range and variety of habitats and (non-bird) species listed on Annexes I and II to the Directive within the European Union. SACs in terrestrial areas and territorial marine waters out to 12 nm are

protected under The Conservation of Habitats & Species Regulations 2017. The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended) provide a mechanism for the designation and protection of SACs in UK offshore waters (from 12-200 nm).

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention covers all aspects of wetland conservation and wise use, in particular recognizing wetlands as ecosystems that are globally important for biodiversity conservation. Wetlands can include areas of marsh, fen, peatland or water and may be natural or artificial, permanent or temporary. Wetlands may also incorporate riparian and coastal zones adjacent to the wetlands. Ramsar sites are underpinned through prior notification as Sites of Special Scientific Interest (SSSIs) and as such receive statutory protection under the Wildlife & Countryside Act 1981 (as amended) with further protection provided by the Countryside and Rights of Way (CRoW) Act 2000. Policy statements have been issued by the Government in England and Wales highlighting the special status of Ramsar sites. This effectively extends the level of protection to that afforded to sites which have been designated under the EC Birds and Habitats Directives as part of the Natura 2000 network (e.g. SACs & SPAs).

Statutory Designations: Local

Under the National Sites and Access to the Countryside Act 1949 Local Nature Reserves (LNRs) may be declared by local authorities after consultation with the relevant countryside agency. LNRs are declared for sites holding special wildlife or geological interest at a local level and are managed for nature conservation and provide opportunities for research and education and enjoyment of nature.

Non-Statutory Designations

Areas considered to be of local conservation interest may be designated by local authorities as a Wildlife Site, under a variety of names such as County Wildlife Sites (CWS), Listed Wildlife Sites (LWS), Local Nature Conservation Sites (LNCS), Sites of Biological Importance (SBIs), Sites of Importance for Nature Conservation (SINCs), or Sites of Nature Conservation Importance (SNCIs). The criteria for designation may vary between counties.

Together with the statutory designations, these are defined in local and structure plans under the Town and Country Planning system and are a material consideration when planning

applications are being determined. The level of protection afforded to these sites through local planning policies and development frameworks may vary between counties.

Regionally Important Geological and Geomorphological Sites (RIGS) are the most important places for geology and geomorphology outside land holding statutory designations such as SSSIs. Locally-developed criteria are used to select these sites, according to their value for education, scientific study, historical significance or aesthetic qualities. As with local Wildlife Sites, RIGS are a material consideration when planning applications are being determined.

C NATIONAL PLANNING POLICY

The National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF) replaced Planning Policy Statement (PPS9) in April 2012 as the key national planning policy concerning nature conservation and was revised in 2018. The NPPF emphasises the need for suitable development. The Framework specifies the need for protection of designated sites and priority habitats and priority species. An emphasis is also made for the need for ecological networks via preservation, restoration and re-creation. The protection and recovery of priority species – that is those listed as UK Biodiversity Action Plan priority species – is also listed as a requirement of planning policy. In determining a planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from adverse harm; there is appropriate mitigation or compensation where significant harm cannot be avoided; opportunities to incorporate biodiversity in and around developments are encouraged; planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

The Natural Environment and Rural Communities Act 2006 and The Biodiversity Duty

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 40 of the Act requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'.

Section 41 of the Act (Section 42 in Wales) requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity.' They are referred to in this report as Species of Principal Importance and Habitats or Principal Importance. This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species

are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

SOUTH NORFOLK DISTRICT LOCAL PLAN

The Development Management Policies Document (2015) feeds into the Joint Core Strategy (2011) for South Norfolk Council, Norwich City Council and Broadland Council document adopted by each local planning authority which feeds into the overarching Local Plan for the future development of the area. Key environmental policies are summarised below.

Policy DM 1.4 Environmental quality and local distinctiveness

Strategic Policy DM 1.4 underlines the Council's commitment to ensuring that development protects significant environmental assets and makes positive improvements in the quality of the built, natural and historic environment.

The Council will work with developers to promote and achieve high quality and positive environmental improvement from all development. A net environmental improvement will always be sought, and all proposals should avoid environmental harm or where this is not possible, adequately mitigate and compensate for the adverse environmental effects of development.

All development should take all reasonable opportunities to:

- Enhance biodiversity to achieve a net gain for nature;
- To improve the resilience of ecosystems to environmental change including through the provision of improvements to enhance identified environmental sites; stepping stones and corridors;
- Protect environmental and water resources and enhance their efficient use;
- Deliver the provision of essential infrastructure including water and wastewater network upgrades, waste facilities', flood defences and green infrastructure;
- Re-use buildings rather than demolish, recycle building materials and select materials to maximise environmental sustainability and minimise impact on scarce resources and environment;
- Generate and utilise renewable energy in appropriate ways;

- and work with the characteristics of the location to ensure that the necessary mitigation measures are not disproportionate to the benefits of the scale of development proposed.

Detailed environmental policies to be considered when contemplating development proposals:

- maximising the use of renewable low carbon energy and minimising the use of carbon energy and water, and flood risk (DM 4.1, 4.2);
- protecting environmental assets including designated spaces, important local open spaces and trees and hedgerows (DM 4.4, 4.8);
- maintaining the open setting of and important gaps between settlements (DM 4.6, 4.7);
- incorporating appropriate landscaping into all development schemes (DM 4.9); and respecting and enhancing distinctive local landscape character and heritage of the historic buildings and places in South Norfolk (DM 4.5, 4.10).
- A range of supplementary planning guidance and background information is available to elaborate and support these policies.

F REGIONAL AND LOCAL BAPS

Many local authorities in the UK have also produced a local Biodiversity Action Plan (LBAP) at the County or District level. The Norfolk Biodiversity Action Plan is based on the UK list of Species and Habitats of Principal Importance.

Ecology Consultancy

The Ecology Consultancy is part of the Temple Group.

Making places better for people and wildlife

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