# Preliminary Ecological Appraisal

# Of

# Land adjacent Magellan Way

# Spalding

# Lincolnshire

**Client: Mr Retchless**

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Torc Ecology Ltd
Registered number 6471219 VAT number 926 5906 96
Unit 1F, Docking Rural Workshops, Station Road, Docking, King's Lynn, Norfolk PE31 8LT
Tel: 01485 518492 Web: www.torcecology.co.uk Email: info@torcecology.co.uk

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| **Author** | Tom Deaney | |
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## 1. NON-TECHNICAL SUMMARY

1.1. Torc Ecology Ltd was commissioned by Mr Retchless in February 2015 to undertake a Preliminary Ecological Appraisal of the land adjacent Magellan Way, Spalding, PE11 2FG.

1.2. The appraisal was undertaken to form part of a planning application to construct a new residence raised on stilts over the northern part of the onsite borrow pit.

1.3. A Preliminary Ecological Appraisal incorporating an Extended Phase I habitat survey was undertaken on 12th February 2015 by Mr Tom Deaney ACIEEM of Torc Ecology Ltd.

1.4. No physical evidence of the presence of protected or notable species was found on site. However, the site was noted as being part of the Disused March Line Local Wildlife Site and it was considered that the following notable species/species groups may be active on site on occasion: bat roosts within certain mature trees, nesting birds, great crested newts, reptiles, hedgehogs, badger, Japanese knotweed and a notable invertebrate assemblage.

1.5. To appropriately determine the potential impact of the development on these species the following further survey work was recommended: presence/absence survey(s) for great crested newts, a survey of the site for evidence of the presence of water vole and Japanese knotweed at a time of year when signs would be more apparent, and a consultation with an appropriately experience entomologist to determine likely invertebrate status on site and the potential subsequent impact of the development on this species group.

1.6. Working methodologies with respect to habitat protection, bats, nesting birds, reptiles, hedgehogs and badger are provided within this report. Preliminary recommendations to enhance the site for wildlife post-development are also provided although these may need to be adjusted pending the results of the further surveys and consultations.

## 2. INTRODUCTION

### 2.1. Background information

2.1.1. Torc Ecology Ltd was contacted by Mr Retchless in February 2015 to undertake a Preliminary Ecological Appraisal of a former barrow pit and associated land within a development boundary adjacent Magellan Way, Spalding, PE11 2FG hereafter referred to as 'the site'.

2.1.2. The site was located at OS grid reference TF 243 216 in the south of Spalding.

2.1.3. The site consisted of a borrow pit flanked by ruderal and scrub vegetation. Treelines provided a canopy structured habitat along the boundaries of the site.

2.1.4. The site was situated within the south of the town of Spalding and was immediately surrounded by residences and busy residential roads. Further from site the wider environment was dominated by residential housing in all directions, although arable habitats were dominant beyond the outskirts of Spalding; which were approximately 500m to the south of the site. Green corridors were present through the urban environment of Spalding; most notably the Local Wildlife Site (LWS) Disused March Line (LWS220), of which the site was the southernmost part, and the River Welland which was located approximately 75m southeast of the site.

2.1.5. Plates 1 and 2 (Appendix I) show aerial views of the site and surrounding habitats within the wider countryside. Figure 1 (Appendix II) shows the site's location and Figure 2 (Appendix II) shows the site's layout including the development boundary.

### 2.2. Proposed works

2.2.1. A planning application to the local planning authority is proposed. The proposed scheme for the site was still being devised at the time of writing, however it is anticipated to comprise the clearance of the vegetation in the north of the site to facilitate construction of a new residence raised on stilts over the northern part of the borrow pit. It is anticipated that some arboricultural works will also be required. Access will remain as existing i.e. via an access gate on the west boundary of the site.

### 2.3. Aims of the survey

2.3.1. The aim of the survey was to:-

- Make an assessment of the presence or likely presence of any protected or notable species or habitats, within or adjacent to the site;
- assess the potential impact of the proposed works on any protected or notable species and/or habitats present on or adjacent to the site; and to
- provide recommendations for working methodologies, and/or the need for a European Protected Species Licence (EPSL) from Natural England in light of the survey results.

## 3. SURVEY METHODOLOGY

### 3.1. Desk top survey

3.1.1. Ecological Services Ltd (ESL) undertook a Baseline Ecological Survey (2004[a]) and produced a Nature Reserve Management Plan (2004[b]) for an area of land which includes the site, the whole of which was later designated as a LWS: Disused March Line (LWS220). As the site is located in the south of this LWS both of these reports were reviewed to search for relevant information with regards to the survey aims of this report.

3.1.2. Lincolnshire Environmental Records Centre (Greater Lincolnshire Nature Partnership, 2015) was consulted with regards to all protected and notable species records and statutory and non-statutory designated sites within 2km of the site. Records over 20 years old were considered historic and therefore not indicative of current species presence and/or distribution.

3.1.3. The Lincolnshire Local Biodiversity Actions Plans (LBAP) were consulted in relation to species and habitats of concern locally.

### 3.2. Extended Phase I habitat survey

3.2.1. The Extended Phase I habitat survey of the site included surveying for different habitats and classifying them according to the habitats given in the Joint Nature Conservancy Council (JNCC) 'Handbook for Phase I Habitat Survey' (JNCC, 1993). The survey also involved searches for signs of species protected under the Wildlife and Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2010, and the Protection of Badgers Act 1992. This involved assessing the habitats on and beyond site for their suitability to support protected species including mammals, reptiles, amphibians and birds. Throughout the survey, consideration was also given to the existence and use of the habitats by other notable fauna such as those included within the UK and Local Biodiversity Action Plans (UKBAPs and LBAPs) or Red Data book species.

3.2.2. The site was also surveyed for the presence (or likely presence considering seasonality) of invasive weeds and any areas of general ecological/botanical interest. This could include any areas likely to provide suitable conditions for protected and/or notable plant and invertebrate species that may then require additional detailed surveys e.g. botanical or invertebrate surveys.

### 3.3. Details of the survey and surveyor

3.3.1. The Extended Phase I habitat survey was undertaken on the 12th February 2015 by Mr Tom Deaney. Mr Deaney is an Associate member of the Chartered Institute of Ecology and Environmental Management (ACIEEM) and an Ecologist at Torc Ecology Ltd. Mr Deaney holds a Natural England Class 2 survey licence for bats (licence number 2014-4321-CLS-CLS) and a Class 2 survey licence for great crested newts (licence number 2015-8693-CLS-CLS).

### 3.4. Limitations to the survey

3.4.1. The timing of the survey outside of the growing season meant that the presence of certain plant species may not have been apparent at the time of the survey. However, the types of habitats present and thus the potential for notable plant species can be identified.

3.4.2. Activity from water vole *Arvicola amphibius* is greatly reduced in winter and signs indicating the presence of this species may not have been apparent at the time of the survey.

3.4.3. Access was not possible onto neighbouring properties to search for evidence of badger activity, although these areas could be partially viewed from within the site boundary and public land, so a limited assessment of potential use by badger could be made.

## 4. RESULTS

### 4.1. Desk top study

*Review of pre-existing reports*

4.1.1. At the time of their surveys ESL identified that the site consisted of a reed choked borrow pit flanked by ruderal vegetation and dense scrub, with mature willow *Salix* sp. and ash *Fraxinus excelsior* trees present around the site. The remaining area later designated as Disused March Line LWS i.e. outside of the current development site, was a mosaic of the following habitats/vegetation types: grassland, scrub, standard trees, standing open water (two further borrow pits), reedbeds, tall ruderal, ditches, hedgerows, amenity grassland, hardstanding and brick bridge supports.

4.1.2. ESL identified that part of the land later designated as Disused March Line LWS supported or potentially supported a number of notable floral and faunal species. The locally notable floral species were associated with dry grassland and unshaded conditions i.e. habitats and conditions not present on site. However, a small stand of Japanese knotweed *Fallopia japonica* was identified approximately 20m east of the site.

4.1.3. ESL noted that previous surveys in 2000 had not found great crested newts *Triturus cristatus* or reptiles on the disused railway line, although smooth newt *Lissotriton vulgaris* were confirmed breeding in the northern borrow pits off site, and common frog *Rana temporaria* and common toad *Bufo bufo* were observed in the grassland areas of the land later designated as Disused March Line LWS.

4.1.4. The land later designated as Disused March Line LWS was considered to likely provide sheltered foraging opportunities for bats although the only trees with bat roost potential at the time of the ESL survey were located away from the proposed development site. However, water vole were recorded by ESL in 2000 within one of the other borrow pits off site, and the management plan aimed to enhance these offsite water bodies for this species. In addition, a single hole badger sett was located between the northern borrow pits i.e. not on or within 30m of the site, however this was long disused at the time of their survey.

4.1.5. The site was noted as supporting several species of breeding birds, mostly associated with the neglected scrub areas.

4.1.6. ESL particularly highlighted the importance of the disused railway line for locally important invertebrate species and the subsequent management plan was targeted at enhancing the site for these species. Of particular note considering the habitats present on site were the following species:-

- red-tipped clearwing moth *Synanthedon formicaeformis* – associated with willow scrub in marshy conditions
- garden tiger *Arctia caja* – particularly associated with tall ruderal vegetation and gardens
- obscure wainscot *Leucania obsolete* – associated with reedbeds
- *Coelambus impressopunctatus* – water bodies with *Spirogyra* spp. algae
- *Agabus undulates* – water bodies with rich vegetation communities
- *Dina lineata* – small water bodies which periodically dry out in summer

4.1.7. The management plan included general prescriptions for the water bodies along the disused railway line as well as some specifically for the borrow pit on site. The general prescriptions included selective thinning of scrub and pollarding of bankside trees to increase sunlight penetration to the water body margins and thereby encourage a more diverse marginal vegetation community. It was also recommended that selected areas of common reed within the onsite borrow pit be removed to provide small areas of open water and provide areas of both young and mature reed.

*Relevant habitat records*

4.1.8. The desk top study found no statutory designated sites within a 2km radius of the site, although eight non-statutory designated sites were present; all LWS.

4.1.9. The site is the southernmost borrow pit in the Disused March Line (LWS220). This LWS covers the area assessed by ESL in 2004 and was predominantly designated for the mosaic of habitats present and the faunal species supported. In particular, the LWS was noted as supporting red-tipped clearwing moth in a dyke at the north end of the LWS and for the presence of notable aquatic beetles in the borrow pits. Water vole have also been identified as using the northernmost borrow pit and common pipistrelle bats *Pipistrellus pipistrellus* have been recorded foraging over the borrow pits. The ivy covered trees around the southernmost borrow pit i.e. the site, were noted as supporting nesting birds; however the LWS description does not highlight the use of this borrow pit by other notable fauna.

4.1.10. Four of the LWS cover the River Welland and associated water courses and were all designated primarily for the aquatic habitats present: River Welland Corridor (LWS929), River Welland in Spalding (LWS4183), New River (LWS565) and Coronation Channel (LWS4174). Land North of Spalding Station (LWS4178), 1.5km north of the site, was designated for a mix of habitats as were present at the Disused March Line (LWS220). Spalding Cemetery (LWS740) was located 2km north of the site and is designated for mature parkland habitats, whilst Arnold's Meadow (LWS10) was an area of ponds, woodland and pasture located 1.5km east of the site and was also designated as a Local Nature Reserve (LNR).

4.1.11. The Lincolnshire LBAP has specific habitat action plans for reedbed and ponds.

*Relevant species records*

4.1.12. Records of at least eight bat species were identified within 2km of the site between 1995 and 2014: common pipistrelle, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius's pipistrelle *Pipistrellus nathusii*, brown long-eared *Plecotus auritus*, Daubenton's *Mytois daubentonii*, Natterer's *Myotis nattereri*, whiskered *Myotis mystacinus* and noctule *Nyctalus noctula*, with unidentified *Myotis* species, unidentified Pipistrellus species and unidentified bat species also recorded. Of these the following species were all recorded as roosting within 2km of the site, however the record resolution i.e. their location accuracy, was not sufficient to identify the exact location of the roosts: common pipistrelle, soprano pipistrelle, brown long-eared, Daubenton's, unidentified *Pipistrellus* sp. and unidentified bat.

4.1.13. Several bird species were identified within 2km of the site which are associated with habitats present on/adjacent site i.e. pond/reedbed, scrub, mature trees and gardens. These records included reed bunting *Emberiza schoeniclus,* brambling *Fringilla montifringilla*, spotted flycatcher *Muscicapa striata* and song thrush *Turdus philomelos*. All bird records were post 1994.

4.1.14. One record of great crested newt was identified 1.75km northeast of the site in 2012. Common toad, common frog and smooth newt were also all recorded within 2km of the site with the latter two species recorded on the area of the Disused March Line LWS north of the site. Nine records of grass snake *Natrix natrix* were identified between 1996 – 2007; all located on Arnolds Meadow LWS 1.5km east of the site.

4.1.15. A large number of records of water vole were recorded within 2km of the site between 1995 and 2011, mostly associated with the River Welland and associated drains and channels. Of particular note were two records of water vole latrines located approximately 100m north of the site in 2000, likely within the other borrow pits in the Disused March Line LWS. Two records of badger were identified from 2007 and 2009, 1km north and 2km northwest of the site respectively. Eleven records of otter *Lutra lutra* were identified within 2km of the site, mostly associated with the River Welland and hedgehog *Erinaceus europaeus* were widely recorded in the local area.

4.1.16. Twelve notable moth species have been recorded on the Disused March Line LWS: grey dagger *Acronicta psi*, brown-spot pinion *Agrochola litura*, mouse moth *Amphipyra tragopoginis*, garden tiger, latticed heath *Chiasmia clanthrata*, small square-spot *Diarsia rubi*, dot moth *Melanchra persicariae*, rosy minor *Mesoligia literosa*, dark spinach *Pelurga comitata,* shaded broad-bar *Scotopteryx chenopodiata,* buff ermine *Spilosoma luteum* and cinnabar *Tyria jacobaeae*. However, of these only grey dagger, dot moth and shaded broad-bar had been recorded on the LWS within the last 20 years, although cinnabar had been recorded recently elsewhere within 2km of the site. Historic records of two butterfly species were also identified on the Disused March Line LWS: small heath *Coenonympha pamphilus* and wall *Lasiommata megera*. No other invertebrate records were provided.

4.1.17. The Lincolnshire LBAP had specific species action plans for a number of species that may be relevant to the site including a grouped plan for bats, a grouped plan for newts and individual plans for reed bunting, bullfinch *Pyrrhula pyrrhula*, starling *Sturnus vulgaris*, song thrush, and water vole (Lincolnshire Biodiversity Partnership, 2011).

**4.2. Extended Phase I habitat survey** (refer to Plates 5 to 8, Appendix I and Figure 2, Appendix II)

*Habitats*

4.2.1. The borrow pit occupied much of the site and was choked with common reed *Phragmites australis* with occasionally present reedmace *Typha latifolia* and common duckweed *Lemna minor.* Several groups/lines of mature and immature ash and willow. trees were present on site, particularly along the eastern boundary, and in the northwest and southwest corners of the site. Many of these trees had been colonised by dense ivy *Hedera helix*. Also around the site and borrow pit margins were other immature and mature trees with species including ash, willow, hawthorn *Crataegus monogyna*, holly *Ilex aquifolium* and elder *Sambucus nigra.* The extensive tree cover around the site meant that the majority of the site was shaded.

4.2.2. Dense bramble *Rubus fruiticosa* dominated scrub was present in the north and south of the site, with frequently present dead bindweed *Convolvulaceae*, and occasionally present cow parsley *Anthriscus sylvestris* and common nettle *Urtica dioica.* Also in the south of the site was a stand of elder scrub, with buddleia *Buddleia davidii* growing up against the retaining wall which delineated the south boundary of the site. The north and west boundaries of the site were delineated by post and rail fencing, and the east boundary by a crash barrier and hardstanding along Magellan Way.

4.2.3. Much of the remaining terrestrial habitat was disturbed ground, dominated by bare earth with abundantly present ivy and occasionally present herb Robert *Geranium robertianum* and cleavers *Galium aparine*. It was considered that these areas of bare ground would likely support a more diverse ruderal community during the growing season.

4.2.4. However, a small area of short sward improved grassland was present adjacent the vehicle access gate on the west boundary of the site i.e. off Hudson Road. This grassland extended adjacent the fence along much of the west boundary. The grassland was dominated by meadowgrass *Poa* sp., with abundantly present bare earth, occasionally present moss and rarely present dandelion *Taraxacum officinale agg*, creeping thistle *Cirsium arvense* and ribwort plantain *Plantago lanceolata*. Toward the south of the grassland more species were present with occasionally present Yorkshire fog *holcus lanatus* and creeping bent *Agrostis stolonifera*, and rarely present common nettle and creeping buttercup *Ranunculus repans*. At the southern end of this grassland, adjacent a gate into an offsite property was a small area of hardstanding.

4.2.5. A number of piles of logs, tree stumps and garden cuttings were present on site, particularly in the south of the site. There was evidence of flytipping on site, particularly adjacent Magellan Way. No evidence of invasive species was identified on site.

*Protected species scoping survey*

4.2.6. No physical evidence of protected or notable species was found on site during the field survey.

4.2.7. Mature ash and willow trees in the northeast corner of the site were noted as having features suitable for roosting bats including cracks and limb scars. Other mature ash and willow trees in the south of the eastern treeline, and in the south of the site, had dense ivy cover which could potentially mask features in the trees suitable for roosting bats e.g. rot holes, dead/split limbs etc., although no

specific features were identified. However, it was noted that the rest of the trees in the eastern treeline, and the trees in the northwest of the site, although also ivy covered, were very thin stemmed and therefore the likelihood of the ivy on these trees concealing features suitable for use by roosting bats was considered to be low. Figure 2 (Appendix II) shows the trees/tree groups identified as having bat roost potential.

4.2.8. The habitats on site were considered of medium value to foraging bats as the pond and structured habitat interfaces would likely support abundant invertebrates upon which bats could feed. Furthermore, nearby treelines both onsite and along Magellan Way would provide connectivity for bats moving along green corridors through Spalding e.g. the rest of the Disused March Line LWS and the River Welland. Although the mature trees on site likely provide some screening from local street lighting, the lack of mature tree cover along much of Hudson Road was anticipated to allow some light ingress which may discourage less light tolerant bats such as *Myotis* species and long-eared bats from extensively using the site.

4.2.9. The site was noted as being suitable for nesting birds with both the terrestrial habitats and the reed offering various opportunities for different species. Bird species observed on/over the site during the survey included collared dove *Streptopelia decaocto*, black-headed gull *Chroicocephalus ridibundus*, great tit *Parus major*, blue tit *Cyanistes caeruleus*, pigeon *Columba*, blackbird *Turdus merula*, robin *Erithacus rubecula* and chaffinch *Fringilla coelebs*.

4.2.10. In addition to the borrow pit on site, seven other water bodies were identified within 500m of the site although these were all beyond features considered significant or partial barriers to great crested newt dispersal i.e. roads, extensive residential development and/or the River Welland. However, the borrow pit on site was still assessed as having 'Good' suitability to support breeding great crested newts when applying the Habitat Suitability Index (HSI) methodology. The HSI methodology was originally devised by Oldham *et al*. (2000) and can be used to aid assessment of habitat suitability in relation to use by breeding great crested newts. It was noted that the on-site borrow pit could also provide breeding opportunities for more common amphibians e.g. common toad.

4.2.11. The habitats on site would provide suitable foraging habitat for badger, reptiles and hedgehogs; with reptiles and hedgehogs also potentially sheltering within the scrub and piles of wood, garden cuttings and rubbish on site.

4.2.12. The borrow pit was considered suitable for water vole with suitable foraging opportunities and burrowing substrate. However, the site was isolated from other water courses/water bodies by busy roads, and it was also noted that human disturbance on site was likely high, given the evidence of human activity onsite i.e. flytipping, and the proximity of the borrow pit to residences and busy roads. The lack of connectivity and regular disturbance would also discourage otter from using the site.

4.2.13. The site was noted as providing a mosaic of different habitats which may therefore support a varied invertebrate assemblage. However, the reed choking the borrow pit reduced the variety of habitat interfaces and the over-shading reduced sunlight penetration, both of which would likely reduce the number of niches available for invertebrates.

## 5. ASSESSMENT

### 5.1. Desktop study

5.1.1. The desktop study highlighted that the site is designated as part of Disused March Line LWS; which is designated for the mosaic of habitats present and the faunal species/groups these habitats support. It was noted that the development will involve land take from the LWS, albeit an isolated section. However, provided suitable precautions are undertaken (refer to Section 8.3 below) no direct impact on the ecological functioning of the LWS is anticipated. Furthermore, the development also provides an opportunity to enhance the site for the faunal species/groups for which the LWS is designated.

5.1.2. Further wildlife sites were isolated from the site by both distance and barriers i.e. busy roads and development, and therefore no direct impact on the integrity and ecological functioning of these sites is expected by the development.

5.1.3. The desktop study also highlighted the present of a number of protected and notable species/species groups within 2km of the site including birds, amphibians, reptiles, bats, water vole, otter, badger, hedgehog and invertebrates. Of particular note were the recent and/or historic records of amphibians, bats, water vole, badger, nesting birds, invertebrates and Japanese knotweed on/adjacent Disused March Line LWS and therefore possibly active/present on site if habitats/conditions were suitable.

### 5.2. Habitat

5.2.1. Given the lack of open water, the borrow pit on site was considered to be a small and isolated example of reedbed habitat; a LBAP priority habitat. However, the general botanical interest onsite was considered to be of low conservation value with a low diversity of species present. The habitats on site were not considered suitable to support the notable plant species identified as historically present within the Disused March Line LWS by ELS.

5.2.2. However, the habitats on site did have the potential to offer valuable shelter, commuting and/or foraging habitat to faunal species that potentially use the site.

5.2.3. Although Japanese Knotweed was not identified on site, the survey was undertaken at a time of year when small stands of this species may not be apparent i.e. late into the winter after the plant has died back. Given that this species has been recorded in close proximity to the site in the past, it was considered possible that this species could be present on site.

### 5.3. Protected species

*Bats*

5.3.1. The mature ash and willow trees in the northeast corner of the site were noted as providing opportunities for roosting bats, although the small size and characteristics of the features meant that they were likely subject to temperature fluctuations and therefore considered suitable for use by individual/small numbers of bats during the active bat season i.e. May – September, and not during the colder months. The dense ivy cover on the other onsite trees along the eastern boundary and in

the south of the site could have concealed further opportunities for roosting bats, although given the size of the trunks/branches then any concealed crevices/holes would also likely be small, subject to temperature fluctuations and therefore used by individual/small numbers of bats during the active bat season only, if used as roost sites.

5.3.2. The habitat on site was favourable for several species of foraging and commuting bats, with common pipistrelle bats previously recorded as active along the Disused March Line LWS.

*Birds*

5.3.3. The trees, scrub and reedbed habitats on site would all provide nesting opportunities for various bird species, including several of those species observed on site. In particular, the Disused March Line LWS description highlighted that ivy covered trees are used by nesting birds and a passerine bird box was noted in the west of the site. Furthermore, the habitat on site would provide foraging opportunities for birds increasing the likelihood of nesting. However, the proposed development will only involve the removal of a small area of these habitats; with the majority remaining *in situ*. It is therefore considered unlikely that the proposals will have a significant impact upon the use of the site by nesting birds post development. The nesting bird season is generally regarded as being between March to September.

*Great crested newts*

5.3.4. Although previous great crested newt surveys were undertaken on the Disused March Line LWS in 2000, and did not identify the presence of this species, the age of these surveys meant that they cannot be considered an accurate representation of the current status of great crested newts on site. The site was isolated from other potential breeding locations by features considered barriers to great crested newt dispersal e.g. busy roads within Spalding. However, the borrow pit on site was considered suitable for breeding great crested newts, with the terrestrial habitats on site providing foraging and shelter opportunities for this species and it was considered possible that an isolated population of this species could be present, breeding within the borrow pit and using the terrestrial habitats onsite and adjacent site e.g. gardens for foraging, shelter and dispersal.

*Reptiles*

5.3.5. Habitats on site were noted as being suitable for reptiles, with foraging and refugia present, although the extensive shading across much of the site was considered to likely discourage a large reptile presence as it would restrict basking opportunities. It was noted that offsite gardens and the rest of the LWS across Magellan Way would provide more open habitats suitable for basking, foraging and sheltering reptiles and it was considered that animals may move onto site from these areas, although Magellan Way likely presents a barrier to regular movement of reptiles to/from this area.

*Otter*

5.3.6. Although terrestrial and aquatic habitats were considered suitable for otter, roads around the site isolated it from the water bodies where otter have been recorded i.e. water courses associated with the River Welland. Furthermore, the site was subject to relatively regular human disturbance

which would discourage otter from settling. As no evidence of otter was identified during the field survey it is therefore reasonable to assume that otter are unlikely to be present on site.

5.3.7. There are therefore no further discussions with regards otter presence on site in this report.

*Water vole*

5.3.8. Although the terrestrial and aquatic habitats on site were considered suitable for water vole, no evidence of water vole was identified during the field survey. Furthermore, the roads around the site isolated it from other water bodies where water vole have been recorded i.e. other water bodies within the Disused March Line LWS and water courses associated with the River Welland. These roads would likely discourage water vole movement to/from the site.

5.3.9. However, the field survey was undertaken at a time of year when water vole are less active and field signs may not be apparent. Given the proximity of the site to areas where water voles have been recorded, it is considered that there is a risk of water vole being present on site; particularly if disturbance elsewhere at the Disused March Line LWS displaces individual animals onto site.

*Hedgehogs*

5.3.10. Habitats on site were noted as offering potential foraging, commuting and/or shelter opportunities for hedgehog and this species has been widely recorded in the local area. It is therefore considered there is potential for hedgehogs to be active on site.

*Badger*

5.3.11. Although no evidence of badger activity was found on site or within 30m of the site boundary (where accessible), the habitats on site were noted as offering potential foraging and commuting opportunities for this species, which has been recorded in the local area. It is therefore considered that there is potential for commuting/foraging badger to be active on/adjacent site on occasion.

*Invertebrates*

5.3.12. The site was part of the Disused March Line LWS, which is designated in part for its notable invertebrate assemblage; although many of the individual invertebrate species records were historic i.e. older than twenty years. However, many notable invertebrate species recorded were associated with habitats present on site e.g. wetland.

5.3.13. Therefore, it was considered that the site was likely to support a varied invertebrate assemblage, potentially including notable species. It was noted however, that the site appeared generally unmanaged and as a consequence, the number of potential habitat interfaces was reduced, particularly within the borrow pit. This was considered to decrease the potential diversity of the invertebrate assemblage likely present.

*Other notable/protected species*

5.3.14. No evidence or habitat type identified on site would reasonably support the presence of any other relevant notable/protected species.

## 6. POTENTIAL IMPACT OF WORKS

*Note: The following section details potential impacts of development works in the absence of appropriate working method statements and/or mitigation.*

### 6.1. Habitat

6.1.1. Development activities will likely involve the use of machinery in and around the borrow pit and there is a risk of pollutants being introduced, which could degrade the reedbed. However, by clearing small areas of the reedbed, the final development is considered to likely improve the overall ecological functioning of the habitat post-development, creating a more diverse mix of established plants and new growth.

6.1.2. The design of the development is therefore not considered to constitute a significant negative impact on any habitats of conservation value. However, all of the habitats on site are considered to have more intrinsic value if they support protected species.

6.1.3. Although Japanese Knotweed has not been confirmed as present on site, given that conditions were suitable and this species has been recorded locally in the past it was considered that there was a risk of this species being present. If present on site, disturbance by development works and/or public access, and any subsequent uncontrolled transportation of Japanese knotweed, would potentially allow this invasive weed to spread beyond the site.

### 6.2. Protected species

*Bats*

6.2.1. Any arboricultural works on the mature trees with bat roost potential have the potential to disturb, kill or injure bats and/or blocking access to or destroy roosting sites, if bat roosts are present within these trees.

6.2.2. Development works will likely result in the loss of a small area of potential foraging habitat for bats in the north of the site i.e. the area cleared to facilitate the development. However, as the remaining habitats on site are to be retained *in situ*, this is not considered a significant loss and no fragmentation of connective habitat for bats is anticipated.

6.2.3. Post-development any increase in light levels over the site may discourage certain light sensitive bat species from using the site, if present.

*Birds*

6.2.4. Development works have the potential to disturb, kill or injure nesting birds, their chicks and/or their eggs, and/or to destroy the nest(s) should works be undertaken during the nesting bird season.

*Great crested newts*

6.2.5. The site has the potential to support great crested newts whilst breeding and/or within their terrestrial phase. Development works will impact upon both the borrow pit and the terrestrial habitats and could therefore impact upon great crested newts in both the aquatic and terrestrial phases of their lifecycle.

6.2.6. Undertaking works without establishing great crested newt presence or absence significantly increases the risk of disturbing, killing or injuring great crested newts and/or blocking access to breeding ponds and/or resting sites.

6.2.7. As the full ecological status with respect to great crested newts has not yet been adequately determined, it is not possible to fully assess the potential impact of the proposed development works until full baseline data has been obtained.

*Reptiles*

6.2.8. Development works, in particular any removal of piles of wood, garden cuttings or rubbish on site or ground clearance works where animals may be seeking shelter have the potential to kill and/or injure individual reptiles, if present on site.

*Water vole*

6.2.9. The site has the potential to support water vole, although no evidence of water vole activity was identified on site during the survey. However, the survey was undertaken at a time of year at a time of year when water vole are less active and field signs may not be apparent. If this species is active on site, then development activities have the potential to disturb, kill or injure water vole and/or block access to or destroy water vole burrows.

*Hedgehogs*

6.2.10. Development works, in particular any removal of piles of wood, garden cuttings or rubbish on site and excavation works e.g. trenching works where animals may become trapped with no means of escape, have the potential to kill or injure individual hedgehogs, if active on site.

*Badger*

6.2.11. Development works, in particular excavation works e.g. trenching works where animals may become trapped with no means of escape, have the potential to kill or injure individual badger, if active on site.

*Invertebrates*

6.2.12. Site clearance and construction works may modify and/or destroy important interface habitats and/or niche habitats of importance to the life cycles of invertebrate taxa.

## 7. RELEVANT LEGISLATION AND POLICY GUIDANCE SUMMARY

### 7.1. Legislation

*Bats, water vole and great crested newts*

7.1.1. All bat species, water vole and great crested newts and their roosts/resting places in Britain are protected under the Wildlife and Countryside Act (WCA) 1981 (as amended) through their inclusion on Schedule 5. The offences prohibit certain intentional or reckless acts which harm the species or their roosts/resting places.

7.1.2. Bats and great crested newts are also included on Annex IV of Council Directive 92/43/EEC of 21st May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive). As a result of the United Kingdom implementing this Directive, all British bats and great crested newts, are now protected under the Conservation of Habitats and Species Regulations 2010.

7.1.3. Therefore, legislation makes it an offence to kill, injure, capture or disturb bats, water vole or great crested newts or obstruct access to roosts/resting places in Britain.

*Nesting birds*

7.1.4. All wild birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) by Schedule 12 of the Countryside and Rights of Way Act 2000. Subsection 1(1) makes it an offence to kill, injure, or take any wild bird; take, damage or destroy the nest of any such bird whilst it is in use or being built, or take or destroy an egg(s) of any such wild bird. The legislation covers all species of wild birds including common and pest or opportunistic species.

*Reptiles*

7.1.5. All 'common' reptile species i.e. common lizard *Zootoca vivipara*, grass snake, slow worm *Anguis fragilis* and adder *Vipera berus* are partially protected under Schedule 5 (Sections 9 (1) and 9 (5)) of the Wildlife and Countryside Act 1981 (as amended). This legislation protects these animals from intentional killing and/or injury.

7.1.6. In practice this means that all reasonable steps must be taken to avoid killing and/or injuring common reptiles during any ground maintenance and/or development works.

*Badger, hedgehogs and invertebrates*

7.1.7. Badgers are protected under the Protection of Badgers Act 1992. This Act is based on the need to protect badgers from baiting and deliberate harm or injury. Hedgehogs and many invertebrate species are recognised as being of 'principle importance' for conservation of biodiversity under Section 41 of the NERC Act 2006. It is therefore considered best practice to employ suitable precautions to ensure that these species are protected from any potential adverse effects from the development.

**7.2. National Planning Policy Framework**

7.2.1. The National Planning Policy Framework (NPPF) sets out the Government's requirements for the planning system and was recently adopted on 27th March 2012. It replaces previous national planning policy, including PPS9 (Biodiversity and Geological Conservation) published in 2005.

7.2.2. The key element of the NPPF is that there should be a 'presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking' (paragraph 14). It is important to note that this presumption 'does not apply where development requiring Appropriate Assessment under the Birds or Habitats Directives is being considered, planned or determined' (paragraph119).

7.2.3. A number of policies in the NPPF are comparable to those in PPS9, including reference to minimisation of impacts to biodiversity and provision of net gains to biodiversity where possible (paragraph 109) and ensuring that Local Authorities place appropriate weight to statutory and non-statutory nature conservation designations, protected species and biodiversity.

7.2.4. The NPPF also considers the strategic approach which Local Authorities should adopt with regard to the protection, enhancement and management of green infrastructure, priority habitats and ecological networks, and the recovery of priority species.

7.2.5. Paragraph 118 of the NPPF comprises a number of principles, which Local Authorities should apply, including encouraging opportunities to incorporate biodiversity in and around developments, provision for refusal of planning applications if significant harm can't be avoided, mitigated or compensated for, applying the protection given to European sites to potential SPAs, possible SACs, listed or proposed Ramsar sites and sites identified (or required) as compensatory measures for adverse effects on European sites, and the provision for the refusal for developments resulting in the loss or deterioration of 'irreplaceable' habitats, unless the need for, and benefits of the development in that location clearly outweigh the loss.

7.2.6. National policy therefore implicitly recognises the importance of biodiversity and that with sensitive planning and design, development and conservation of the natural heritage can co-exist and benefits can, in certain circumstances be obtained.

## 8. RECOMMENDATIONS

### 8.1. Requirement for a European Protected Species licence – bats and great crested newts

8.1.1. Developments that are likely to have a significant impact upon a European protected species e.g. bats and great crested newts, require a European Protected Species Licence[1] (EPSL) from Natural England for the development to proceed. A licence allows an otherwise unlawful operation to proceed e.g. destruction/disturbance of a bat roost/great crested newt resting place.

8.1.2. Provided all of the below recommendations relating to preventing disturbance to bats and/or great crested newts and their roosts/resting places are followed, no EPSL is required at this stage for these species.

8.1.3. Until a full assessment of the great crested newt status on site has been undertaken and a determination of impacts of tree felling works, it is not possible to determine if an EPSL for great crested newts or bats would be required to facilitate development works.

[1] A Natural England licence application takes up to 6 weeks to be processed. The application requires sufficient information in order to assess the status of a bat roost and/or great crested newt population to inform appropriate mitigation for the species of bat and type of bat roost and/or great crested newt population that will be affected by the works. Significant delays to works can occur should bats and/or great crested newts be found on site and a license not be obtained, as well as the risk of prosecution.

### 8.2. Recommendations for further surveys

*Great crested newts*

8.2.1. With reference to Natural England's recognised guidance, Great crested newt mitigation guidelines (English Nature, 2001), it is recommended that the borrow pit on site be subject to a great crested newt presence/absence survey. As the borrow pit is isolated by features considered barriers to great crested newt dispersal it is not considered necessary to survey other water bodies off site.

8.2.2. Natural England have approved the use of environmental DNA (eDNA) analysis of water bodies to determine great crested newt presence/absence (Natural England, 2014). It is therefore recommended that the borrow pit be surveyed for the presence/absence of great crested newts following the methodology as outlined within the technical advice note for this survey technique (Biggs *et al.,* 2014).

8.2.3. Should great crested newt presence be confirmed in the borrow pit by the eDNA analysis then further aquatic surveys will be required to obtain a population estimate to assist in determining potential impacts of the development and in obtaining an EPSL if required. These six surveys can only be carried out in the great crested newt breeding season (mid-March – mid-June) with at least three of the surveys undertaken in the peak breeding period (mid-April – mid-May).

### 8.3. Working method statements

*Habitat*

8.3.1. Pollution control measures should be implemented throughout development works to ensure no contamination of the borrow pit and associated habitats.

8.3.2. The landscaping and planting schedule should be reviewed by a suitably experienced ecologist to ensure that any new planting on site does not introduce any species which may be detrimental to the Disused March Line LWS e.g. non-native ornamental species.

*Japanese knotweed*

8.3.3. Given that this survey was undertaken at a time of year when Japanese knotweed growth has died back, as a precaution it is recommended that a re-check for the presence of Japanese knotweed on site be undertaken by a suitably experienced ecologist during the spring or summer to confirm that this species is absent.

8.3.4. Should this species be identified on site, then the Japanese knotweed should be treated and/or removed off site by a specialist contractor prior to any site clearance works.

*Bats*

8.3.5. Should any arboricultural or tree felling works be required on the trees with significant bat roost potential i.e. those trees highlighted in red or blue on Figure 2 (Appendix II), it is recommended that a licenced bat ecologist be consulted as to the most appropriate way to proceed. This may involve a precautionary working method statement and/or further nocturnal bat surveys.

*Nesting birds*

8.3.6. Development works should be undertaken outside of the nesting bird season (bird nesting season March to September), where feasible. Should works be unavoidable during this period it is recommended that a nesting bird survey be undertaken by a suitably experienced ecologist to ensure no nests are present up to five days prior to works.

*Reptiles*

8.3.7. All initial clearance works should not be undertaken during especially hot days. Clearance of the working area in the north of the site should be cleared working away from the north boundary towards the borrow pit to encourage reptile dispersal (if present) out of the working area into suitable dispersal habitat. Any piles of wood, garden waste or rubbish that need to be removed to facilitate the development should be dismantled by hand and this work should be avoided, where feasible, between November and March to reduce the impact on any reptiles that may potentially hibernate on site.

8.3.8. Vigilance should be maintained for the presence of reptiles and should any animals be discovered, works should stop and Torc Ecology Ltd contacted immediately for advice.

*Water vole*

8.3.9. Given that this survey was undertaken at a time of year when water vole activity may not be apparent, as a precaution is recommended that the site be re-checked for evidence of water vole activity by a suitably experienced ecologist between March and May i.e. when activity is high and vegetation cover is still low.

8.3.10. In the unlikely event of this re-check identifying the presence of water vole on site then an assessment of the impacts of development works should be made by a suitably experienced ecologist prior to works starting on site.

*Badger & hedgehogs*

8.3.11. Prior to any site clearance works e.g. vegetation removal, a check of the working area should be made for the presence of any individual hedgehogs. Works to clear the site of any piles of wood or garden waste that need to be removed to facilitate the development should be avoided, where feasible, between November and March to reduce the impact on any hedgehogs that may hibernate on site. Should a hedgehog(s) be found on site during the clearance works, the animal(s) should be moved to a similar habitat outside the working area. Any injured hedgehogs should be taken to a local vet for treatment.

8.3.12. All excavations and trenches should be fitted with a plank of wood or similar so any badger or hedgehogs that inadvertently fall into the excavations/trenches have a means of escape. Ideally trenches should be filled in immediately following completion of works.

*Invertebrates*

8.3.13. It is recommended that a suitably experienced entomologist be commissioned to assess the likely status of the site with respect to invertebrates and to provide input into a site wide management

plan aimed at retaining features of possible value, restoring degraded features and enhancing/creating new opportunities for invertebrates, where appropriate.

### 8.4. Preliminary recommendations for enhancement

8.4.1. At the time of writing, the proposed site plan is still being devised and therefore no detailed scheme for enhancement of the site has been produced. However, the following are general preliminary recommendations which would enhance the site for wildlife.

8.4.2. It is anticipated that the proposed scheme will incorporate recommendations to enhance the site for invertebrates, following the consultation with a suitably experienced entomologist. Any increase in the abundance of invertebrates on site will be of benefit to bats, insectivorous bird species as well as hedgehogs and reptiles, if present.

8.4.3. To maintain the suitability of the site for foraging/commuting bats, it is recommended that any new lighting is low level and downward directional to minimise any additional light spill. In particular, the lighting scheme should minimise illumination of the east or south of the site where the mature tree screening likely provides relatively low light conditions on site. The provision of bat boxes on site will enhance roosting opportunities and, where possible and appropriate these could be incorporated into the new dwelling. Torc Ecology Ltd can provide advice on suitable design and positioning of enhancement measures.

8.4.4. Where feasible, plant species within any soft landscaping scheme should include species which will provide a foraging resource for birds e.g. berries and fruits. Bird nesting opportunities can be enhanced by providing bird boxes which can be installed on trees and/or the new dwelling, if feasible. Torc Ecology Ltd can provide further information on the types of bird boxes, if required.

8.4.5. No detailed enhancement of the site for great crested newts has been proposed at this stage as the full great crested newt status of the site has yet to be determined.

## 9. REFERENCES

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Natural England (2015), *Multi Agency Geographic Information for the Countryside* (online), Accessed http://magic.defra.gov.uk/website/magic/ (20/02/2015).

## APPENDIX I: Plates 1 - 11

Plate 1: Aerial view of the site (Google Earth image date 01/01/2007). The indicative site boundary is outlined in red and the southern extent of the offsite section of the Disused March Line LWS is outlined in blue




Plate 2: Aerial view of the site (circled) within the wider countryside (Google Earth image date 01/01/2007). The extent of the offsite section of the Disused March Line LWS is outlined in blue.



Plate 3: Scrub in the north of the site



Plate 4: Common reed choked borrow pit viewed from the north of the site



Plate 5: View facing north along the west boundary of the site showing the thin strip of improved grassland



Plate 6: Borrow pit and scrub viewed from the south of the site



Plate 7: View from northeast of the site across Magellan Way. Many of the ash and willow trees in this corner have features suitable for roosting bats.



Plate 8: View from west of the site across Hudson Road.



## APPENDIX II: Figure 1: Site location plan

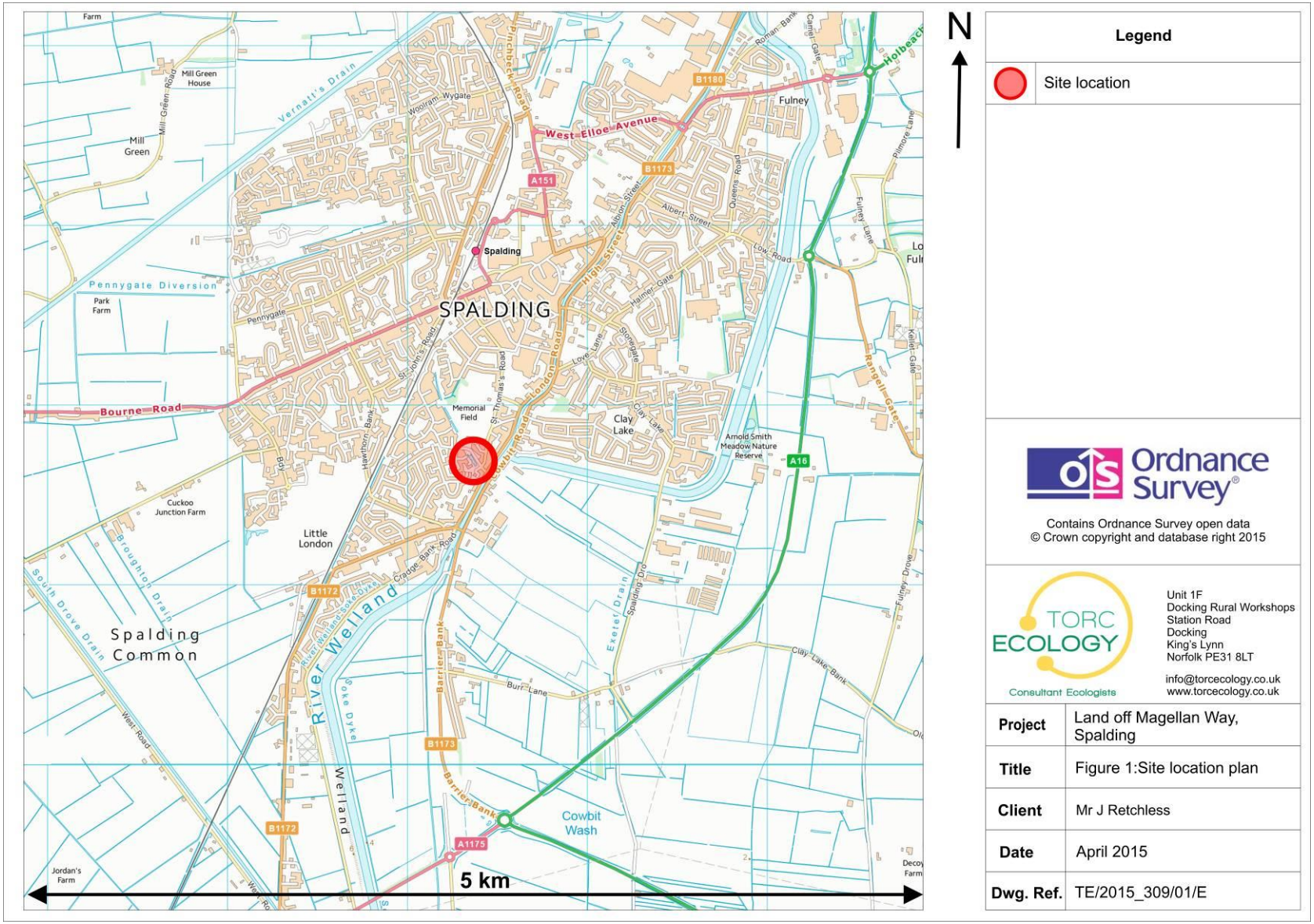


**Figure 2: Existing site plan**



## APPENDIX III: Table 1

**Table 1: Target note descriptions (refer to Figure 2, Appendix II)**

| Target note | Description |
|---|---|
| 1 | Group of trees considered too thin stemmed for the ivy cover to conceal features suitable for roosting bats |
| 2 | Frequently present saplings/immature trees along the margin of the borrow pit |
| 3 | Passerine bird box |
| 4 | Group of elder saplings |
| 5 | Buddleia against boundary wall/fence |
| 6 | Log pile/garden waste/flytipping |