

# West Burton C (Gas Fired Generating Station)

Appendix 9E: Great Crested Newt Survey Report

EDF Energy (Thermal Generation) Limited

Project Number: 60572265

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## 1. Introduction

### 1.1 Background

- 1.1.1 AECOM was commissioned to complete a survey for great crested newt (*Triturus cristatus*) to inform the Ecological Impact Assessment (EclA) for the Proposed Development.
- 1.1.2 The need for great crested newt survey was identified following the completion of a desk study and field survey as part of the initial Preliminary Ecological Appraisal (PEA) of the Site in February 2017 (updated December 2017, May 2018 and January 2019 and presented in **Appendix 9C**, ES Volume II). Great crested newts have been found within the vicinity of the Site in the past, and mitigation was required during the construction of West Burton B (WBB) Power Station to minimise the risk of impact on the species. Numerous ponds and suitable terrestrial habitat for great crested newts are present within the zone of influence of the Proposed Development.
- 1.1.3 The purpose of the survey was to gather baseline information on the status and distribution of great crested newt within the zone of influence of the Proposed Development to inform an assessment of the potential impacts and effects of the Proposed Development.
- 1.1.4 This report describes the approach and findings of the great crested newt survey, and provides an assessment of relative nature conservation value to inform the EclA. The terms of reference used in this report to describe the different elements of the Proposed Development are consistent with those defined within the main chapters of the ES (Volume I). However, for the purposes of this report, 'the Site' refers to all parts of the Proposed Development, excluding areas proposed for landscaping and biodiversity management and enhancement, as described within **Chapter 3: Description of the Site** (ES Volume I) and illustrated on **Figure 3.3** (ES Volume III). The landscaping and biodiversity management and enhancement would not be impacted in the same way as other parts of the Proposed Development and they fall outside the scope of this report.

### 1.2 Scope of Works

- 1.2.1 The survey area for the great crested newt survey incorporated all land within a 500m radius of the Site, in accordance with best practice guidance (Ref 9E-1). The survey area is shown on **Figure 9E.1**. The following scope of works was completed:
- identification of all ponds within the survey area through a combination of desk study and field survey;

- completion of Habitat Suitability Index (HSI) assessments of all ponds within the survey area to determine their potential suitability for great crested newts; and
- presence/absence surveys of all safely accessible ponds with the potential to support great crested newts.

### 1.3 Relevant Legislation

1.3.1 The great crested newt is listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (Ref 9E-2) and Schedule 2 of The Conservation of Habitats and Species and Planning (Various Amendments) (England and Wales) Regulations 2018 (Ref 9E-3). This legislation, when taken together, results in a level of protection that prohibits the intentional, deliberate or reckless:

- killing, injuring, taking or disturbance of great crested newts;
- damaging, destroying or obstructing any place used by great crested newts for the purposes of breeding, sheltering or protection; and
- selling and/or advertising for sale a great crested newt or any part thereof.

1.3.2 The great crested newt is listed as a species of principal importance for nature conservation in England in Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref 9E-4). Section 40 of the same Act requires that local and regional authorities have regard to the conservation of biodiversity in England, when carrying out their normal functions.

## 2. Methodology

### 2.1 Desk Study

2.1.1 A review of aerial imagery (Google Earth), Ordnance Survey (OS) maps (1:25000 scale) and the Multi-Agency Geographic Information for the Countryside (MAGIC) website (Ref 9E-5) was undertaken to identify all ponds within the survey area.

2.1.2 The following sources of information were used to gain background information on the status and distribution of great crested newt in the vicinity of the Site:

- Nottinghamshire Biological and Geological Record Centre (Ref 9E-6) - protected species records within 2km of the Site;
- MAGIC website (Ref 9E-5) - information on granted European Protected Species Mitigation (EPSM) licences for great crested newt issued by Natural England within the survey area; and
- Results of previous great crested newt surveys completed at West Burton Power Station (Ref 9E-7, Ref 9E-8 and Ref 9E-9).

### 2.2 Field Survey

#### Habitat Suitability Index

2.2.1 All ponds identified within the survey area were appraised for their suitability to support great crested newt using the HSI method (Ref 9E-10). The HSI is a numerical index, between 0 and 1, with 0 indicating unsuitable habitat and 1 representing optimal habitat. The HSI incorporates the following ten suitability indices, all of which are considered to influence the presence of great crested newt:

- location – within a UK-wide context reflecting the differences in national distribution of this species;
- area – water bodies between 100m<sup>2</sup> and 300m<sup>2</sup> in size are considered to represent the most suitable habitat for great crested newt;
- drying – the number of years in which a pond dries over a ten year period. Occasional drying kills fish which is beneficial for great crested newt, but the species predominantly favours ponds that do not dry out every year;
- water quality – qualitative evidence-based assessment to infer good (diverse aquatic invertebrate assemblage), moderate (moderate invertebrate diversity), poor (low invertebrate diversity, few submerged plants) or bad (clearly polluted) water quality;

- shade – percentage of pond perimeter shaded to at least 1m from the shore. Great crested newt favours lightly shaded water bodies;
- waterfowl – qualitative evidence-based assessment of presence or absence and numbers is made. Large numbers of waterfowl can result in nutrient enrichment of the water and habitat damage, which is less favourable for great crested newt;
- fish – qualitative evidence-based assessment of likely presence or absence is made. Great crested newt favour breeding ponds that do not support fish because their open-water swimming larvae are vulnerable to fish predation;
- number of waterbodies within 1km – great crested newt populations are typically best developed where they have access to a network of ponds, and therefore the species is more likely to be found where there are several ponds within 1km that are linked by suitable terrestrial habitat; and
- macrophyte cover – percentage of pond surface area occupied by macrophyte cover. Female great crested newts require aquatic vegetation for egg-laying.

### Presence/Absence Survey

- 2.2.2 The great crested newt presence/absence survey was completed based on standard methodology (Ref 9E-1). All survey work was undertaken by suitably experienced ecologists registered to use the Natural England class survey licence for great crested newt.
- 2.2.3 Four survey visits were undertaken at all suitable and safely accessible ponds within the survey area between April and June 2017. Three of these survey visits were completed during the peak period of great crested newt activity in ponds between mid-April and mid-May. The following survey methods were used on each survey:
- bottle trapping – traps were set around the accessible margins of ponds in the evening and retrieved the following morning;
  - torch survey – searching for newts around the margins of ponds after dark with a high-powered torch (1 million candlepower); and
  - egg searching – submerged vegetation within ponds was inspected for the presence of great crested newt eggs.
- 2.2.4 All survey visits were completed during suitable weather conditions (minimum overnight air temperature above 5°C, no rain). The survey dates and weather conditions are summarised in **Table 1** below.

**Table 1: Great crested newt presence/absence survey dates and weather conditions**

Visit number	Date	Minimum overnight air temperature	Weather conditions
1	20/04/17	10	Dry, partially cloudy, very light breeze
2	03/05/17	7	Overcast and dry in the evening, clear skies in the morning
3	11/05/17	9	Sunny and warm during the day, 80% cloud cover and breezy in the evening with a clear night
4	06/06/17	11	Overcast and dry, heavy rain on several preceding days

## 2.3 Limitations

- 2.3.1 It was not possible to safely access open water within several ponds in the survey area to complete presence/absence surveys due to the presence of dense scrub and/or reedbed around the margins, steep sided banks, or thick layers of scum on the water surface. Details of inaccessible ponds are included in **Table 2**.
- 2.3.2 Within all ponds that were accessible for survey, the degree of safe access around the pond was restricted by vegetation around the margins, such as dense scrub. Restrictions applicable to each pond surveyed are outlined in **Table 3**. These limitations have been taken into account in **Section 4** when interpreting the results of the survey.

## 3. Results

### 3.1 Desk Study

- 3.1.1 Ponds within 500m of WBB Power Station were surveyed for great crested newt in 2006 to inform the EclA for the scheme (Ref 9E-7). Small populations of great crested newt were found within a pond at the Discovery Centre (Pond 2 in this report), reedbeds within West Burton Reedbed Local Wildlife Site (LWS) (Ponds 3 and 4 within this report), and a large pond in Bole Ings (Pond 8 in this report).
- 3.1.2 An EPSM licence for great crested newt was subsequently obtained in 2009 for the construction of WBB Power Station (EPSM2009-506). Under this licence, great crested newts were translocated from terrestrial habitat within the footprint of WBB Power Station to receptor sites in the Discovery Centre pond (Pond 2) and reedbeds within West Burton Reedbed LWS (Ponds 3 and 4). A five year after-care management programme was required in the receptor sites under the licence, after which their management would be integrated into the West Burton Power Station's site wide management programme. In addition to the receptor sites, other habitats within the vicinity of WBB Power Station were created, for the benefit of great crested newt, following construction. These included the landscaping of the former construction laydown area to the north of WBB Power Station, as well as Pulverised Fuel Ash (PFA) mounds to the north within Bole Ings, with semi-improved neutral grassland and areas of planted scrub and trees.
- 3.1.3 Population monitoring surveys were undertaken within the receptor sites between 2008 and 2014 as a condition of the above licence (Ref 9E-8). Small to medium size populations were found in both receptor areas during the monitoring period.
- 3.1.4 Ponds within Bole Ings (to the north of the Site) were surveyed for great crested newt in 2014 in support of planning requirements for Bole Ings Ash Disposal Site (Ref 9E-9). Small and medium size great crested newt populations were found within ash lagoons to the north-west of the Site (Ponds 13, 14 and 16 in this report), the large pond within Bole Ings (Pond 8 in this report) and other ponds and ditches further north within Bole Ings (outside the survey area for the current survey).
- 3.1.5 Records obtained from Nottinghamshire Biological and Geological Records Centre relate primarily to translocations of newts under the EPSM licence for WBB Power Station. There are also records of earlier translocations of great crested newts in 1988 related to previous West Burton Power Station developments.



## 3.2 Field Survey

### Habitat Suitability Index

- 3.2.1 Eighteen ponds were identified within the survey area using a combination of desk study and field survey. The HSI scores and indicative suitability of these ponds for great crested newt are provided in:
- 3.2.2 **Table 2** Full details of HSI calculations, as well as descriptions and photographs of each pond, are included in **Annex A**. Pond locations are illustrated on **Figure 9E.1**.
- 3.2.3 **Table 2** also includes information on the accessibility of ponds, and provides the rationale behind scoping ponds in or out of presence/absence survey based on accessibility or poor suitability for great crested newt.

**Table 2: Summary of ponds within the survey area and their suitability for great crested newt**

Pond number	Pond description	Distance from the Site (approx.)	HSI score (suitability)	Accessible for survey?	Scoped in to great crested newt survey?	Rationale for scoping out of great crested newt survey
1	Effluent lagoon	260m	0.49 (Poor)	Yes	No	Very unlikely to support great crested newt due to operational use and poor water quality.
2	Small man-made pond, lined	110m	N/A	Yes	No	Survey not possible as pond has dried out.  This pond was previously used as a receptor site for GCN translocated from WBB Power Station.
3	Areas of standing water within wet woodland	60m	0.67 (Average)	Yes	Yes	-
4	Reedbeds with areas of standing water	40m	0.80 (Excellent)	Yes	Yes	-
5	Fishing pond, flooded former gravel pit	<5m	0.52 (Below average)	Yes	No	Very unlikely to support great crested newt due to fish presence and absence of macrophytes.
6	Longitudinal fishing pond, flooded former gravel pit	15m	0.46 (Poor)	Yes	No	Very unlikely to support great crested newt due to large size, fish presence and lack of macrophytes.

Pond number	Pond description	Distance from the Site (approx.)	HSI score (suitability)	Accessible for survey?	Scoped in to great crested newt survey?	Rationale for scoping out of great crested newt survey
7	Longitudinal fishing pond, flooded former gravel pit	20m	0.43 (Poor)	Yes	No	Very unlikely to support great crested newt due to large size, fish presence and lack of macrophytes.
8	Large lagoon	240m	0.85 (Excellent)	Yes	Yes	-
9	Ash lagoon	40m	0.85 (Excellent)	No	No	Survey not possible due to dense fringing scrub and reedbed.
10	Ash lagoon	25m	0.85 (Excellent)	No	No	Survey not possible due to dense fringing scrub and reedbed.
11	Ash lagoon	60m	0.85 (Excellent)	No	No	Survey not possible due to dense fringing scrub and reedbed.
12	Ash lagoon	50m	0.84 (Excellent)	No	No	Survey not possible due to dense fringing scrub and reedbed.
13	Ash lagoon	50m	0.84 (Excellent)	No	No	Survey not possible due to dense fringing scrub, reedbed and thick layer of residue on surface of water in open areas.
14	Ash lagoon	50m	0.88 (Excellent)	Yes	Yes	-
15	Ash lagoon	90m	0.56 (Below average)	No	No	Survey not possible due to dense fringing scrub and reedbed.

Pond number	Pond description	Distance from the Site (approx.)	HSI score (suitability)	Accessible for survey?	Scoped in to great crested newt survey?	Rationale for scoping out of great crested newt survey
16	Ash lagoon	90m	0.83 (Excellent)	Yes	Yes	-
17	Medium sized pond	130m	0.76 (Good)	Yes	Yes	-
18	Large lagoon	140m	0.56 (Below average)	No	No	Survey not possible due to lack of safe access to central area of open water in reedbed.

## Presence /Absence Survey

- 3.2.4 Pond numbers 3, 4, 8, 14, 16 and 17 were scoped in for great crested newt presence/absence survey. The results of the survey are summarised in **Table 3** and illustrated on **Figure 9E.1**. Raw survey data is provided in **Annex B**.
- 3.2.5 Great crested newt adults were recorded in all ponds surveyed. Breeding activity (great crested newt eggs) was confirmed in only half (3) of these, but given the suitability of the aquatic habitat, it is reasonable to assume that breeding activity occurs in all ponds where the species is present. The maximum adult count of newts per night ranged from 1 (Pond 4) to 61 (Pond 8), indicating the presence of small to medium size populations in individual ponds, based on best practice guidance (Ref 9E-1). The attribution of population size class estimates based on survey effort typically employed to establish presence or likely absence of great crested newt is discussed further in **Section 4**.
- 3.2.6 There is likely to be regular movements of newts within the group of ash lagoons (Ponds 9-18), and between the ash lagoons and the large pond within Bole Ings (Pond 8; located approximately 160m away from the nearest ash lagoon). The maximum count of adult newts in one night summed across all these ponds was 82, indicating a population near the upper end of the medium size class. Regular movements of newts are also likely between Pond 3 and Pond 4; the maximum count of adult newts in one night summed across these ponds was 3, indicating a population in the small size class.
- 3.2.7 Other amphibian species recorded during the survey include smooth newt (*Lissotriton vulgaris*), palmate newt (*Lissotriton helveticus*) and common frog (*Rana temporaria*).

**Table 3: Summary of great crested newt presence/absence survey results**

Pond number	Maximum count of adult great crested newt	Breeding confirmed (GCN eggs present)?	Population size class estimate	Other amphibian species recorded	Comments /Limitations
3	2	Yes	Small	Smooth newt	Level of water in pond dropped rapidly during the survey period. Only a very small area of open water was left by the final survey in early June.
4	1	No	Small	Smooth newt	The majority of this area comprises dense reedbed and only small areas of standing water were accessible for survey. One area of standing water was covered in invasive water fern and was therefore not surveyed due to the risk of spreading the plant to other sites. Sticklebacks were present.
8	61	Yes	Medium	Smooth newt Common frog	Access was available to approximately 80% of the pond margins; dense scrub and/or reedbed limited access to the remaining area.
14	11	No	Medium	Smooth newt Palmate newt	Access around the pond was severely restricted due to the presence of dense scrub; approximately 10% of the pond margin was accessible for survey.
16	10	No	Small	Smooth newt Palmate newt	Approximately 60% of the pond margins were accessible, with dense scrub restricting access to the remaining area.

Pond number	Maximum count of adult great crested newt	Breeding confirmed (GCN eggs present)?	Population size class estimate	Other amphibian species recorded	Comments /Limitations
17	2	Yes	Small	Smooth newt	Access restricted due to the presence of dense scrub and thick marginal plant growth; approximately 30% access was available for survey.  Sticklebacks were present.

## 4. Discussion

### 4.1 Population Size Class

- 4.1.1 The survey confirmed the presence of great crested newt in several ponds within the zone of influence of the Proposed Development. The survey results are generally consistent with the results of previous surveys undertaken within the wider West Burton Power Station site over the last ten years.
- 4.1.2 Maximum counts indicate the presence of a small size population of newts in association with reedbeds to the south-east of the Site (Ponds 3 and 4). In addition, whilst Pond 2 is currently dry and therefore cannot support breeding great crested newts, it is likely that newts persist within terrestrial habitats surrounding this pond due to the previous records of newts when it held water.
- 4.1.3 The results also indicate the presence of a medium size population of great crested newt within the series of inter-connected ash lagoon ponds to the north of the Site (Ponds 8-18). Given the limitations of the survey, principally relating to restricted access to pond margins, and the maximum count of newts within these ponds nearing the upper end of the medium size class, it is considered likely that the results underestimate the number of newts present and that this series of ponds supports a large population of great crested newts.
- 4.1.4 The level of survey effort employed during this survey (four visits to each pond) is the minimum required to establish the presence or likely absence of great crested newts in ponds in accordance with best practice guidance (Ref 9E-1). A total of six survey visits is recommended in order to make an estimate of population size class. However, in this case four survey visits were deemed sufficient to inform an estimation of population size class, for the following reasons: three of the four survey visits were completed within the peak breeding period for newts (mid-April to mid-May) which is the same level of effort required within the peak breeding season during population size class surveys; maximum counts of newts were found early in the peak breeding period and higher numbers of newts were very unlikely to be found in surveys completed after this period; and the results were broadly consistent with the findings of previous population size class surveys, which employed six survey visits to the majority of the same ponds (Ref 9E-7; Ref 9E-8; and Ref 9E-9).
- 4.1.5 The nearest ponds supporting great crested newt are located 40m (Pond 4 to the south-east) and 50m (Pond 14 within the ash lagoons to the north-west) from the Site boundary. Habitats within the Proposed Power Plant Site include rank semi-improved neutral grassland, planted trees and scrub and artificial hibernaculae that were created for the benefit of great crested newt



following construction of WBB Power Station. These and other habitats within the Site, such as mosaics of scrub and grassland within the construction laydown area, provide suitable terrestrial habitat for newt foraging and dispersal in the landscape, as well as refuges and hibernation sites. The populations of great crested newts within all of the ponds within the vicinity of the Site are likely to be part of a meta-population, and terrestrial habitats within and adjacent to the Site are likely to facilitate movements of newts between these ponds and other ponds within the wider area.

## 4.2 Nature Conservation Value

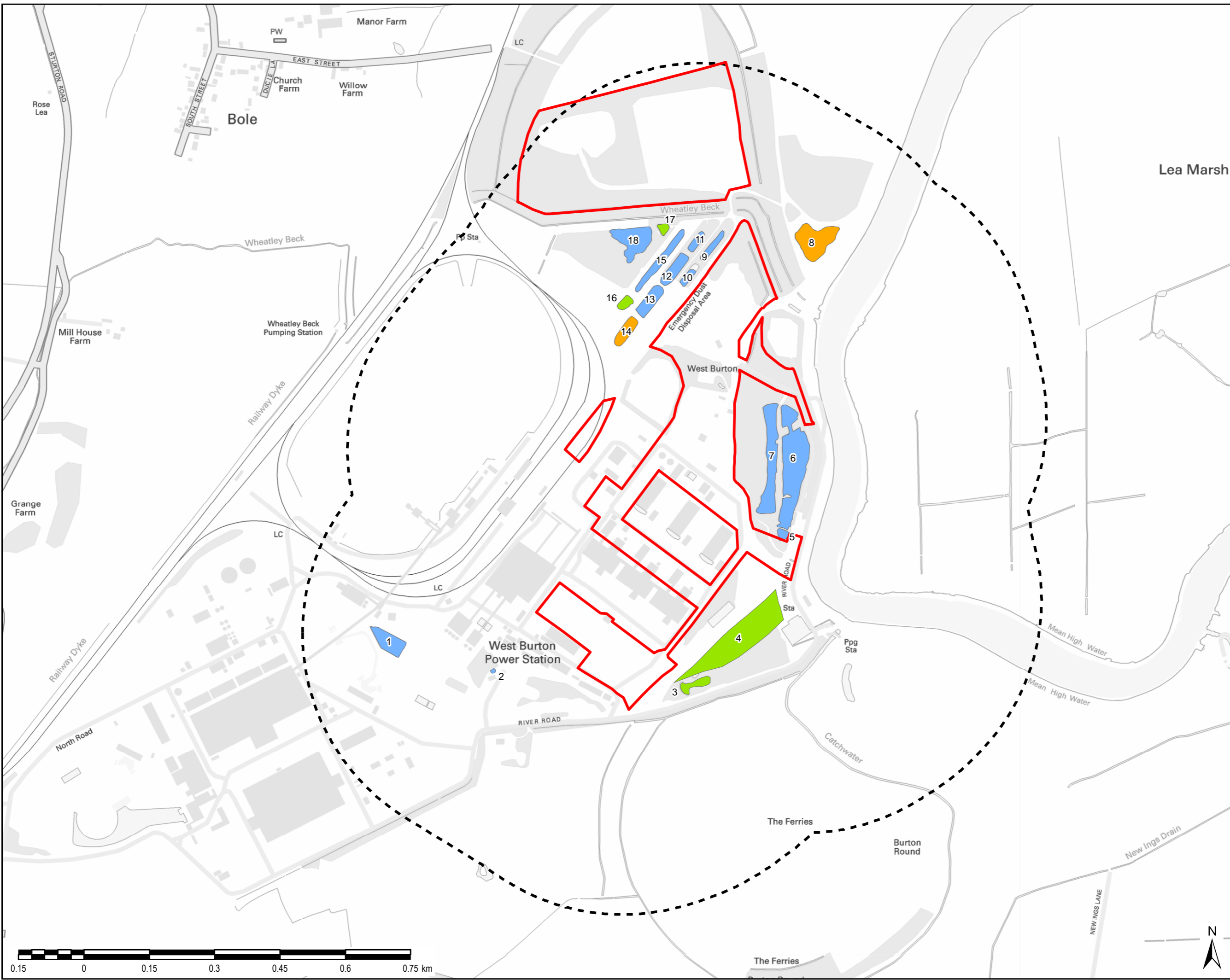
- 4.2.1 The population of great crested newts associated with the Site is considered to be of County nature conservation value as it meets criteria for LWS selection in Nottinghamshire (Criterion 2: any site where great crested newt or palmate newt is present and breeding) (Ref 9E-12).
- 4.2.2 This species is also listed on the Nottinghamshire Biodiversity Action Plan (BAP) as a species of conservation concern in the county. Current and previous great crested newt survey results suggest that the population at the Site is relatively stable, and has not been adversely affected by previous West Burton Power Station developments. This is likely due to the large amounts of well-connected terrestrial habitat available for newts around the Site, and the abundance of suitable breeding habitat, neither of which have been significantly affected by previous developments.

## 5. References

- Ref 9E-1 English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.
- Ref 9E-2 HM Government (1981) Wildlife and Countryside Act 1981.
- Ref 9E-3 HM Government (2018) Conservation of Habitats and Species and Planning (Various Amendments) (England and Wales) Regulations 2018.
- Ref 9E-4 HM Government (2006) Natural Environment and Rural Communities (NERC) Act 2006.
- Ref 9E-5 Department for Environment, Food and Rural Affairs (2017) Multi-Agency Geographic Information for the Countryside (MAGIC) [Online] Available from: <http://magic.defra.gov.uk/MagicMap.aspx> [Accessed 15/11/17].
- Ref 9E-6 Nottingham City Council (2017) Nottinghamshire Biological and Geological Record Centre [Online] Available from: <http://www.nottinghamcity.gov.uk/events-markets-parks-and-museums/parks-and-open-spaces/nottinghamshire-biological-and-geological-record-centre-nbgrc/> [Accessed 15/11/17].
- Ref 9E-7 Parsons Brinckerhoff (2006) *Great Crested Newt Survey – West Burton CCGT Power Station*. Parsons Brinckerhoff, London.
- Ref 9E-8 Parsons Brinckerhoff (2014) *West Burton CCGT Power Station: Survey to Inform Protection of Great Crested Newts, Reptiles and Badgers During Operation*. Parsons Brinckerhoff, London.
- Ref 9E-9 Jacobs (2014) *Bole Ings Ash Disposal Site Great Crested Newt Survey Report*. Jacobs U.K. Limited, Wokingham.
- Ref 9E-10 Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000) *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10 (4), 143-155.
- Ref 9E-11 Natural England (2015) Great Crested Newt Method Statement for EPS Licence Application. <https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence> [accessed November 2017].
- Ref 9E-12 Crouch, N.C. (2014) *Nottinghamshire LWS Handbook – Guidelines for the selection of Local Wildlife Sites in Nottinghamshire. Part 2A – Local Wildlife Sites selection criteria: species*. Nottinghamshire Biological and Geological Records Centre, Nottingham.

## Figures

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**Legend**

- The Order Limits
- GCN Survey Area – within 500m of proposed construction areas
- Medium GCN Population
- Small GCN Population
- Scoped out of GCN Survey

First Issue	GB	SE	05.01.18	0
Revision Details	By	Check	Date	Suffix

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Purpose of Issue  
**ENVIRONMENTAL STATEMENT**

Client  
**EDF ENERGY  
 (THERMAL GENERATION) LIMITED**

Project Title  
**WEST BURTON C (GAS FIRED  
 GENERATING STATION)**

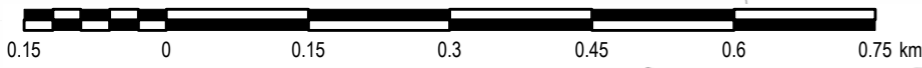
Drawing Title  
**FIGURE 9E.1  
 GCN SURVEY  
 RESULTS**

Drawn GB	Checked SE	Approved SE	Date 05.01.18
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## Annex A: Pond Descriptions and HSI Assessments

## Pond 1

Location: SK 795 857

Distance from Site: approx. 260m west

Operational effluent lagoon within West Burton A Power Station. No submerged, floating or marginal aquatic vegetation is present within the lagoon and no aquatic invertebrate life was noted.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	2500	0
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Bad	0.01
SI5	Shade	0%	1
SI6	Fowl	Absent	1
SI7	Fish	Absent	1
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Poor	0.33
SI10	Macrophyte cover	0%	0.3
<b>HSI SCORE</b>			<b>0.49 = poor Suitability</b>

## Pond 2

Location: SK 797 856

Distance from Site: approx. 110m south-west

Medium size artificial lined pond associated with the Discovery Centre (former educational building). The pond was dry at the time of survey and throughout the survey period, possibly due to a failure in the lining, and was being colonised by semi-improved neutral grassland and tall ruderal vegetation. Great crested newts have previously been recorded in this pond when it held water and it was used as a receptor site for newts translocated during the construction of WBB Power Station.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Dry	N/A
SI2	Pond Area	Dry	N/A
SI3	Pond Drying	Dry	N/A
SI4	Water Quality	Dry	N/A
SI5	Shade	Dry	N/A
SI6	Fowl	Dry	N/A
SI7	Fish	Dry	N/A
SI8	Ponds per km <sup>2</sup>	Dry	N/A
SI9	Terrestrial Habitat	Dry	N/A
SI10	Macrophyte cover	Dry	N/A
<b>HSI SCORE</b>			<b>0 = N/A Suitability</b>

### Pond 3

Location: SK 802 855

Distance from Site: approx. 60m south-east

A large area of standing water within wet woodland in West Burton Reedbed LWS. The water is heavily shaded by surrounding trees and scrub. Common reed is frequent and there are locally frequent patches of water forget-me-not. This area of water was almost completely dry by early June.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	1000	0.95
SI3	Pond Drying	Annual	0.1
SI4	Water Quality	Moderate	0.67
SI5	Shade	80%	0.6
SI6	Fowl	Minor	0.67
SI7	Fish	Absent	1
SI8	Ponds per km <sup>2</sup>	1.90	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	50%	0.8
<b>HSI SCORE</b>			<b>0.67 = average Suitability</b>



## Pond 4

Location: SK 803 857

Distance from Site: approx. 40m east

A very large area of reedbed with isolated areas of standing water within West Burton Reedbed LWS. Mostly open and unshaded with some stands of young willow encroaching into the margins.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	11000	0
SI3	Pond Drying	Rarely	1
SI4	Water Quality	Moderate	0.67
SI5	Shade	10%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Minor	0.33
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	100%	0.80
<b>HSI SCORE</b>			<b>0.80 = excellent Suitability</b>

## Pond 5

Location: SK 804 859

Distance from Site: approx. <5m north

A flooded former gravel pit in West Burton Power Station LWS, with steep sides and deep, clear water. Aquatic vegetation is generally lacking, other than patches of duckweed on the surface and a narrow fringe of common reed. Stocked with coarse fish for recreational angling.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	500	1
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	50%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Major	0.01
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	5%	0.35
<b>HSI SCORE</b>			<b>0.52 = below average Suitability</b>

## Pond 6

Location: SK 804 861

Distance from Site: approx. 15m north

A longitudinal flooded former gravel pit in West Burton Power Station LWS, with steep sides and deep, clear water. Aquatic vegetation is generally lacking apart from patches of duckweed on the surface and a narrow fringe of common reed. Stocked with coarse fish for recreational angling.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	11000	n/a
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	90%	0.4
SI6	Fowl	Minor	0.67
SI7	Fish	Major	0.01
SI8	Ponds per km <sup>2</sup>	1.90	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	0%	0.3
<b>HSI SCORE</b>			<b>0.46 = poor Suitability</b>

## Pond 7

Location: SK 804 861

Distance from Site: approx. 20m north-east

A longitudinal flooded former gravel pit in West Burton Power Station LWS, with steep sides and deep, clear water. Aquatic vegetation is generally lacking apart from patches of duckweed on the surface and a narrow fringe of common reed. Stocked with coarse fish for recreational angling.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	6000	n/a
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	100%	0.2
SI6	Fowl	Minor	0.67
SI7	Fish	Major	0.01
SI8	Ponds per km <sup>2</sup>	1.90	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	0%	0.3
<b>HSI SCORE</b>			<b>0.43 = poor Suitability</b>

## Pond 8

Location: SK 805 866

Distance from Site: approx. 240m north

Large lagoon within Bole lngs with frequent stands of common reed and rushes around the margins.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	4000	n/a
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	20%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Absent	1
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	20%	0.5
<b>HSI SCORE</b>			<b>0.85 = excellent Suitability</b>

## Pond 9

Location: SK 803 866

Distance from Site: approx. 40m north-west

Ash lagoon comprising a dense reedbed surrounded by thick marginal scrub. No access available for photographs.

Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	1000	0.95
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	40%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Possible	0.67
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	100%	0.8
<b>HSI SCORE</b>			<b>0.85 = excellent Suitability</b>

## Pond 10

Location: SK 803 866

Distance from Site: approx. 25m north-west

Ash lagoon comprising a dense reedbed surrounded by thick marginal scrub. No access available for photographs.

Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	800	0.98
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	40%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Possible	0.67
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	100%	0.8
<b>HSI SCORE</b>			<b>0.85 = excellent Suitability</b>

## Pond 11

Location: SK 802 866

Distance from Site: approx. 60m north-west

Ash lagoon comprising a dense reedbed surrounded by thick marginal scrub. No access available for photographs.

Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	800	0.98
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	40%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Possible	0.67
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	100%	0.8
<b>HSI SCORE</b>			<b>0.85 = excellent Suitability</b>



## Pond 12

Location: SK 802 866

Distance from Site: approx. 50m north-west

Ash lagoon comprising a dense reedbed surrounded by thick marginal scrub. No access available for photographs.

Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	1800	0.84
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	40%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Possible	0.67
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	100%	0.8
<b>HSI SCORE</b>			<b>0.84 = excellent Suitability</b>

### Pond 13

Location: SK 802 866

Distance from Site: approx. 50m north-west

Ash lagoon comprising a dense reedbed surrounded by thick marginal scrub.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	1800	0.84
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	10%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Possible	0.67
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	100%	0.8
<b>HSI SCORE</b>			<b>0.84 = excellent Suitability</b>

## Pond 14

Location: SK 800 864

Distance from Site: approx. 50m north-west

Ash lagoon with clear, shallow water, surrounded by marginal scrub. Aquatic vegetation is limited to small stands of bulrush at the northern end of the lagoon.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	1300	0.9
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	30%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Absent	1
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	5%	0.8
<b>HSI SCORE</b>			<b>0.88 = excellent Suitability</b>

## Pond 15

Location: SK 802 866

Distance from Site: approx. 90m north-west

Longitudinal ash lagoon comprising a dense reedbed surrounded by thick marginal scrub.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	2600	n/a
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	30%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Major	0.01
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	100%	0.8
<b>HSI SCORE</b>			<b>0.56 = below average Suitability</b>

## Pond 16

Location: SK 800 864

Distance from Site: approx. 90m north-west

Ash lagoon fringed by dense scrub.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	700	1
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	20%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Absent	1
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	10%	0.4
<b>HSI SCORE</b>			<b>0.83 = excellent Suitability</b>

## Pond 17

Location: SK 801 866

Distance from Site: approx. 130m north-west

Ash lagoon with a fringe of emergent vegetation dominated by bulrush. Patches of water forget-me-not and gypsywort are locally frequent around the margins and duckweed is abundant.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	400	0.8
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	20%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Minor	0.33
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	30%	0.6
<b>HSI SCORE</b>			<b>0.76 = good Suitability</b>

## Pond 18

Location: SK 801 866

Distance from Site: approx. 140m north-west

Large ash lagoon with a central area of open water surrounded by a thick fringe of common reed.



Suitability Index	Habitat Attribute	Field Score	SI Score
SI1	Location	Zone A	1
SI2	Pond Area	4000	n/a
SI3	Pond Drying	Never	0.9
SI4	Water Quality	Moderate	0.67
SI5	Shade	0%	1
SI6	Fowl	Minor	0.67
SI7	Fish	Major	0.01
SI8	Ponds per km <sup>2</sup>	1.9	0.95
SI9	Terrestrial Habitat	Good	1
SI10	Macrophyte cover	50%	0.8
<b>HSI SCORE</b>			<b>0.83 = excellent Suitability</b>

## Annex B: Raw Survey Data

Table B1: Great crested newt presence /absence survey results for Pond 3

Date	Survey Method	Great Crested Newt					Smooth Newt		Palmate Newt		Smooth/Palmate Newt	Fish	Additional comments
		♂	♀	♂/♀	Larvae	Eggs	♂	♀	♂	♀			
20/04/17	Torching	-	2	-	-	✓	-	-	-	-	-	-	
	Bottle trapping	-	-	-			-	-	-	-			
03/05/17	Torching	-	-	-	-	-	-	-	-	-	-	-	
	Bottle trapping	-	-	-			-	-	-	-			
11/05/17	Torching	-	-	-	-	-	1	1	-	-	-	-	
	Bottle trapping	-	-	-			2	-	-	-			
06/06/17	Torching	-	-	-	-	-	-	-	-	-	-	-	
	Bottle trapping	-	-	-			-	-	-	-			



**Table B2: Great crested newt presence/absence survey results for Pond 4**

Date	Survey Method	Great Crested Newt					Smooth Newt		Palmate Newt		Smooth/Palmate Newt	Fish	Additional comments
		♂	♀	♂/♀	Larvae	Eggs	♂	♀	♂	♀			
20/04/17	Torching	-	-	-	-	-	-	1	-	-	-	-	Frog and tadpoles
	Bottle trapping	1	-	-			-	-	-	-			
03/05/17	Torching	-	-	-	-	-	-	-	-	-	1	-	
	Bottle trapping	-	-	-			-	-	-	-			
11/05/17	Torching	-	-	-	-	-	-	-	-	-	-	✓	Stickleback present
	Bottle trapping	-	-	-			-	-	-	-			
06/06/17	Torching	-	-	-	-	-	-	-	-	-	-	✓	
	Bottle trapping	-	-	-			-	-	-	-			

**Table B3: Great crested newt presence/absence survey results for Pond 8**

Date	Survey Method	Great Crested Newt					Smooth Newt		Palmate Newt		Smooth/ Palmate Newt	Fish	Additional comments
		♂	♀	♂/♀	Larvae	Eggs	♂	♀	♂	♀			
20/04/17	Torching	19	12	2	-	✓	-	-	-	-	-	-	
	Bottle trapping	37	24	-			2	1	-	-			
03/05/17	Torching	11	16	-	-	N/A	-	-	-	-	1	-	
	Bottle trapping	12	16	-			-	-	-	-			
11/05/17	Torching	4	10	-	-	N/A	-	-	-	-	-	-	
	Bottle trapping	20	20	-			-	-	-	-			
06/06/17	Torching	1	-	-	-	N/A	2	-	-	-	-	-	
	Bottle trapping	-	6	-			1	-	-	-			

**Table B4: Great crested newt presence/absence survey results for pond 14**

Date	Survey Method	Great Crested Newt					Smooth Newt		Palmate Newt		Smooth/ Palmate Newt	Fish	Additional comments
		♂	♀	♂/♀	Larvae	Eggs	♂	♀	♂	♀			
20/04/17	Torching	-	5	-	-	-	10-20		-	-	-	-	
	Bottle trapping	6	5	-			-	-	-	-			
03/05/17	Torching	7	1	-	-	-	9	1	-	-	-	-	
	Bottle trapping	1	-	-			-	-	-	-			
11/05/17	Torching	-	6	-	-	-	2		2	-	-	-	
	Bottle trapping	-	1	-			-	1	-	-			
06/06/17	Torching	-	-	-	-	-	-	-	-	-	-	-	
	Bottle trapping	-	-	-			-	-	-	-			

**Table B5: Great crested newt presence/absence survey results for pond 16**

Date	Survey Method	Great Crested Newt					Smooth Newt		Palmate Newt		Smooth/ Palmate Newt	Fish	Additional comments
		♂	♀	♂/♀	Larvae	Eggs	♂	♀	♂	♀			
20/04/17	Torching	2	8	-	-	-	20-30		0-10		-	-	
	Bottle trapping	1	2	-			1	-	-	-			
03/05/17	Torching	-	-	-	-	-	3	-	-	-	-	-	
	Bottle trapping	-	-	-			-	-	-	-			
11/05/17	Torching	1	7	-	-	-	50-100		-	-	-	-	
	Bottle trapping	-	1	-			2	-	-	-			
06/06/17	Torching	-	-	-	-	-	-	1	-	-	-	-	
	Bottle trapping	-	-	-			-	-	-	-			

**Table B6: Great crested newt presence/absence survey results for Pond 17**

Date	Survey Method	Great Crested Newt					Smooth Newt		Palmate Newt		Smooth/ Palmate Newt	Fish	Additional comments
		♂	♀	♂/♀	Larvae	Eggs	♂	♀	♂	♀			
20/04/17	Torching	-	-	-	-	-	1		-	-	-	✓	Stickleback present
	Bottle trapping	-	-	-			-	1	-	-			
03/05/17	Torching	-	-	-	-	-	-	-	-	-	-	✓	
	Bottle trapping	-	-	-			-	1	-	-			
11/05/17	Torching	-	-	-	-	-	-	-	-	-	-	✓	
	Bottle trapping	2	-	-			-	-	-	-			
06/06/17	Torching	-	-	-	-	-	-	1	-	-	-	✓	
	Bottle trapping	-	-	-			-	-	-	-			