

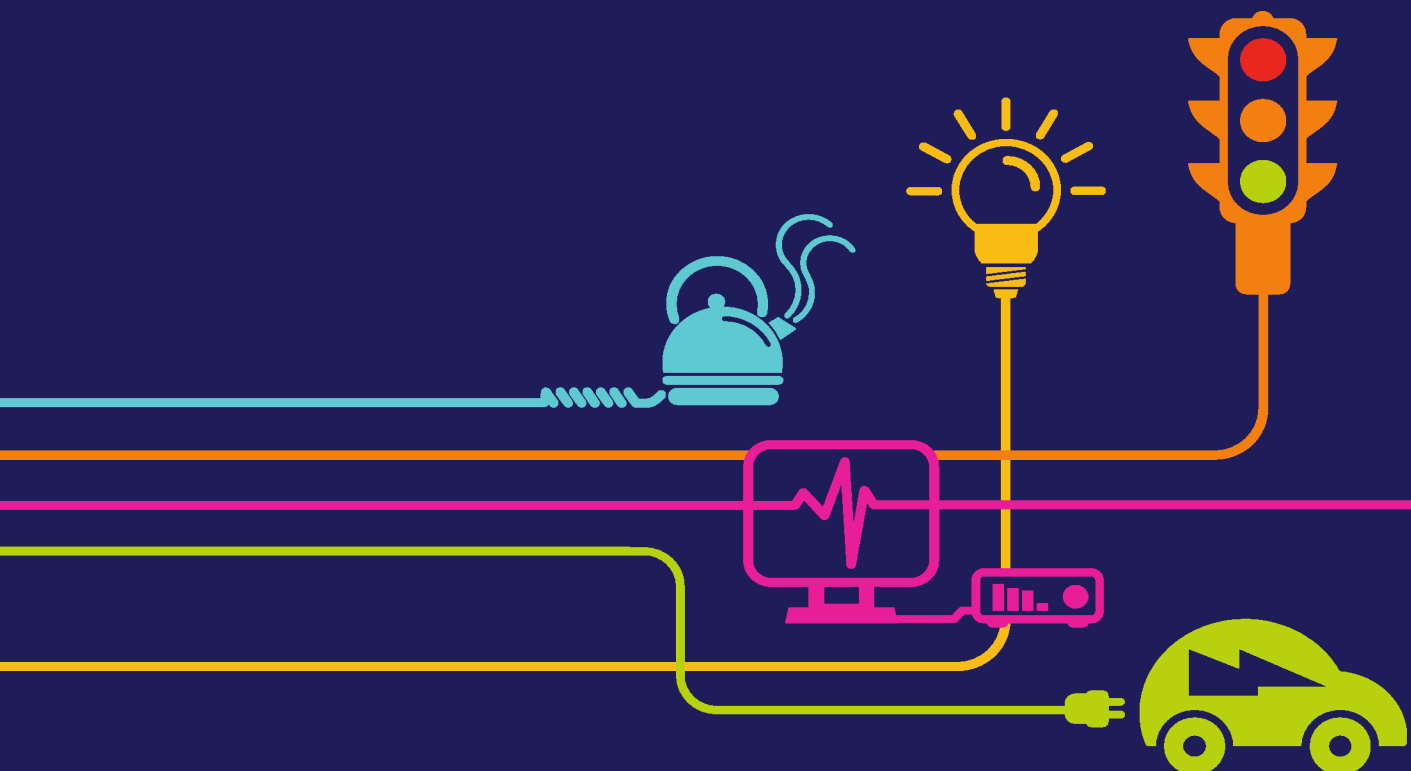
DOCUMENT 5.9.2.6

# Great Crested Newt Report

## Chapter 9 – Appendix 6

National Grid (North Wales Connection Project)

*Regulation 5(2)(a) including (l) and (m) of the Infrastructure Planning  
(Applications: Prescribed Forms and Procedure) Regulations 2009*





# **North Wales Connection Project**

## **Volume 5**

### **Document 5.9.2.6 Great Crested Newt Report**

National Grid  
National Grid House  
Warwick Technology Park  
Gallows Hill  
Warwick  
CV34 6DA

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Author		Fran Tarry, Jack Muskett	
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# 1 Introduction

## 1.1 INTRODUCTION

### *Description of the Proposed Development*

1.1.1 The Proposed Development would provide a new 400 kilovolt (kV) connection between the existing substations at Wylfa and Pentir and includes the following principal components:

- extension to the existing substation at Wylfa;
- sections of new 400 kV overhead line between Wylfa Substation and Braint Tunnel Head House (THH) and Cable Sealing End Compound (CSEC) on Anglesey including modifications to parts of the existing 400 kV overhead line between Wylfa and Pentir;
- Braint THH and CSEC on Anglesey;
- tunnel between Braint and Tŷ Fodol THHs;
- Tŷ Fodol THH and CSEC in Gwynedd;
- new section of 400 kV overhead line between Tŷ Fodol THH and CSEC and Pentir Substation;
- extension to the existing substation at Pentir; and
- temporary construction compounds, access tracks, construction working areas, localised widening of the public highway and third party works that are required to construct the infrastructure listed above.

1.1.2 The Proposed Development has been split into six sections (A – F), see Figure 1.

1.1.3 A full description of the Proposed Development is provided in Chapter 3, Description of the Proposed Development (**Document 5.3**) and Chapter 4, Construction, Operation, Maintenance and Decommissioning of the Proposed Development (**Document 5.4**).

### *Introduction to the Report*

- 1.1.4 This report identifies where great crested newt (*Triturus cristatus*) (hereafter referred to as GCN) populations have been recorded within and up to a distance of 250 m from the Order Limits through a desk-based assessment and field surveys carried out between 2015 and 2017. Some exceptions have been made to include areas greater than 250 m from the Order Limits where considered relevant to the Proposed Development.
- 1.1.5 For robustness additional eDNA, presence/likely absence and population estimate surveys have been conducted in 2018 to maintain up to date results on relevant ponds. Some preliminary results from the 2018 surveys have been included in this report where available at the time of writing. Complete 2018 results will be presented in an Addendum Report.
- 1.1.6 This report also identifies relevant legislation and planning policy relating to GCN, which are outlined in section 2.

### *Objectives*

- 1.1.7 The objectives of the GCN surveys and report are to:
- review existing ecological data to identify any records for GCN within and up to 2 km from the Order Limits, referred to as the study area in this report;
  - provide baseline information about the presence of GCN within suitable habitat present within and up to 250 m from the Order Limits, referred to as the survey area in this report. Suitable habitat over 250 m from the Order Limits has also been considered where relevant;
  - evaluate the status of the species within the survey area;
  - use the above information to inform the Ecological Impact Assessment (EclA) set out in Chapter 9, Ecology and Nature Conservation (**Document 5.9**) to determine whether GCN populations could be affected by the Proposed Development; and
  - inform the Biodiversity Mitigation Strategy (**Document 7.7**) for the Proposed Development.

## 2 Legislation and Planning Policy

### 2.1 LEGISLATION

- 2.1.1 Several different acts of legislation and regulations refer to the protection of wildlife. Legislation relevant to GCN is outlined below.

#### *The Conservation of Habitats and Species Regulations 2017*

- 2.1.2 The Conservation of Habitats and Species Regulations 2017 (referred to as the Habitats Regulations) consolidates all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales. The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law and came into force on 30 October 1994.
- 2.1.3 The Habitats Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European sites.
- 2.1.4 In summary the Habitats Regulations protect against:
- deliberate capture, injury or killing;
  - deliberate disturbance, where this is likely to impair the species ability to survive, breed, reproduce, rear young, hibernate or migrate, or significantly affect the local distribution or abundance of the species;
  - deliberate destruction of eggs; and
  - damage or destruction of a breeding or resting place.
- 2.1.5 It is also an offence to be in possession or control, transport, sell or exchange any live or dead (or part of an) wild animal listed on Schedule 2.
- 2.1.6 Great crested newt is listed under Schedule 2 making them a European protected species, protected under the Habitats Regulations.

### *The Countryside and Rights of Way Act 2000*

- 2.1.7 The Countryside and Rights of Way Act 2000 applies to England and Wales only. Part III of the Act deals specifically with wildlife protection and nature conservation.
- 2.1.8 The Act places a duty on Government Departments and the Welsh Government to have regard for the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.
- 2.1.9 Schedule 12 of the Act amends the species provisions of the Wildlife and Countryside Act 1981 (as amended), strengthening the legal protection for threatened species. The provisions make certain offences 'arrestable', include an offence of reckless disturbance, confer greater powers to police and wildlife inspectors for entering premises and enable heavier penalties on conviction of wildlife offences.

### *Wildlife and Countryside Act 1981 (as amended)*

- 2.1.10 Great crested newt is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is illegal to (this applies to all life stages):
- intentionally or recklessly kill, injure or capture a GCN;
  - intentionally or recklessly disturb a GCN;
  - intentionally or recklessly damage, destroy or obstruct access to a breeding or resting place; and
  - deliberately disturb a GCN, in particular any disturbance which is likely to (i) impair their ability to survive, breed, reproduce or to rear or nurture their young, or migrate; or (ii) to affect significantly the local distribution or abundance of the species to which they belong.

### *Environment (Wales) Act 2016*

- 2.1.11 Section 6 of the Environment (Wales) Act 2016 places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'. The duty replaces the section 40 duty in the Natural Environment and Rural Communities Act 2006 (NERC Act 2006), in relation to Wales, and applies to those authorities that fell within the previous duty (Ref 1).

- 2.1.12 To assist in complying with this duty, public authorities must have regard to relevant evidence provided in the State of Natural Resources Report and any relevant area statement for an area in which the authority exercises functions, as well as having regard to the list of living organisms and habitats published under Section 7 of the Act (which replaces the section 42 list provided in the NERC Act 2006) (Ref 1).
- 2.1.13 Great crested newt and common toad (*Bufo bufo*) are the two amphibians listed under Section 7 of the Act. Section 7 is a list of species of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales. This list is currently under review by the Welsh Government in consultation with National Resources Wales (NRW).

## 2.2 PLANNING POLICY

### *National Policy*

- 2.2.1 Government planning policy guidance throughout the UK requires local planning authorities to take account of the conservation of protected species when determining planning or development consent applications. This makes the presence of a protected species a material consideration when assessing a development proposal. In the case of a European Protected Species, planning policy emphasises the strict statutory provisions to which a planning authority must have due regard.
- 2.2.2 In Wales this is implemented through Planning Policy Wales – Edition 9, November 2016, supplemented by a series of Technical Advice Notes (TANs) (Ref 2) which sets out the land use planning policies of the Welsh Government. Consultation is currently being held on the draft Planning Policy Wales – Edition 10 which was issued in February 2018; the consultation period ends in May 2018.
- 2.2.3 Chapter 5 of PPW (9) sets out the Welsh Government's objectives for the natural heritage of Wales which includes the safeguarding of protected species. It states that '*the presence of a species protected under European or UK legislation is a material consideration when a local planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat*'. It also states that '*an ecological survey to confirm whether a protected species is present and an assessment of the likely impact of the development on a protected species may be required in order to inform the planning decision*'.
- 2.2.4 Further information on the detail of Planning Policy Wales is provided in Chapter 9, Ecology and Nature Conservation (**Document 5.9**).



### *Local Policy*

2.2.5 There are a number of local planning policies set out in the Anglesey and Gwynedd Joint Local Development Plan 2017 (Ref 3) that relate to ecology and nature conservation which in combination with other planning policies will guide local authority expectations in relation to the Proposed Development:

- Strategic Policy PS 19 relates to conserving and enhancing the natural environment;
- Policy AMG 4 relates to coastal protection;
- Policy AMG 5 relates to the protection and enhancement of local biodiversity; and
- Policy AMG 6 relates to protecting sites of regional or local significance.

### *Biodiversity Policy*

2.2.6 As a result of devolution, and new country-level and international drivers and requirements, much of the work previously carried out by the UK Biodiversity Action Plan (BAP) is now focussed at a country-level rather than a UK-level, and the UK BAP was succeeded by the 'UK Post-2010 Biodiversity Framework' in July 2012. The UK list of priority species and habitats, however, remains an important reference source and has been used to help draw up statutory lists of priorities in England, Scotland, Wales and Northern Ireland. In Wales the current lists are those under Section 7 of the Environment (Wales) Act 2016 which includes GCN and common toad as a priority species requiring conservation.

2.2.7 The national strategy for biodiversity is delivered at local level via Local Biodiversity Action Plans (LBAPs). Species and habitats of local conservation concern or value are included in the LBAP and an action plan is created for each species and certain habitat types.

2.2.8 The LBAPs relevant to the study area for the Proposed Development are the Anglesey LBAP published by Isle of Anglesey County Council (IACC) and the Natur Gwynedd LBAP for Gwynedd developed by a partnership of organisations and individuals. GCN is included on the Anglesey LBAP but not in the Natur Gwynedd BAP. No other amphibian species are listed on either LBAP, although common toad, common frog (*Rana temporaria*) and palmate newt (*Lissotriton helveticus*) are listed within the Anglesey LBAP as

Species of Conservation Concern to benefit through their Habitat Action Plans (HAPs).

- 2.2.9 The Wales Biodiversity Partnership (WBP) brings together key members from the public, private and voluntary sectors to promote and monitor biodiversity and ecosystem action in Wales. WBP provides a leadership role and an expert steer on priorities for action on biodiversity and ecosystems in Wales. The WBP Steering Group has now formally disbanded and the biodiversity action work programme taken on by the Wales Biodiversity Strategy Board (WBSB) and the WBP working groups.
- 2.2.10 The Spatial Action Plan for Great Crested Newts in Anglesey: A Manual for Achieving Favourable Conservation Status (hereafter referred to as the Anglesey Spatial Action Plan report), published in March 2017 (Ref 4), is a report which aims to provide guidance to developers, conservation non-government organisations (NGO's) and governments to conserve and enhance GCN populations in Anglesey. Calculations detailed within the report allow specific criteria to be used to determine the Current Conservation Status (CCS) and Favourable Conservation Status (FCS) of any ponds and metapopulations (groups of ponds connected through migration of individuals) identified to contain GCN. These values can then be used to determine the percentage-value contribution of each pond and metapopulations towards the total CCS and FCS on Anglesey; this is referred to as County Value within this report.

## 3 Methodology

### 3.1 DESK STUDY

- 3.1.1 A desk study was carried out to collate information on potential ponds and existing information concerning the presence of GCN within the survey area. This collated information from previous data searches, previous surveys and available mapping, as detailed below.
- 3.1.2 Relevant species record data (including GCN records) were requested from Cofnod, the local environmental record centre, in February 2018; this provided an update to data obtained in November 2016 and May 2015.
- 3.1.3 As GCN populations may fluctuate as a result of natural and human-made changes, only records dated since 2007 were considered in the baseline; older records were considered to offer limited value in determining current presence and distribution.
- 3.1.4 Existing GCN survey reports prepared on behalf of Horizon Nuclear Power (Horizon) for the proposed Wylfa Newydd Power Station (Ref 5, 6, 7 and 8) were reviewed to provide a background on any waterbodies surveyed which were located with the study area.
- 3.1.5 Information resulting from previous surveys conducted in 2015 for the North Wales Connection Project (Ref 9) was reviewed to:
- identify known waterbodies located within the survey area;
  - identify which of these waterbodies were surveyed for GCN in 2015 and by which methods; and
  - identify where GCN were confirmed to be present or likely absent in order to focus further survey work.
- 3.1.6 Additional waterbodies to those included in previous survey reports located within the survey area were identified using a combination of sources, including; Ordnance Survey (OS) Mastermap 1:1250, OS mapping 1:25000 and aerial photography.

- 3.1.7 Waterbodies located within the survey area but on the far side of features likely to provide a major barrier to GCN movement were not included in the GCN survey scope. Barriers to movement could include major roads and rivers, and developments.
- 3.1.8 A report for surveys undertaken at the Former Shell Tank Farm, Rhosgoch in 2016 was also reviewed (Ref 10) and added to the collated information; although this site lies approximately 600 m from the Order Limits it was considered when assessing metapopulations/nature conservation status of GCN in relation to the Proposed Development.

## 3.2 FIELD SURVEY

### *Environmental DNA Surveys*

- 3.2.1 Natural Resources Wales (NRW) accepts eDNA surveys as a method of determining the presence/likely absence of GCN.
- 3.2.2 DNA is found within a particular environment (e.g. lake, pond, ditch) that has been released from an organism in the form of faeces, saliva, urine, skin cells or carcasses. In aquatic environments, the eDNA is diluted and distributed in the water where it persists for 7-21 days, depending on environmental conditions. The procedure involves collecting 20 water samples from a pond or ditch, combining these samples into a single composite sample which is then sent to an approved laboratory for analysis.
- 3.2.3 Results are returned as either positive (DNA from GCN detected), negative (DNA from GCN not detected) or inconclusive (internal controls indicate degradation or inhibition of the sample therefore the lack of GCN DNA is not conclusive to confirm absence, e.g. high levels of sediment recorded in the sample may result in an inconclusive result).
- 3.2.4 Typically, if a positive result is returned through eDNA surveys, six further survey visits, using traditional survey methods, would be subsequently carried out to provide an estimation of the population size class. Population size class estimates would then be used to inform a NRW mitigation licence and help determine the levels of mitigation required.
- 3.2.5 Between 18 May and 25 June 2015, eDNA surveys were conducted on 110 waterbodies for the Proposed Development (Ref 9); 37 of these are within the survey area for the Proposed Development, the remaining 73 ponds are outside the survey area for the Proposed Development due to the evolving project design which originally covered a much larger area in the early stages of the project.

- 3.2.6 Waterbodies with negative eDNA results in 2015 were scoped out from further surveys in 2016. However, those ponds that had a negative eDNA result in 2015 that were within 100 m of the Order Limits, and where there was likely to be permanent (terrestrial) habitat loss in the vicinity of the pond, were taken forward to be re-surveyed in 2017 so that the data was current (i.e. within the last two years), which is required for planning and Development Consent Order (DCO) applications to provide presence/likely absence results. As there was no official guidance on how long eDNA results are deemed to be valid for, a request was made to NRW for comment on the validity of eDNA data. The above eDNA updates were completed in the meantime. Following further consultation with NRW, it was agreed that the eDNA results from the 2015 surveys would remain valid for the DCO application (based on the October 2017 submission date).
- 3.2.7 Six ponds located within the Horizon survey area that were originally eDNA sampled in 2015 were re-surveyed in 2017 in connection with the proposed Wylfa Newydd Power Station (Ref 8).
- 3.2.8 Waterbodies with positive eDNA, inconclusive results or no access in 2015 located within the survey area were included in the 2016 assessments.
- 3.2.9 Ponds that could not be accessed for presence/likely absence surveys, or additional ponds which were identified after the peak survey season had finished in 2016, were taken forward for eDNA sampling in 2016/2017.
- 3.2.10 For robustness additional eDNA surveys have been conducted in 2018 to maintain up to date results on relevant ponds. Some preliminary results from the 2018 surveys have been included in this report where available at the time of writing. Complete 2018 results will be presented in an Addendum Report.

#### *Habitat Suitability Index*

- 3.2.11 In 2016/2017, waterbodies located within the survey area were visually assessed for GCN habitat suitability. These assessments were conducted using the standard GCN Habitat Suitability Index (HSI) methodology (Ref 11).
- 3.2.12 The GCN HSI is a tool used to provide a numerical indication of the quality of a waterbody in terms of GCN breeding and associated habitat requirements on a scale of 0-1 (0 indicating unsuitable habitat, 1 representing optimal habitat). HSI scores incorporate ten Suitability Indices (SI), all of which are factors considered to affect GCN, namely;
- SI 1 site location;

- SI 2 size of the pond;
- SI 3 pond drying;
- SI 4 water quality;
- SI 5 perimeter shading;
- SI 6 presence of waterfowl;
- SI 7 presence of fish;
- SI 8 number of ponds within 1km of the Site;
- SI 9 terrestrial habitat; and
- SI 10 macrophyte cover.

3.2.13 Once a measurement or category has been given for each SI, this can be converted to a figure between 0 and 1 for use in the HSI calculation. This figure is either translated from an assigned category or measurement or read from a graph in the case of a percentage or number. The HSI is then calculated from the following formula:

$$HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/10}$$

3.2.14 This will give a final HSI result between 0 and 1 presenting a measure of habitat suitability for GCN. The habitat suitability categories are:

- < 0.5 = Poor;
- 0.5 – 0.59 = Below average;
- 0.6 – 0.69 = Average;
- 0.7 – 0.79 = Good; and
- > 0.8 = Excellent.

3.2.15 It should be noted that the GCN HSI is a tool only and professional experience and judgement is also important when carrying out habitat assessments. A high score does not guarantee the presence of GCN within a particular waterbody, or vice versa. In general however, waterbodies with high scores are more likely to support GCN than those with low scores.

3.2.16 For the Proposed Development, ponds which received HSI scores below 0.35 and/or were dry/held very little water were scoped out of further surveys.

### *Presence/Likely Absence and Population Estimate Surveys*

3.2.17 GCN presence/likely absence surveys were carried out between 22 March and 15 June 2016, and 31 May and 29 June 2017. For robustness additional presence/likely absence and population estimate surveys have been conducted in 2018 to maintain up to date results on relevant ponds. Some preliminary results from the 2018 surveys have been included in this report where available at the time of writing. Complete 2018 results will be presented in an Addendum Report.

3.2.18 The survey methodology followed guidance provided in English Nature (2001) 'Great Crested Newt Mitigation Guidelines' (Ref 12) which involved using at least three appropriate survey techniques (where possible), including; bottle traps, torchlight surveys, refuge searches, egg searches and netting. A summary of each survey technique is provided below.

#### Bottle Trap Survey

3.2.19 Bottle traps are set around the margin of the waterbody in the evening and left overnight to catch adults during the breeding season. Traps are set at an approximate density of one trap per two metres of shoreline dependent on individual site variations.

#### Torchlight Survey

3.2.20 The waterbody is searched thoroughly using powerful torches (minimum 1,000,000 candlepower) in the dark.

3.2.21 The surveyors walk slowly around the perimeter of each waterbody once (where access is possible), checking for newts in the beam of the torchlight. Care is taken to minimise disturbance to the newts and other wildlife which may be present (e.g. nesting birds).

#### Refuge Search

3.2.22 This technique involves lifting up and looking under objects such as logs, stones etc. close to the waterbody perimeter, which may be used by GCN for refuge. This method can be used to identify presence but it cannot be used to estimate population size class.

#### Egg Search

3.2.23 Submerged and floating aquatic vegetation is checked by the surveyors in order to detect the presence of GCN eggs. This is often a very effective method for detecting GCN presence, but eggs can prove difficult to find in heavily vegetated ponds with small newt populations, or those with no accessible vegetation. Egg searches are terminated when the presence of

GCN is confirmed to avoid excess damage to the eggs. This method is unreliable for population estimates.

#### Net Survey

- 3.2.24 This involves sweep netting the pond, using a hand held pond net, for 15 minutes per 50 m of pond perimeter. It can be done either at night or in the daytime. Again, the results of netting should not be used to estimate population size class.
- 3.2.25 Each waterbody was surveyed a minimum of four times between mid-March to mid-June with at least two (or three for population estimates) of the surveys being conducted during the optimal survey window, between mid-April and mid-May. Where surveys were conducted outside the peak window, eDNA sampling was conducted to support the negative result obtained. The surveys were completed by a team of two and at least one person in the team held a NRW GCN survey licence.
- 3.2.26 After the initial four surveys, an additional two surveys were undertaken on any ponds in which GCN were found to be present. The purpose of the two additional surveys was to allow for an estimation of the population size class to be made and to provide the data necessary to support any subsequent NRW development licence application.

### **3.3 POND AND METAPOPOPULATION COUNTY VALUES**

- 3.3.1 The Anglesey Spatial Action Plan report details the CCS and FCS values for GCN on Anglesey by which each population is measured; 5,344 (the countywide estimate of CCS) and 8,352 (the target FCS) (Ref 4). As there is no corresponding report for Gwynedd, the basis of the Anglesey Spatial Action Plan report will be applied, where considered necessary, to all aspects of the Proposed Development on Anglesey and in Gwynedd. When calculating CCS Scores, ponds within 500 m of a GCN pond are considered (Ref 4).
- 3.3.2 The criteria used to calculate CCS values for each GCN pond are:
- population size (Peak Count);
  - number of ponds (within 500 m);
  - habitat quality (HSI score); and
  - prospects (likelihood of pond persisting).



- 3.3.3 The values attained from each criterion are combined to provide a CCS Score. Metapopulations can be determined by locating how many GCN ponds are situated within 250 m of a given pond, with the exception of those intersected by barriers to migration, such as rivers, busy roads or developments.
- 3.3.4 Determining the contribution of a metapopulation to the CCS and FCS of Anglesey can be done by adding the CCS Scores of each pond within the metapopulation to give a Site CCS. This value is then used to determine the percentage contribution using the following calculations:

$$(Site\ CCS/Anglesey\ CCS) \times 100 = \% \text{ contribution to CCS}$$

$$(Site\ CCS/Anglesey\ FCS) \times 100 = \% \text{ contribution to FCS}$$

### 3.4 ASSUMPTIONS AND LIMITATIONS

- 3.4.1 The aim of a desk study is to help characterise the baseline context of a proposed development and provide valuable background information that would not be captured by site surveys alone. Information obtained during the course of a desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular species does not necessarily mean that the species do not occur in a study area. Likewise, the presence of records for particular species does not automatically mean that these still occur within the area of interest or are relevant in the context of a proposed development.
- 3.4.2 The detail and accuracy of the desk study records rely on those provided to Cofnod from a variety of sources. The results of the updated desk study undertaken in February 2018 have been considered for the baseline assessment. The latest desk study search was conducted on the Proposed Development layout which now covers a smaller area resulting in some records being excluded that had previously been considered. The search also uses the latest priority and conservation lists which has also resulted in some further additions and exclusions of certain species.
- 3.4.3 The data collected have been conducted following the relevant guidelines and provide a reliable overview of GCN within the study area, however movements of individuals and fluctuations in population sizes and distribution can result in newts occurring in areas where previously absent. It is accepted good practice, in accordance with statutory organisation (i.e. NRW) guidelines for GCN surveys to be repeated should any development be proposed for over two years from the date of initial survey to minimise any effects of seasonal variations and population fluctuations.

- 3.4.4 It was not possible to access two waterbodies between 2015 and 2017; these were Pond 25 and Pond A033 (Figure 2), therefore no habitat suitability or GCN status data is available. The presence of GCN in adjacent ponds has been considered when determining the likelihood of GCN presence in these two ponds. Access was available to these ponds in 2018; Pond A033 was confirmed to be dry and the result of the eDNA survey on Pond 25 was not available at the time of writing and will be provided in an Addendum Report.
- 3.4.5 Access restrictions prevented population estimates being conducted at three ponds where GCN presence was confirmed through eDNA surveys. Access has been obtained to two of these ponds in 2018 and the results of the population estimate surveys will be provided in an Addendum Report.
- 3.4.6 Access restrictions also prevented access to refresh the results of eDNA sampling at three ponds that were recorded as negative eDNA in 2015. Access has been obtained to two of these ponds in 2018; one was confirmed to be dry and the other had a negative eDNA result returned. Complete results will be provided in an Addendum Report that will include all of the 2018 surveys results.
- 3.4.7 Pond 201 (Figure 2) could not be surveyed due to dense vegetation and steep banks restricting safe access to the pond to conduct all survey methods and eDNA sampling. The HSI score was 0.68, below average suitability for supporting GCN and the nearest known GCN pond was 815 m to the south.
- 3.4.8 The following ponds dried up during the presence/likely absence surveys prior to the completion of four surveys; A167, A245, A034, A247, A044, A008, 215, A012, A005, A181, A031, 64, 65, A143, A173, A183 and A180 (Figure 2). GCN were not recorded in any of these ponds during the visits conducted and it is considered unlikely that they would support GCN if the ponds regularly dry up during the GCN breeding season.
- 3.4.9 Despite the above limitations, it is concluded that the survey methods and effort undertaken was appropriate to determine the current status of GCN within the survey area.

## 4 Results

### 4.1 DESK STUDY

#### *Statutory Designations*

- 4.1.1 No international or national designated sites which are designated for the conservation of GCN have been identified within 2 km of the Order Limits. However, populations of GCN are recognised as *other Annex II species present on the site* for Anglesey Fens SAC and a *special feature* of the Cors Erddreiniog SSSI within the site management statement, but not as qualifying features or primary reasons for the designation. The Order Limits overlap in very small places along the western boundary of the SSSI and SAC.

#### *Data Search Records*

- 4.1.2 Cofnod provided ten records dated since 2007 for GCN within the study area.
- 4.1.3 Due to the precision of some of the grid references provided by Cofnod e.g. 1 km<sup>2</sup> grid reference which then places the record at the centre of the square, one record shows slightly outside the 2 km study area (see Table 4.1 and Record 16 on Figure 1); however it has been included for completeness.

Table 4.1 Cofnod Data Search Records				
Record Ref (Figure 1)	Section	Details of Record	Date of Record	Distance from Order Limits (m)
3	A	eDNA record	2017	21
4	A	One adult	2014	834
5	A	eDNA record	2017	1227
6	B	Nine adults and four larvae	2010	1818
8	C	One adult female found terrestrially	2013	1377

Table 4.1 Cofnod Data Search Records				
Record Ref (Figure 1)	Section	Details of Record	Date of Record	Distance from Order Limits (m)
10	C	One adult	2007	680
11	C	Estimated 20 adults during torch survey	2013	880
12	C	Five adults during torch survey	2013	890
16	D	One adult female	2014	2341
17	E	18 adults during torch survey	2008	1412

- 4.1.4 One of the records returned falls within 21 m of the Order Limits (refer to Table 4.1 and Record 3 on Figure 1). This record coincides with Pond 198 where a negative eDNA record was obtained in both 2015 and 2017 (see Table 4.3 below for further information). A further eDNA sample was taken in May 2018 which has also returned a negative result. A negative result was also obtained in May 2018 in Pond A008 which is located within 100 m of Pond 198 (this dried up in 2016 before surveys were completed). As an extra precaution to support the three negative eDNA samples taken at Pond 198, a survey using traditional survey methods has been carried out during the 2018 survey season on Ponds 198 and A008. Four visits were completed during the peak survey period and no GCN were recorded; palmate newts have been recorded in both ponds in small numbers.
- 4.1.5 The baseline assessment has therefore been undertaken based on negative GCN presence at Pond 198. Complete 2018 results will be provided in an Addendum Report that will include all of the 2018 surveys results.
- 4.1.6 The other nine records are located between 680 m and over 2 km from the Order Limits.
- 4.1.7 Cofnod data provided for common toad has also been displayed on Figure 1 due to it being listed as a priority species under Section 7 of the Environment (Wales) Act 2016. A total of 21 records were provided for common toad within all sections of the study area except Section B; the majority of the records (13 records) fell in Section F.

### *Report Reviews*

- 4.1.8 Previous survey data collected at the Former Shell Tank Farm, Rhosgoch in 2016 (Ref 10), found GCN in five out of six ponds (Ponds 2 to 6), with three ponds confirmed for breeding use; the pond locations are shown on Figure 1 as SHE-1 to SHE-5. Palmate newt, common toad and common frog were also recorded during the surveys. Additionally, three female GCN were recorded terrestrially during the surveys.
- 4.1.9 A review of four reports prepared on behalf of Horizon Nuclear Power for surveys conducted between 2010 and 2017 concluded that GCN were likely absent from the Wylfa Newydd Power Station survey area (Ref 5, 6, 7 and 8).
- 4.1.10 A total of 225 ponds were identified for assessment during surveys for the North Wales Connection Project in 2015 (Ref 9). A summary of the 2015 results is as follows:
- sixteen ponds - positive GCN presence (eight from eDNA surveys and eight from previous surveys)
  - 109 ponds - negative GCN presence (101 from eDNA and eight from previous surveys)
  - one pond - inconclusive GCN results following eDNA sampling
  - fifty five ponds – no access; and
  - forty four ponds – dry, didn't exist or access restrictions
- 4.1.11 All but 15 of these 225 ponds fall within the study area.

## **4.2 FIELD SURVEY**

### *Background to Defining the Survey Area*

- 4.2.1 Due to the evolving project design the survey area for GCN surveys was refined between 2015 and 2017. The number of ponds located in the survey area in 2015 was 225, in 2016 this was 256 ponds and in 2017 the number of ponds in the survey area was reduced to 112 ponds due to the refined Proposed Development Order Limits.
- 4.2.2 Therefore 112 ponds have been considered within this baseline assessment based on the 2017 survey area. Following initial daytime visits, a number of these ponds were scoped out of further survey due to: pond dry (16 ponds), no pond present (19 ponds), low suitability (5 ponds), health and safety

issues (2 ponds) and access restrictions (2 ponds). In addition, six ponds were scoped out due to them being located in the tunnel section of the Proposed Development and therefore there would be no impact on these ponds.

4.2.3 This left 62 ponds in the survey area where surveys (eDNA sampling and traditional survey methods) were used during the survey seasons of 2015, 2016 or 2017 to identify presence/likely absence of GCN. Ponds surveyed outside of the 2017 survey area have been considered where deemed relevant to the metapopulations analysis.

4.2.4 A breakdown of the number of ponds surveyed during each survey season and by which method is shown in Table 4.2.

**Table 4.2 Breakdown of survey methods used each survey season**

Survey Method	2015	2016	2017	Total Ponds
eDNA	28	2	13*	43
eDNA & Survey	N/A	1	1	2
Survey	N/A	17	0	17
Total Ponds	28	20	14	62

\* 9 of these ponds were also eDNA sampled in 2015

4.2.5 The project design underwent further evolvement in 2018 resulting in some minor changes to the Order Limits. Overall this resulted in one pond (A048) no longer falling within the survey area for the Proposed Development and four additional ponds falling within 250 m of the Order Limits; these will be considered in an Addendum Report.

4.2.6 For robustness additional survey work has been conducted in 2018 to maintain up to date results on relevant ponds, however no significant changes are anticipated based on the preliminary results obtained to date. These results will be presented in an Addendum Report.

#### *HSI Surveys*

4.2.7 The HSI scores for ponds included in the 2016/2017 scope are provided in Annex A. Three ponds, Ponds A019, A249 and A252 (Figure 2), were

scoped out of further surveys due to their low HSI scores and considered unsuitability.

### *Environmental DNA Surveys*

4.2.8 A total of 28 ponds in the survey area had eDNA surveys in 2015; nine of these were repeated in 2017. The results were negative for these 28 ponds in 2015.

4.2.9 Table 4.3 provides the results of the eDNA surveys carried out in 2016 and 2017 on 17 ponds. The pond locations are provided on Figure 2.

Table 4.3 Results of 2016 and 2017 eDNA sampling			
Section	Waterbody Reference	Date eDNA Surveyed	eDNA result-Positive (GCN present) or Negative (GCN likely absent)
A	0*	2017**	Negative
A	1*	2017**	Negative
A	2*	2017**	Negative
A	3*	2017**	Negative
A	4*	2017**	Negative
A	12	2017**	Negative
A	15	2017**	Negative
A	16	2017	Positive
A	198	2017**	Negative
A	230*	2017**	Negative
A	A002*	2017	Negative
A	A1001	2016	Negative
B	26	2017	Positive
C	153	2016	Negative
C	154	2016	Negative
E	A184	2017	Negative
F	A254	2017	Negative
* Horizon survey area.			
** eDNA surveys were also completed in 2015 on these ponds, with negative results obtained.			

### *Presence/Absence and Population Estimate Surveys*

4.2.10 Presence/likely absence surveys were carried out on a total of 19 ponds within the survey area in 2016 and 2017 (including two that were also eDNA

sampled: Ponds A1001 and A254); GCN were identified within 11 of these ponds and an additional two visits to help estimate population size class surveys were conducted, detailed in Table 4.4 below. Full results are provided in Annex B and photographs of the ponds are provided in Annex C.

- 4.2.11 It should be noted that following further refinement of the project design in 2018, one of the ponds found to support GCN (Pond A048) is now located outside the survey area and does not need to be considered further in this baseline assessment. Therefore population sizes have been estimated for the ten ponds within the survey area confirmed to have GCN through surveys and the three ponds where presence has been confirmed through eDNA surveys (Ponds 16, 26 and 164).
- 4.2.12 Population sizes are primarily small, with eight GCN ponds returning peak counts of seven or fewer. Pond 16, which was subjected to eDNA survey in 2017, did not have population estimate surveys and is assumed small on the basis that the closest identified GCN pond is Pond 23, which has a small population and is 900 m away. An eDNA survey in 2018 on Pond 16 came back 'inconclusive' and two survey visits did not identify GCN; the pond subsequently dried up before a second sample could be taken or more survey visits could be completed; the pond drying early in the season would help support the conclusion that no more than a small population is likely to be present.
- 4.2.13 Pond 164 only had an eDNA survey in 2015 (this could not be updated in 2017 or 2018 due to access restrictions) and is over 3 km from the nearest identified GCN pond, which also has a small population; thus it is assumed due to its isolated location, that no larger than a small population would be present.
- 4.2.14 Population size estimates for three ponds are medium, with peak counts between 18 and 30 on two ponds. The third medium pond, Pond 26, was only subjected to eDNA survey in 2017 (previously a negative eDNA in 2015). As it is within 10 m of Pond A026 and they had similar HSI results (0.77 and 0.79, good suitability), it is assumed that they are part of the same metapopulation and would have similar population sizes (i.e. both medium). This is further supported by the results of the 2018 surveys conducted to date; a peak count of 16 GCN has been recorded after four visits.
- 4.2.15 None of the GCN ponds are considered to contain large populations.
- 4.2.16 Three metapopulations have been identified (A, B, C) (Table 4.4 and Figure 3) due to the proximity of ponds to one another (within 250 m of each other),



this is discussed further in section 4.4. The remaining ponds are considered in isolation.

- 4.2.17 Pond 19 was found to contain GCN eggs, confirming that this pond is used for breeding.
- 4.2.18 In addition to GCN, other amphibian species were recorded within the survey area, these include palmate newt, common toad and common frog (Table B.2, Annex B).

**Table 4.4 Confirmed GCN Ponds and Population Estimates**

Area	Pond No.	HSI Score	Distance to Order Limits (m)	Population Size	Peak Count	Metapopulation	Comments
Section A							
Llanfechell – 3 ponds	8	0.64 - Average	154	Small	7	Approx. 1 km from Pond 12a. Small	Located outside of the Order Limits. Not part of a metapopulation as located over 1 km from nearest known GCN pond.
	A009	0.75 - Good	63	Small	6	Within 200 m of each other.	Located outside of the Order Limits. Ponds A009 and 12a form a medium metapopulation.
	12a	0.64 - Average	79	Medium	18	Peak 24 combined. Medium Metapopulation: A	
Rhosgoch – 6 ponds	16	0.56 – Below Average	Within	eDNA 2017 no population data – assumed Small (see Para 4.2.12)	N/A	900 m from Pond 23. Small	Located within the Order Limits. The pond has been included within the Schedule of Environmental Commitments ( <b>Document 7.4.2.1</b> ). Not part of a metapopulation as located over 900 m from nearest known GCN pond.

**Table 4.4 Confirmed GCN Ponds and Population Estimates**

Area	Pond No.	HSI Score	Distance to Order Limits (m)	Population Size	Peak Count	Metapopulation	Comments
	19	0.75 - Good	179	Small	4	Within 250 m	Pond 23 is located within the Order Limits. The other ponds within this area are located outside the Order Limits.  Pond 23 has been included within the Schedule of Environmental Commitments ( <b>Document 7.4.2.1</b> ). These ponds form a medium metapopulation.
	23	0.78 - Good	Within	Small	3	Peak 15 combined.	
	300	0.51 – Below Average	147	Small	1	Medium	
	301	0.63 - Average	204	Small	1	Metapopulation: B	
	20	0.63 - Average	201	Small	6		
Section B							
Rhosgoch – 2 ponds	A026	0.77 - Good	24	Medium	30	Over 600 m from Pond 23	Pond 26 lies partially within the Order Limits and has been included within the Schedule of Environmental Commitments ( <b>Document 7.4.2.1</b> ). Pond A026 lies outside of the Order Limits.
	26	0.79 - Good	Within	eDNA 2017 no population data – assume Medium as	N/A	Within 10 m of each other Peak 60 combined	

**Table 4.4 Confirmed GCN Ponds and Population Estimates**

Area	Pond No.	HSI Score	Distance to Order Limits (m)	Population Size	Peak Count	Metapopulation	Comments
				adjacent to A026 (see Para 4.2.14)		(assumed) Medium Metapopulation: C	These ponds form a medium metapopulation.
North of Llandy-frydog – 1 pond	164	0.66 – Average	176	eDNA 2015 no population data - assume Small due to isolation (see Para 4.2.13)	N/A	Over 3 km from nearest known GCN pond (A048) Small (assumed due to isolation)	Located outside of the Order Limits. Not part of a metapopulation as located over 3 km from nearest known GCN pond.
Section C							
Capel Coch/fen area – 1 pond	152	0.5 – Below Average	173	Small	1	Over 600 m from nearest known GCN pond (A048) Small	Located outside of the Order Limits. Not part of a metapopulation as located over 600 m from nearest known GCN pond.

### 4.3 POND AND METAPOPOPULATION COUNTY VALUES

4.3.1 The Spatial Action Plan report was used to determine the County Value (percentage contribution) to Anglesey of each GCN pond and metapopulations within the survey area. Per-pond values are displayed in Table 4.5.

Table 4.5 Pond County Values			
Pond	CCS Score	County Value (CCS Contribution %*)	County Value (FCS Contribution %*)
8	12	0.22	0.14
A009	14	0.52	0.34
12a	14	0.52	0.34
16	11	0.21	0.13
19	16	1.5	0.96
20	15	1.4	0.9
23	16	1.5	0.96
300	15	1.68	1.08
301	16	1.8	1.15
A026	15	0.56	0.36
26	15	0.56	0.36
164	12	0.22	0.14
152	11	0.21	0.13
* To two decimal places.			

- 4.3.2 Groups of ponds (where a GCN pond lies within 250 m of another known GCN pond) were determined and given a metapopulation ID: Metapopulations A, B and C shown in Table 4.6. All ponds are located within 250 m from the Order Limits. It is noted that ponds within 500 m of a GCN pond are included when calculating CCS Scores, but are only included within a metapopulation if they are within 250 m.
- 4.3.3 The remaining four ponds (8, 16, 164 and 152) are over 500 m from the nearest known GCN population and are therefore not considered to be part of a metapopulation.

**Table 4.6 Metapopulation County Values**

Meta population	Pond	Metapopulation Size	Site CCS Score	County Value (CCS Contribution %*)	County Value (FCS Contribution %*)
A	A009 & 12a	24 (Medium)	28	0.52	0.34
B	19, 20, 23, 300 & 301	15 (Medium)	78	1.46	0.93
C	A026 & 26	60 (Medium)	30	0.56	0.36
* To two decimal places.					

## 4.4 SUMMARY

- 4.4.1 GCN were identified within 13 ponds within the survey area; nine within Section A, three within Section B and one within Section C; this is summarised in Table 4.4 and detailed on Figures 2 and 3. Breeding was confirmed in one pond, as detailed in 4.2.13.
- 4.4.2 The 2018 data search identified GCN presence through eDNA sampling at a pond located 21 m from the Order Limits in Section A, this location coincides with the location of Pond 198 where three negative eDNA results were recorded in 2015, 2017 and 2018. A survey using traditional survey methods has been conducted during the 2018 survey period to provide further support to the three negative eDNA results. The four survey visits within the peak survey period confirmed no GCN to be present.

- 4.4.3 The desk study also highlighted a medium metapopulation of GCN in 2016 associated with the Former Shell Tank Farm site at Rhosgoch which is located approximately 600 m from the Order Limits and approximately 420 m from the nearest pond in the survey area.
- 4.4.4 All ponds, with the exception of 300 and 301, were calculated as having a County Value of less than 1 %. Ponds 300 and 301 were calculated as having a County Value of 1.08 and 1.15 %, respectively. These ponds also comprise part of Metapopulation B, which was calculated as contributing the largest amount to the Anglesey CCS and FCS in comparison to the other metapopulations, thus having the greatest County Value. Ponds 300 and 301 taken in isolation do not appear to be highly suitable ponds for GCN given their characteristics. Pond 300 is a short, linear ephemeral field drain with shallow water (HSI score 0.51, below average) and Pond 301 is a very small, lined garden pond (HSI score 0.63, average).
- 4.4.5 One of the factors contributing to the resulting CCS Score of Pond 301 is its proximity to Pond 231 within the Former Shell Tank Farm site. This is at a distance of 420 m from Pond 301; within the 500 m used to determine the Number of Ponds criterion. As discussed in section 3.3, metapopulation analysis considers ponds within 250 m from a given pond, thus 231 was scoped out of further analysis. This is discussed further in section 5.
- 4.4.6 All of the waterbodies that were found to contain GCN during surveys are located on Anglesey, north of Llangefni, within Sections A, B and C. No GCN were found to be present within Sections D, E and F during the surveys.
- 4.4.7 Eight of the ten GCN records provided by Cofnod were located in Sections A, B and C. The other two records were from Sections D and E and both were located over 1 km from the Order Limits.

## 5 Conclusion

- 5.1.1 In total, GCN presence was confirmed in 13 waterbodies located within the survey area during surveys undertaken between 2015 and 2017.
- 5.1.2 Two waterbodies supporting medium GCN populations and eight waterbodies supporting small GCN populations were identified through population estimate surveys. GCN presence in the remaining three waterbodies was identified through eDNA only and therefore no population estimations could be provided for these ponds using peak counts from surveys. A medium GCN population has been assumed for pond 26 (this is supported by the results of the 2018 surveys completed to date; peak count 16 GCN after four visits) and a small population has been assumed for ponds 16 and 164 due to the peak numbers of GCN recorded in other waterbodies in the adjacent areas. Pond 16 dried up in 2018 after two survey visits which supports the conclusion that no more than a small population is likely to be present.
- 5.1.3 The results indicate the presence of three medium GCN metapopulations, A, B and C (refer to Figure 3).
- 5.1.4 The absence of GCN in Pond 198 was confirmed during surveys in 2018 following conflicting desk study and survey data. This baseline assessment has assumed absence following three negative eDNA results in 2015, 2017 and 2018, and no GCN presence identified during four surveys undertaken during the peak survey period in 2018. Complete 2018 results will be present in an Addendum Report which will include the 2018 survey results.
- 5.1.5 Due to its decline in Anglesey, and subsequent legal status, the conservation and enhancement of habitats to increase abundance of GCN is of high importance in Anglesey and across Wales. The Spatial Action Plan Report was published in March 2017 and aims to provide a guide to developers, conservation non-government organisations (NGO's) and governments to conserve and enhance GCN populations in Anglesey (Ref 4).
- 5.1.6 GCN distribution and abundance is well recorded within the study area. The surveys undertaken in 2015, 2016 and 2017, in combination with the desk study and review of previous reports, provide a robust overview of this and the results and data gathered indicate that this species is, and has been



distributed predominantly within Sections A, B and C of the Order Limits. This trend is reinforced by the large areas of Low Suitability Habitat displayed within Map 1 of the Spatial Action Plan report which dominate the land to the southeast of Llangefni. However, it is not possible to conclude that transient species stick to their current ranges, thus GCN should be considered possible throughout the study area in areas of suitable terrestrial habitat and where there is connectivity with other ponds in the area.

5.1.7 FCS is defined as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- the natural range of the species is not being reduced for the foreseeable future; and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

5.1.8 In Wales, the requirement for FCS is maintained through The Conservation of Habitats and Species Regulations 2017 licensing procedure.

5.1.9 The criterion for determining a pond's CCS Score considers potential effects which may compromise its longevity. There would be no direct effects (i.e. loss of GCN ponds) to GCN ponds as a result of works for the Proposed Development. Because of this, each pond was placed within category 5, indicating that there would be no significant threats and that the pond is considered to remain suitable for GCN for the foreseeable future.

5.1.10 Individual ponds and metapopulations containing GCN have been identified within the survey area. The County Value of each of these have been calculated and their contribution to Anglesey's FSC. Despite requiring inclusion for determining CCS Score for Pond 301, Pond 231 was scoped out of further survey as it is located over 250 m from Pond 301 and outside the 250 m buffer from the Order Limits. Furthermore, the presence of other ponds and greater quality of terrestrial habitat to the northeast of Pond 231, it is considered that migration of GCN between ponds 301 and 231 is considered highly unlikely.

5.1.11 Pond A026 returned a Peak Count of 30; this is also assumed to be the case for Pond 26 which, despite not being subjected to population surveys, is less than 20 m away. Populations of 30 or more GCN are considered important at county level.

- 5.1.12 Effects as a result of the Proposed Development and mitigation measures are detailed in Chapter 9, Ecology and Nature Conservation (Document 5.9). Further details on the mitigation measures are provided in the Biodiversity Mitigation Strategy (**Document 7.7**). Potential enhancement opportunities are detailed within the Enhancement Strategy (**Document 7.13**) which includes opportunities for enhancement of habitats that could in turn benefit great crested newts and other amphibians.

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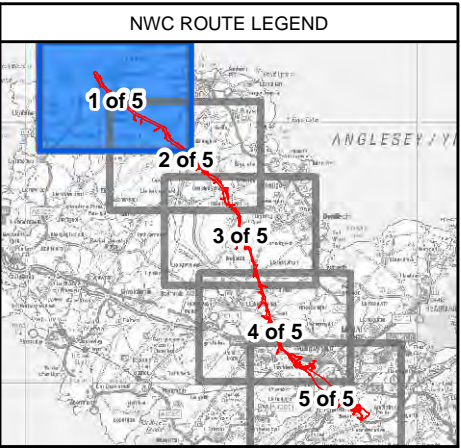
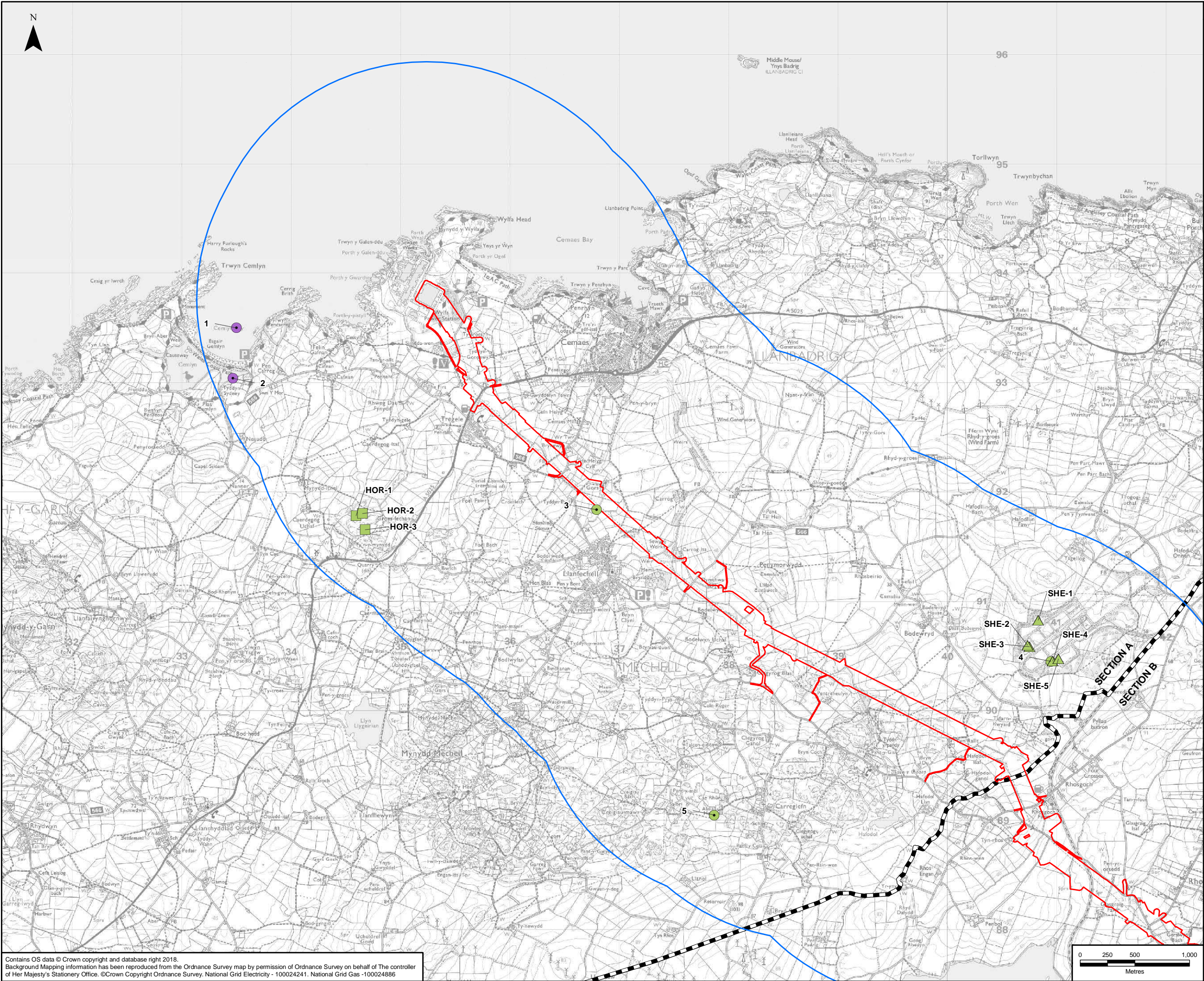
<http://gov.wales/?lang=en> Welsh Government website

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# Figures

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**LEGEND**

- ORDER LIMITS
- 2KM BUFFER OF ORDER LIMITS
- SECTION OUTLINES

**HORIZON NUCLEAR POWER SURVEY RESULTS**

- GREAT CRESTED NEWT

**FORMER SHELL TANK FARM, RHOSGOCH SURVEY RESULTS**

- GREAT CRESTED NEWT

**COFNOD DATA<sup>1</sup>**

- COMMON TOAD
- GREAT CRESTED NEWT
- COMMON TOAD AND GREAT CRESTED NEWT

**NOTES**

1: ENVIRONMENTAL INFORMATION SEARCH DATA PROVIDED BY COFNOD. DUE TO THE PRECISION OF THE GRID REFERENCE SUPPLIED TO COFNOD, SOME LOCATIONS OF THE SPECIES RECORDS ARE APPROXIMATE.

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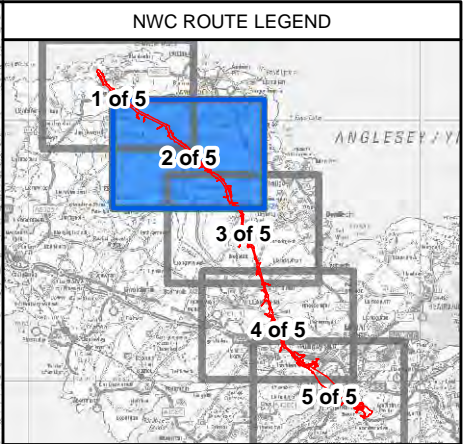
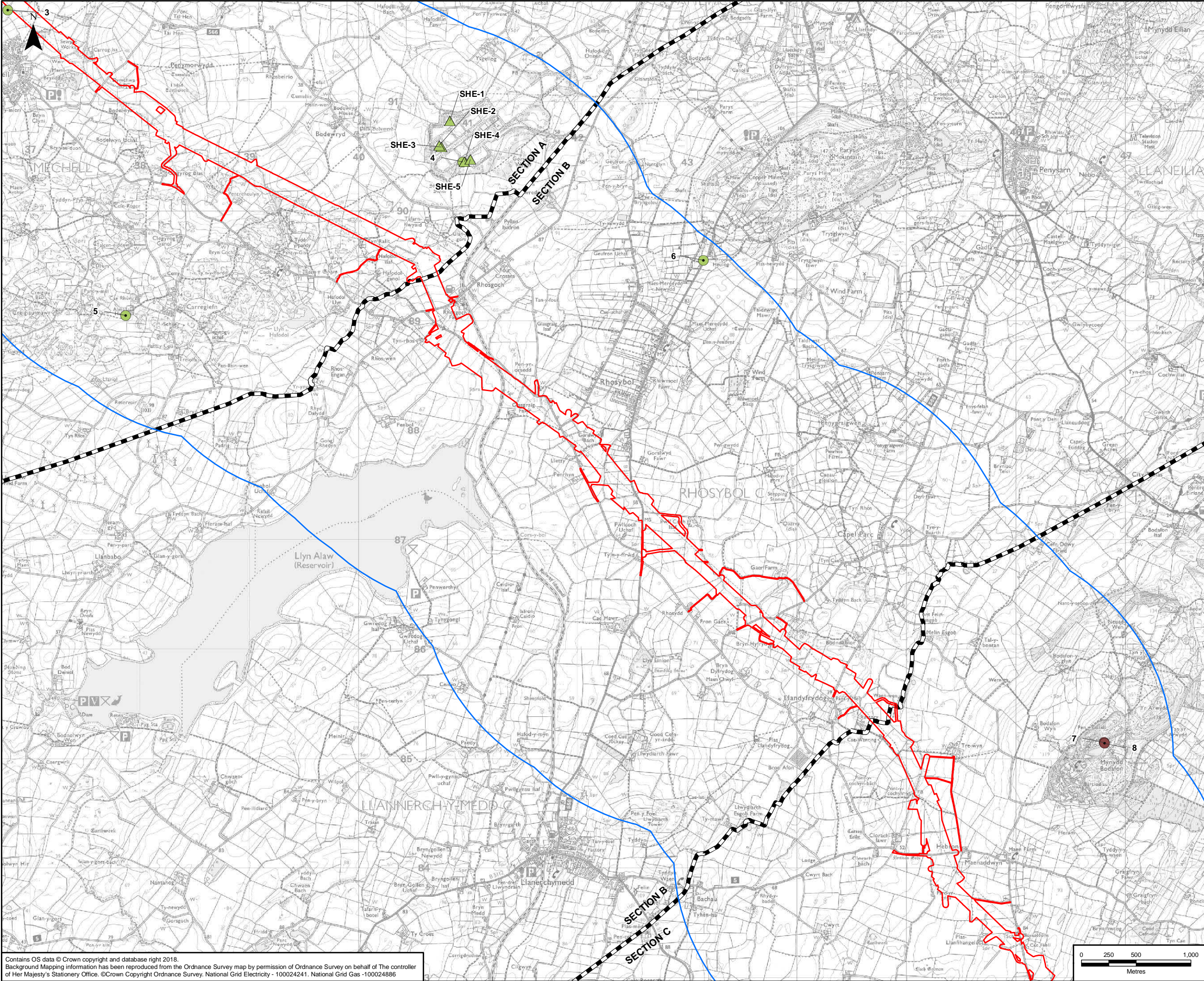
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**LEGEND**

- ORDER LIMITS
- 2KM BUFFER OF ORDER LIMITS
- SECTION CUTLINES
- HORIZON NUCLEAR POWER SURVEY RESULTS
- GREAT CRESTED NEWT
- FORMER SHELL TANK FARM, RHOSGOCH SURVEY RESULTS
- GREAT CRESTED NEWT
- COFNOD DATA<sup>1</sup>
- COMMON TOAD
- GREAT CRESTED NEWT
- COMMON TOAD AND GREAT CRESTED NEWT

**NOTES**

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Document Title: FIGURE 1 AMPHIBIAN DATA SEARCH SECTION B

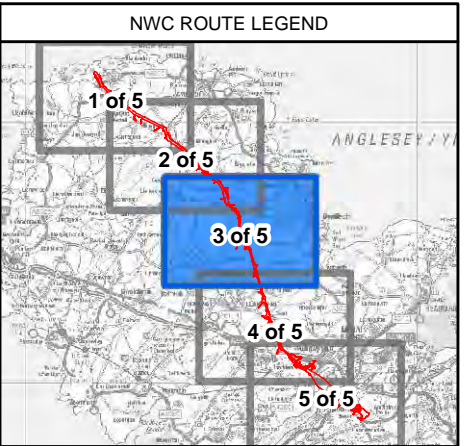
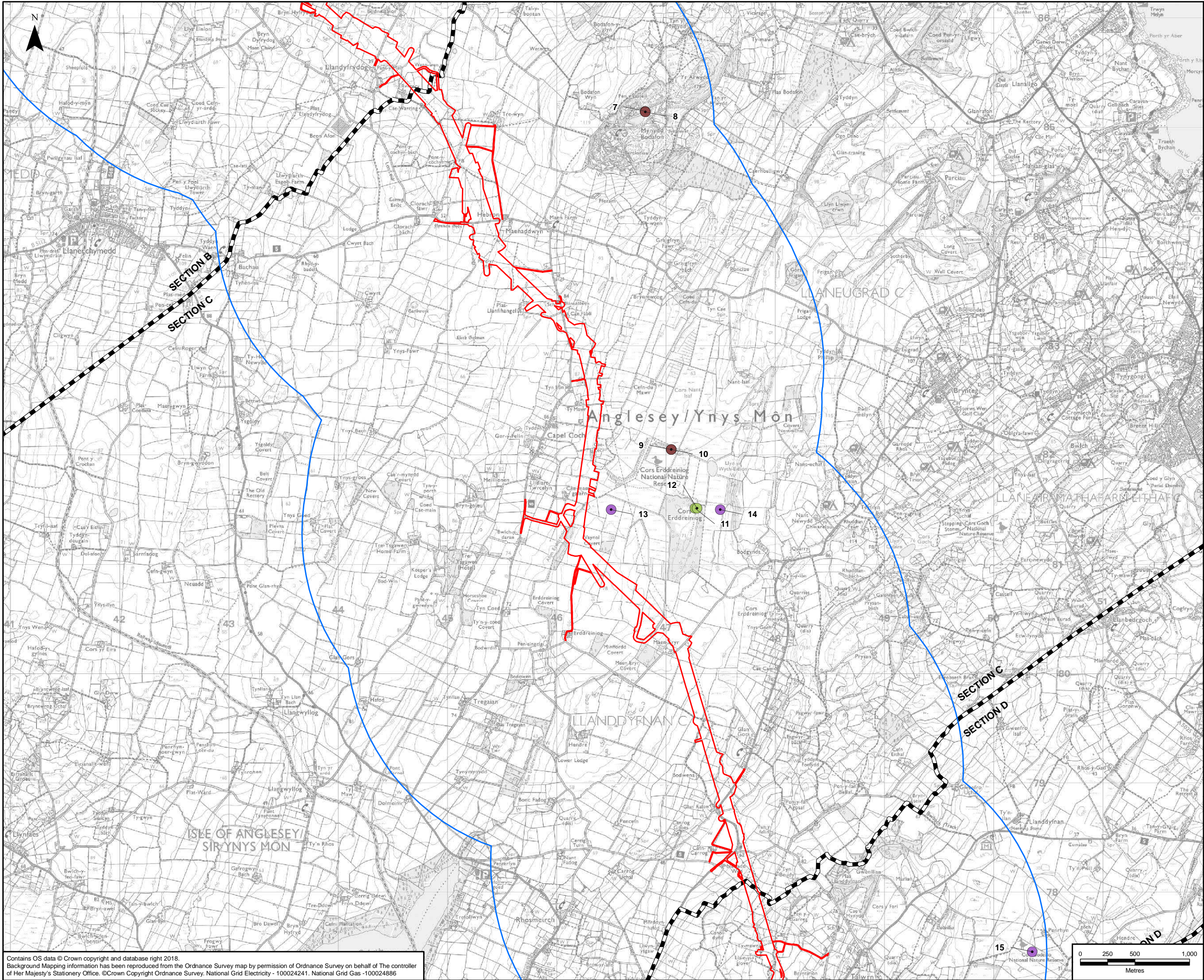
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**LEGEND**

- ORDER LIMITS - OPTION B
- 2KM BUFFER OF ORDER LIMITS - OPTION B
- SECTION CUTLINES

**HORIZON NUCLEAR POWER SURVEY RESULTS**

- GREAT CRESTED NEWT

**FORMER SHELL TANK FARM, RHOSGOCH SURVEY RESULTS**

- GREAT CRESTED NEWT

**COFNOD DATA<sup>1</sup>**

- COMMON TOAD
- GREAT CRESTED NEWT
- COMMON TOAD AND GREAT CRESTED NEWT

**NOTES**

1: ENVIRONMENTAL INFORMATION SEARCH DATA PROVIDED BY COFNOD. DUE TO THE PRECISION OF THE GRID REFERENCE SUPPLIED TO COFNOD, SOME LOCATIONS OF THE SPECIES RECORDS ARE APPROXIMATE.

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Scheme: NORTH WALES CONNECTION PROJECT

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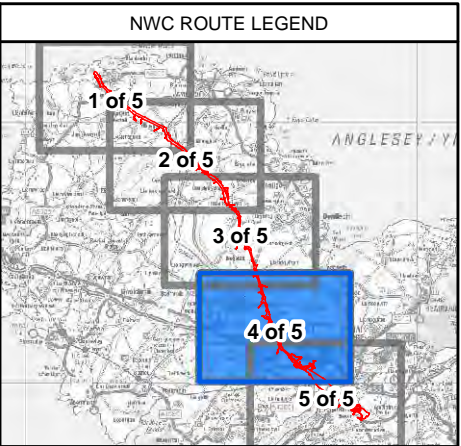
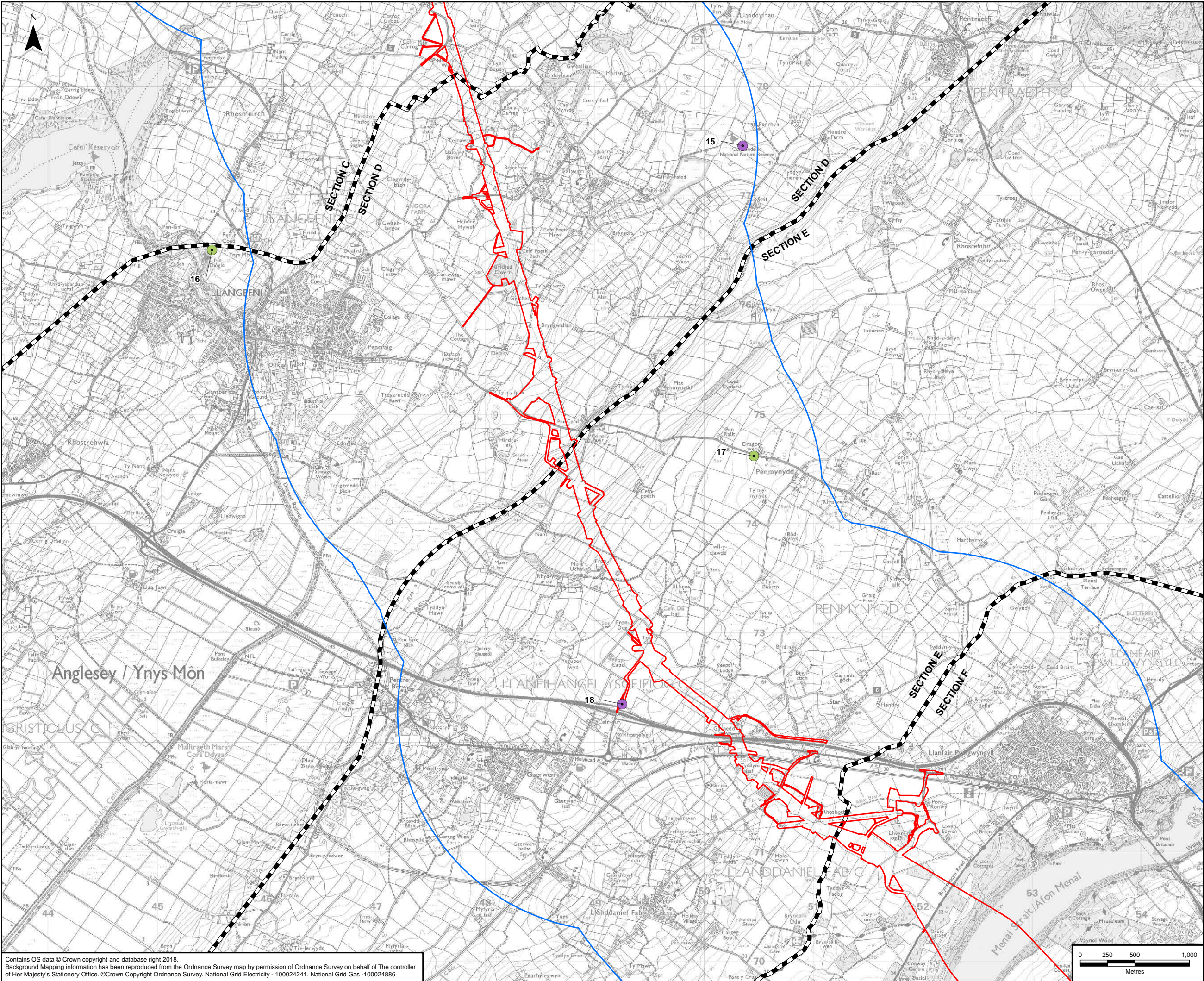
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AMPHIBIAN DATA SEARCH  
SECTION C OPTION B

Creator:	Date:	Checker:	Date:	Approver:	Date:
AB	21/06/2018	FT	21/06/2018	NL	21/06/2018

Document Type:	Scale:	Format:	Sheets:	Rev:
FIGURE	1:32,000	A3	3 of 5 Option B	0

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**LEGEND**

- ORDER LIMITS - OPTION A
- 2KM BUFFER OF ORDER LIMITS - OPTION A
- SECTION CUTLINES
- HORIZON NUCLEAR POWER SURVEY RESULTS
  - GREAT CRESTED NEWT
- FORMER SHELL TANK FARM, RHOSGOCH SURVEY RESULTS
  - GREAT CRESTED NEWT
- COFNOD DATA<sup>1</sup>
  - COMMON TOAD
  - GREAT CRESTED NEWT
  - COMMON TOAD AND GREAT CRESTED NEWT

**NOTES**

1: ENVIRONMENTAL INFORMATION SEARCH DATA PROVIDED BY COFNOD. DUE TO THE PRECISION OF THE GRID REFERENCE SUPPLIED TO COFNOD, SOME LOCATIONS OF THE SPECIES RECORDS ARE APPROXIMATE.

0	21/06/2018	ENVIRONMENTAL STATEMENT	AB	FT	NL
Rev	Date	Description	GIS	Chk	App

**nationalgrid**

Scheme: NORTH WALES CONNECTION PROJECT

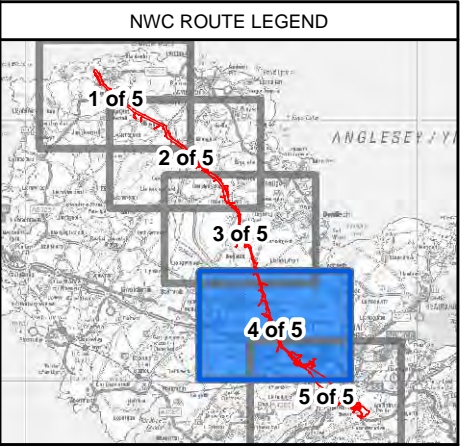
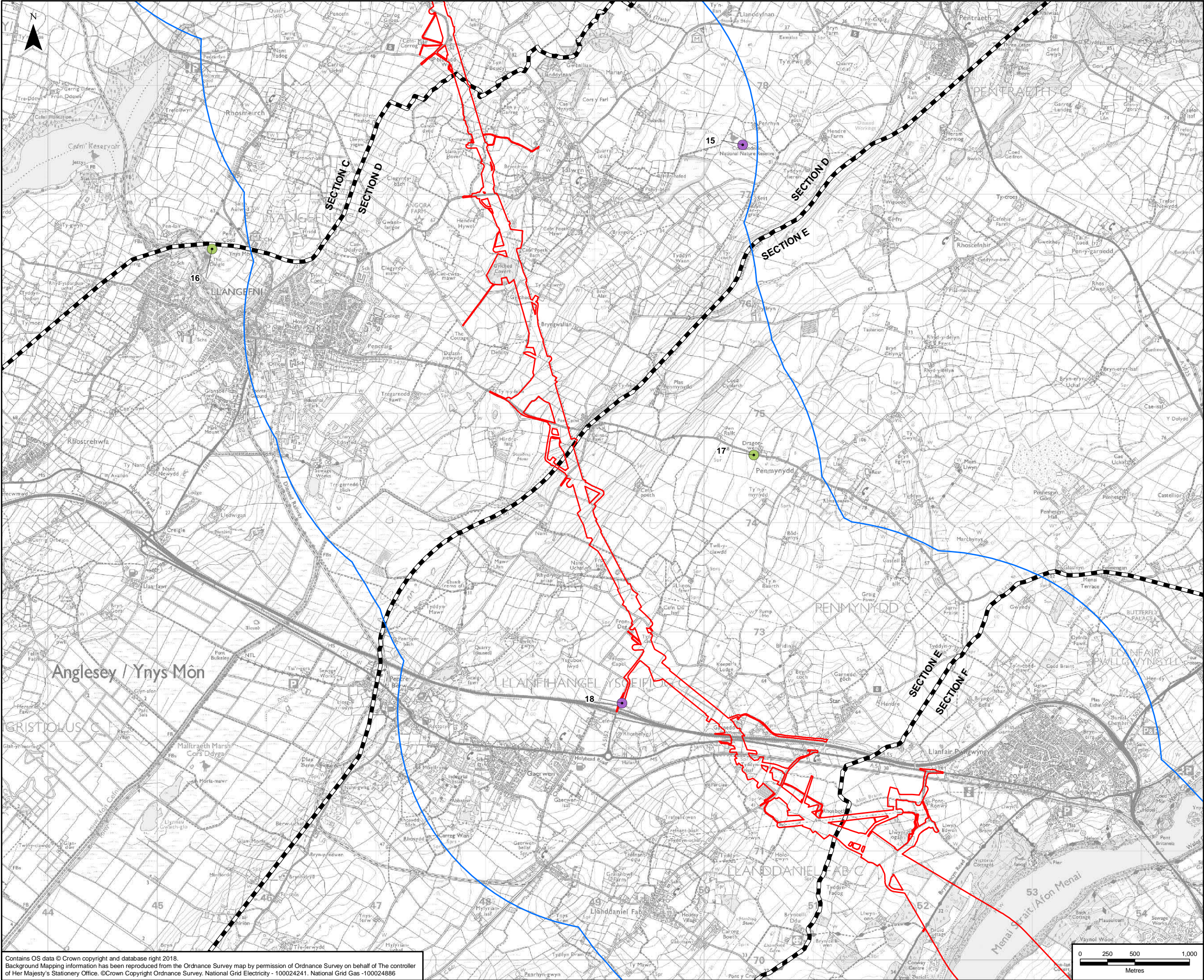
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Document Title: FIGURE 1  
AMPHIBIAN DATA SEARCH  
SECTION D & E OPTION A

Creator: AB	Date: 21/06/2018	Checker: FT	Date: 21/06/2018	Approver: NL	Date: 21/06/2018
Document Type: FIGURE	Scale: 1:32,000	Format: A3	Sheets: 4 of 5 Option A	Rev: 0	

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**LEGEND**

- ORDER LIMITS - OPTION B
- 2KM BUFFER OF ORDER LIMITS - OPTION B
- SECTION CUTLINES

**HORIZON NUCLEAR POWER SURVEY RESULTS**

- GREAT CRESTED NEWT

**FORMER SHELL TANK FARM, RHOSGOCH SURVEY RESULTS**

- GREAT CRESTED NEWT

**COFNOD DATA<sup>1</sup>**

- COMMON TOAD
- GREAT CRESTED NEWT
- COMMON TOAD AND GREAT CRESTED NEWT

**NOTES**

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Rev	Date	Description	GIS	Chk	App

**nationalgrid**

Scheme: NORTH WALES CONNECTION PROJECT

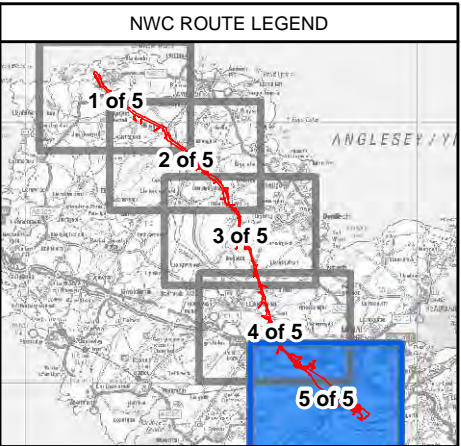
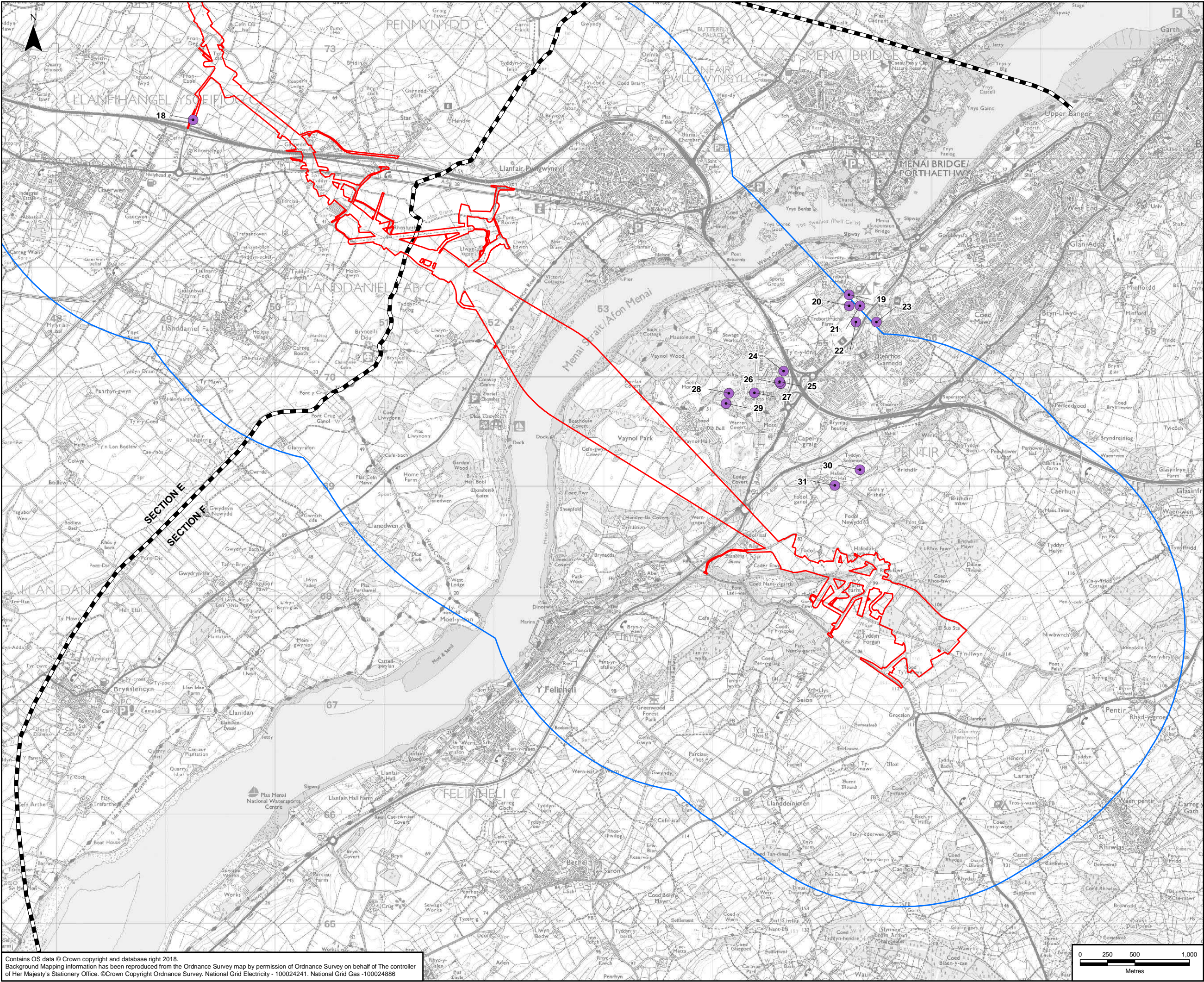
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SECTION D & E OPTION B

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Document Type: FIGURE	Scale: 1:32,000	Format: A3	Sheets: 4 of 5 Option B	Rev: 0	

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**LEGEND**

- ORDER LIMITS
- 2KM BUFFER OF ORDER LIMITS
- SECTION OUTLINES

**HORIZON NUCLEAR POWER SURVEY RESULTS**

- GREAT CRESTED NEWT

**FORMER SHELL TANK FARM, RHOSGOCH SURVEY RESULTS**

- GREAT CRESTED NEWT

**COFNOD DATA<sup>1</sup>**

- COMMON TOAD
- GREAT CRESTED NEWT
- COMMON TOAD AND GREAT CRESTED NEWT

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Rev	Date	Description	GIS	Chk	App

**nationalgrid**

Scheme: NORTH WALES CONNECTION PROJECT

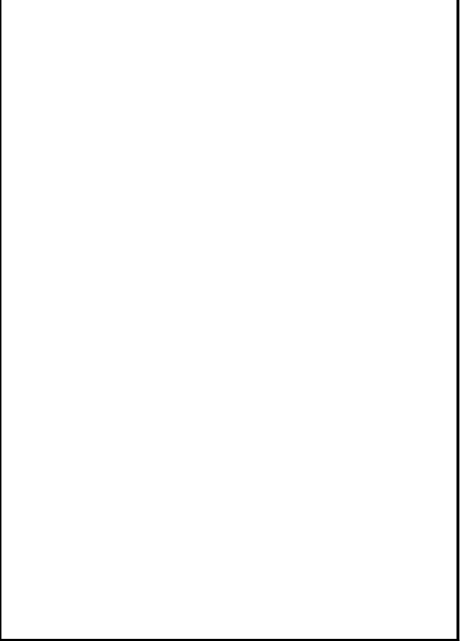
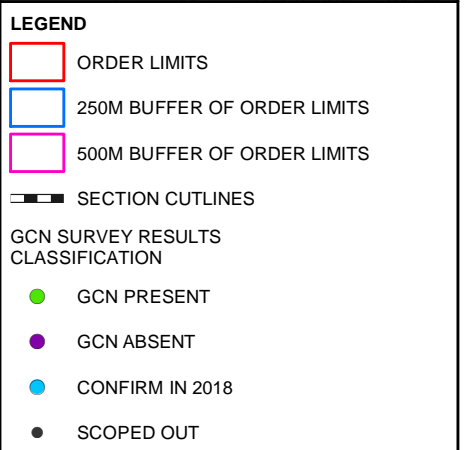
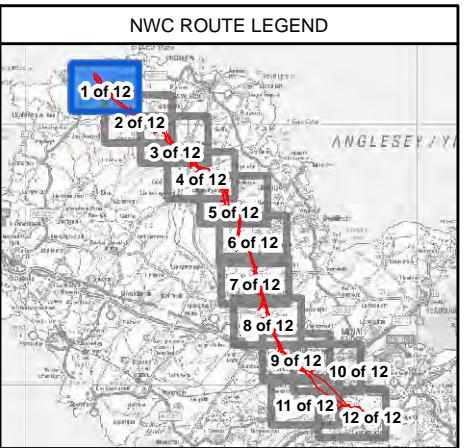
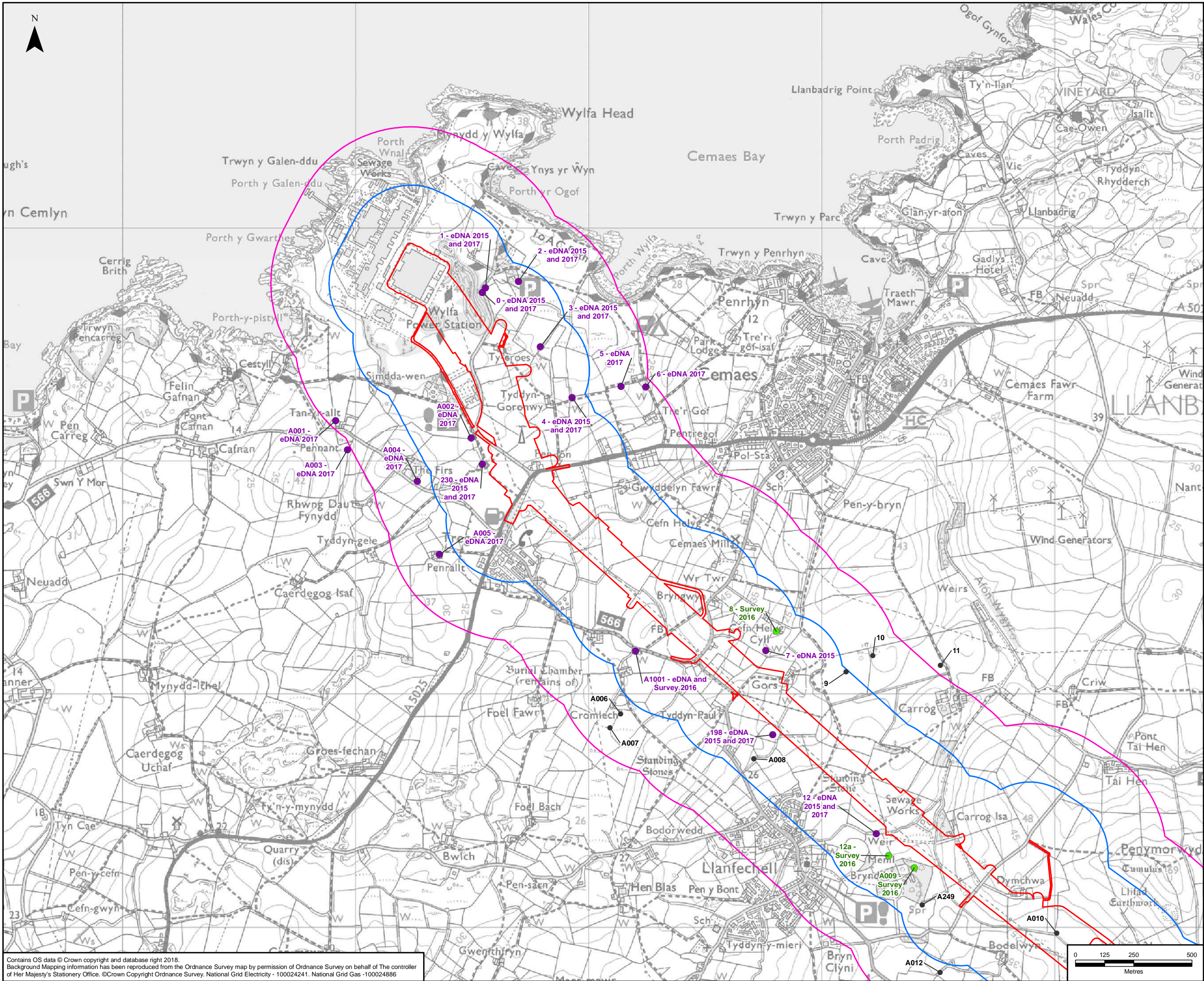
Document Number: 5.9.2.6

Document Title: FIGURE 1  
AMPHIBIAN DATA SEARCH  
SECTION F

Creator: AB	Date: 21/06/2018	Checker: FT	Date: 21/06/2018	Approver: NL	Date: 21/06/2018
Document Type: FIGURE	Scale: 1:32,000	Format: A3	Sheets: 5 of 5	Rev: 0	

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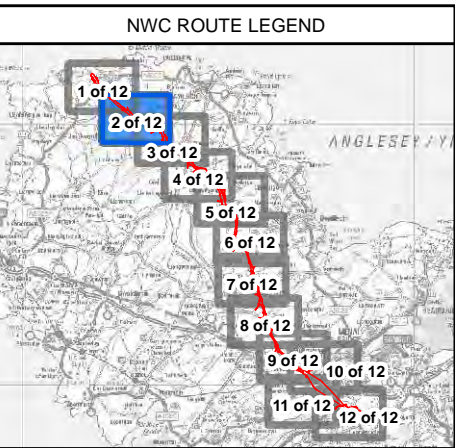
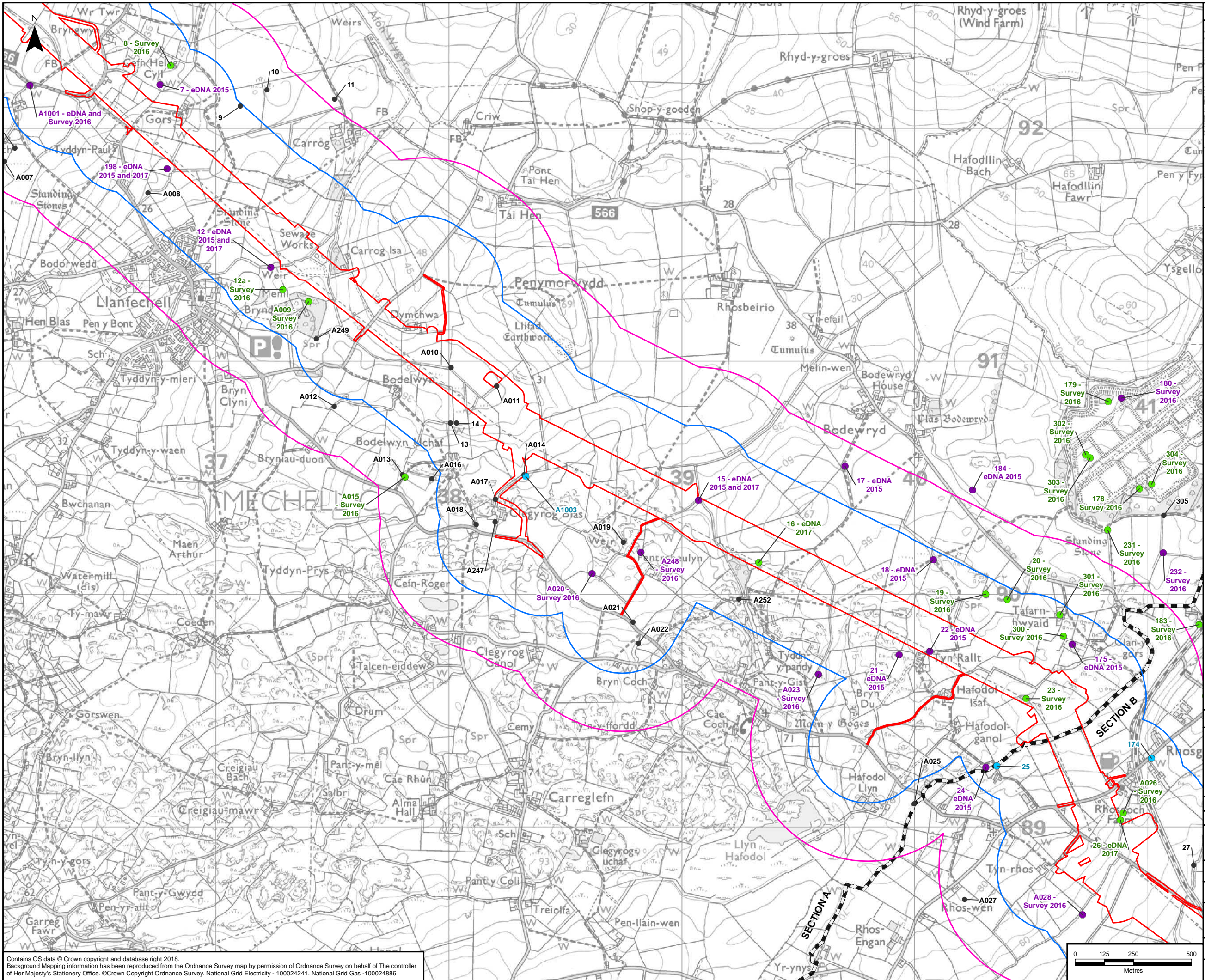
Scheme: NORTH WALES CONNECTION PROJECT

Document Number: 5.9.2.6

Document Title: FIGURE 2 GREAT CRESTED NEWT (GCN) SURVEY RESULTS SECTION A

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
Document Type: FIGURE	Scale: 1:15,000	Format: A3	Sheets: 1 of 12	Rev: A	





**LEGEND**

- ORDER LIMITS
- 250M BUFFER OF ORDER LIMITS
- 500M BUFFER OF ORDER LIMITS
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

A	12/07/2018	ENVIRONMENTAL STATEMENT	AB	LS	NL
Rev	Date	Description	GIS	Chk	App

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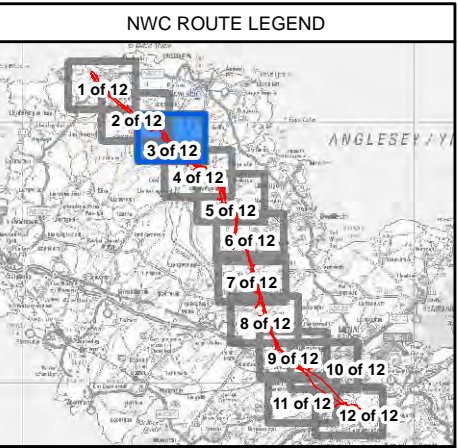
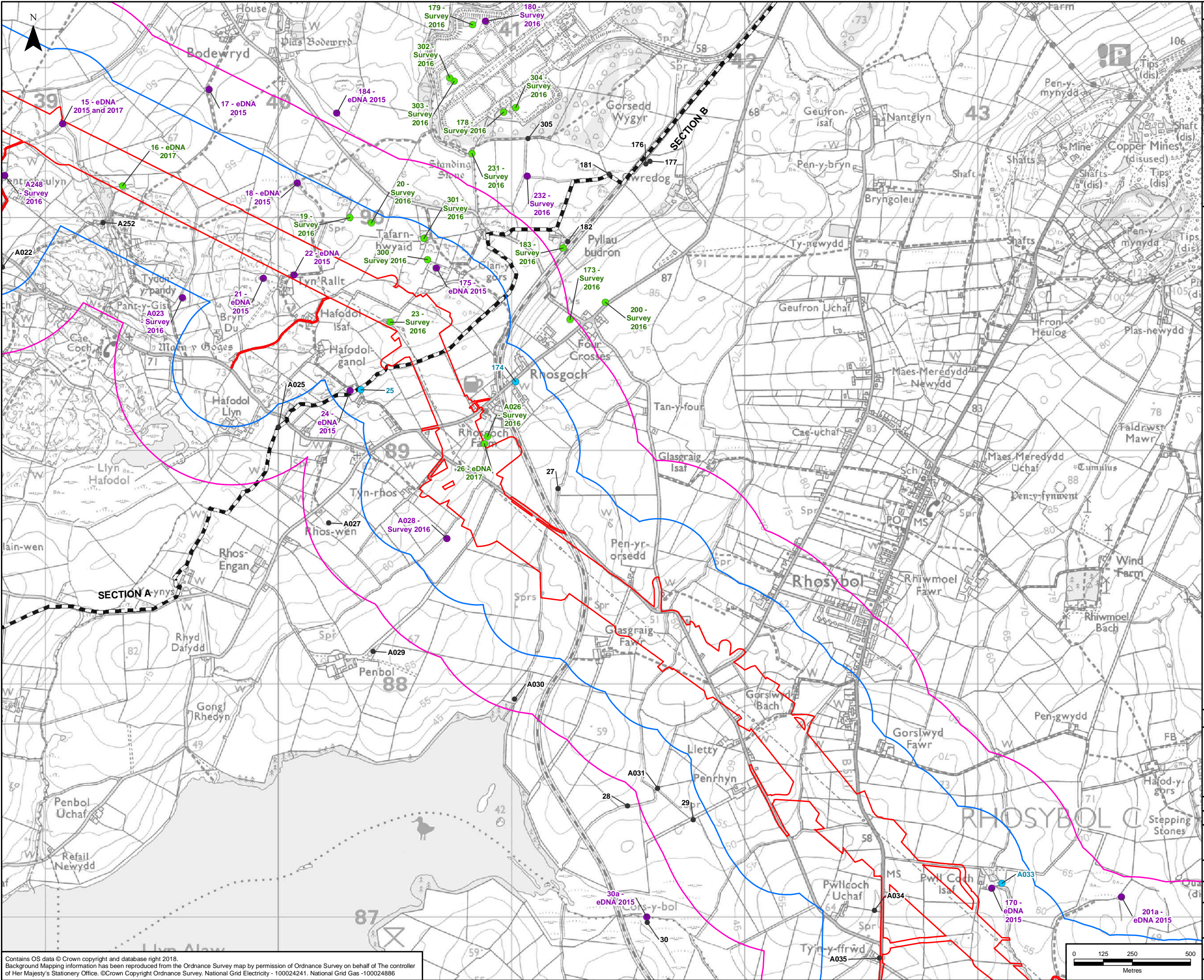
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Document Title: FIGURE 2 GREAT CRESTED NEWT (GCN) SURVEY RESULTS SECTION A

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
Document Type: FIGURE	Scale: 1:15,000	Format: A3	Sheets: 2 of 12	Rev: A	





**LEGEND**

ORDER LIMITS

250M BUFFER OF ORDER LIMITS

500M BUFFER OF ORDER LIMITS

SECTION OUTLINES

GCN SURVEY RESULTS CLASSIFICATION

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

A	12/07/2018	ENVIRONMENTAL STATEMENT	AB	LS	NL
Rev	Date	Description	GIS	Chk	App

**nationalgrid**

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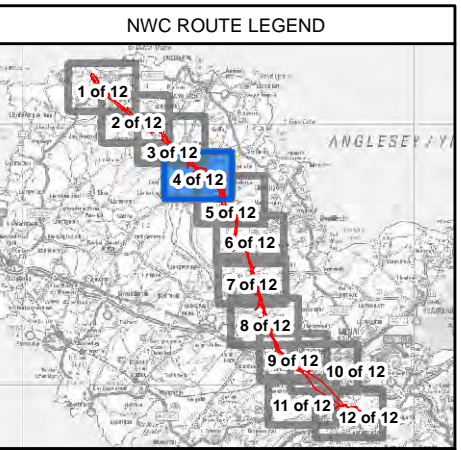
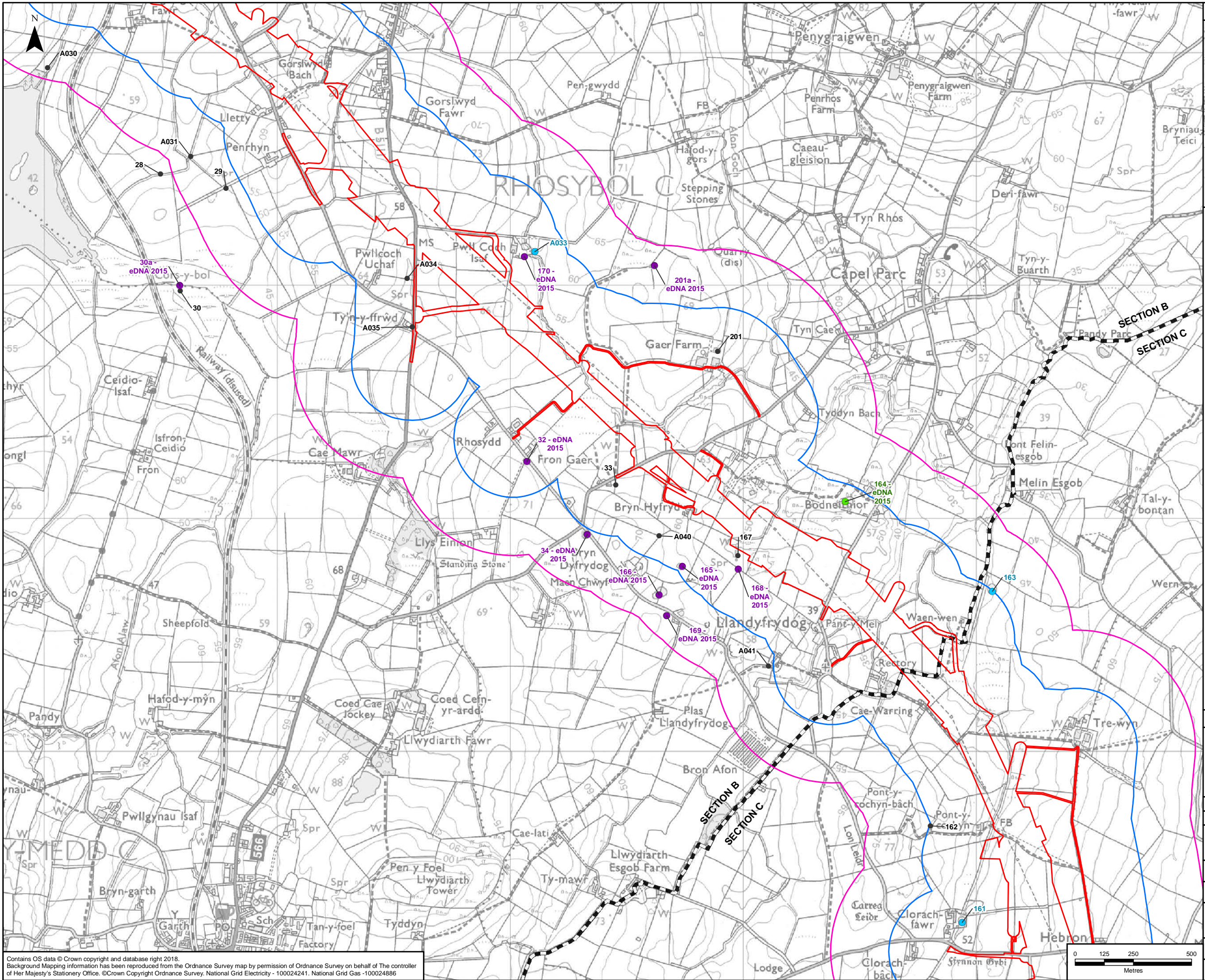
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Document Title: FIGURE 2 GREAT CRESTED NEWT (GCN) SURVEY RESULTS SECTION B

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
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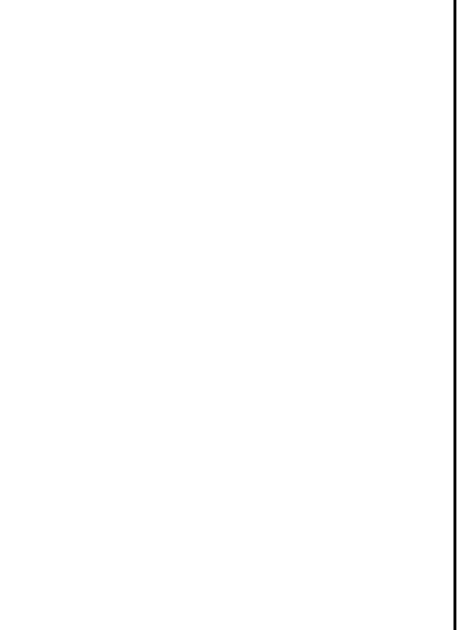


**LEGEND**

- ORDER LIMITS
- 250M BUFFER OF ORDER LIMITS
- 500M BUFFER OF ORDER LIMITS
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT



**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

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Rev	Date	Description	GIS	Chk	App

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Scheme: NORTH WALES CONNECTION PROJECT

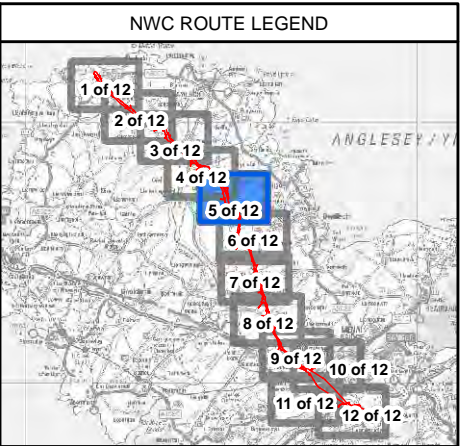
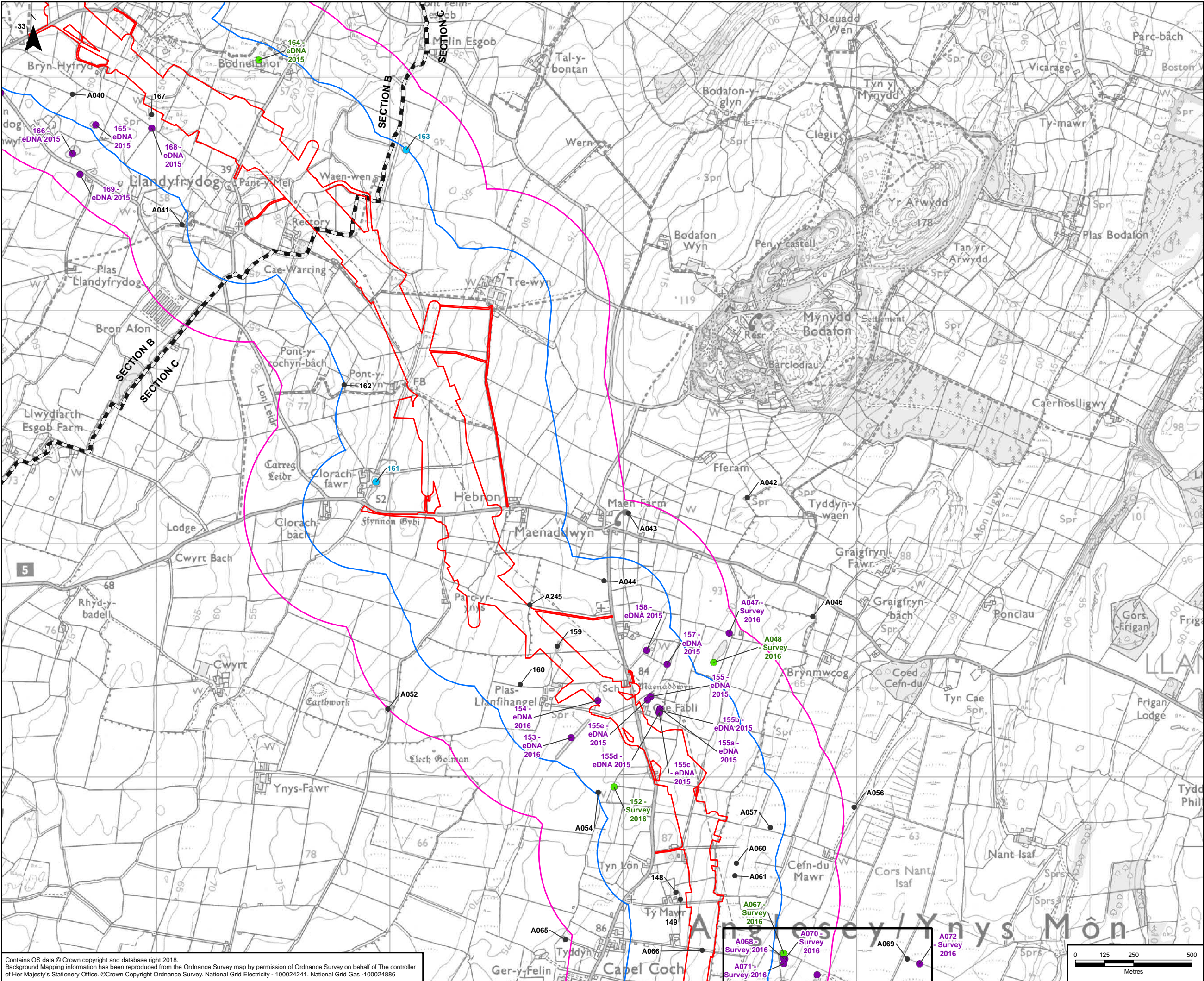
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Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
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**LEGEND**

- ORDER LIMITS
- 250M BUFFER OF ORDER LIMITS
- 500M BUFFER OF ORDER LIMITS
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

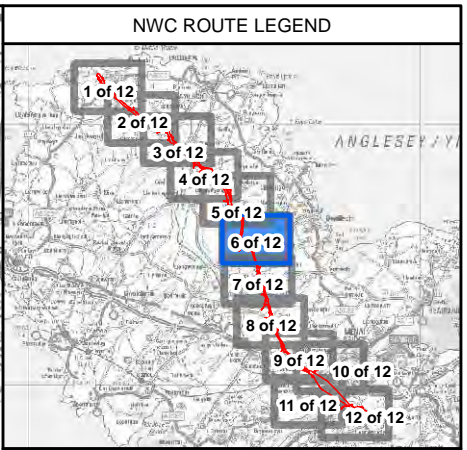
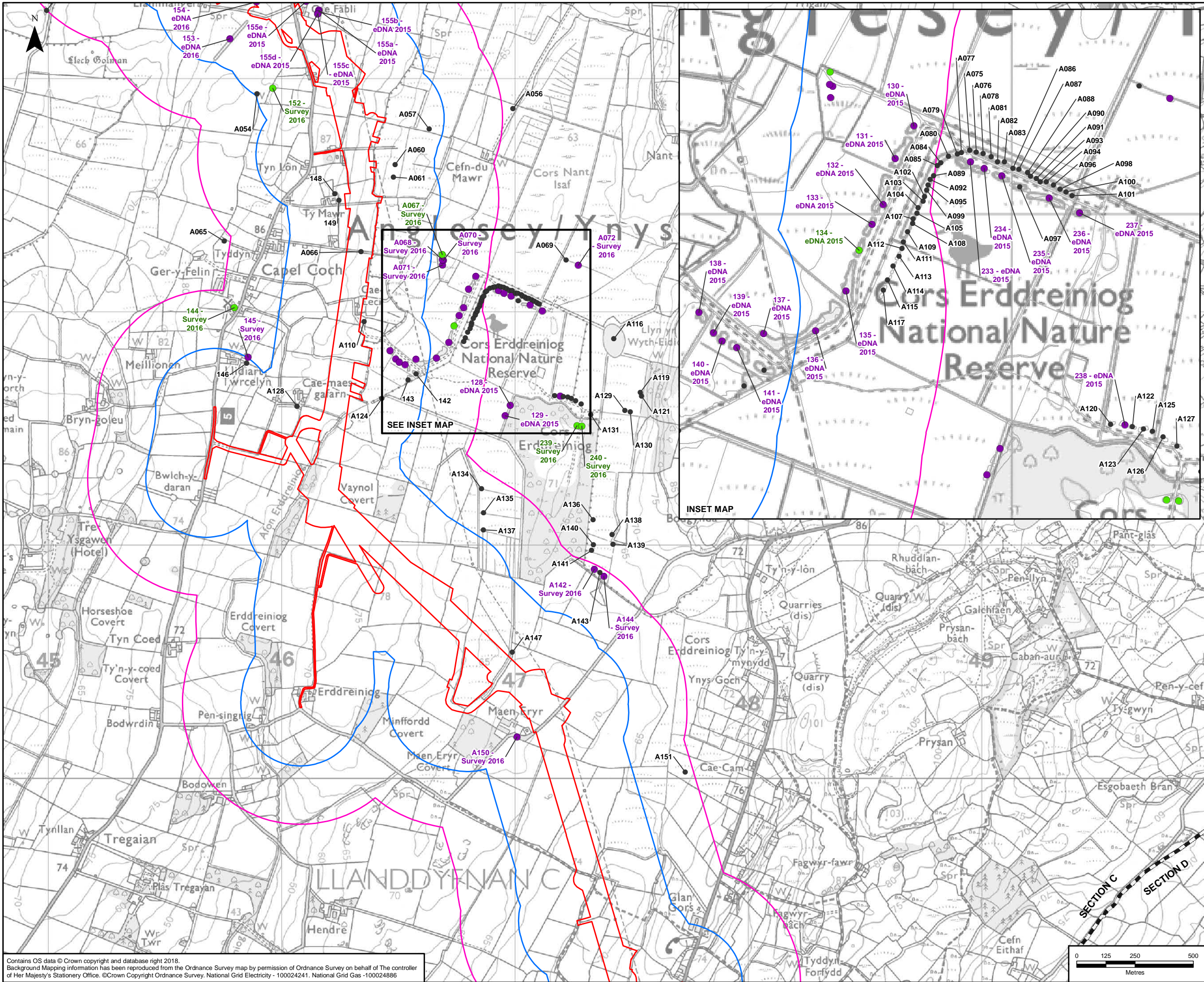
**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

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Rev	Date	Description	GIS	Chk	App
<b>nationalgrid</b>					
Scheme: NORTH WALES CONNECTION PROJECT					
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Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
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**LEGEND**

- ORDER LIMITS - OPTION A
- 250M BUFFER OF ORDER LIMITS - OPTION A
- 500M BUFFER OF ORDER LIMITS - OPTION A
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

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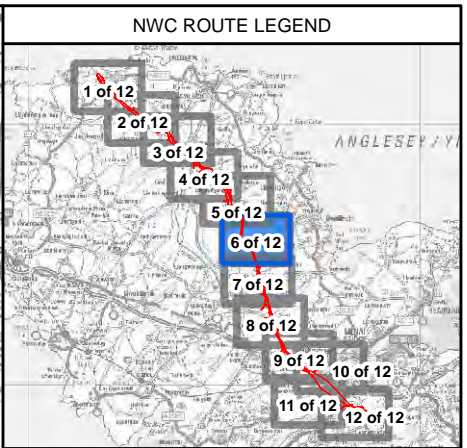
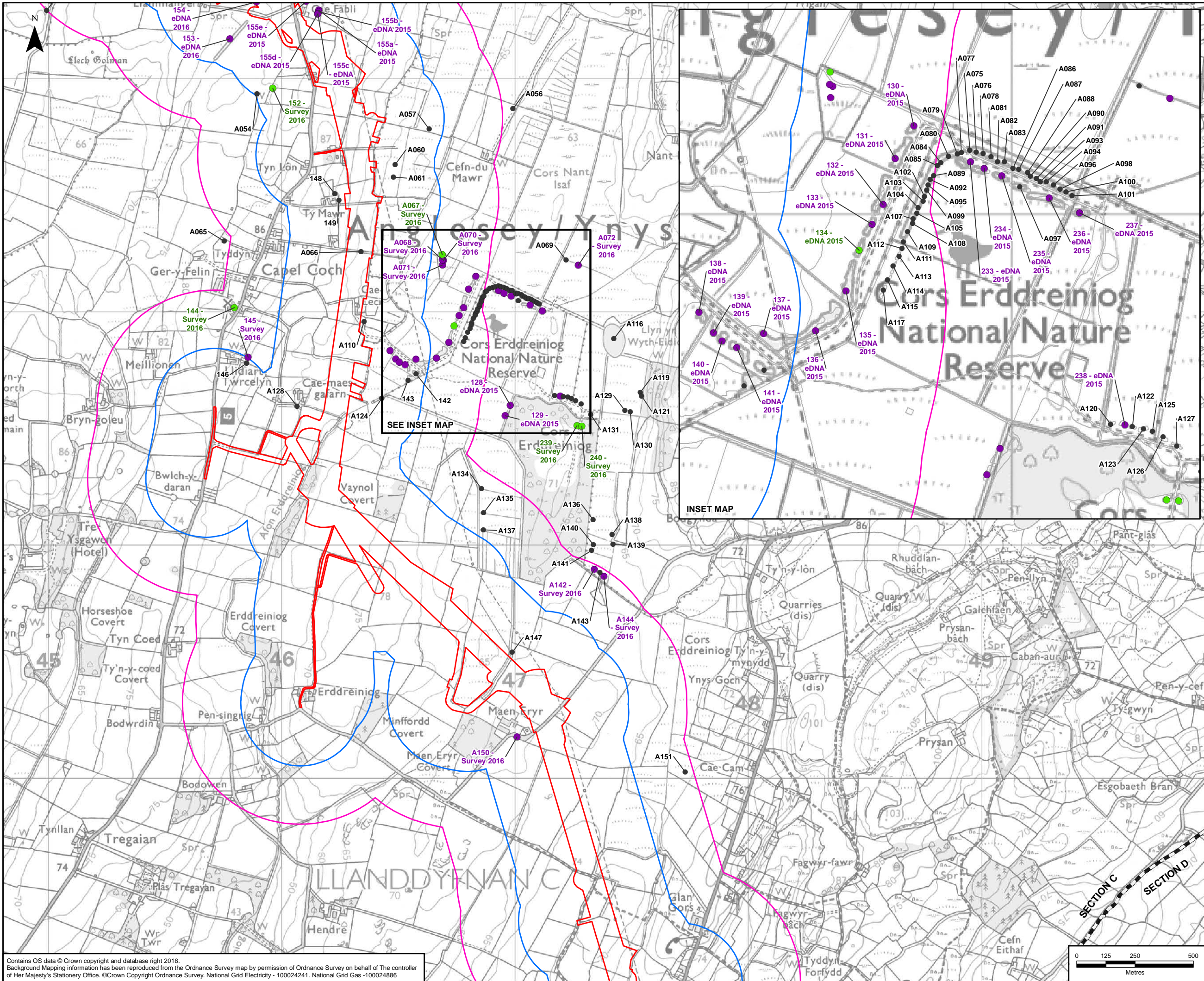
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GREAT CRESTED NEWT (GCN)  
SURVEY RESULTS  
SECTION C OPTION A

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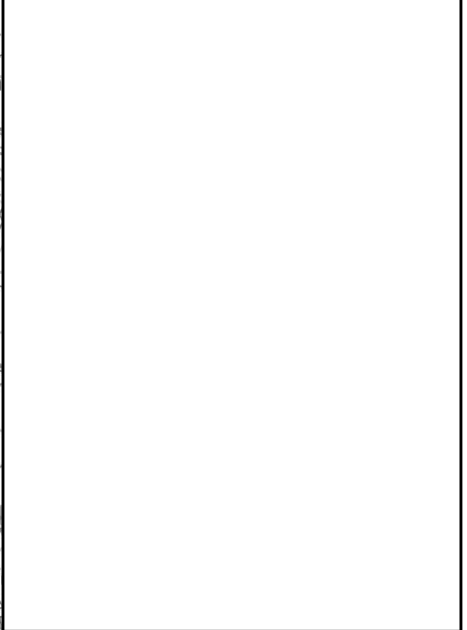


**LEGEND**

- ORDER LIMITS - OPTION B
- 250M BUFFER OF ORDER LIMITS - OPTION B
- 500M BUFFER OF ORDER LIMITS - OPTION B
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT



**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

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Rev	Date	Description	GIS	Chk	App

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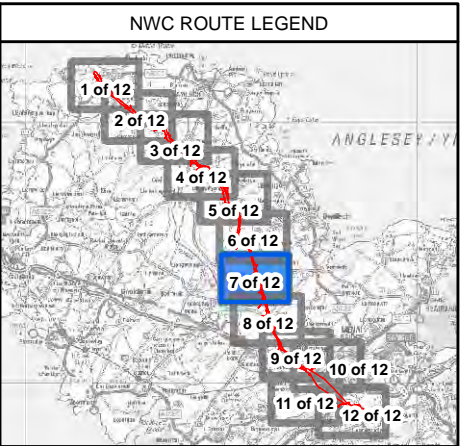
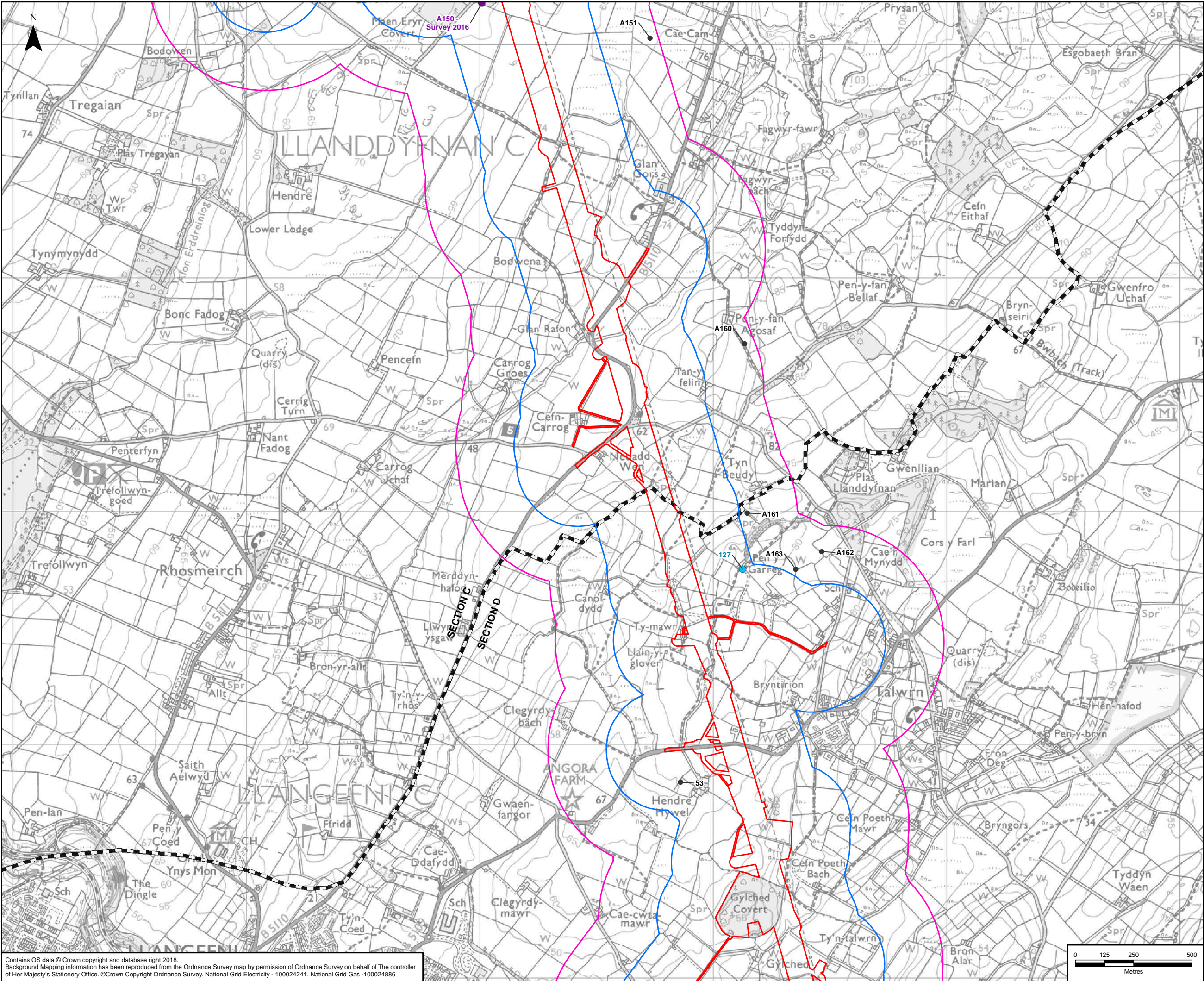
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GREAT CRESTED NEWT (GCN)  
SURVEY RESULTS  
SECTION C OPTION B

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
Document Type: FIGURE	Scale: 1:15,000	Format: A3	Sheets: 6 of 12 Option B	Rev: A	





**LEGEND**

- ORDER LIMITS - OPTION A
- 250M BUFFER OF ORDER LIMITS - OPTION A
- 500M BUFFER OF ORDER LIMITS - OPTION A
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

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Rev	Date	Description	GIS	Chk	App

**nationalgrid**

Scheme: NORTH WALES CONNECTION PROJECT

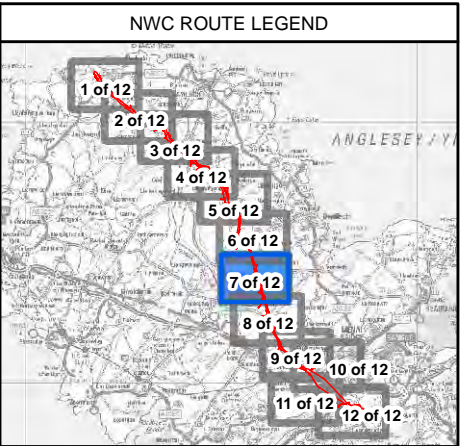
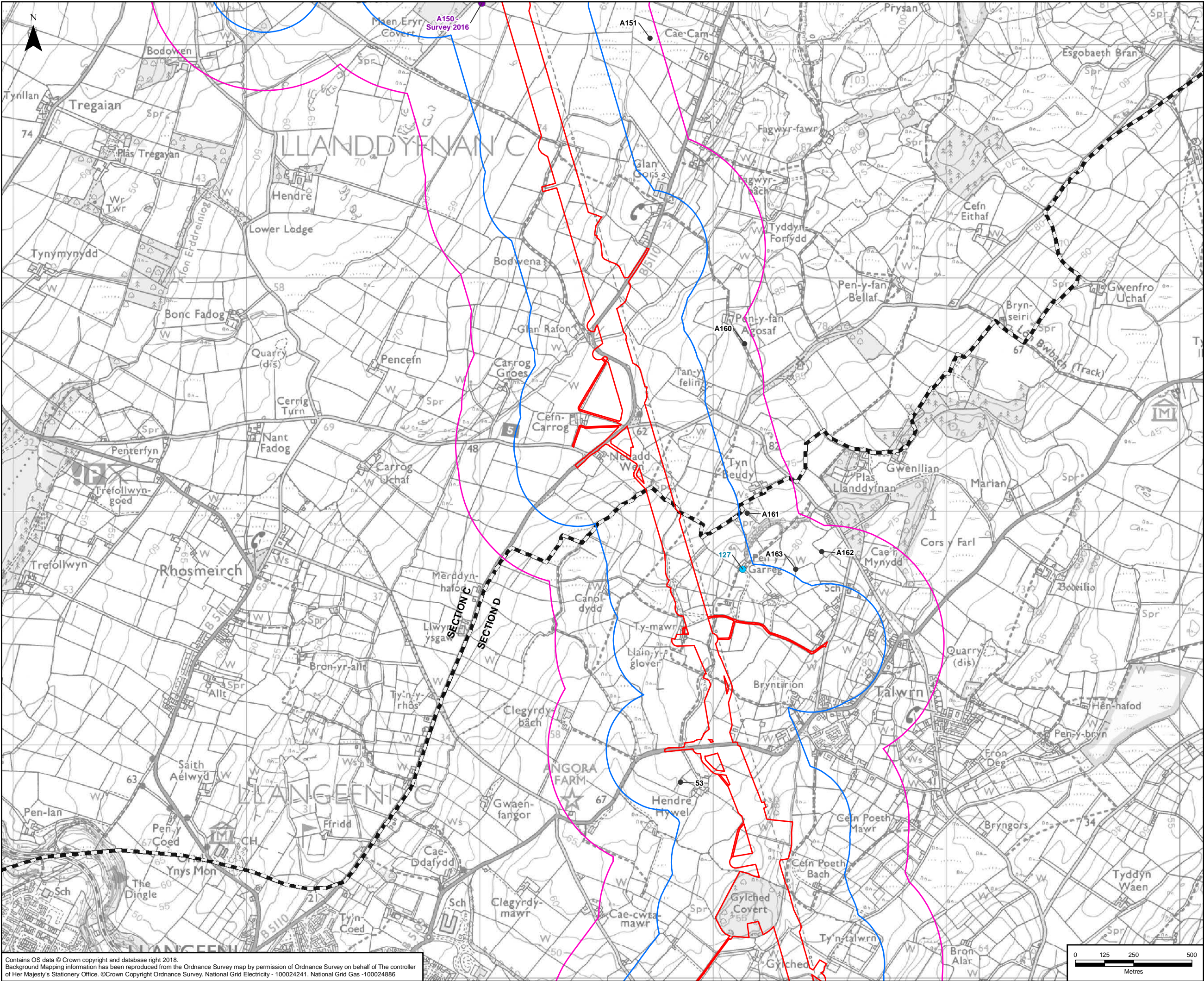
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Document Title: FIGURE 2  
GREAT CRESTED NEWT (GCN)  
SURVEY RESULTS  
SECTION C & D OPTION A

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
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**LEGEND**

- ORDER LIMITS - OPTION B
- 250M BUFFER OF ORDER LIMITS - OPTION B
- 500M BUFFER OF ORDER LIMITS - OPTION B
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

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Scheme: NORTH WALES CONNECTION PROJECT

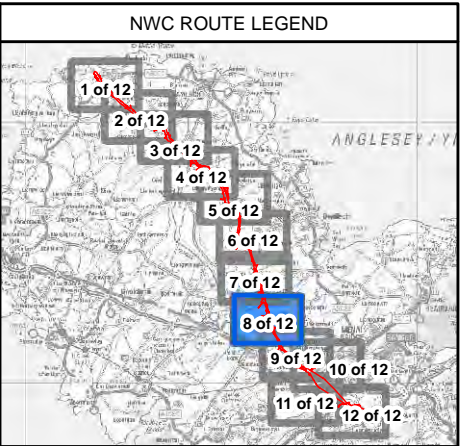
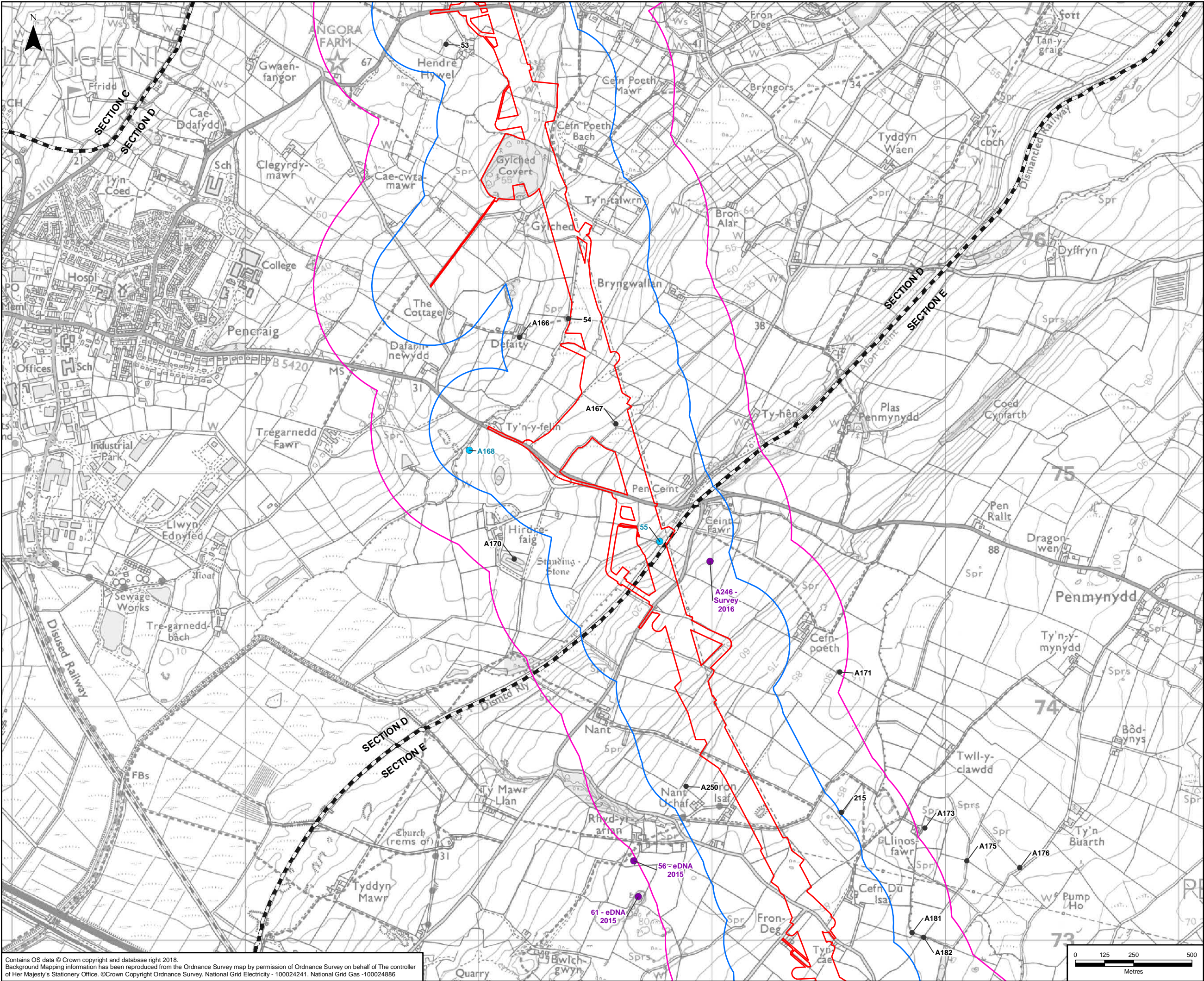
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GREAT CRESTED NEWT (GCN)  
SURVEY RESULTS  
SECTION C & D OPTION B

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**LEGEND**

- ORDER LIMITS - OPTION A
- 250M BUFFER OF ORDER LIMITS - OPTION A
- 500M BUFFER OF ORDER LIMITS - OPTION A
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

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Rev	Date	Description	GIS	Chk	App

**nationalgrid**

Scheme: NORTH WALES CONNECTION PROJECT

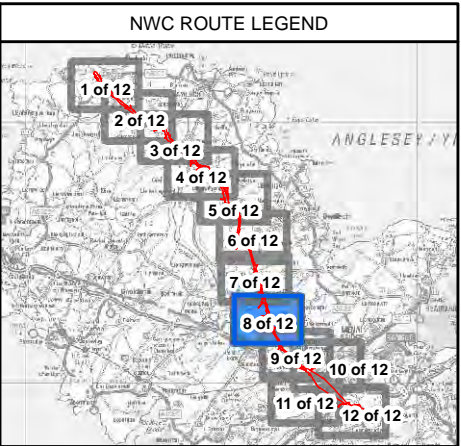
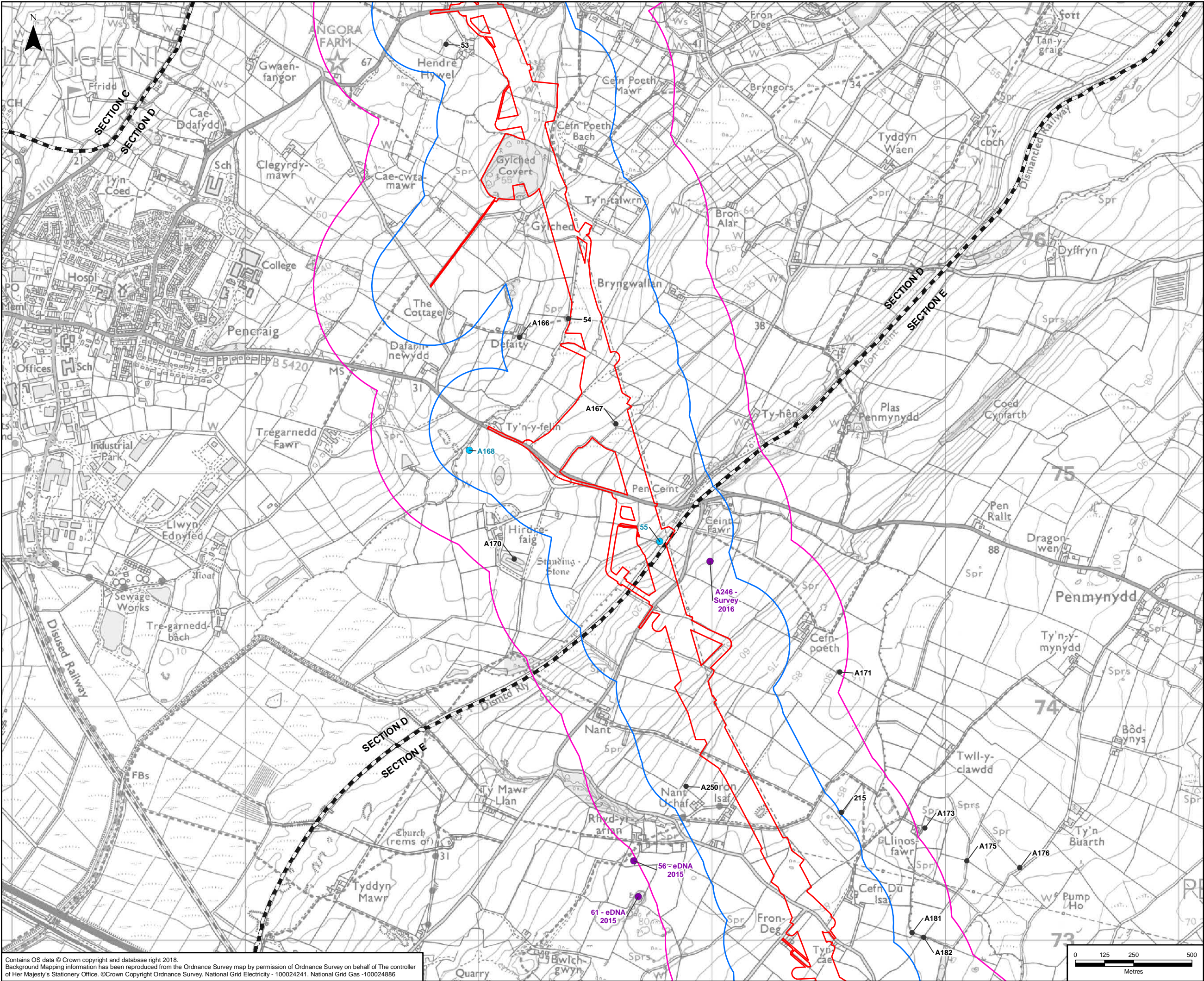
Document Number: 5.9.2.6

Document Title: FIGURE 2 GREAT CRESTED NEWT (GCN) SURVEY RESULTS SECTION D & E OPTION A

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
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**LEGEND**

- ORDER LIMITS - OPTION B
- 250M BUFFER OF ORDER LIMITS - OPTION B
- 500M BUFFER OF ORDER LIMITS - OPTION B
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

A	12/07/2018	ENVIRONMENTAL STATEMENT	AB	LS	NL
Rev	Date	Description	GIS	Chk	App

**nationalgrid**

Scheme: NORTH WALES CONNECTION PROJECT

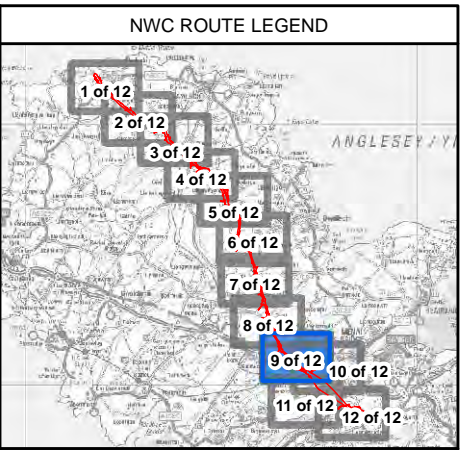
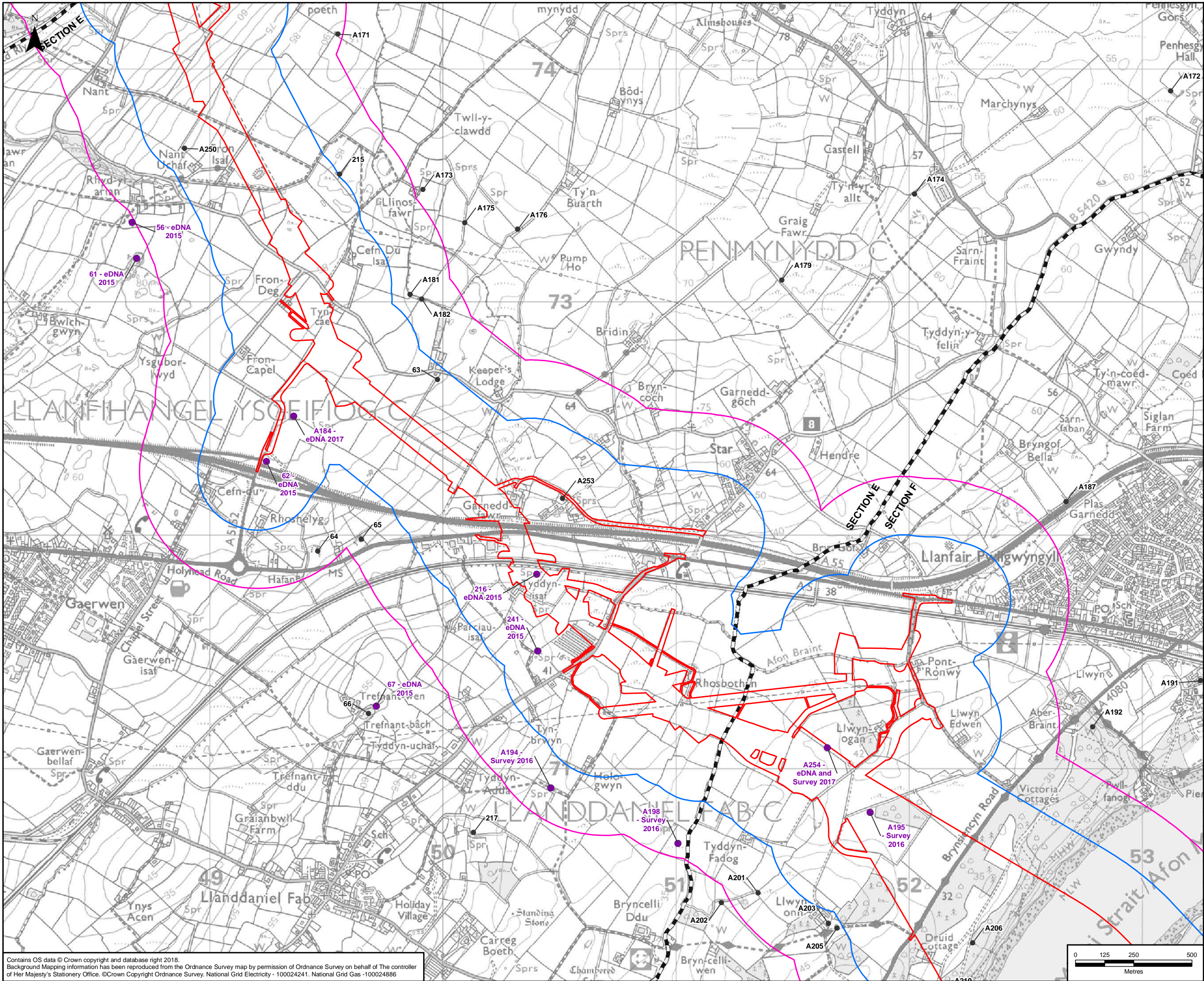
Document Number: 5.9.2.6

Document Title: FIGURE 2 GREAT CRESTED NEWT (GCN) SURVEY RESULTS SECTION D & E OPTION B

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
Document Type: FIGURE	Scale: 1:15,000	Format: A3	Sheets: 8 of 12 Option B	Rev: A	

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**LEGEND**

- ORDER LIMITS
- 250M BUFFER OF ORDER LIMITS
- 500M BUFFER OF ORDER LIMITS
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

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Rev	Date	Description	GIS	Chk	App

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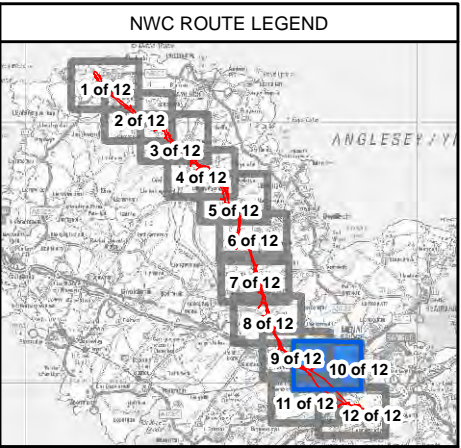
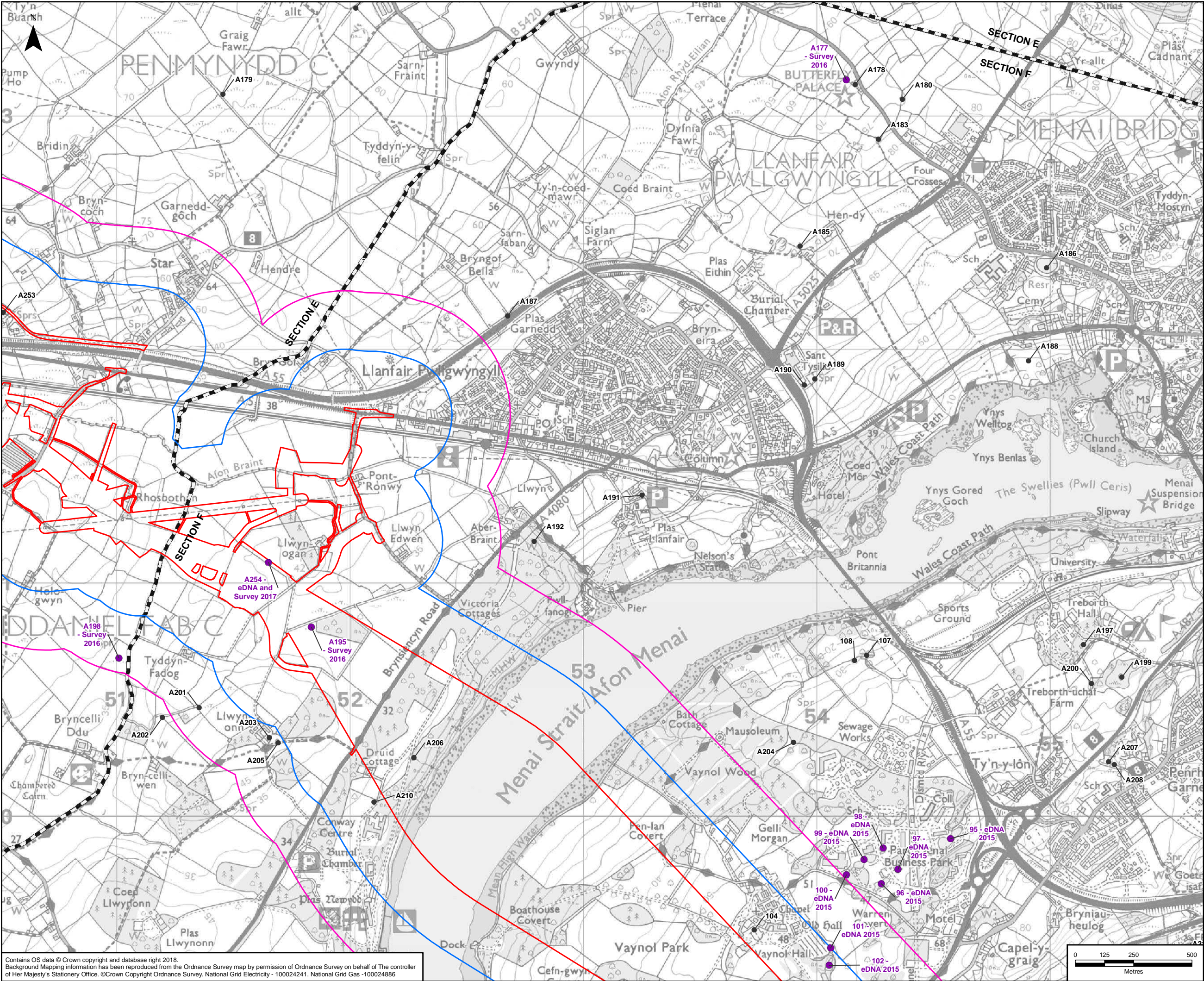
Document Number: 5.9.2.6

Document Title: FIGURE 2 GREAT CRESTED NEWT (GCN) SURVEY RESULTS SECTION E

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
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**LEGEND**

- ORDER LIMITS
- 250M BUFFER OF ORDER LIMITS
- 500M BUFFER OF ORDER LIMITS
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

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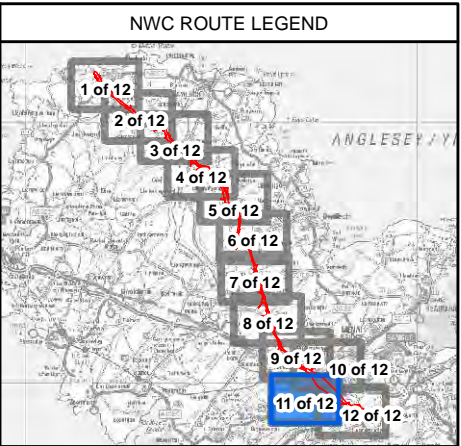
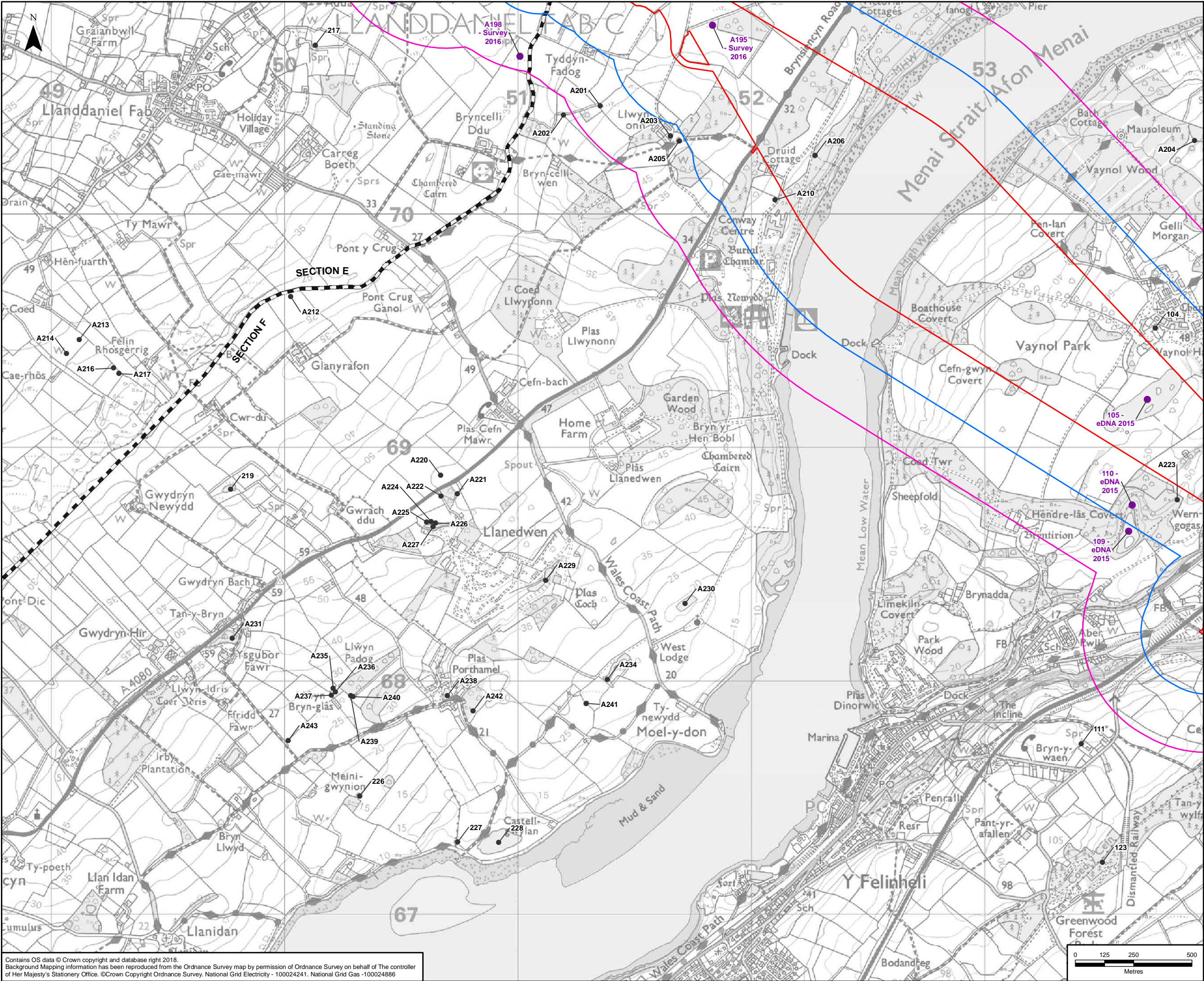
Document Number: 5.9.2.6

Document Title: FIGURE 2 GREAT CRESTED NEWT (GCN) SURVEY RESULTS SECTION F

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
Document Type: FIGURE	Scale: 1:15,000	Format: A3	Sheets: 10 of 12	Rev: A	

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**LEGEND**

- ORDER LIMITS
- 250M BUFFER OF ORDER LIMITS
- 500M BUFFER OF ORDER LIMITS
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

A	12/07/2018	ENVIRONMENTAL STATEMENT	AB	LS	NL
Rev	Date	Description	GIS	Chk	App

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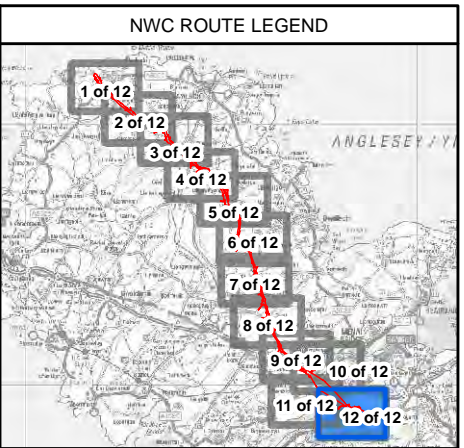
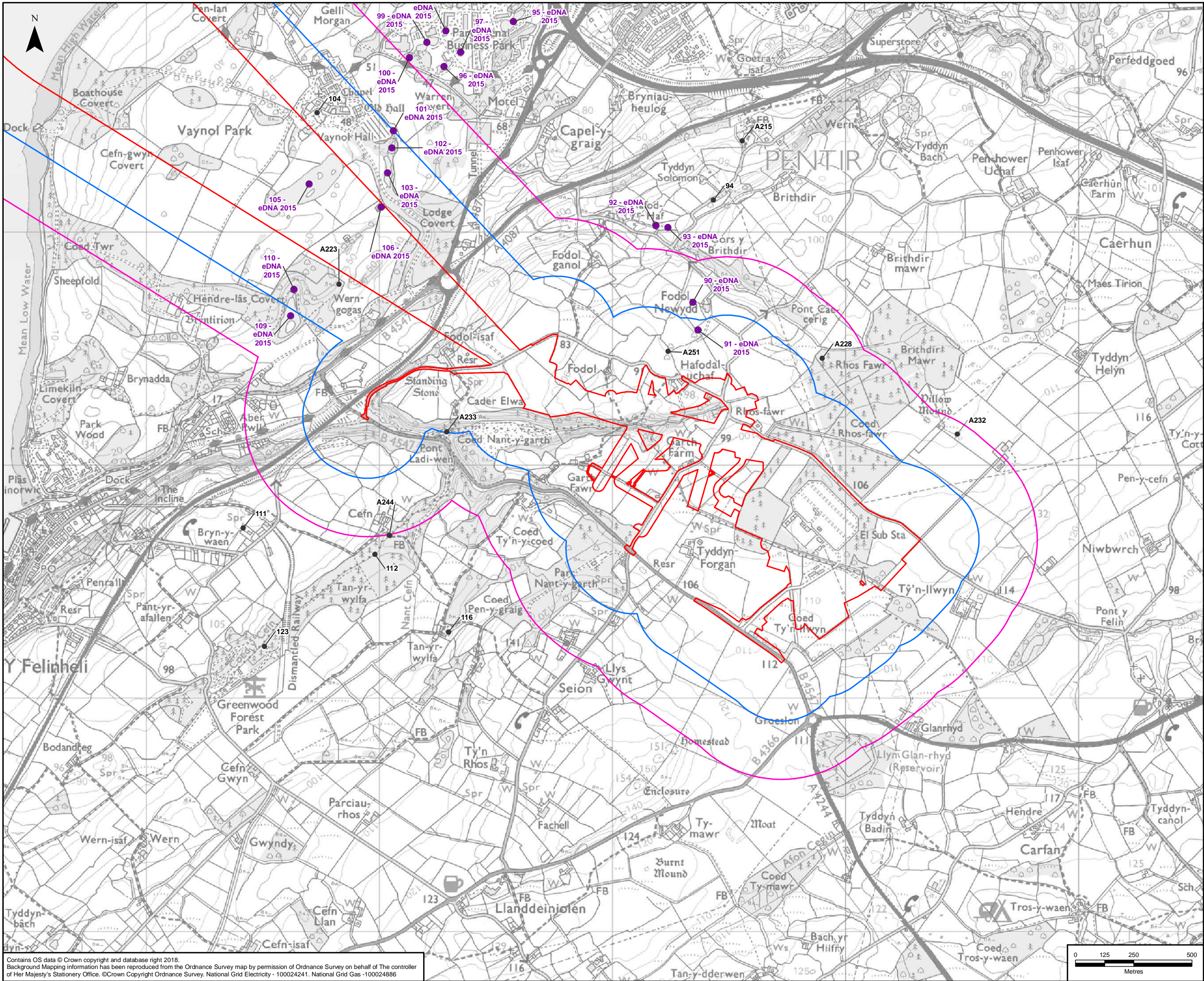
Document Number: 5.9.2.6

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GREAT CRESTED NEWT (GCN)  
SURVEY RESULTS  
SECTION F

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
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**LEGEND**

- ORDER LIMITS
- 250M BUFFER OF ORDER LIMITS
- 500M BUFFER OF ORDER LIMITS
- SECTION OUTLINES

**GCN SURVEY RESULTS CLASSIFICATION**

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

A	12/07/2018	ENVIRONMENTAL STATEMENT	AB	LS	NL
Rev	Date	Description	GIS	Chk	App

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Scheme: NORTH WALES CONNECTION PROJECT

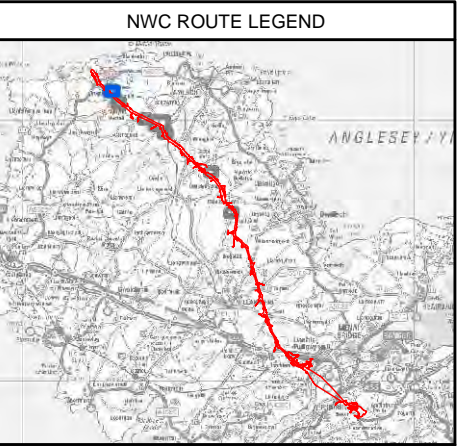
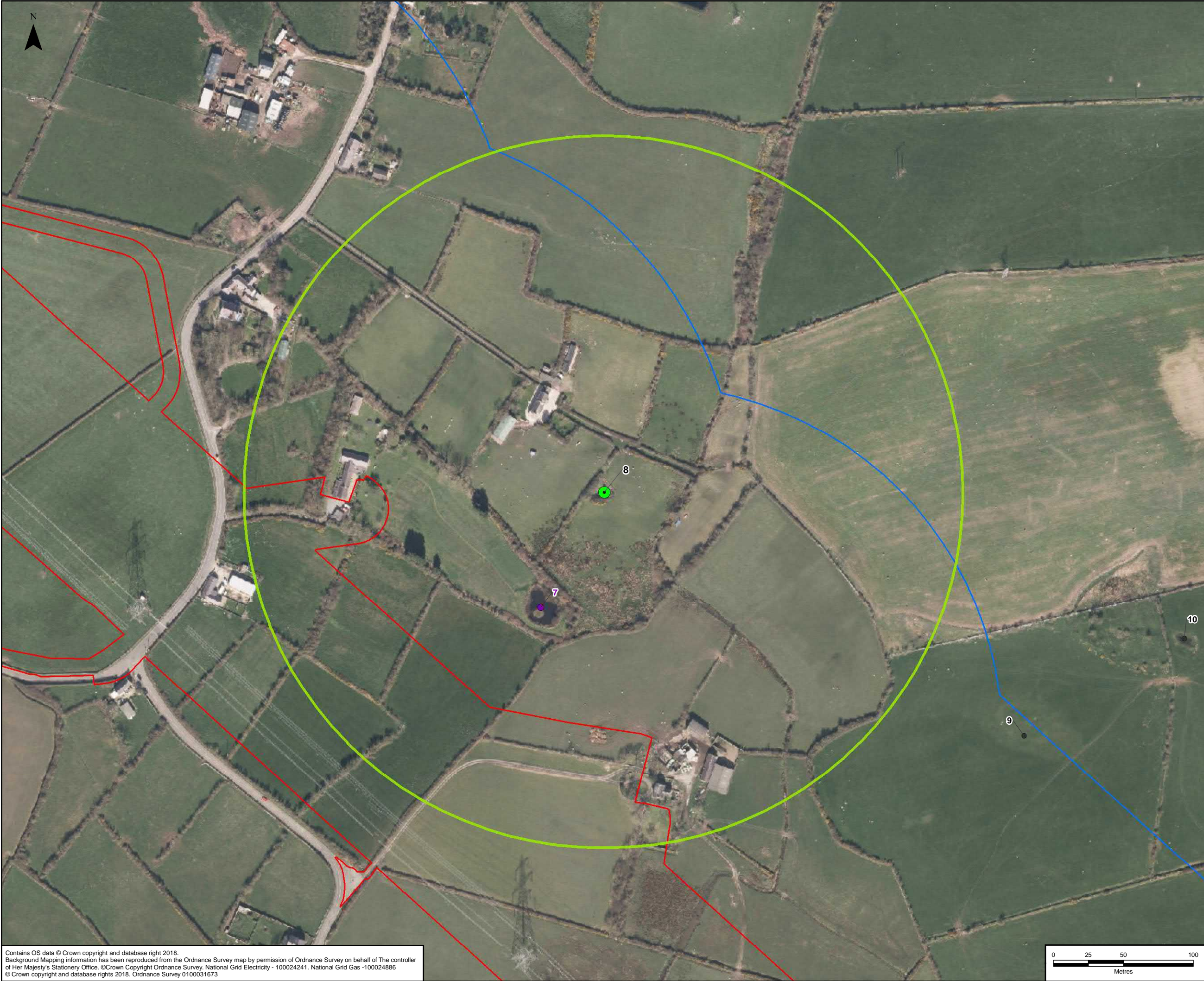
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Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
Document Type: FIGURE	Scale: 1:15,000	Format: A3	Sheets: 12 of 12	Rev: A	

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**LEGEND**

- ORDER LIMITS
- 250M BUFFER OF ORDER LIMITS
- SECTION OUTLINES
- GCN POPULATION SIZE
  - SMALL
  - MEDIUM
- METAPOPULATION SIZES (250M BUFFER FROM PONDS)
  - SMALL
  - MEDIUM
- GCN SURVEY RESULTS CLASSIFICATION
  - GCN PRESENT
  - GCN ABSENT
  - CONFIRM IN 2018
  - SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

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Rev	Date	Description	GIS	Chk	App

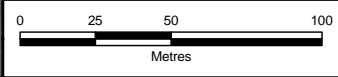
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Scheme: NORTH WALES CONNECTION PROJECT

Document Number: 5.9.2.6

Document Title: FIGURE 3  
GREAT CRESTED NEWT (GCN)  
POPULATIONS - POND 8  
SECTION A

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
Document Type: FIGURE	Scale: 1:2,500	Format: A3	Sheets: 1 of 7	Rev: A	







**LEGEND**

ORDER LIMITS

250M BUFFER OF ORDER LIMITS

SECTION CUTLINES

GCN POPULATION SIZE

- SMALL
- MEDIUM

METAPOPULATION SIZES (250M BUFFER FROM PONDS)

- SMALL
- MEDIUM

GCN SURVEY RESULTS CLASSIFICATION

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

A	12/07/2018	ENVIRONMENTAL STATEMENT	AB	LS	NL
Rev	Date	Description	GIS	Chk	App

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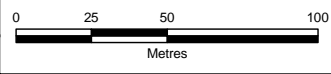
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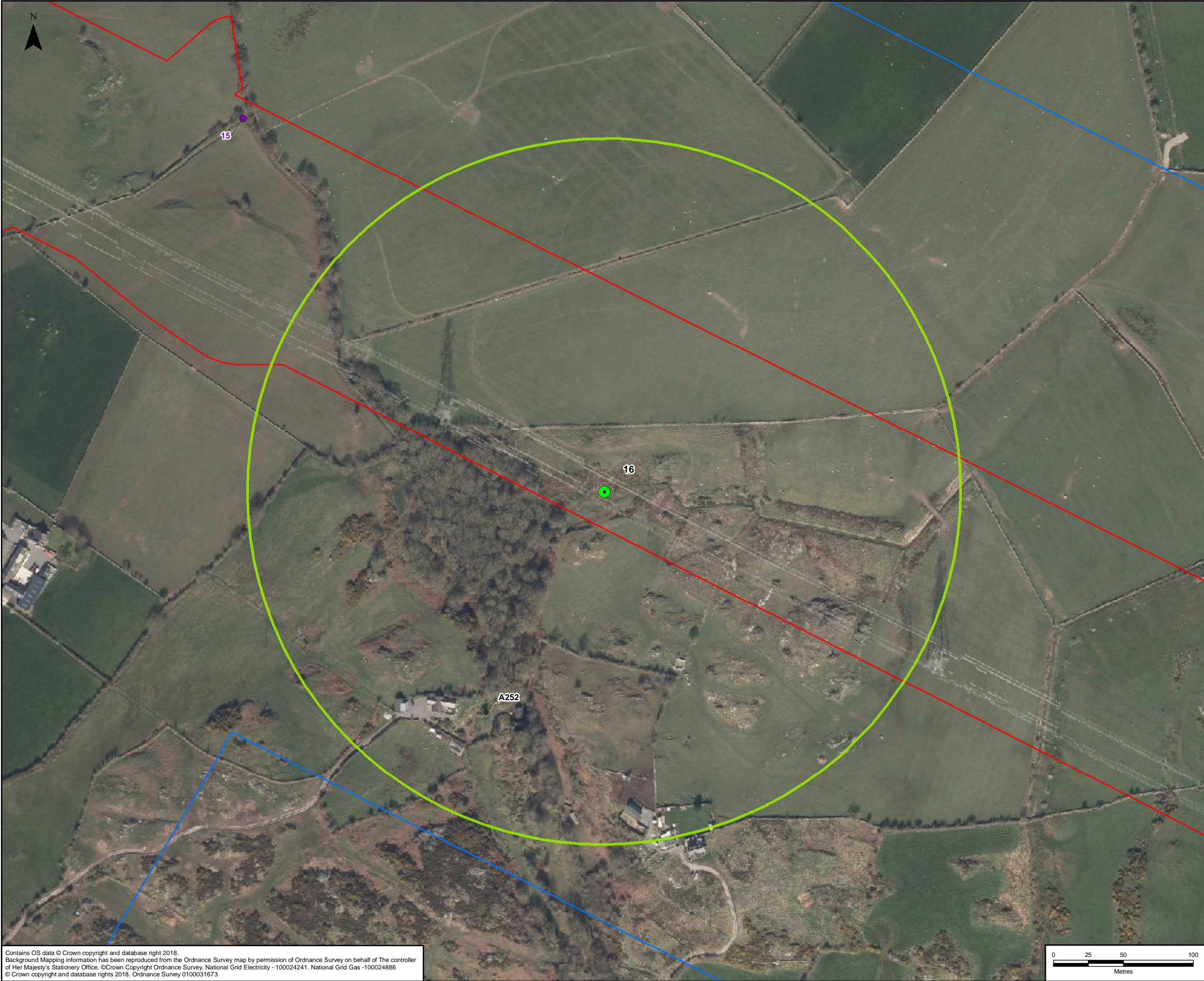
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GREAT CRESTED NEWT (GCN)  
POPULATIONS - METAPOPULATION A  
SECTION A

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
Document Type: FIGURE	Scale: 1:2,500	Format: A3	Sheets: 2 of 7	Rev: A	

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**LEGEND**

ORDER LIMITS

250M BUFFER OF ORDER LIMITS

SECTION CUTLINES

**GCN POPULATION SIZE**

● SMALL

● MEDIUM

**METAPOPULATION SIZES (250M BUFFER FROM PONDS)**

SMALL

MEDIUM

**GCN SURVEY RESULTS CLASSIFICATION**

● GCN PRESENT

● GCN ABSENT

● CONFIRM IN 2018

● SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

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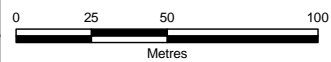
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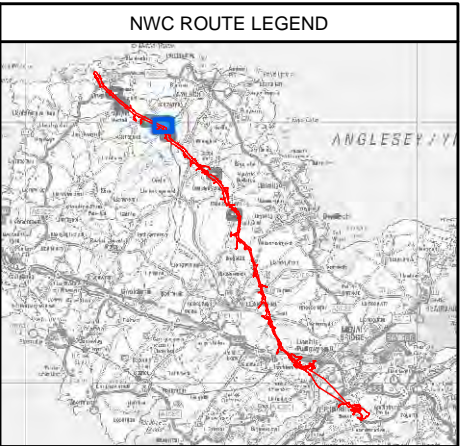
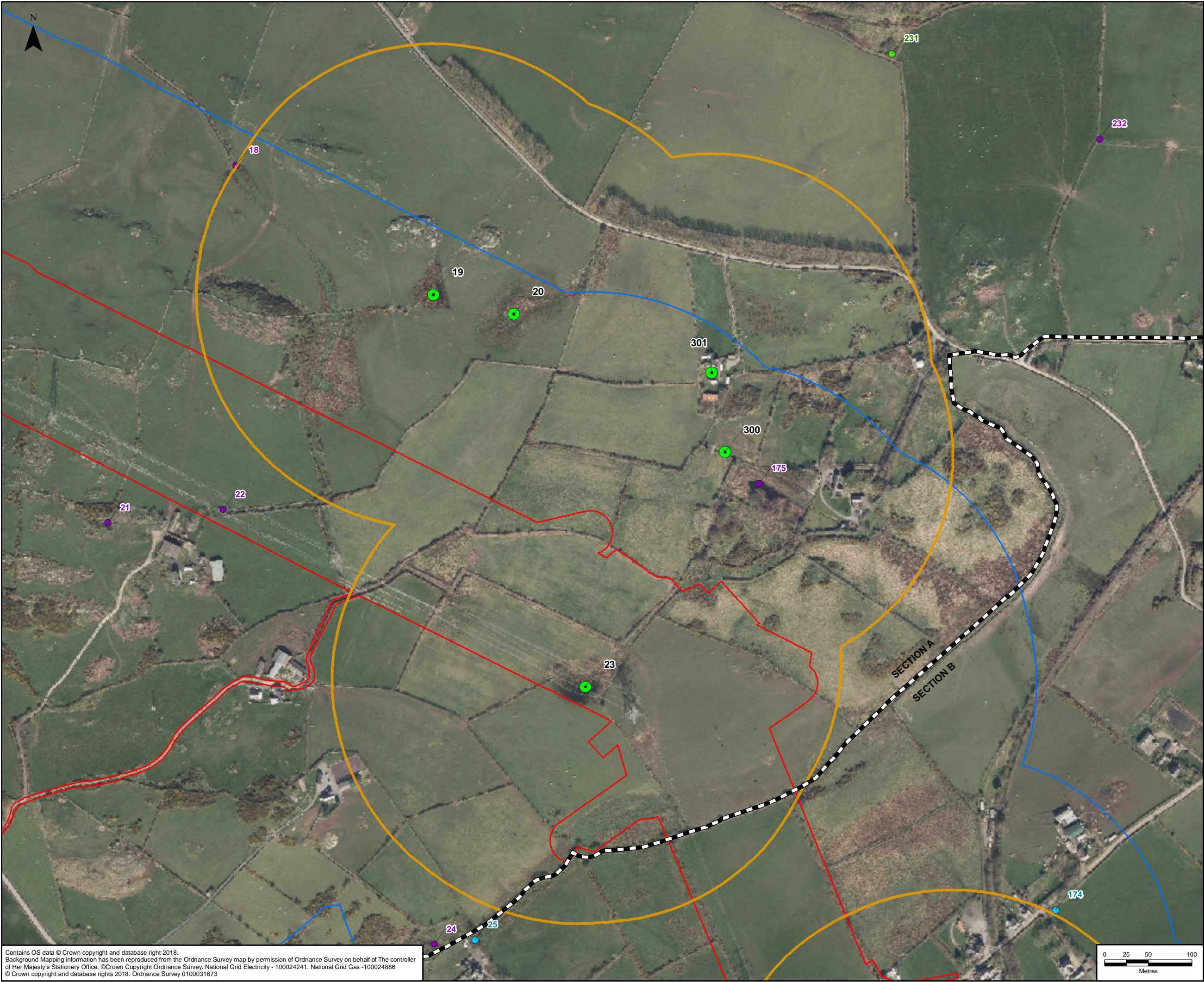
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GREAT CRESTED NEWT (GCN)  
POPULATIONS - POND 16  
SECTION A

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
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**LEGEND**

ORDER LIMITS

250M BUFFER OF ORDER LIMITS

SECTION CUTLINES

GCN POPULATION SIZE

- SMALL
- MEDIUM

METAPOPULATION SIZES (250M BUFFER FROM PONDS)

- SMALL
- MEDIUM

GCN SURVEY RESULTS CLASSIFICATION

- GCN PRESENT
- GCN ABSENT
- CONFIRM IN 2018
- SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

Rev	Date	Description	GIS	Chk	App
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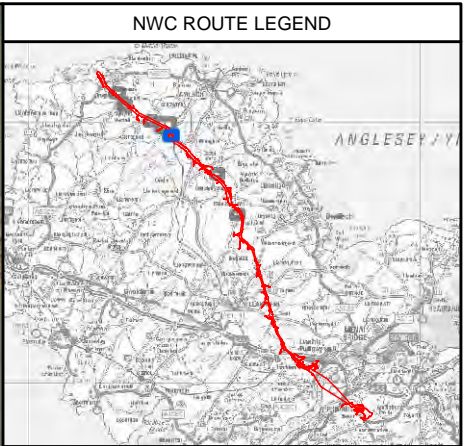
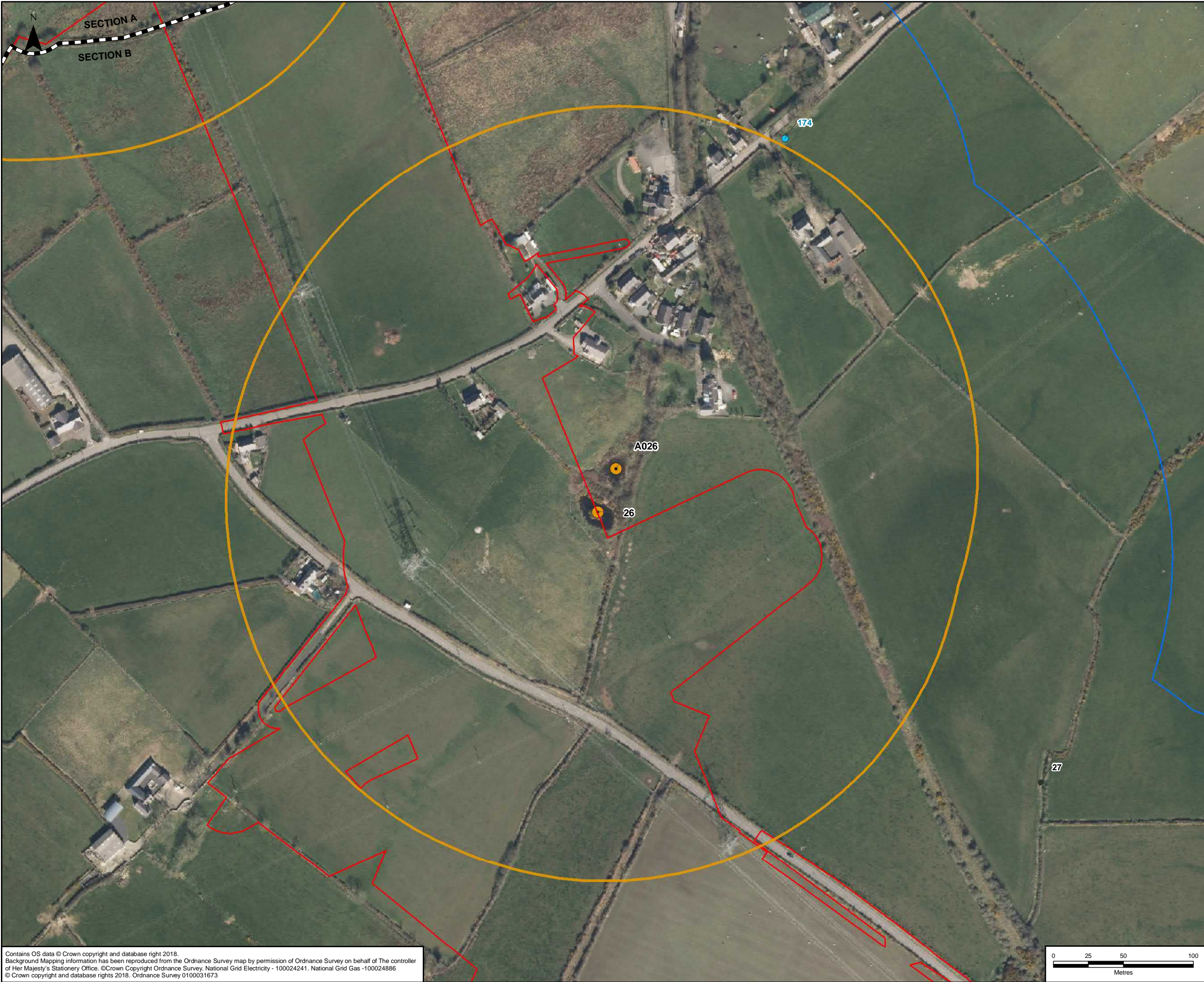
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GREAT CRESTED NEWT (GCN)  
POPULATIONS - METAPOPULATION B  
SECTION A

Creator:	Date:	Checker:	Date:	Approver:	Date:
AB	12/07/2018	LS	12/07/2018	NL	12/07/2018

Document Type:	Scale:	Format:	Sheets:	Rev:
FIGURE	1:4,000	A3	4 of 7	A

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**LEGEND**

ORDER LIMITS

250M BUFFER OF ORDER LIMITS

SECTION CUTLINES

GCN POPULATION SIZE

SMALL

MEDIUM

METAPOPULATION SIZES (250M BUFFER FROM PONDS)

SMALL

MEDIUM

GCN SURVEY RESULTS CLASSIFICATION

GCN PRESENT

GCN ABSENT

CONFIRM IN 2018

SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

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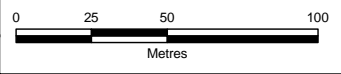
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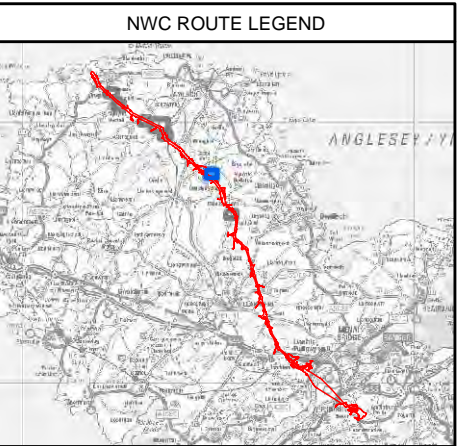
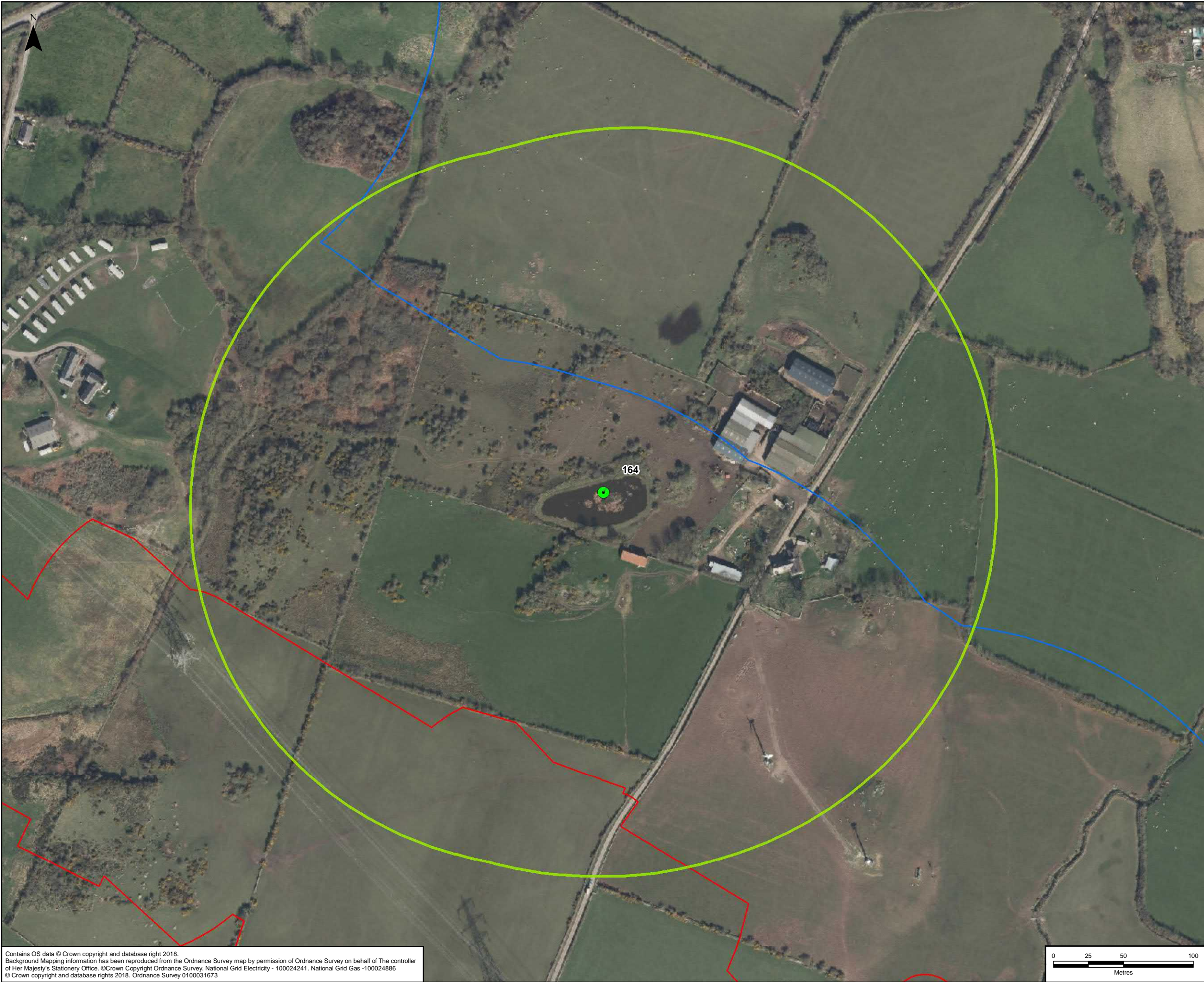
Document Number: 5.9.2.6

Document Title: FIGURE 3  
GREAT CRESTED NEWT (GCN)  
POPULATIONS - METAPOPULATION C  
SECTION B

Creator: AB	Date: 12/07/2018	Checker: LS	Date: 12/07/2018	Approver: NL	Date: 12/07/2018
Document Type: FIGURE	Scale: 1:2,500	Format: A3	Sheets: 5 of 7	Rev: A	







**LEGEND**

ORDER LIMITS

250M BUFFER OF ORDER LIMITS

SECTION CUTLINES

**GCN POPULATION SIZE**

● SMALL

● MEDIUM

**METAPOPULATION SIZES (250M BUFFER FROM PONDS)**

SMALL

MEDIUM

**GCN SURVEY RESULTS CLASSIFICATION**

● GCN PRESENT

● GCN ABSENT

● CONFIRM IN 2018

● SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

A	12/07/2018	ENVIRONMENTAL STATEMENT	AB	LS	NL
Rev	Date	Description	GIS	Chk	App



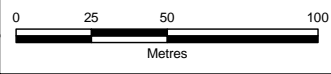
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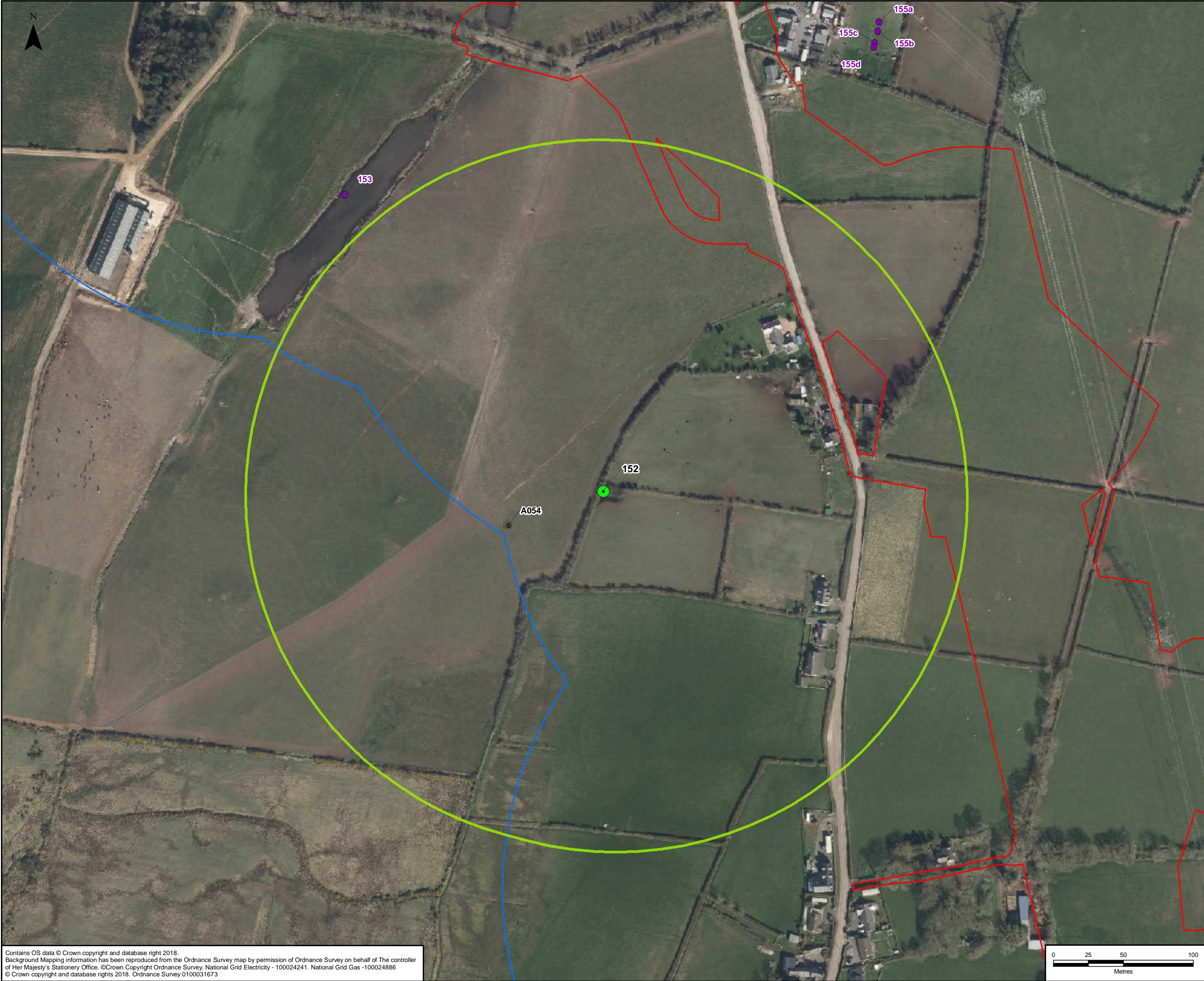
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POPULATIONS - POND 164  
SECTION B

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**LEGEND**

ORDER LIMITS

250M BUFFER OF ORDER LIMITS

SECTION CUTLINES

**GCN POPULATION SIZE**

● SMALL

● MEDIUM

**METAPOPULATION SIZES (250M BUFFER FROM PONDS)**

SMALL

MEDIUM

**GCN SURVEY RESULTS CLASSIFICATION**

● GCN PRESENT

● GCN ABSENT

● CONFIRM IN 2018

● SCOPED OUT

**NOTES**

1: FOR ROBUSTNESS ADDITIONAL EDNA, PRESENCE/LIKELY ABSENCE AND POPULATION ESTIMATE SURVEYS HAVE BEEN CONDUCTED IN 2018 TO MAINTAIN UP TO DATE RESULTS ON RELEVANT PONDS. COMPLETE RESULTS WILL BE PRESENTED IN AN ADDENDUM REPORT.

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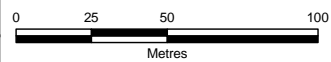
Scheme: NORTH WALES CONNECTION PROJECT

Document Number: 5.9.2.6

Document Title: FIGURE 3  
GREAT CRESTED NEWT (GCN)  
POPULATIONS - POND 152  
SECTION C

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## Annex A: HSI Results

The HSI scores for waterbodies included in the 2016/2017 scope are provided in Table A.1 below.

Table A.1 HSI Results Summary			
Section	Waterbody Reference	HSI Score	Suitability/Brief Description
A	<b>8</b>	0.64	About a third of this pond was shaded and it had moderate water quality. Waterfowl, namely coot were observed and fish were considered to be possibly present. Macrophyte cover was 90%.
A	<b>12</b>	0.69	Half of this pond was shaded and had 90% macrophyte cover. Waterfowl and fish were considered minor and possible, respectively. The surrounding terrestrial habitat was good and water quality considered moderate. It is assumed that this pond never dries.
A	<b>15</b>	0.54	30% of this pond was shaded with poor water quality. Waterfowl and fish were considered to be absent. There were no macrophytes present in the pond, which was surrounded by habitat of moderate suitability for newts.
A	<b>A248</b>	0.35	Less than 5% of this pond's shoreline was shaded and the water quality was considered to be moderate. Waterfowl and fish were considered to be major and possible, respectively. Macrophyte cover was 2%.
A	<b>A247</b>	0.57	This was a wet depression in a field corner. Waterfowl and fish were absent and water quality was considered to be moderate. None of the shoreline was shaded, but macrophyte cover was approximately 80%. The pond is considered to dry annually. The pond dried up before GCN presence/absence surveys were completed-only one visit completed.
A	<b>A020</b>	0.55	Approximately 2% of the shoreline was shaded and macrophyte cover was considered to be

**Table A.1 HSI Results Summary**

Section	Waterbody Reference	HSI Score	Suitability/Brief Description
			75%. Waterfowl and fish were assumed absent and water quality was poor. This pond was not bottle trapped due to health and safety reasons (deep mud at banks).
A	<b>16</b>	0.56	An area of marshy grassland surrounding a small flowing stream, some standing water present to take eDNA sample.
A	<b>19</b>	0.75	This pond was largely unshaded with moderate water quality. Waterfowl and fish were considered to be occasional and absent, respectively. Macrophyte cover was 60%.
A	<b>20</b>	0.63	This pond was largely unshaded with moderate water quality. Waterfowl and fish were considered to be occasional and possible, respectively. Macrophyte cover was 80%.
A	<b>23</b>	0.78	This pond was largely unshaded with moderate water quality. Waterfowl and fish were considered to be present and absent, respectively. Macrophyte cover was 50%.
A	<b>300</b>	0.51	30% of this pond's shoreline was shaded and the water quality was considered to be moderate. Waterfowl were absent, as were fish. Macrophyte cover was 95%.
A	<b>301</b>	0.63	Ornamental pond with some shading and moderate water quality. Waterfowl were absent.
A	<b>12a</b>	0.64	20% of this pond's shoreline was shaded and the water quality was considered to be moderate. Waterfowl were absent and fish were considered possible. Macrophyte cover was 80%.
A	<b>A002</b>	0.62	5% of this pond's shoreline was shaded and the water quality was considered to be moderate. Waterfowl were absent and fish were also considered to be absent. Macrophyte cover was 80%.
A	<b>A008</b>	0.54	This pond was a shallow former ornamental pond

**Table A.1 HSI Results Summary**

Section	Waterbody Reference	HSI Score	Suitability/Brief Description
			with a small, bridged island. Waterfowl were considered absent and fish considered few. Water quality was moderate with macrophyte cover and proportion of shoreline shaded both at 80%. The pond dried up before GCN presence/absence surveys were completed, only two visits completed.
A	<b>A009</b>	0.75	60% of this pond's shoreline was shaded and the water quality was considered to be moderate. Waterfowl and fish were considered to be minor and possible, respectively. Macrophyte cover was 60%.
A	<b>A1001</b>	0.61	65% of this pond's shoreline was shaded and the water quality was considered to be moderate. Waterfowl and fish were considered to be minor and possible, respectively. Macrophyte cover was 85%.
B	<b>A034</b>	0.46	70% of this pond's shoreline was shaded and the water quality was considered to be poor. Waterfowl and fish were both considered to be absent. Macrophyte cover was 95%. The pond dried up before GCN presence/absence surveys commenced.
B	<b>201</b>	0.68	No access to this pond granted in 2016. Access granted in 2017; however the pond was scoped out from further survey for H&S reasons (steep concrete margins and very dense vegetation around the pond).
B	<b>164</b>	0.66	10% of this pond was shaded. Waterfowl were absent and it was considered fish may be present in low numbers.
B	<b>A026</b>	0.77	5% of this pond's shoreline was shaded and the water quality was considered to be good. Waterfowl and fish were considered to be absent and possible, respectively. Macrophyte cover was 30%.

**Table A.1 HSI Results Summary**

Section	Waterbody Reference	HSI Score	Suitability/Brief Description
B	<b>A028</b>	0.67	15% of this pond's shoreline was shaded and the water quality was considered to be moderate. Waterfowl and fish were both considered to be minor. Macrophyte cover was 15%.
B	<b>A033</b>	N/A	No access to this pond granted.
B	<b>25</b>	N/A	No access to this pond granted.
B	<b>26</b>	0.79	Waterfowl and fish presence were considered minor and possible, respectively. Approximately 5% of the shoreline was shaded and macrophyte cover was 80%. The pond was judged to have good water quality.
B	<b>153</b>	0.44	The pond was unshaded and it was considered to have poor water quality. Waterfowl were present in relatively large numbers, so considered major, while fish were considered to be possible. Macrophyte cover was 8%.
B	<b>154</b>	0.56	Approximately 2% of this pond was shaded and it was considered to have poor water quality. Waterfowl were present in relatively small numbers, while fish were considered to be possibly present. Macrophyte cover was 20%.
C	<b>A245</b>	0.48	5% of this pond's shoreline was shaded and the water quality was considered to be moderate. Waterfowl and fish were considered to be absent and possibly present, respectively. Macrophyte cover was 5%.
C	<b>152</b>	0.5	Approximately 60% of this pond was shaded and was considered to have moderate water quality. Waterfowl and fish were both considered to be absent. Macrophyte cover was 10%.
A	<b>198</b>	0.70	50% of this pond was shaded and the water quality was considered to be moderate. Waterfowl were absent, while fish were considered to be possibly present. Macrophyte cover was 30%.



**Table A.1 HSI Results Summary**

Section	Waterbody Reference	HSI Score	Suitability/Brief Description
C	<b>A048</b>	0.71	5% of this pond's shoreline was shaded and the water quality was considered to be moderate. Waterfowl and fish were considered to be minor and possibly present, respectively. Macrophyte cover was 5%. This pond is over 250 m from the Order Limits and is no longer in the survey area.
C	<b>A150</b>	0.52	30% of this pond's shoreline was considered to have normally been shaded; however, a tree had fallen into the pond creating additional shading. The water quality was considered to be moderate. Waterfowl and fish were considered to be absent and possibly present, respectively. Macrophyte cover was 10%.
C	<b>A044</b>	0.74	5% of this pond's shoreline was shaded and the water quality was considered to be moderate. Waterfowl and fish were both considered to be absent. Macrophyte cover was 50%.The pond dried up before GCN presence/absence surveys were completed, only two visits completed.
D	<b>A167</b>	0.63	80% of this pond's shoreline was shaded and the water quality was considered to be good. Waterfowl and fish were considered to be absent and possible, respectively. Macrophyte cover was 60%.  The pond dried up before GCN presence/absence surveys were completed, three visits completed.
E	<b>A253</b>	N/A	Pond dry.
E	<b>A250</b>	N/A	Pond dry.
E	<b>A246</b>	0.54	20% of this pond's shoreline was shaded and the water quality was considered to be moderate. Waterfowl and fish were both considered to be absent. Macrophyte cover was 60%.
F	<b>A195</b>	0.39	The pond's shoreline was unshaded and the water quality was considered to be poor.

Table A.1 HSI Results Summary			
Section	Waterbody Reference	HSI Score	Suitability/Brief Description
			Waterfowl and fish were considered to be major and absent, respectively.
F	<b>A251</b>	N/A	Pond dry.
F	<b>A254</b>	0.66	This pond appeared to be recently created and formed by extending/digging out a ditch. The water quality was considered to be moderate and macrophyte and proportion of shoreline shaded 5% and 2%, respectively. Waterfowl were determined to be minor and fish absent.
F	<b>A184</b>	0.49	Possibly occasional pooled section of ditch if heavy rain persists. The area assessed had 100% macrophyte cover, no potential for fish or wildfowl and moderate surrounding terrestrial habitat suitability.



## Annex B: GCN Survey Results

Table B.1 provides the survey dates and weather conditions experienced during each survey. Table B.2 provides the survey methods used and the results obtained at each pond.



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**Table B.1 Survey dates and weather conditions**

Pond No.	Section	Survey 1				Survey 2				Survey 3				Survey 4				Survey 5				Survey 6			
		Date	°C	Turbidity	Veg cover	Date	°C	Turbidity	Veg cover	Date	°C	Turbidity	Veg cover	Date	°C	Turbidity	Veg cover	Date	°C	Turbidity	Veg cover	Date	°C	Turbidity	Veg cover
8	A	23/03/2016	8	3	4	09/05/2016	12	3	4	19/05/2016	14	2	5	24/05/2016	14	1	5	31/05/2016	12	2	4	06/06/2016	22	3	5
A1001	A	24/05/2016	13	1	3	31/05/2016	14	1	2	01/06/2016	12	1	4	14/06/2016	15	2	4	-	-	-	-	-	-	-	-
12a	A	18/05/2016	12	1	2	19/05/2016	14	1	3	24/05/2016	14	3	1	01/06/2016	13	3	2	06/06/2016	15	2	2	14/06/2016	17	4	1
A009	A	18/05/2016	12	1	4	19/05/2016	10	5	4	24/05/2016	14	4	4	26/05/2016	9	3	5	01/06/2016	12	4	4	06/06/2016	21	1	4
A020	A	19/04/2016	7	1	3	05/05/2016	15	4	0	11/05/2016	12	3	2	28/05/2016	-	-	-	-	-	-	-	-	-	-	-
A248	A	18/05/2016	12	4	0	19/05/2016	8	4	0	28/05/2016	11	4	0	31/05/2016	11	4	0	-	-	-	-	-	-	-	-
19	A	22/03/2016	7	1	4	05/04/2016	8	1	4	03/05/2016	8	1	4	09/05/2016	15	0	4	18/05/2016	11	0	5	25/05/2016	10	1	4
20	A	22/03/2016	7	0	4	05/04/2016	10	0	4	09/05/2016	15	0	4	18/05/2016	11	0	5	19/05/2016	13	1	5	25/05/2016	10	1	4
23	A	22/03/2016	7	0	3	14/04/2016	8	0	3	03/05/2016	8	1	4	09/05/2016	15	1	4	17/05/2016	11	2	3	23/05/2016	8	3	4
300	A	22/03/2016	7	0	4	06/04/2016	9	0	4	18/04/2016	10	1	3	21/04/2016	10	2	3	03/05/2016	7	1	3	11/05/2016	12	1	4
301	A	22/03/2016	7	0	3	18/04/2016	9	0	3	21/04/2016	10	1	4	03/05/2016	8	1	5	11/05/2016	12	1	4	19/05/2016	11	1	5
A026	B	05/04/2016	8	0	3	18/04/2016	9	0	3	21/04/2016	9	1	2	05/05/2016	10	0	3	17/05/2016	11	0	2	23/05/2016	9	2	4
A028	B	19/04/2016	7	1	1	11/05/2016	15	3	1	23/05/2016	9	2	1	31/05/2016	13	4	1	-	-	-	-	-	-	-	-
A048*	C	04/05/2016	9	1	2	11/05/2016	12	2	3	18/05/2016	12	4	1	19/05/2016	11	4	1	25/05/2016	12	3	3	01/06/2016	13	5	1
152	C	11/05/2016	14	3	4	17/05/2016	9	2	4	19/05/2016	11	2	4	23/05/2016	11	2	3	01/06/2016	-	-	-	-	-	-	-
A150	C	23/03/2016	9	3	3	20/04/2016	9	2	4	04/05/2016	8	2	4	11/05/2016	14	3	4	-	-	-	-	-	-	-	-
A246	E	12/05/2016	15	4	3	18/05/2017	10	4	4	19/05/2016	11	3	4	25/05/2016	10	2	4	-	-	-	-	-	-	-	-
A254	F	31/05/2017	18	4	1	07/06/2017	15	4	0	12/06/2017	14	4	1	22/06/2017	13	4	3	27/06/2017	15	4	3	29/06/2017	12	4	3
A195	F	04/05/2016	10	4	0	10/05/2016	15	4	0	16/05/2016	12	4	2	24/05/2016	9	4	2	-	-	-	-	-	-	-	-

\* Pond A048 is over 250 m from the Order Limits and is no longer in the survey area.



**Table B.2 Survey methods and results**

**Key: Smooth Newt = SN; Palmate Newt = PN**

Pond No.	Section	Survey 1			Survey 2			Survey 3			Survey 4			Survey 5			Survey 6		
		Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey
8	A	Torch, BT (10), egg search	1 ♀ PN, 1 ♀ GCN	1 PN	Torch, BT (10), egg search	5 ♂ GCN, 2 ♀ GCN	Nothing found	Torch, BT (10), egg search	2 ♂ GCN 2 ♀ GCN	Nothing found	Torch BT(6) egg search	1 ♂ PN, 1 ♀ PN	Nothing found	Torch, BT(5), egg Search	Nothing found	1 Toad	Torch, BT (4), egg Search	Nothing found	Nothing found
A1001	A	Torch, BT (5), egg search	Nothing found	Nothing found	Torch, Trap (5), egg search	Nothing found	Nothing found	Torch, BT (5), egg search	Nothing found	Nothing found	Torch, BT (5), egg Search	Nothing found	Nothing found	-	-	-	-	-	-
12a	A	Torch, BT (15), egg search	Nothing found	7 ♂ GCN, 11 ♀ GCN, 5 ♂ PN, 7 ♀ PN	Torch BT(15), egg search	1 ♂ GCN	1 ♂ GCN, 5 ♀ GCN, 2 ♂ PN, 4 ♀ PN, 1 PN, Toad spawn	Torch, BT(10), egg search	Nothing found	11 ♀ GCN, 7 ♀ PN	Torch, BT(10), egg search	Nothing found	7 ♀ GCN, 7 ♀ PN	Torch, BT (10), egg search	1 ♀ GCN, Frog tad-poles	1 ♂ GCN, 4 ♀ GCN, 2 ♂ SN, 5 ♀ SN, Frog tad-poles	Torch, BT (10), egg Search	Nothing found	1 GCN, 1 ♀ PN
A009	A	Torch, BT (15), egg search	1 ♂ GCN, 2 ♀ GCN	2 ♂ GCN, 4 ♀ GCN	Torch, egg search	Not done due to water shrew	3 ♂ GCN, 1 ♀ GCN, 3 ♀ PN	Torch, egg search	Not done due to water shrew	Nothing found	Torch, egg search	Not done due to water shrew	Nothing found	Torch, egg search	Not done due to water shrew	Nothing found	Torch, BT (10), egg search	1 ♂ GCN, 1 ♂ SN, 4 ♀ SN	4 ♂ GCN, 2 ♀ GCN
A020	A	Torch, egg search, Refugia search	Un-suitable	3 ♂ PN	Torch, egg search, Refugia search	Un-suitable	Nothing found	Torch, egg search, Refugia search	Un-suitable	4 ♂ PN, 6 ♀ PN	Pond dry - No survey			-	-	-	-	-	-
A248	A	Torch, BT (15), egg search	Nothing found	Nothing found	Torch, BT (15), egg search	Nothing found	Nothing found	Torch, BT (15), egg search	Nothing found	Nothing found	Torch, egg search	Un-suitable	Nothing found	-	-	-	-	-	-



**Table B.2 Survey methods and results**

**Key: Smooth Newt = SN; Palmate Newt = PN**

Pond No.	Section	Survey 1			Survey 2			Survey 3			Survey 4			Survey 5			Survey 6		
		Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey
19	A	Torch, BT (15), egg search	1 ♂ GCN 1 ♀ GCN 3 ♂ PN 2 ♀ PN	1 Frog Frog spawn	Torch, BT (20), egg search	2 ♂ GCN 2 ♀ GCN 1 ♂ PN 1 ♀ PN	GCN eggs found	Torch, BT (15), egg search	1 ♀ GCN 2 ♀ SN	Nothing found	Torch, BT (15), egg search	1 ♀ GCN 1 ♂ PN 1 ♀ PN	Nothing found	Torch, BT (25), egg search	1 ♂ GCN 2 ♀ GCN 1 ♂ PN 2 Frog	2 Frog GCN & PN/SN eggs found	Torch, BT (7), egg search	Nothing found	Toad spawn, leaf folds found
20	A	Torch, BT (30), egg search	3 ♂ GCN 3 ♀ GCN 1 ♀ PN	3 ♂ GCN 3 ♀ GCN 7 Toad	Torch, BT (5), egg search	Nothing found	1 Toad	Torch, BT (5), egg search	1 ♂ GCN 1 ♀ GCN 1 ♀ PN	Nothing found	BT (5), egg search	Nothing found	Un-suitable	BT (5), egg search	Nothing found	Un-suitable	Torch, BT (5), egg search	Nothing found	Nothing found
23	A	Torch, BT (30), egg search	1 ♀ GCN 3 ♂ PN 1 ♀ PN	1 ♂ GCN Frog spawn	Torch BT (25), egg Search	1 ♂ GCN	1 U GCN 1 ♂ PN 1 Toad Toad spawn	Torch, BT (15), egg search	Nothing found	Nothing found	Torch, BT (15), egg search	Nothing found	1 ♂ GCN 2 ♀ GCN 1 Frog	BT (11), torch, egg search	Nothing found	Nothing found	Torch, BT (15), egg search	1 ♂ GCN	Nothing found
300	A	Torch, BT (5), egg search	Nothing found	2 Frogs Frog spawn	Torch, BT (5), egg search	Nothing found	Frog spawn	Torch, BT (5), egg search	Nothing found	Nothing found	Torch, BT (5), egg search	Nothing found	Nothing found	Torch, BT (5), egg search	Nothing found	Nothing found	Torch, BT (5), egg search	1 ♂ GCN 1 ♂ PN 3 ♀ PN	Frog tad-poles 1 toad
301	A	Torch, egg search	Un-suitable	1 ♀ SN	Torch, egg search	Un-suitable	SN eggs found	Torch, egg search	Un-suitable	Nothing found	Torch, refuge search, egg search	Un-suitable	Nothing found	Torch, refuge search, egg search	Un-suitable	1 ♀ GCN 1 ♀ PN 1 Frog	Torch, egg search	Un-suitable	Nothing found
A026	B	Torch, BT (10), egg search	29 ♂ GCN 1 ♀ GCN 1 ♂ PN 3 ♀ PN	4 ♂ GCN 5 ♀ GCN 2 ♀ SN/PN	Torch, BT (15), egg search	1 ♂ GCN 1 ♂ PN 2 ♀ PN	1 ♂ GCN 3 ♀ GCN 1 ♂ PN 4 ♀ PN	Torch, BT (15), egg search	1 ♀ GCN 3 ♀ PN	15 ♂ GCN 3 ♀ GCN 4 ♀ PN/SN	Torch, BT (10), egg search	6 ♂ GCN 4 ♀ GCN 2 ♂ PN 1 ♀ PN	5 ♂ GCN 1 ♀ GCN 1 ♂ PN 1 ♀ PN	Torch, BT (10), egg search	2 ♂ GCN 1 ♀ GCN	2 ♂ GCN 3 ♀ GCN 1 ♀ PN	Torch, BT (10), egg search	1 ♂ PN	3 ♂ GCN 4 ♀ GCN 3 ♂ PN 1 ♀ PN
A028	B	Torch, BT (42), egg search, Refugia search	Nothing found	3 Tad-poles	Torch, BT (25), egg search	Nothing found	Nothing found	Torch, BT (25), egg search	Nothing found	2 Frogs 1 Toad	Torch, BT(25), egg search	Nothing found	Nothing found	-	-	-	-	-	-



**Table B.2 Survey methods and results**

**Key: Smooth Newt = SN; Palmate Newt = PN**

Pond No.	Section	Survey 1			Survey 2			Survey 3			Survey 4			Survey 5			Survey 6		
		Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey	Survey method	Bottle Trapped	Torch survey
A048*	C	Torch, BT (50), egg search	1 ♀ GCN 1 ♀ PN	1 Frog	Torch, BT (50), egg search	1 ♂ GCN 2 ♀ GCN 2 ♂ PN	Nothing found	Torch, BT (50), egg search	1 ♀ GCN 1 ♂ PN 1 ♀ PN	GCN eggs found	Torch, BT (50), egg search	1 ♂ GCN 1 ♂ PN	GCN eggs found	Torch, BT (50), egg search	4 ♀ GCN 1 ♂ PN	Nothing found	Torch, BT, egg Search	1 ♂ PN	Nothing found
152	C	Torch, BT (5), egg search	Nothing found	1 PN 1 Frog	Torch, BT (3), egg search	Nothing found	Nothing found	Torch, BT (3), egg search	Nothing found	1 GCN 1 PN	Torch, BT (2), egg search	Nothing found	Nothing found	Pond dry - No survey			-	-	-
A150	C	Torch, BT (5), egg search	1 ♀ PN	Nothing found	Torch, BT (5), egg search, Refugia search	1 ♂ PN 2 ♀ PN	Nothing found	Torch, BT (5), egg search	1 ♂ PN 2 ♀ PN	Nothing found	Torch, BT (5), egg search	Nothing found	1 ♂ PN 3 ♀ PN	-	-	-	-	-	-
A246	E	Torch, BT (6), egg search	1 ♂ PN 1 ♀ PN	Nothing found	BT (9), torch, egg search	1 ♂ PN	PN eggs	Torch, BT (9), egg search	Nothing found	1 Toad	Torch, BT (5), egg search	1 ♀ PN	2 ♀ PN	-	-	-	-	-	-
A254	F	BT (30), Torch, egg search	Nothing found	Nothing found	BT (15), egg search	Nothing found	Not done **	BT (15), Torch, egg search	Nothing found	Nothing found	BT (14), Torch, egg search	Nothing found	2 Toads Frog tad-poles	BT (15), Torch, egg search	Nothing found	4 Toads	BT (15), Torch, egg search	Nothing found	2 Toads
A195	F	Torch, refugia search and egg search	Un-suitable	Nothing found	Torch, BT (15), egg search	Nothing found	4 Frogs Frog Tad-poles	BT (15), Torch, egg search	Nothing found	2 Toads	Torch, BT (15), egg search	Nothing found	1 Toad	-	-	-	-	-	-

\* Pond A048 is over 250 m from the Order Limits and is no longer in the survey area.

\*\* Torching was not possible during this survey due to heavy rain which disturbed the water and affected visibility.



## Annex C: Photographs of GCN Ponds

Plate 1: Pond 8



Plate 2: Pond A009





Plate 3: Pond 12a



Plate 4: Pond 19



Plate 5: Pond 23





Plate 6: Pond 300



Plate 7: Pond 301





Plate 8: Pond 20



Plate 9: Pond 16



Plate 10: Pond A026





Plate 11: Pond 26



Plate 12: Pond 164



Plate 13: Pond 152

