Connah's Quay Low Carbon Power

Environmental Statement Volume IV Appendix 11-E: Great Crested Newt Technical Appendix

Planning Inspectorate Reference: EN010166
Document Reference: EN010166/APP/6.4
Planning Act 2008 (as amended)
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(a)
Revision 00

August 2025

Prepared for:
Uniper UK Limited

Prepared by:
AECOM Limited

Table of Contents

Tables

1. Introduction

1.1 Background

1.1.1 This report forms a technical appendix accompanying **Chapter 11: Terrestrial and Aquatic Ecology** (**EN010166/APP/6.2.11**) of the ES for the Connah's Quay Low Carbon Power Project (hereafter referred to as the Proposed Development).

1.1.2 This report describes the approach and findings of great crested newt *Triturus cristatus* surveys carried out in support of the Ecological Impact Assessment (EcIA) of the Proposed Development.

1.1.3 This report focuses on the Order limits excluding the Accommodation Work Areas (hereafter known as the Construction and Operation Area). This area is shown on **Figure 3-3: Areas Described in the Environmental Statement** (**EN010166/APP/6.3**) sheets 6 to 8 and Plate 3-2 of **Chapter 3: Location of the Proposed Development** (**EN010166/APP/6.2.3**).

1.1.4 The Accommodation Works Areas are considered in **Appendix 5-A: Environmental Screening of Accommodation Works** (**EN010166/APP/6.4**).

1.2 Survey Scope

1.2.1 A Preliminary Ecological Appraisal (PEA) of the ecological constraints and opportunities associated with the Construction and Operation Area was carried out in November 2023 and identified the requirements for further great crested newt surveys. The findings of the initial habitat and scoping survey are compiled within the PEA Report which is annexed to **Appendix 11-C Botanical Technical Appendix** (**EN010166/APP/6.4**)). The habitat descriptions have since been updated by the habitat surveys conducted in 2024; the results of which are also presented in **Appendix 11-C Botanical Technical Appendix** (**EN010166/APP/6.4**). The Botanical Survey Technical Appendix should be referred to for a more detailed overview of the conditions and habitats present.

1.2.2 The purpose of this report is to provide great crested newt baseline technical information only, based on data gathered to date. It does not seek to, specify mitigation or make an EcIA of the Proposed Development. The formal EcIA is provided as **Chapter 11: Terrestrial and Aquatic Ecology** (**EN010166/APP/6.2.11**).

1.2.3 The 'study area' and 'survey area' used and referenced within this report are defined within **Section 3**.

2. Relevant Legislation and Policy

2.1 Legislation

2.1.1 **Appendix 7-A Legislative, Policy and Guidance Framework for Technical Topics** (**EN010166/APP/6.4**)) provides detail on the legislation that is of direct relevance to the assessment of ecology.

2.1.2 The great crested newt is protected through Annexes II and IV of the Habitats Directive (Ref 1) and are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) (i.e. the Habitat Regulations) (Ref 1) as European Protected Species (EPS).

2.1.3 The great crested newt is also given full protection under Section 9 of the Wildlife and Countryside Act 1981 (as amended) (Ref 2) through its inclusion on Schedule 5.

2.1.4 In summary, the legislation makes it an offence to:

- intentionally or recklessly take (capture), injure or kill a great crested newt;
- intentionally or recklessly disturb a great crested newt;
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place which a great crested newt uses for shelter or protection or intentionally or recklessly disturb a great crested newt while it uses such a place; and
- possess or advertise/sell/exchange a great crested newt (dead or alive) or any part of a great crested newt.

2.1.5 The inclusion of this species on Annex II of the Habitats Directive also means that a Special Area of Conservation (SAC) can be designated as a protected area due to a significant presence of this species.

2.1.6 Licences to permit otherwise illegal activities relating to great crested newts can be issued for specific purposes and by the relevant licensing authority, which in Wales is Natural Resources Wales (NRW). European Protected Species Mitigation Licences (EPSML) are issued under the Conservation of Habitats and Species Regulations 2017 (as amended). It is an offence not to comply with the terms and conditions of an EPSML once issued.

2.2 Planning Policy

2.2.1 Full details of relevant national and local planning policy relevant to ecology are provided in **Appendix 7-A Legislative, Policy and Guidance Framework for Technical Topics** (**EN010166/APP/6.4**).

2.3 Priority Species

2.3.1 Great crested newt is an Environment (Wales) Act 2016 (Ref 3) Section 7 Priority Species. These are the species found in Wales which were identified as requiring action under the UK Biodiversity Action Plan (BAP) and which continue to be regarded as conservation priorities under the UK Post-2010

Biodiversity Framework. As such, it is targeted for measures necessary to support its conservation status in the UK.

3. Methodology

3.1 Desk Study

3.1.1 A desk study was conducted which consisted of both a search for recent amphibian records and a scoping exercise to identify water bodies that required further survey to determine the Proposed Development's potential impact on amphibian species.

3.1.2 All recent records for amphibians and designated sites relating to amphibians were requested from Cofnod - the Local Environmental Records Centre (Ref 5) for North Wales within 2 km of the Construction and Operation Area (hereafter known as the study area). This distance is considered appropriate to obtain an indication of great crested newt presence within the wider landscape[1]. With regard to desk study data, 'recent' records are considered to be those no older than 10 years from the date of the desk study (requested March 2024). Records outside of this period are historical and have only been reported where more recent records for a species do not exist.

3.1.3 Ordnance Survey maps and aerial imagery have been used to identify the presence of water bodies within 500 m of the Construction and Operation Area, to help establish if the land within and immediately surrounding the Construction and Operation Area could be used by great crested newt. This distance is typically considered to be the distance from a breeding water body that great crested newt are considered likely to forage and rest within. Although great crested newt can migrate further (up to 1 km) it is habitats within 500 m that are considered to be of the highest importance of great crested newt during their life stages (Ref 4). Once water bodies were identified a scoping exercise was carried out to assess whether they had any habitat connectivity to areas of the Proposed Development or whether barriers (major roads/rivers) existed to prevent any potential great crested newt population accessing habitats within the Construction and Operation Area.

3.1.4 Additionally, a document review exercise was undertaken of survey information presented in reports for the Hynet project (Ref 7). This project is in close proximity to the Proposed Development and contains relevant information on the presence of the presence of great crested newt within the Zone of Influence (ZOI) of the Proposed Development.

3.2 Habitat Suitability Index

3.2.1 Habitat Suitability Index (HSI) surveys were conducted on all water bodies identified by the desk study as having potential to support great crested newt and having habitat connectivity to areas of the Proposed Development as shown on **Figure 11E-1** (**Annex A**) (hereafter known as the Survey Area).

3.2.2 The HSI is a measure of habitat suitability, developed by Oldham *et.al* (2010) (Ref 8) for evaluating the suitability of water bodies as habitat for great

[1] "*Great crested newt have been found to move over considerable distances (up to 1.3 km from breeding sites)*", although it is generally considered that "*suitable habitats within 250 m of a breeding waterbody are likely to be used most frequently*". As a result, even the furthest travelling newts would be unlikely to move more than 2 km from breeding waterbodies (Ref 3).

crested newt. Ten habitat features of the water body are assessed in the field and from these data a suitability index is calculated (**Table 1**).

3.2.3 A value is recorded for each parameter and combined to determine an index of breeding suitability for great crested newt (**Table 1**). The HSI survey was carried out between April and June 2024 and in April 2025.

Table 1: Great crested newt suitability indices and description

Suitability Indices	Suitability Indices Title	Suitability indices Description
(SI1)	Geographic location	Different areas of the UK represent different indices scores.
(SI2)	Water body area	The optimum water body size is between 500 and 750 m^2.
(SI3)	Water body permanence	The optimal frequency of drying is one year per decade.
(SI4)	Water quality	The presence of indicator organisms (the same that are used to assess running water) is the water quality indicator.
(SI5)	Water body shading	Great crested newt occurrence is significantly reduced above a threshold of 75% shade.
(SI6)	Impact of waterfowl	Waterfowl impact on water body vegetation and water turbidity is a negative indicator for great crested newt.
(SI7)	Occurrence of fish	The effect of fish presence is related to the species. Some species can have negative impacts and great crested newt hardly ever coexist with larger predatory fish species. Other species (depending on conditions) are not detrimental.
(SI8)	Water body density	Water body densities above four water bodies/km^2 are taken as optimal.
(SI9)	Terrestrial habitat	In general, scrub, unimproved grassland, woodland (deciduous and coniferous) and gardens are regarded as being suitable terrestrial habitat, unlike improved pasture, arable and hardstanding. The SI9 is the combination between positive factors (suitable habitat) and negative factors (e.g. inherent in barriers to movement such as roads). The surrounding habitat is scored according to the extent of high-quality terrestrial newt habitat.
(SI10)	Macrophyte content	The highest occurrence of great crested newt is found in water bodies with emergent

Suitability Indices	Suitability Indices Title	Suitability indices Description
		vegetation cover between 25% and 50% and submerged vegetation between 50% and 75%.

3.2.4 The HSI of a water body is a numerical index which scores water bodies on a scale of between 0 and 1, using a geometric mean of the ten suitability indices, with the following suitability categories for the results:

- <0.5: poor likelihood of presence;
- 0.5 – 0.59: below average likelihood of presence;
- 0.6 – 0.69: average likelihood of presence;
- 0.7 – 0.79: good likelihood of presence; and
- >0.8: excellent likelihood of presence.

3.3 eDNA Laboratory Analysis

3.3.1 Water samples were taken between 15 April and end of June 2024 and on the 15 April 2025 from accessible and suitable water bodies within 500 m of the Construction and Operation Area and were sent for eDNA analysis to assess the presence or likely absence of great crested newt. This survey methodology is approved by NRW in their standing advice to assess water bodies for newts for development projects.

3.3.2 Field surveys strictly followed the protocol set out in the WC1067 Technical Advice Note (Ref 6) and to prevent contamination of the samples:

- gloves were worn at all times during the sampling process, and gloves were replaced between sample collection from the water body and pipetting into the sterile sub-sample tubes; and
- samples were collected without entering the water, i.e. the surveyor stood only on the water body bank or water body edges. This prevented disturbance of the substrate to limit cross-contamination.

3.3.3 The field sampling protocol consisted of the following steps for each surveyed water body:

- the location of sub-samples was spaced as evenly as possible around the margin of the water body or watercourse. Sub-samples generally targeted areas with potential egg laying substrate (e.g. vegetation) and open water areas which newts may be using for displaying. Prior to sampling, the water column was mixed by gently using a clean ladle to stir through the entire water column, whilst avoiding disturbing the sediment on the bed of the water body. Sampling of very shallow water (less than 5-10 cm deep) was avoided where possible;
- a new pair of gloves was put on once the mixing was complete to minimise the risk of contaminating the samples during the next stage;
- using a new clear plastic pipette at each waterbody approximately 15 mL of water were taken from the bag and pipetted into six sterile tubes

containing 35 mL of ethanol to preserve the eDNA sample (i.e. the tube was filled to the 50 mL mark);

- the tube was shaken vigorously for ten seconds to mix the sample and preservative. This is essential to prevent DNA degradation and was also repeated for each of the six conical tubes. Before taking each sample, the water in the bag was shaken to homogenise the sample, as DNA material constantly sinks to the bottom; and
- the box of preserved sub-samples was kept in a fridge and then later returned to ambient temperature in the laboratory for analysis.

3.3.4 Laboratory analysis was consistent with the methods described in Appendix 5 of the WC1067 Technical Advice Note (Ref 6), including control analysis for inhibition and degradation.

3.3.5 eDNA kits were procured from Surescreen Scientifics (hereafter referred to as Surescreen) and on collection of samples, they were then sent back to Surescreen to be analysed in their laboratory.

3.4 Population Size Class Estimate Surveys

3.4.1 The ponds which had a positive eDNA test (P1 and P2) were subject to full and detailed surveys where possible to estimate the population size.

3.4.2 Water bodies surveyed were visited by a team of two ecologists. On each visit, torchlight surveying, egg searching and bottle trapping was undertaken in accordance with the standard methodologies for great crested newt survey (Ref 4). A total of six survey visits were undertaken in order to produce an estimate of the size class of the population of great crested newt present on the site. At least three survey visits were undertaken during the period of mid-April to mid-May, in accordance with the Great Crested Newt Mitigation Guidelines (Ref 4).

3.4.3 All survey visits were undertaken between April and June 2025. The dates each water body was surveyed are presented in **Annex E**.

3.4.4 Presence, sex, life stage and numbers were recorded for great crested newt and also common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris* and palmate newt *Lissotriton helveticus*. **Table 2** below presents the population size class of peak counts for great crested newt as presented in the great crested newt mitigation guidelines (Ref 4).

Table 2: Population classification

Great crested newt peak counts	Population classification
Up to 10	Small
Between 11 and 100	Medium
Over 100	Large

3.5 Metapopulation Analysis

3.5.1 Great crested newt are known to form metapopulations, "*a series of sub-populations that are linked by dispersal of individuals*" (Ref 4). Metapopulation boundaries have been determined based on professional judgement and informed by desk study and survey results which identify confirmed and assumed great crested newt water bodies, as well as consideration of likely dispersal routes, considering location and quality of suitable terrestrial habitat, barriers to dispersal and distribution of water bodies. For this report a dispersal distance of approximately 500 m from each breeding water body has been assumed based on known dispersal distances, as described in Paragraph 3.1.3.

3.6 Evaluation of Ecological Importance

3.6.1 Evaluation of ecological importance of identified ecological features within a Site is required to inform an EcIA. This report presents the evaluation of importance for great crested newt in context of the Proposed Development, and the impact assessment is presented in **Chapter 11: Terrestrial and Aquatic Ecology** (**EN010166/APP/6.2.11**).

3.6.2 The method of evaluation of ecological importance is presented in **Appendix 11-A EcIA Methodology** (**EN010166/APP/6.4**).

3.7 Limitations and Assumptions

3.7.1 The aim of a desk study is to help characterise the baseline context of the Construction and Operation Area and provide valuable background information that would not be captured by a single site survey 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 the desk study area. Likewise, the presence of records for species does not automatically mean that these still occur within the area of interest or are relevant in the context of the Site.

3.7.2 The Accommodation Works Areas are considered in **Appendix 5-A: Environmental Screening of Accommodation Works** (**EN010166/AP EN010166/APP/6.4**).

3.7.3 HSI assessments were not possible on two water bodies (P11 & P12) due to access restrictions. However, from a review of the terrestrial habitats and absence of physical barriers as defined in paragraph 3.1.3 these are considered to be functionally linked to another water body (P13) which returned a negative eDNA result.

3.7.4 eDNA surveys were not possible on 18 water bodies that had been assessed through HSI surveys as potentially being suitable for great crested newt. This was for several reasons including being unable to access on health and safety grounds (P1, P7, P8, P14, P22, P23, P24 & P42), or was dry at the time of the survey and it was not possible to collect a water sample (P40). Section 4 and 5 of this report detail the assumptions made about these ponds which it was not possible to survey.

3.7.5 P2 was very shallow on all six survey visits for the population size class estimate surveys. Therefore it was not possible to undertake bottle trapping or netting surveys without risk of injury to great crested newt, only torching and egg searches were undertaken at this waterbody. P1 was dry on all six survey visits for the population size class estimate surveys. Therefore it was not possible to undertake any survey methods. This is not thought to have altered the results as such low numbers of great crested newt were recorded in P2 and the close proximity of P1 to P2.

4. Results and Evaluation

4.1 Desk Study

Designated Sites

4.1.1 Two designated sites cited for great crested newt were returned by the desk study within the study area. The location of these can be found on **Figure 11E-2** (**Annex A**):

- **Deeside and Buckley Newt sites SAC** – located approximately 1.5 km south of the Proposed Development which supports one of the largest populations of great crested newt in Great Britain; and
- **Connah's Quay Ponds and Woodland Site of Special Scientific Interest (SSSI)** – located approximately 1.5 km south of the Proposed Development and is of special interest for its population of great crested newt and assemblage of other widespread amphibian species.

Cofnod Records

4.1.2 The data search returned a total of 262 records for great crested newt within the study area. The closest of these records is located approximately 1.2 km east of the Construction and Operation Area. The location of these records can be found in **Figure 11E-2** (**Annex A**).

Review of Ordnance Survey Maps and Aerial Imagery

4.1.3 A total of 58 waterbodies were identified within 500 m of the Construction and Operation Area, of these, 31 water bodies were scoped out of further assessment due to being flowing watercourses with no suitability for great crested newt or being separated from the Proposed Development by major barriers to great crested newt movement or being situated in saltmarsh that is regularly inundated by the tide. The results of this desk-based scoping exercise can be found in **Table 3** below and the location of the water bodies and watercourses can be found in **Figure 11E-3** (**Annex A**).

4.1.4 Nine watercourses were identified within 500 m of the Construction and Operation Area. All of these were flowing and so deemed unsuitable for great crested newt and have not been considered further in this report.

Table 3: Results of Desk based assessment of waterbodies.

Waterbody Ref	Result of desk-based assessment
P1	Scoped in for further survey.
P2	Scoped in for further survey.
P3	Scoped in for further survey.
P4	Scoped in for further survey.
P5	Scoped in for further survey.
P6	Scoped in for further survey.

Waterbody Ref	Result of desk-based assessment
P7	Scoped in for further survey.
P8	Scoped in for further survey.
P9	Scoped in for further survey.
P10	Scoped in for further survey.
P11	Scoped in for further survey.
P12	Scoped in for further survey.
P13	Scoped in for further survey.
P14	Scoped in for further survey.
P15	Scoped in for further survey.
P16	Scoped in for further survey.
P17	Scoped out as located in tidal salt marsh and deemed unsuitable for great crested newt.
P18	Scoped out as part of a flowing watercourse (Lead Brook) unsuitable for great crested newt.
P19	Scoped in for further survey.
P20	Scoped in for further survey.
P21	Scoped in for further survey.
P22	Scoped in for further survey.
P23	Scoped in for further survey.
P24	Scoped in for further survey.
P25	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the A548 which is considered a barrier to great crested newt movement.
P26	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the A548 which is considered a barrier to great crested newt movement.
P27	Scoped out as located in tidal salt marsh and deemed unsuitable for great crested newt.
P28	Scoped out as located in tidal salt marsh and deemed unsuitable for great crested newt.
P29	Scoped out as located in tidal salt marsh and deemed unsuitable for great crested newt.
P30	Scoped out as large high sided water tanks that are inaccessible to great crested newts.
P31	Scoped out as large high sided water tanks that are inaccessible to great crested newts.

Waterbody Ref	Result of desk-based assessment
P32	Scoped in for further survey
P33	Scoped in for further survey.
P34	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the A548 which is considered a barrier to great crested newt movement.
P35	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the A548 which is considered a barrier to great crested newt movement.
P36	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the A548 which is considered a barrier to great crested newt movement.
P37	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the A548 which is considered a barrier to great crested newt movement.
P38	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the A548 which is considered a barrier to great crested newt movement.
P39	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the A548 which is considered a barrier to great crested newt movement.
P40	Scoped in for further survey.
P41	Scoped in for further survey.
P42	Scoped in for further survey.
P43	Scoped out as located in tidal salt marsh and deemed unsuitable for great crested newt.
P44	Scoped out as located in tidal salt marsh and deemed unsuitable for great crested newt.
P45	Scoped out as located in tidal salt marsh and deemed unsuitable for great crested newt.
P46	Scoped out as located in tidal salt marsh and deemed unsuitable for great crested newt.
P47	Scoped out as located in tidal salt marsh and deemed unsuitable for great crested newt.
P48	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the River Dee which is considered a barrier to great crested newt movement.
P49	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the River Dee which is considered a barrier to great crested newt movement.

Waterbody Ref	Result of desk-based assessment
P50	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the River Dee which is considered a barrier to great crested newt movement.
P51	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the River Dee which is considered a barrier to great crested newt movement.
P52	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the River Dee which is considered a barrier to great crested newt movement.
P53	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the River Dee which is considered a barrier to great crested newt movement.
P54	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the River Dee which is considered a barrier to great crested newt movement.
P55	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the River Dee which is considered a barrier to great crested newt movement.
P56	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the River Dee which is considered a barrier to great crested newt movement.
P57	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the River Dee which is considered a barrier to great crested newt movement.
P58	Scoped out as separated from all elements of the Proposed Development that are within 500 m by the River Dee which is considered a barrier to great crested newt movement.

4.1.5 A total of 27 waterbodies were scoped in for further great crested newt surveys.

Review of Relevant Information from HyNet Carbon Dioxide Pipeline Development Consent Order Project

4.1.6 A review of the great crested newt baseline information for the HyNet Carbon Dioxide Pipeline DCO Project collated in 2021 and 2022 (Ref 7) identified some of these water bodies had been previously surveyed. A summary of the results of the relevant surveys can be found in **Table 4** below and waterbody locations can be found on **Figure 11E-3** (**Annex A**):

Table 4: HyNet Survey results

Waterbody Ref	HyNet Waterbody Ref	HyNet Survey Results
P2	157	There was a medium population of great crested newt present in this waterbody.
P4	43	Great crested newt were determined to be likely absent from this waterbody as it returned a poor HSI result.
P5	44	Great crested newt were determined to be likely absent from this waterbody as it returned a poor HSI result.
P6	44	Great crested newt were determined to be likely absent from this waterbody as it returned a poor HSI result.
P9	49	There was a small population of great crested newt present in this waterbody.
P11	147	This waterbody was not surveyed as part of the HyNet project and great crested newt were determined as likely absent in their reporting.
P12	146	This waterbody was not surveyed as part of the HyNet project and great crested newt were determined as likely absent in their reporting.
P13	51	This waterbody was not surveyed as part of the HyNet project and great crested newt were determined as likely absent in their reporting.

4.2 Habitat Suitability Index

4.2.1 **Table 5** shows the number of water bodies identified (27 No.), and the assigned HSI score, and the conditions/limitation of further survey (where applicable). **Figure 11E-3** in **Annex A** shows the location of each water body. The full HSI scores can be found in **Annex B** and photos of the water bodies in **Annex C**.

Table 5: Habitat Suitability Index Scores

Water body Reference	HSI Score	Distance from the Construction and Operation Area (m)	Description
P1	Poor (0.45)	272	Small pond in densely wooded area.
P2	Average (0.62)	200	Pond in grazed field. Heavily shaded in some sections, marginal and aquatic vegetation present.
P3	Poor (0.49)	478	Small shallow silty pond in arable land.
P4	Excellent (0.8)	74	Triangular shaped large deep pond. Marginal vegetation present comprising rush, water lilies.
P5	Good (0.72)	162	P5 & P6 found to be same water body. Large pool, deep, surrounded by scrub and rush.
P6	Same water body as Pond 5		
P7	Poor (0.48)	303	Small shallow pond heavily poached by cows, muddy, dense vegetation around most edges.
P8	Poor (0.49)	475	Large fishing pond, surrounded by dense vegetation.
P9	Pond found to no longer exist. Only hard standing and grassland present within area. Pond not considered any further in this assessment.		
P10	Shallow depression holding water. Likely very ephemeral and only holds water after recent rain. No marginal or aquatic vegetation, very shallow. Unlikely to support great crested newt, therefore scoped out of further survey.		
P11	No access for survey, functionally linked to P13.		
P12	No access for survey, functionally linked to P13.		
P13	Average (0.61)	Within the Site	Deep, steep sided pond in agricultural land, shaded by woodland.
P14	Below Average (0.51)	76	Small pond in dense wooded area.

Water body Reference	HSI Score	Distance from the Construction and Operation Area (m)	Description
P15	Poor (0.49)	175	Large fishing pool surrounded by trees and scrub.
P16	Poor (0.31)	206	Large shallow banked pond on field boundary. Located within grazed field with heavy presence of geese and ducks at time of survey. Only grasses and rushes present on edges. Oil and other pollutants present in water.
P19	Below Average (0.52)	142	Large pond with island. Assessed from aerial imagery due to access restrictions.
P20	Below Average (0.52)	45	Pond with heavily vegetated margins. Assessed from aerial imagery due to access restrictions.
P21	Waterbody found to no longer exist. Only grassland present within area. Waterbody not considered any further in this assessment.		
P22	Below Average (0.54)	203	Small, shallow, heavily vegetated (marginal and aquatic) pond in corner of agricultural field, surrounded by scrub.
P23	Below Average (0.52)	278	Small shallow pond in agricultural field. Steep sided and surrounded by scrub. Marginal and aquatic vegetation present.
P24	Average (0.6)	328	Small pond in agricultural field. Surrounded by dense vegetation.
P32	Flowing Ditch scoped out of assessment as unsuitable for great crested newt.		
P33	Flowing Ditch scoped out of assessment as unsuitable for great crested newt.		
P40	Average (0.66)	172	Rectangular shaped drainage pond. Vegetated with Typha. Pond was dry at time of survey.
P41	Waterbody no longer exists.		

Water body Reference	HSI Score	Distance from the Construction and Operation Area (m)	Description
P42	Average (0.64)	18	Long ditch adjacent to public park.

4.2.2 **Table 5** shows that an HSI was not possible on 2 of the water bodies (P11 & P12) due to access limitations.

4.2.3 Of those 25 water bodies where a HSI was possible, a total of 6 water bodies are scoped out of further survey for reasons as identified in **Table 5**, meaning that a total of 19 water bodies within 500 m of the Construction and Operation Area are considered suitable to support great crested newt and require further survey.

4.3 eDNA Sampling

4.3.1 Following the HSI assessment, eDNA surveys were carried out on nine water bodies, where access and water body condition allowed.

4.3.2 **Table 6** lists the waterbodies that were sampled for great crested newt eDNA, and any limitations noted during sample collection and the results returned by SureScreen.

Table 6: eDNA Results

Waterbody Ref	Sample Date	Sample Taken	Limitations	eDNA Result Returned
P1	N/A	No	Unable to survey due to shallow muddy edges and dense vegetatio	N/A
P2	28/05/2024	Yes	Only 60% of pond margin was accessible to sample	Positive
P3	29/05/2024	Yes	Only 50% of pond margin was accessible to sample	Negative
P4	29/05/2024	Yes	Only 60% of pond margin was accessible to sample	Negative
P5 & P6	29/05/2024	Yes	Only 50% of pond margin was accessible to sample	Negative
P7	N/A	No	Unable to sample due to muddy bank and dense vegetation	N/A

Waterbody Ref	Sample Date	Sample Taken	Limitations	eDNA Result Returned
P8	N/A	No	Pond was inaccessible on health and safety grounds (thick vegetation)	N/A
P11	N/A	No	No Access	N/A
P12	N/A	No	No Access	N/A
P13	29/05/2024	Yes	Only 45% of pond margin was accessible to sample. Additionally, pond covered in duckweed making sampling difficult	Negative
P14	N/A	No	Pond was inaccessible on health and safety grounds (barbed wire fence and thick vegetation).	N/A
P15	25/06/2024	Yes	Only 70% of pond margin was accessible to sample	Negative
P16	28/05/2024	Yes	Only 40% of pond margin was accessible to sample	Negative
P19	15/04/2025	Yes	Only 70% of pond margin was accessible to sample	Negative
P20	15/04/2025	Yes	None	Negative
P22	N/A	No	Pond was inaccessible on health and safety grounds (barbed wire fence and thick vegetation). Additionally, was too shallow to sample even if accessible.	N/A
P23	N/A	No	Pond was too shallow to sample.	N/A
P24	N/A	No	Pond was inaccessible on health and safety grounds (steep banks and thick vegetation).	N/A
P40	N/A	No	Dry at time of survey.	N/A

Waterbody Ref	Sample Date	Sample Taken	Limitations	eDNA Result Returned
P42	N/A	No	Pond was inaccessible on health and safety grounds (steep banks). Additionally, was too shallow to sample even if accessible.	N/A

4.3.3 The eDNA surveys recorded great crested newt presence in one water body (P2) that is located 200 m from the Construction and Operation Area. No water bodies are located within the Construction and Operation Area that are suitable for great crested newt.

4.4 Population Size Class Estimate Surveys

4.4.1 Population size class estimates were carried out on P2 (returned a positive eDNA test) and P1 (unable to sample for eDNA but within 250 m of P2 which returned a positive eDNA test). **Table 7** shows the peak count for each pond surveyed and the full survey results are recorded in **Annex E**. The peak counts for ponds P1 and P2 were added together to determine population size due to their close proximity to each other.

Table 7: Peak great crested newt counts

Waterbody Ref	Peak Count	Population Size	Distance from Construction and Operation Area (m)
P1	0	Small	272
P2	1		200

4.5 Metapopulation Assessment

4.5.1 One great crested newt metapopulation has been identified located in P2 and assumed to be present in P1 due to its proximity to P2, where great crested newt have been confirmed to be present. This was found to be of medium size during the surveys conducted for the HyNet scheme (Ref 7).The population class estimate surveys conducted in 2025 indicated a small population of great crested newt.

4.5.2 **Table 8** below summarises the metapopulation data for all water bodies within 500 m of the Construction and Operation Area.

Table 8 Summary of Metapopulations within 500 m of the Site

Size of metapopulation	Water body Reference	Distance from the Construction and Operation Area (m)
Small	P1	272
	P2	200

4.5.3 The remaining ponds within 500 m of the Proposed Development with habitat connections to the Construction and Operation Area are considered not likely to support great crested newt populations or if they potentially do support great crested newt populations, then these populations are not using habitats within the Construction and Operation Area (for further justification see paragraph 5.1.6 below) and so therefore unlikely to be impacted by the Proposed Development. Justification for these assumptions can be found in **Section 5**.

4.6 Evaluation of Ecological Importance

4.6.1 An assessment has been made of Ecological Importance based on the confirmed presence of great crested newt in one water body (P2), and the assumed presence of great crested newt in a second water body (P1) based on the survey information to date. This suggests great crested newt are present in one metapopulation which is a small population. In addition, no evidence of breeding great crested newt within these ponds (no eggs recorded) were found during the population surveys.

4.6.2 NRW have requested that the Current Conservation Status (CCS) of great crested newt in Flintshire is considered when determining the ecological importance of great crested newt populations that may be impacted by the Proposed Development.

4.6.3 The national CCS of great crested newt in Wales is unfavourable however Flintshire is a stronghold of the species (Ref 9) with large populations throughout the region associated with statutory sites designated for great crested newt. The metapopulation within the ZoI of the Proposed Development is small and unlikely to be breeding within the ponds that are within 500 m of the Construction and Operation Area.

4.6.4 Therefore the metapopulation that is within the ZoI of the Proposed Development is considered to be of Local importance.

5. Summary

5.1.1 The results of the 2024 and 2025 great crested newt desk study, surveys and necessary assumptions are taken into account to define appropriate mitigation measures. These are reported in **Chapter 11: Terrestrial and Aquatic Ecology** (**EN010166/APP/6.2.11**) and **Framework Construction Environmental Management Plan** (**CEMP**) (**EN010166/APP/6.5**).

5.1.2 The desk study identified 58 water bodies within 500 m of the Proposed Development with 31 of these scoped out of further assessment and 27 waterbodies being identified as potentially suitable for great crested newt with habitat connectivity to the Proposed Development.

5.1.3 Following the field surveys, three waterbodies were found to be absent (P9, P21 & P41) and five are considered to be unsuitable for great crested newt (P10, P32, P33) and therefore scoped out.

5.1.4 Great crested newt are confirmed likely to be absent from seven water bodies (P3, P4, P5, P6, P13, P15 & P16) within 500 m of the Construction and Operation Area and are assumed to be absent from a further two waterbodies (P11 & P12) due to their proximity to a waterbody that returned a negative eDNA result.

5.1.5 Great crested newt are assumed to be likely absent from four water bodies (P22, P23, P40 & P42) as they were either dry at the time of survey or very shallow and so unlikely to support breeding populations of great crested newt.

5.1.6 Additionally, it is assumed that even if great crested newt are present in two waterbodies (P7 & P8) that the Proposed Development will not impact these populations as ponds in closer proximity to the Proposed Development returned negative eDNA results suggesting that any potential great crested newt population present is not utilising habitats within the ZoI of the Proposed Development.

5.1.7 Great crested newt are confirmed to be present in one water body (P2) which has been found to hold a small population (this metapopulation is also assumed to be occupying P1). In addition, great crested newt are assumed to be present in a second water body (P1) as it was not possible to complete eDNA presence or likely absence surveys. As a result, great crested newt are confirmed or assumed to be present in a total of two water bodies within 500 m of the Construction and Operation Area.

5.1.8 These two water bodies are between 250 m to 500 m of the Construction and Operation Area (P1 &P2).

5.1.9 The metapopulation that is within the ZoI of the Proposed Development is considered to be of Local importance.

References

Ref 1. UK Government (2017). The Conservation of Habitats and Species Regulations 2017 (as amended). UK Statutory Instruments 2017 No. 1012. Available online at The Conservation of Habitats and Species Regulations 2017 (Accessed 31/07/2025).

Ref 2. UK Government (1981). Wildlife and Countryside Act (as amended) 1981. UK Public General Acts 1981 c.69. Available online at: https://www.legislation.gov.uk/ukpga/1981/69/contents (Accessed 31/07/2025).

Ref 3. UK Government (2016). Environment (Wales) Act 2016. Acts of the National Assembly for Wales 2016 anaw 3. Available online at: Environment (Wales) Act 2016 (Accessed 31/07/2025).

Ref 4. Great Crested Newt Mitigation Guidelines. English Nature (2001)

Ref 5. Cofnod North Wales Environmental Information Service (n.d.)

Ref 6. Analytical and methodological development for improved surveillance of the Great Crested Newt, and other pond vertebrates - WC1067 (2014)

Ref 7. National Infrastructure Planning (2024) HyNet Carbon Dioxide Pipeline

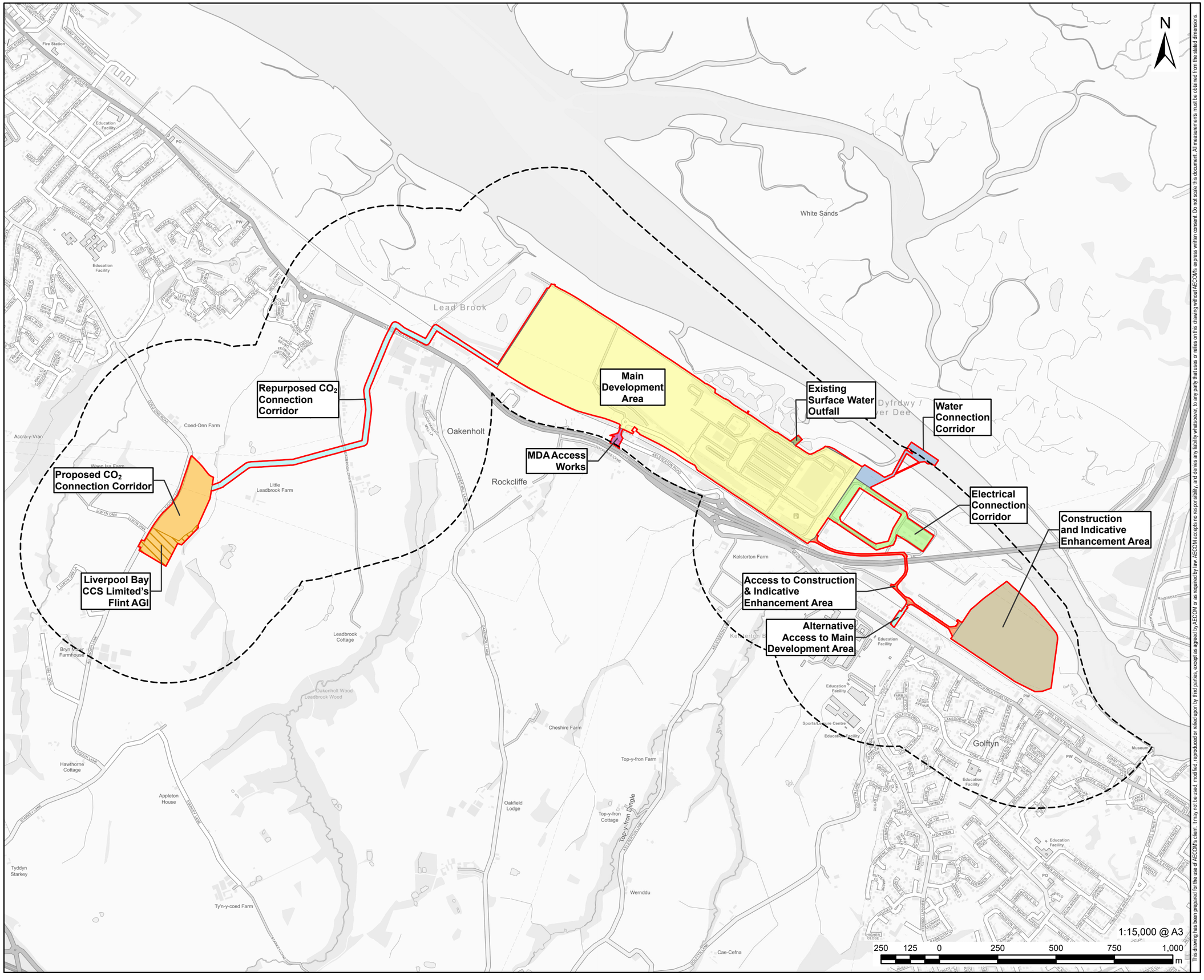
Ref 8. Oldham et.al (2010) Great Crested Newt Habitat Suitability Index

Ref 9. Amphibian and Reptile Conservation Trust (2018) Report No. 259 Review of the Current Conservation Status (CCS) of the Great Crested Newt in Wales, with specific references to its long term prospects and within its stronghold in NorthEast Wales. Available at: https://naturalresources.wales/media/687859/eng-evidence-report-259-review-of-the-current-conservation-status-ccs-of-the-great-crested-newt-in-wales.pdf (Accessed 31/07/2025)

Annex A: Figures

Revision: 0 Drawn: LP Checked: JG Approved: JC Date: 2025-07-28

Filename: C:\Users\PringL\OneDrive - AECOM\General - Uniper Connah's Quay LCDP DCO\900_CAD_GIS\920_GIS\02_Maps\Environmental Statement\CQ_ES_Appendix_11E\CQ_ES_App11E_Fig01_Survey_Area_20250718_01.aprx



AECOM uniper

PROJECT

Connah's Quay Low Carbon Power

CONSULTANT

AECOM Limited
The Colmore Building
Colmore Circus, Queensway
Birmingham, B4 6AT
www.aecom.com

LEGEND

- Construction and Operation Area
- Survey Area
- Main Development Area
- Repurposed CO_2 Connection Corridor
- Proposed CO_2 Connection Corridor
- Water Connection Corridor
- Electrical Connection Corridor
- Surface Water Outfall Area
- MDA Access Works
- Access to Construction & Indicative Enhancement Area
- Alternative Access to Main Development Area
- Construction & Indicative Enhancement Area
- Liverpool Bay CCS Limited's Flint AGI

NOTES

ISSUE PURPOSE

Environmental Statement

DATE

July 2025

PROJECT NUMBER

60717119

FIGURE TITLE

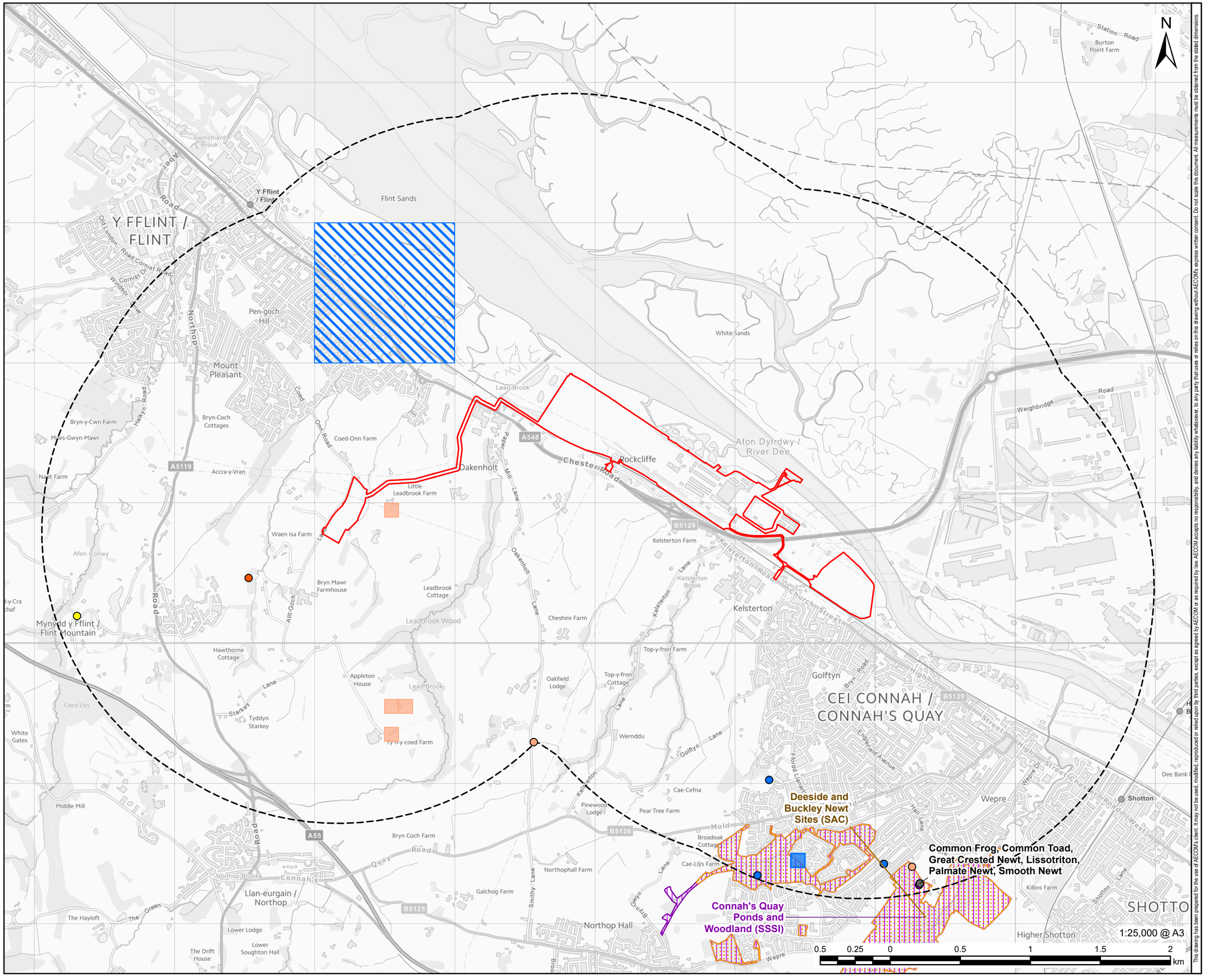
Survey Area

FIGURE NUMBER

Figure 11E-1

Revision: 0 Drawn: KH Checked: JG Approved: JC Date: 2025-07-18

Filename: C:\Users\PregL\OneDrive - AECOM\General - Uniper Connah's Quay LCDP DCO\900_CAD_GIS\920_GIS\02_Maps\Environmental Statement\CQ_ES_Appendix_11E\CQ_ES_App11E_Fig02_Desk_Study_Information_20250718_01.aprx



This drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the stated dimensions.

AECOM uniper

PROJECT

Connah's Quay Low Carbon Power

CONSULTANT

AECOM Limited
The Colmore Building
Colmore Circus, Queensway
Birmingham, B4 6AT
www.aecom.com

LEGEND

- Construction and Operation Area
- 2km Study Area
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)

Category 1 Species

1m to 10m Accuracy

- Amphibian - Common Frog
- Amphibian - Common Toad
- Amphibian - Great Crested Newt
- Amphibian - Palmate Newt
- Amphibian - Smooth Newt
- Multiple Species Records (see label)

100m Accuracy

- Amphibian - Common Frog
- Amphibian - Great Crested Newt

1km Accuracy

- Amphibian - Common Frog

NOTES

Records provided by Cofnod for Ecological Records Search Request. Due to the accuracy of the grid reference supplied some records are approximate. Any records with a grid reference accurate to a 100m square or less have been represented by a polygon rather than a point.

ISSUE PURPOSE

Environmental Statement

DATE

July 2025

PROJECT NUMBER

60717119

FIGURE TITLE

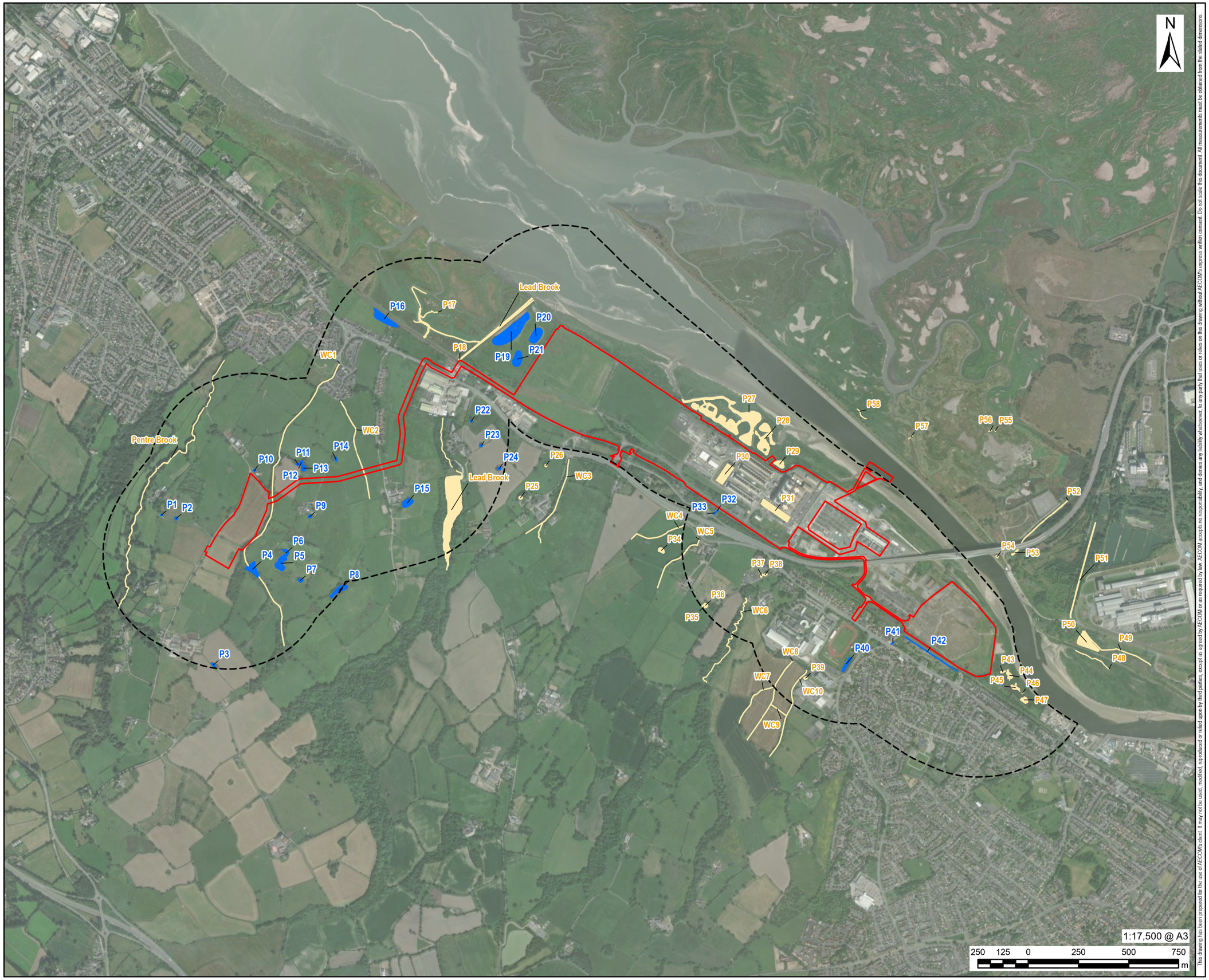
Desk Study Information

FIGURE NUMBER

Figure 11E-2

Revision: 0 Drawn: LP Checked: JG Approved: JC Date: 2025-07-21

Filename: C:\Users\Pringl\OneDrive - AECOM\General - Uniper Connah's Quay LCDP DCO\600_CAD_GIS\020_GIS\02_Maps\Environmental Statement\CQ_ES_Appendix_11E\CQ_ES_App11E_Fig03_GCN_Survey_Information_20250718_01.aprx



AECOM uniper

PROJECT

Connah's Quay Low Carbon Power

CONSULTANT

AECOM Limited
The Colmore Building
Colmore Circus, Queensway
Birmingham, B4 6AT
www.aecom.com

LEGEND

- Construction and Operation Area
- Survey Area
- Waterbody Scoped In For Further Great Crested Newt Survey
- Waterbody Scoped Out Of Further Great Crested Newt Survey

NOTES

ISSUE PURPOSE

Environmental Statement

DATE

July 2025

PROJECT NUMBER

60717119

FIGURE TITLE

Great Crested Newt Survey Information

FIGURE NUMBER

Figure 11E-3

Annex B: HSI Scores

Water body Ref	Location	Score	Pond Area (m^2)	Score	Permanence	Score	Water Quality	Score	Shade %	Score	Waterfowl	Score	Fish	Score	Pond Count	Score	Terrestrial habitat	Score	Macrophytes %	Score	HSI Score	Suitability
P1	A	1	<50	0.05	Sometimes Dries	0.5	Poor	0.33	100	0.2	Absent	1	Absent	1	6	1	Moderate	0.67	0	0.3	0.45	Poor
P2	A	1	<50	0.05	Rarely Dries	1	Poor	0.33	65	0.9	Absent	1	Absent	1	6	1	Moderate	0.67	50	0.8	0.62	Average
P3	A	1	<50	0.05	Sometimes Dries	0.5	Poor	0.33	70	0.8	Absent	1	Absent	1	4	1	Poor	0.33	10	0.4	0.49	Poor
P4	A	1	400	0.8	Never Dries	0.9	Moderate	0.67	0-60	1	Absent	1	Possible	0.67	7	1	Moderate	0.67	20	0.5	0.8	Excellent
P5 & P6	A	1	400	0.8	Never Dries	0.9	Moderate	0.67	0-60	1	Minor	0.67	Minor	0.33	7	1	Moderate	0.67	20	0.5	0.72	Good
P7	A	1	<50	0.05	Sometimes Dries	0.5	Poor	0.33	75	0.7	Absent	1	Absent	1	13	1	Poor	0.33	5	0.35	0.48	Poor

Water body Ref	Location	Score	Pond Area (m^2)	Score	Permanence	Score	Water Quality	Score	Shade %	Score	Waterfowl	Score	Fish	Score	Pond Count	Score	Terrestrial habitat	Score	Macrophytes %	Score	HSI Score	Suitability
P8	A	1	>2000	0.8	Never Dries	0.9	Moderate	0.67	0-60	1	Minor	0.67	Major	0.01	13	1	Moderate	0.67	10	0.4	0.49	Poor
P9	Pond found to no longer exist																					
P10	Unlikely to support great crested newts as likely only holds water after recent rain, therefore scoped out of further survey																					
P11	No access for survey																					
P12	No access for survey																					
P13	A	1	<50	0.05	Never Dries	0.9	Poor	0.33	75	0.7	Absent	1	Absent	1	13	1	Moderate	0.67	70	1	0.61	Average
P14	A	1	<50	0.05	Never Dries	0.9	Poor	0.33	100	0.2	Absent	1	Absent	1	13	1	Moderate	0.67	25	0.55	0.51	Below Average
P15	A	1	>2000	0.8	Never Dries	0.9	Moderate	0.67	0-60	1	Minor	0.67	Major	0.01	8	1	Moderate	0.67	10	0.4	0.49	Poor

Water body Ref	Location	Score	Pond Area (m^2)	Score	Permanence	Score	Water Quality	Score	Shade %	Score	Waterfowl	Score	Fish	Score	Pond Count	Score	Terrestrial habitat	Score	Macrophytes %	Score	HSI Score	Suitability
P16	A	1	>2000	0.8	Never Dries	0.9	Bad	0.01	0-60	1	Major	0.01	Absent	1	4	1	Poor	0.33	0	0.3	0.31	Poor
P19	A	1	>2000	0.8	Never Dries	0.9	Moderate	0.67	0-60	1	Major	0.01	Possible	0.67	4	1	Moderate	0.67	10	0.4	0.52	Below Average
P20	A	1	>2000	0.8	Never Dries	0.9	Moderate	0.67	0-60	1	Major	0.01	Minor	0.33	4	1	Moderate	0.67	60	0.9	0.52	Below Average
P21	Pond found to no longer exist																					
P22	A	1	<50	0.05	Dries Annually	0.1	Moderate	0.67	0-60	1	Absent	1	Absent	1	5	1	Moderate	0.67	70	1	0.54	Below average
P23	A	1	<50	0.05	Sometimes Dries	0.5	Poor	0.33	95	0.3	Absent	1	Absent	1	5	1	Moderate	0.67	60	0.9	0.52	Below Average
P24	A	1	<50	0.05	Rarely Dries	1	Poor	0.33	0-60	1	Absent	1	Absent	1	5	1	Moderate	0.67	25	0.55	0.6	Average

Water body Ref	Location	Score	Pond Area (m^2)	Score	Permanence	Score	Water Quality	Score	Shade %	Score	Waterfowl	Score	Fish	Score	Pond Count	Score	Terrestrial habitat	Score	Macrophytes %	Score	HSI Score	Suitability
P32	Flowing Ditch scoped out of assessment as unsuitable for great crested newt																					
P33	Flowing Ditch scoped out of assessment as unsuitable for great crested newt																					
P40	A	1	750	0.99	Dries Annually	0.1	Poor	0.33	0-60	1	Minor	0.67	Absent	1	8	1	Moderate	0.67	70 %	1	0.66	Average
P41	Waterbody no longer exists																					
P42	A	1	400	0.8	Dries Annually	0.1	Moderate	0.67	0-60	1	Absent	1	Absent	1	3	0.94	Moderate	0.67	5	0.35	0.64	Average

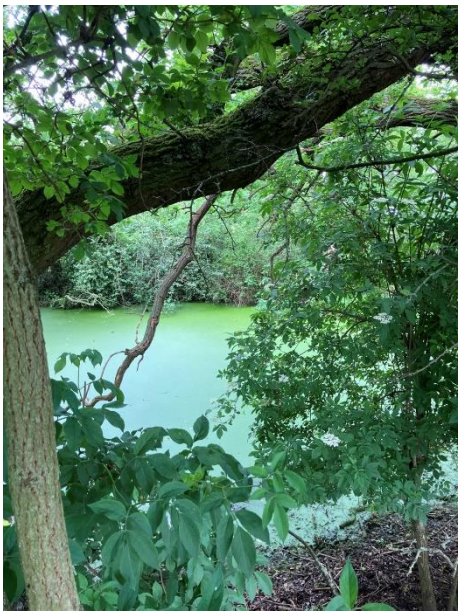
Annex C: Photos

Water body Reference	Photo
P1	
P2	

Water body Reference	Photo
P3	
P4	

Water body Reference	Photo
P5 & P6	
P7	

Water body Reference	Photo
P8	
P9	

Water body Reference	Photo
P10	
P11	No access for survey
P12	No access for survey
P13	

Water body Reference	Photo
P14	
P15	

Water body Reference	Photo
P16	
P19	

Water body Reference	Photo
P20	
P21	

Water body Reference	Photo
P22	
P23	
P24	
P32	Part of Lead brook Scoped out

Water body Reference	Photo
P33	Part of Lead brook Scoped out
P40	
P41	No longer exists
P42	Photo not available

Annex D: eDNA results

Annex E: Population Size Class Estimate results

P1

Visit Number	Date	Air temperature during torching (°C)	Minimum overnight temperature (°C)	Weather description	Turbidity (0-5)	Vegetation cover (0-5)	Torching start and end time	GCN recorded	Notes
1	30/04/2025				Pond dry unable to survey				
2	06/05/2025				Pond dry unable to survey				
3	12/05/2025				Pond dry unable to survey				
4	20/05/2025				Pond dry unable to survey				
5	27/05/2025				Pond dry unable to survey				
6	03/06/2025				Pond dry unable to survey				

P2

Visit Number	Date	Air temperature during torching (°C)	Minimum overnight temperature (°C)	Weather description	Turbidity (0-5)	Vegetation cover (0-5)	Torching start and end time	GCN recorded	Notes
1	30/04/2025	16	10	Warm and dry	3	4	21:00 -21:30	0	Torching and egg searching conducted. No eggs found
2	06/05/2025	9	6	Cool and dry	3	4	21:10-21:40	1	Torching and egg searching conducted. No eggs found
3	12/05/2025	18	11	Warm and dry	3	4	21:15-21:45	1	Torching and egg searching conducted. No eggs found

Visit Number	Date	Air temperature during torching (°C)	Minimum overnight temperature (°C)	Weather description	Turbidity (0-5)	Vegetation cover (0-5)	Torching start and end time	GCN recorded	Notes
4	20/05/2025	12	9	Cool and dry	3	4	21:30-22:00	0	Common frog seen. Torching and egg searching conducted. No eggs found. Very little water left in pond
5	27/05/2025	11	9	Cool and dry	3	4	22:00-22:23	0	Torching and egg searching conducted. No eggs found. Very little water left in pond

Visit Number	Date	Air temperature during torching (°C)	Minimum overnight temperature (°C)	Weather description	Turbidity (0-5)	Vegetation cover (0-5)	Torching start and end time	GCN recorded	Notes
6	03/06/2025	11	10	Cool and dry	3	4	22:15-22:40	0	Torching and egg searching conducted. No eggs found. Very little water left in pond