



Client – J10 Planning

Site – Maelor Works

Reference – 20260095

Location – Wrexham

Central Grid Reference – SJ 38079 48088

Date – 9th September 2026

Preliminary Ecological Appraisal (PEA)

Confidential

Author: Steven Whitcher, MCIEEM

Table of Contents

1. Summary	2
2. Introduction	3
2.1. Confidentiality	3
2.2. Purpose	3
2.3. Site Description and Location	3
2.4. Proposals	4
3. Methodology	5
3.1. Desk study	5
3.2. Preliminary Ecological Appraisal	5
3.3. Great Crested Newt Presence/Absence Survey	5
3.4. Limitations/Constraints	6
4. Results and Interpretation	8
4.1. Designated Sites	8
4.2. Habitats	8
4.3. Fauna	9
4.4. Invasive Non-Native Plant Species	15
5. Recommendations	16
6. References	18
Appendix I. Habitat Map	19
Appendix II. Target Notes	20
Appendix III. Species Lists	22
Appendix IV. Development Plans	23
Appendix V: Planning Policy and Species Legislation Summary	24
Appendix VI: eDNA Analysis Report	26

Disclaimer

This report has been prepared by Switch Ecology Ltd for the sole use of the commissioning party. The report may not be relied upon by any other party without written agreement from Switch Ecology.

In line with Chartered Institute of Environmental and Ecological Management (CIEEM) recommendations the findings of this survey are deemed valid for 18 months from the date of the survey.

1. Summary

Purpose	Retrospective planning permission is being sought for the construction of two buildings at the Maelor Works site in Wrexham. A Preliminary Ecological Appraisal of the wider Maelor Works site and subsequent great crested newt (<i>Triturus cristatus</i>) presence and absence surveys were carried out with this report prepared based on the findings of those surveys.
Results	The habitats on site include habitats commonly associated with industrial sites with a narrow, wooded bank along the western boundary. No Section 7 Habitats of Principal Importance were identified within the surveyed site. The ecological receptors on and around the site include: ○ Designated sites in the area surrounding the site, ○ Populations of great crested newts and common amphibians on site, ○ [REDACTED] ○ [REDACTED] ○ Habitats potentially suitable to support roosting and foraging bats on site with existing records of bat species in the surrounding area, ○ Habitats suitable for a range of bird species to forage and nest on site, ○ Habitats suitable to support hedgehogs, ○ Habitats suitable to support invertebrate species, ○ Habitat suitable to support reptile species on site.
Recommendations	○ Carry out any works on site under licence from NRW due to the presence of great crested newts on site, ○ Implement precautionary working methods and suitable mitigation or common amphibians, ○ [REDACTED] ○ [REDACTED] ○ Carry out further bat surveys of the site ahead of any future works impacting suitable habitats, ○ Carry out nesting bird surveys ahead of works in the nesting season, ○ Implement precautionary working methods for hedgehogs, ○ Retain the high value invertebrate habitats present in the wider area, ○ Implement precautionary working methods for reptile species.

2. Introduction

2.1. Confidentiality

[REDACTED]

[REDACTED]

[REDACTED]

2.2. Purpose

2.2.1. Retrospective planning permission is being sought for the construction of two buildings at the Maelor Works site in Wrexham.

2.2.2. A Preliminary Ecological Appraisal (PEA) of the wider Maelor Works site and subsequent great crested newt (*Triturus cristatus*) presence and absence surveys were carried out with this report prepared based on the findings of those surveys.

2.3. Site Description and Location

2.3.1. The Maelor Works site comprises an existing industrial site, which extends to 15.47 hectares (ha). The site applicable to this report comprises a 0.52ha area to the northwest of the wider site, as shown in Figure 1.



Figure 1: Showing the extent of the Maelor Works site.

2.3.2. The site is an existing industrial site, comprising two buildings surrounded by parking and storage areas.

2.3.3. The land surrounding the site comprises a mixture of open countryside, including arable and grazing farmland, and woodland with areas of industrial land to the north, including a solar farm immediately to the north of the site and Wrexham Industrial Estate, a short distance to the north.



Figure 2: Showing the site in context with the wider surrounding area.

2.4. Proposals

2.4.1. The planning application is retrospective and therefore the works on the site had already been completed at the time of this survey.

2.4.2. A plan showing the existing site layout is included in Appendix IV of this report.

3. Methodology

3.1. Desk Study

3.1.1. A desk study was carried out in order to identify existing records of protected or notable species or habitats within 2km of the survey area.

3.1.2. Records of locally designated sites and existing records of protected species were requested from Cofnod.

3.1.3. The area within 500m of the site was searched for waterbodies using publicly accessible mapping including Ordnance Survey, Google Earth and the MAGIC website.

3.2. Preliminary Ecological Appraisal

3.2.1. A field survey of the site was undertaken on by Steven Whitcher (MCIEEM) on the 10th and 12th April 2024. The Preliminary Ecological Appraisal (PEA) was carried out in accordance with the industry standard and mapped using UKHab 2.0 Classifications (2023).

3.2.2. The weather on the 10th April was heavy rain with a light breeze (BWS-1) and a temperature of 6°C. The weather on the 12th April was fine but breezy (BWS-2) with a temperature of 10°C.

3.2.3. During the survey all habitats were noted, including dominant species, mapped and notable ecological features were target noted.

3.2.4. The survey also looked for evidence of protected or notable fauna species or invasive non-native plant species and followed specific survey guidelines, where applicable, including:

- Checking all buildings, trees and structures for bat roosting potential in line with the Bat Conservation Trust Good Practice Guidelines, 4th edition (Collins 2023), BTHK Bat Roosts in Trees (BTHK 2018) and BRHK Bat Roosts in Rock (BRHK 2021).
- Assessing all accessible ponds within 500m of the surveyed area using the Habitat Suitability Index (HSI) assessment criteria (Oldham et al. 2000).
- Assessing the habitats on site for their suitability to support protected or notable species, including but not limited to, badgers (Harris et al 1989), water voles (Strachan et al 2011), otters (Channin, 2003), crayfish, nesting birds (BBS,BTO), reptiles (Froglife 1999), hedgehogs and hazel dormice.

3.3. Great Crested Newt Presence/Absence Survey

3.3.1.1. Following the PEA the waterbodies within the surveyed site were subject to further surveys to establish the presence or likely absence of GCN.

3.3.1.2. eDNA

3.3.1.2.1. Water samples were collected from Pond 1 by Steven Whitcher on 17th May 2024. The samples were sent for analysis by SureScreen Scientifics to confirm the presence or absence of great crested newts in the pond.

3.3.1.2.2. The weather at the time of the water sample collection was light showers and a breeze (BWS-1) with a temperature of 15°C.

3.3.1.3. Traditional Methods

3.3.1.3.1. The survey was carried out in line with the methods outlined within the Great Crested Newt Mitigation Guidelines (*English Nature, 2001*). Four survey visits were carried out to each pond within the survey period, which is mid-March to mid-June, with at least two of those visits being within the peak survey season, which is mid-April to mid-May. Survey visits were carried out during suitable weather conditions with overnight temperatures above 5°C.

3.3.1.3.2. At least three survey techniques were used during each survey visit, in line with good practice. The survey techniques used were:

- Torch searching – the perimeter of each waterbody was walked after dark using a bright torch (1,000,000 candle power, or equivalent) to search for amphibians within the water. Any amphibians identified were recorded,
- Bottle trapping – traps were set around the perimeter of each waterbody at a ratio of one trap per 2m of bank, where appropriate. The traps were set close to sunrise and collected before 11am the following morning,
- Egg searching – suitable vegetation within each waterbody was searched for newt eggs, which are laid on floating or submerged leaves and folded around the egg,
- Netting – a net was used to sample each waterbody at regular intervals.
- Table 1 outlines the dates of the surveys, the personnel present and weather conditions at the time of the survey.

Table 1: Dates and weather conditions for the surveys.

	1 st survey	2 nd survey	3 rd survey	4 th survey
Date	29.04.2024	13.05.2024	23.05.2024	10.06.2024
Weather Conditions (PM)	Light showers and a breeze (BWS-1). 9°C	Light showers with a breeze (BWS-1), 15°C	Cloudy but fine with a light breeze (BWS-1), 10°C	Cloudy with light showers and a breeze (BWS-2), 11°C
Weather Conditions (AM)	N/A	N/A	N/A	N/A

3.4. Limitations/Constraints

3.4.1. This survey was carried out to CIEEM methodologies and therefore provides an overview of the habitats present on the site with dominant, notable or indicator species within those habitats noted. As such the species lists included are intended to be sufficient to confidently assess habitat condition but are not intended to provide an exhaustive list of all species present.

3.4.2. The PEA was carried out during mid-April when vegetation levels were increasing. Therefore, some areas of the site, notably the areas of scrub, were dense preventing a

detailed inspection of the area underneath the scrub for protected species field signs. This was considered a constraint to the survey findings for the dense areas of the site.

3.4.3. The PEA was carried out following an un-seasonally wet winter period and with heavy rain immediately prior to and during the survey. Therefore, it was not possible to accurately assess the extent of some of the waterbodies present on the site. This was considered a constraint to the findings of the survey.

3.4.4. The PEA comprised a general walkover of the habitats present on site and but did not include a detailed Preliminary Roost Assessment of the buildings present on site.

3.4.5. Due to the known populations of great crested newts on and around the site a Habitat Suitability Index (HSI) assessment of the ponds on and off site was not considered necessary during the survey.

3.4.6. The ponds that were subject to traditional great crested newt survey methods were areas comprising several connected and unconnected pools that fluctuated in water level. Therefore, eDNA analysis of the ponds was not considered suitable and bottle traps were not set due to the shallow nature of the ponds and the fluctuations in water level.

3.4.7. The site had been developed at the time of the survey and therefore it is not possible to assess the habitats present prior to the development or the potential impact of the development on habitats or protected species.

4. Results and Interpretation

4.1. Designated Sites

4.1.1. Cofnod returned records of three non-statutory and two statutory designated sites within 2km of the wider Maelor Works site, although no sites within or immediately adjacent to the site.

Table 2: Non-statutory sites within 2km

Site Name	Designation	Reason for Designation	Location
Peter's Dingle	Local Wildlife Site (LWS)	Habitats: Woodland	250m east
Wrexham Industrial Estate	LWS	Habitats: Grassland, woodland	900m north
Bangor on Dee Meadows	LWS	Unknown	1.1km south

Table 3: Statutory sites within 2km.

Site Name	Designation	Reason for Designation	Location
Afon Dyfrdwy (River Dee)	Site of Special Scientific Interest (SSSI)	Habitats: Various Species: Flora, otters, water voles, invertebrates	1km south
River Dee and Bala Lake	Special Area of Conservation (SAC)	Habitats: Watercourse Species: Atlantic salmon, floating water-plantain, otters, various fish species	1km south

4.1.2. Due to the proximity of the surveyed area to the designated sites and the nature of the site, which is commercial, it is considered unlikely that future works on the site will have a direct or indirect impact on the designated sites.

4.2. Habitats

4.2.1. Cofnod returned records of several areas of ancient woodland within the 2km search area, including areas immediately to the east and west of the wider Maelor Works site, along the unnamed brook that flows through the site.

4.2.2. The habitats present within the surveyed area are outlined below and shown on the plans in Appendix I of this report. Appendix III includes species lists for each habitat.

4.2.3. u1b Developed land, sealed surface (0.32ha)

4.2.3.1. The surveyed area includes areas of existing parking and storage surrounding the buildings.

4.2.4. u1b5 Building (0.12ha)

4.2.4.1. Two buildings, comprising large industrial units, are present within the surveyed site.

4.2.5. w1g Other broadleaved woodland (0.19ha)

4.2.5.1. The woodland extends along a bank on the site boundary, behind the two buildings. The woodland displays and abundance of silver birch (*Betula pendula*) in the canopy with

hawthorn (*Crataegus monogyna*), bramble (*Rubus fruticosus*) and nettle (*Urtica dioica*) dominating the shrub and ground flora. The woodland displays signs of disturbance from activities associated with the adjacent buildings.

4.2.6. u1e Built linear feature (203m)

4.2.6.1. The site boundaries comprise fences along the wider site boundary and separating the buildings from the remaining areas of the site. The fences include post and wire stock fencing, palisade fencing and chain-link fencing.

4.3. Fauna

4.3.1. No watercourses are present on site or in the immediate surrounding area and therefore species commonly associated with watercourses, including crayfish, otters (*Lutra lutra*) and water vole (*Arvicola amphibius*) are unlikely to be impacted by the proposals and are therefore not considered further in this report.

4.3.2. Amphibians

4.3.2.1. Cofnod returned abundant records of amphibians within the 2km search area, although no records specific to the surveyed site. The records include records of great crested newt, smooth newt (*Lissotriton vulgaris*), palmate newt (*Lissotriton helveticus*), common frog (*Rana temporaria*) and common toad (*Bufo bufo*) immediately adjacent to the site to the north, east, south and west.

4.3.2.2. Previous surveys of the site, carried out by Evolution Ecology during 2014 and Kingdom Ecology during 2021, have identified a small population of great crested newts in ponds present on the site and a Natural Resources Wales (NRW) licence was obtained to cover works on the site during 2015, reference 63479a:OTH:EPS:2015.

4.3.2.3. Five ponds were identified within the wider Maelor Works site with a further fourteen ponds identified within 250m of the site on maps of the area, five located within 250m of this site.

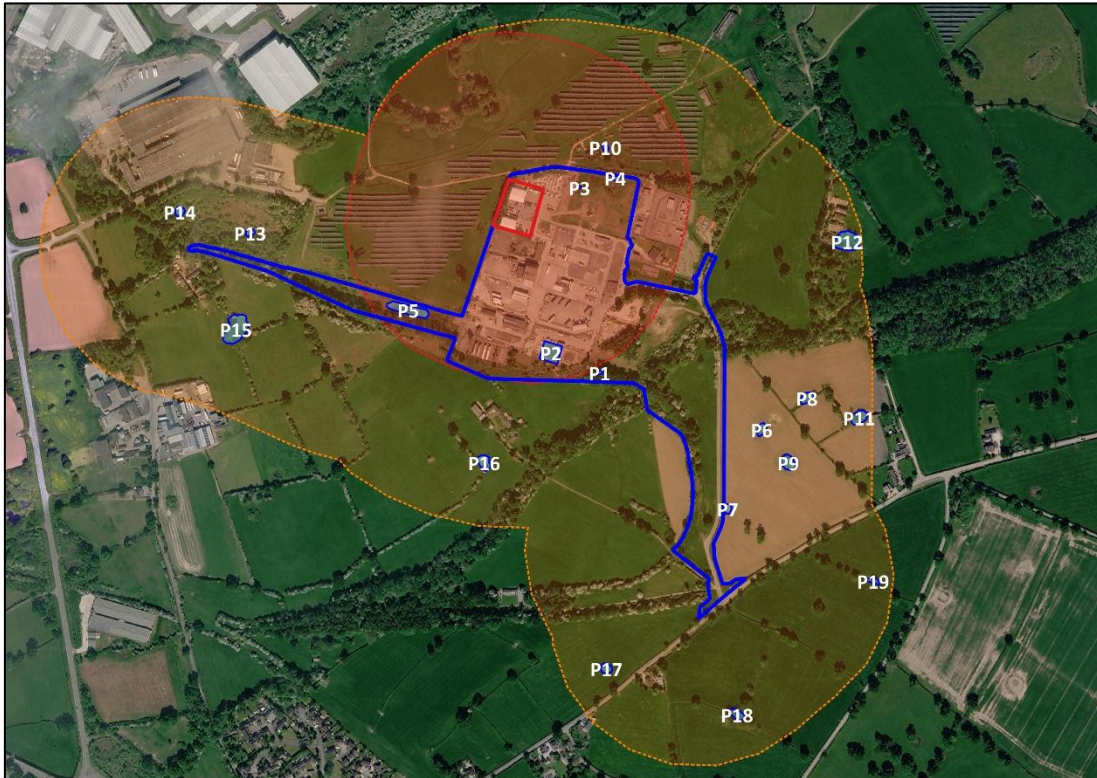


Figure 3: Showing the surveyed site, pond locations and a 250m buffer around the site.

4.3.2.4. Pond 1 (T5) comprises a small pond located within the lowland deciduous woodland to the south of the main industrial area of the site. The pond displays little or no emergent or submerged vegetation due to its shaded nature, although duckweed (*Lemnoideae sp.*) is present around the pond margins. Water from the industrial areas of the site drains into the pond and then continues to drain through the woodland into the brook to the south of the site. Great crested newts were identified in the pond during the 2021 surveys.



Figure 4: Pond 1.



Figure 5: Pond 2.

4.3.2.5. Pond 2 (T4) comprises a large concrete lined tank located within the industrial areas to the south of the site. The tank was not accessible during the survey. The pond was discounted as unsuitable for amphibians during the 2021 surveys.

4.3.2.6. Pond 3 (T2) comprises areas of water around an old concrete building base in the areas of open mosaic to the north of the site. The pond comprises a series of pools around

and under the broken concrete base. Rush and bulrush are present in the pond, implying a level of permanence to the water. The pond was not identified as being present during the 2021 surveys.



Figure 6: Pond 3.



Figure 7: Pond 4.

4.3.2.7. Pond 4 comprises a series of pools in vehicle ruts and shallow scrapes in the open mosaic to the north of the site. The pools display varying levels of water with rush and bulrush present, implying a level of permanence. Tadpoles were visible in the water at the time of this survey. The pond was not identified as being present during the 2021 surveys.

4.3.2.8. Pond 5 comprises a series of pools in the open mosaic habitat to the west of the site. The pools vary in size and depth with areas of rush and algae present, implying a level of permanence to the water. The pond was not identified as being present during the 2021 surveys, with the area previously identified as woodland.



Figure 8: Pond 5.



Figure 9: A flooded drainage channel (T1).

4.3.2.9. Occasional other areas of water, including flooded drainage channels (T1), were also identified within the surveyed site. These features were not recorded as ponds during the survey due to the small size of the features and the assumption that the areas will not contain consistent standing water at drier times of year.

4.3.2.10. Water samples were collected from Pond 1 for eDNA analysis. The analysis confirmed that great crested newts are absent from the pond. Figure 35 shows an extract from the analysis report with a full copy included in Appendix VI of this report.

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN0614	Maelor Works, P1	SJ3816047931	Pass	Pass	Negative	0/12

Figure 10: Extract from the SureScreen eDNA report.

4.3.2.11. Presence and absence surveys of ponds 3, 4 and 5 were carried out during April, May and June 2024. The results of the surveys are shown in Table 4 below with ‘GCN’ referring to great crested newt, ‘SM’ referring to smooth newt, ‘M’ indicating male and ‘F’ indicating female.

Table 4: Results from the great crested newt presence/absence surveys.

	Pond 3	Pond 4	Pond 5	Additional areas
Survey Number 1, 29/04/24	1 FSM, tadpoles	Tadpoles	1MGCN, 1MSM, 1FSM, tadpoles	Nothing
Survey Number 2, 13/05/24	1FSM, tadpoles	3MSM, 2FSM, tadpoles	Tadpoles	1MSM, 1 frog
Survey Number 3, 23/05/24	1MSM, 1FSM, tadpoles	3MSM, 1 frog	1FGCN, 2MSM, 2FSM, tadpoles	Nothing
Survey Number 4, 10/06/24	Nothing (low water levels and high turbidity)	1MSM	1 frog. Low water levels	Nothing

4.3.2.12. The surveys confirm that the site supports a small population of great crested newts alongside healthy populations of smooth newts, common frogs and common toads. No newt eggs were identified during the surveys, to confirm breeding in the ponds on site.

4.3.2.13. The site provides some areas of suitable opportunities for terrestrial amphibians, notably along the wooded bank. No terrestrial amphibians were identified during the site survey.

4.3.2.14. The sealed surface habitats within the regularly used areas of the site provide a lower value terrestrial habitat for amphibians, although materials piled on the habitats will provide opportunities for amphibians to seek shelter.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

4.3.4. Bats

4.3.4.1. Cofnod returned several records of bats and bat roosts within the 2km search area, although no records specific to the surveyed site or the immediate surrounding area. The closest records are historic records of common pipistrelle (*Pipistrellus pipistrellus*) at Nant Cottage, 300m to the east of the site. The closest non-historic records (within 20 years) refer to the presence of pipistrelle species (*Pipistrellus sp.*) 650m to the east.

4.3.4.2. The buildings on the wider Maelor Works site provide a range of opportunities for roosting bats, although a thorough inspection of the buildings within this site was not included as part of this survey.

4.3.4.3. The trees around the wider site, both scattered trees and within the areas of woodland, display a range of opportunities for roosting bats. Potential Roost Features (PRF) were visible in some of the trees during the site survey, although a thorough ground inspection of all of the trees on site was not carried out as part of the survey.



Figure 11: Buildings that may provide roosting opportunities.



Figure 12: PRF identified in trees on site.

4.3.4.4. The wider site includes a range of linear features and woodland edges that were considered to provide a moderate value foraging and commuting habitat for bats with areas considered to provide a high value habitat along the brook to the south. A thorough

assessment of the foraging and commuting activity on and around the site was not carried out as part of the survey.

4.3.5. Birds

4.3.5.1. Cofnod returned abundant records of bird species within the 2km search area, although no records specific to the surveyed site or the immediate surrounding area. The closest records are vague records of several species, including UK Birds of Conservation Concern (BoCC) red and amber list species, within grid squares SJ3848, SJ3847, SJ3748 and SJ3747. The closest specific records refer to the presence of kestrel (*Falco tinnunculus*), a BoCC amber list species, 350m to the west and cuckoo (*Cuculus canorus*), a BoCC red list species, 500m to the north.

4.3.5.2. The site provides opportunities for a range of bird species to forage and nest due to the habitats present, from industrial areas to woodland. Several bird species were noted as being present during the wider site survey, including blackbird (*Turdus merula*), wren (*Troglodytes troglodytes*), chiffchaff (*Phylloscopus collybita*) and jay (*Garrulus glandarius*).

4.3.5.3. No active nests were identified during the site survey, although a thorough nesting bird survey was not carried out as part of the survey.

4.3.6. Hedgehogs

4.3.6.1. Cofnod returned occasional records of hedgehog (*Erinaceus europaeus*) within the 2km search area, although no records specific to the surveyed area or the immediate surrounding area. The closest records refer to the presence of the species at Cross Lanes, 850m to the south.

4.3.6.2. The site was considered to provide opportunities for hedgehogs to forage and shelter within the area of woodland.

4.3.6.3. No hedgehog field signs were identified during the site survey.

4.3.7. Invertebrates

4.3.7.1. Cofnod returned abundant records of invertebrate species within the 2km search area, although no records specific to the surveyed site or the immediate surrounding area. The closest records refer to the presence of several species on the former Firestone Site, located 300m to the north.

4.3.7.2. The wider Maelor Works site provides opportunities for a range in invertebrate species, particularly within the ponds and pools present on site, although limited habitat was identified within the surveyed site. A thorough invertebrate survey was not carried out as part of the survey.

4.3.8. Reptiles

4.3.8.1. Cofnod returned occasional records of reptile species within the 2km search area, although no records specific to the surveyed site or the immediate surrounding area. The

closest records refer to the presence of slow-worm (*Anguis fragilis*) and adder (*Vipera berus*) along Redwither Brook 750m to the north.

4.3.8.2. The site provides opportunities for reptile species to forage and seek refuge due to the habitats present. The woodland provides suitable areas of shelter for reptiles with suitable foraging opportunities in the surrounding area.

4.3.8.3. No reptiles were identified during the site survey.

4.4. Invasive Non-Native Plant Species

4.4.1. No invasive non-native plant species were noted as being present on the site at the time of the site survey.

5. Recommendations

5.1. Designated Sites

5.1.1. The site will not have an impact on any designated sites and therefore there are no recommendations specifically relating to designated sites.

5.2. Habitats

5.2.1. The planning application is retrospective and therefore the works have already been completed on the site. Therefore, there will be no further impact on the habitats present on the site.

5.3. Fauna

5.3.1. Amphibians

5.3.1.1. The surveys confirm the presence of a small population of great crested newts on the site, with the species confirmed to be present in Pond 5 during this survey and previously confirmed to be present in P1. Therefore, it is recommended that any future works on site are carried out under licence from Natural Resources Wales (NRW).

5.3.1.2. The surveys also confirmed populations of smooth newts, common frogs and common toads on the site. Therefore, it is recommended that any future works on site take the presence of these species into account, with precautionary measures implemented during the works and habitat provision, aquatic and terrestrial, considered in any site plans.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

5.3.3. Bats

5.3.3.1. It is recommended that any future works on the site are preceded by thorough bat surveys of buildings, trees and the wider landscape, carried out in line with the Bat Conservation Trust (BCT) Good Practice Guidelines.

5.3.3.2. In the event that bats will be impacted by the proposed works an NRW licence should be obtained prior to any works commencing on site.

5.3.4. Birds

5.3.4.1. It is recommended that any future works on the site take into account the presence of bird species on the site, with particular note to the nesting season, which extends from March to September each year.

5.3.4.2. Any works that commence during the nesting season must be immediately preceded by a thorough nesting birds survey, carried out by a suitably experienced surveyor, with any nests identified being retained, along with the suitable buffer around the nest, until the young have fledged.

5.3.4.3. It is recommended that future plans for the site include features suitable for bird species to nest and forage on site. The plans should include nest boxes, in buildings and on trees, and the planting of native fruit and berry bearing tree and shrub species.

5.3.5. Hedgehogs

5.3.5.1. It is recommended that any future works on the site are carried out with consideration for the potential presence of hedgehogs on site. This should include the careful clearance of dense vegetation, to allow an inspection of the area underneath for hedgehogs, and the avoidance of site clearance during the peak hibernation period, which is December to February.

5.3.5.2. It is recommended that future plans for the site include features suitable for hedgehogs to seek shelter and to forage. The plans should also include measures to ensure that hedgehogs retain access throughout the surrounding area, including hedgehog highways in any fences erected on site.

5.3.6. Invertebrates

5.3.6.1. It is recommended that future plans for the site retain high value invertebrate habitats present on the wider Maelor Works site, particularly the ponds and pools on site, where possible.

5.3.6.2. In the event that the plans for the site include the removal of high value invertebrate habitats it is recommended that an accurate survey of the areas if carried out prior to the works commencing.

5.3.7. Reptiles

5.3.7.1. It is recommended that any future works on site are carried out under precautionary measures for reptile species and that the presence of the species is considered in the design of the site.

6. References

Bright, P., Morris, P. & Mitchell-Jones, T. (2006). The Dormouse Conservation Handbook. 2nd edition. English Nature, Peterborough.

BTHK (2018). Bat Roosts in Trees – A Guide to Identification and Assessment for Tree-Care and Ecology Professionals. Exeter: Pelagic Publishing.

BRHK (2021). Bat Roosts in Rock – A Guide to Identification and Assessment for Climbers, Cavers & Ecology Professionals. Pelagic Publishing, Exeter.

Bat Conservation Trust and Institute of Lighting Professionals (2018) Guidance Note 08/18: Bats and artificial lighting in the UK. ILP, Rugby

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2017) Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.

Collins, J. (ed.)(2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.

English Nature (2001). Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.

Froglife (1999). Froglife Advice Sheet 10: reptile survey. Froglife, London.

JNCC (2010) Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit, JNCC, Peterborough.

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

UKHab Ltd (2023). UK Habitat Classification Version 2.0 (at <https://www.ukhab.org>)

Legislation and Policy.

Conservation of Habitats and Species Regulations 2017. Available at <http://www.legislation.gov.uk/ukxi/2017/1012/contents/made> (Accessed 20th March 2023).

Countryside Rights of Way Act 2000. Available at <http://www.legislation.gov.uk/ukpga/2000/37/contents> (Accessed 20th March 2023).

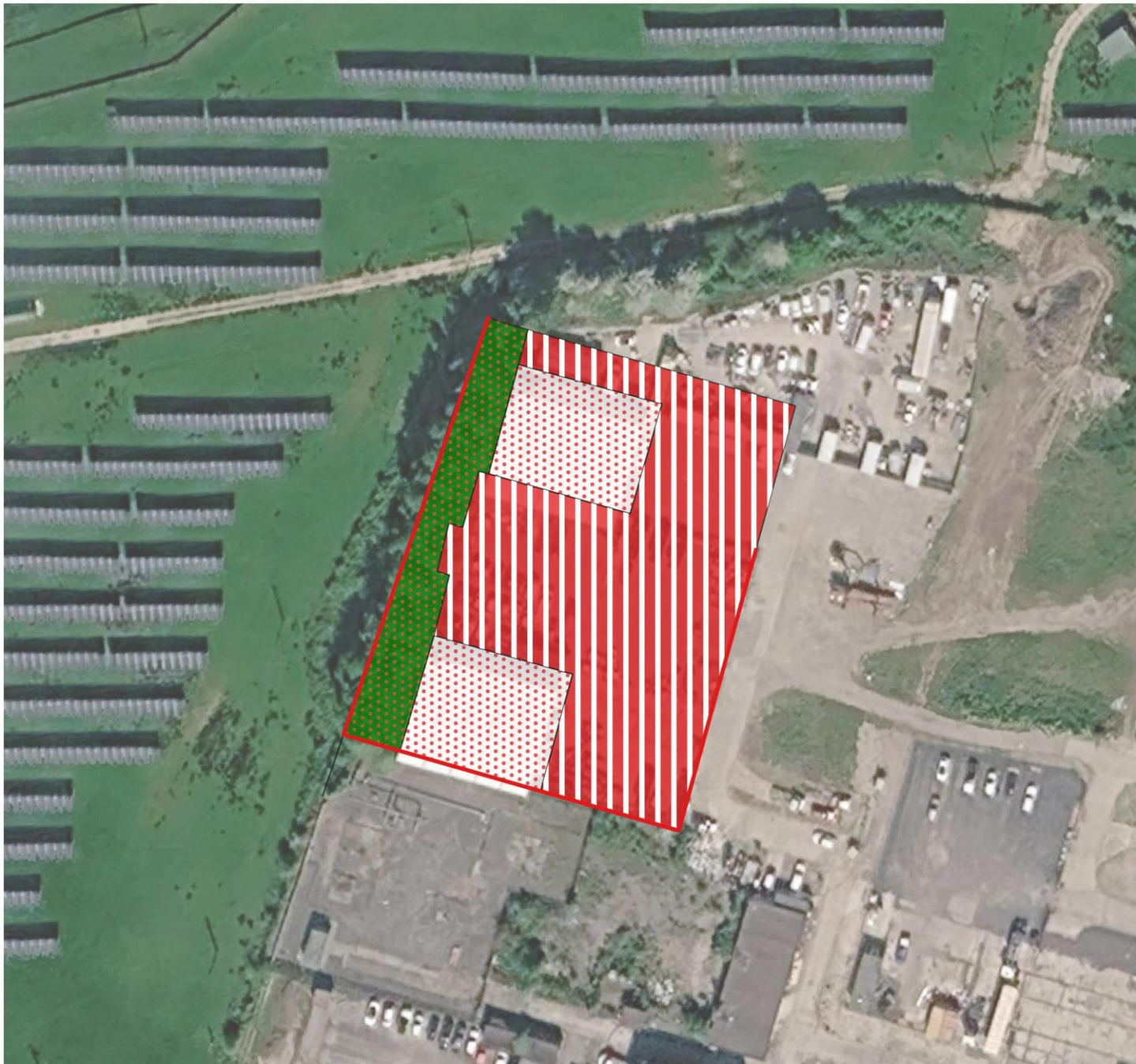
The Habitats Directive. Available at http://www.ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm (Accessed 20th March 2023).

The Environment (Wales) Act 2016. Available at <https://www.legislation.gov.uk/anaw/2016/3/contents/enacted> (Accessed 26th February 2024)

Planning Policy Wales, Edition 12. Available at https://www.gov.wales/sites/default/files/publications/2024-02/planning-policy-wales-edition-12_1.pdf (Accessed 24th February 2024)

Natural Environment and Rural Communities (NERC) Act 2006. Available at <http://www.legislation.gov.uk/ukpga/2006/16/contents> (Accessed 20th March 2023).

The Wildlife and Countryside Act 1981. Available at <http://www.legislation.gov.uk/ukpga/1981/69> (Accessed 20th March 2023).



Appendix I: Habitat Map

Site - Maelor Works, Wrexham
Reference - 20260095

Habitats

-  u1b Developed land, sealed surface
-  u1b5 Buildings
-  w1g Other broadleaved woodland

Linear Habitats

-  u1e Built linear features



Appendix II: Target Notes

Site - Maelor Works, Wrexham
Reference - 20260095

Site boundary

 Surveyed site

 Maelor Works site

Site Target Notes

-  T1 - Drainage ditch, standing water
-  T2 - Pond
-  T3 - Badger sett
-  T4 - Pond
-  T5 - Pond

0 120 240 m



Appendix II: **Target Notes**

T1	A flooded drainage channel providing opportunities for amphibians.	
T2	Pond 3, present underneath and around an old concrete building base.	
T4	Pond 2, a large concrete tank in an area of the site with restricted access.	
T5	Pond 1, previously identified to support a population of great crested newts.	

Appendix III: Species Lists

w1g Other broadleaved woodland	
Species Present	DAFOR Assessment
Silver birch (<i>Betula pendula</i>)	Locally D
Hawthorn (<i>Crataegus monogyna</i>)	F
Willow (<i>Salix sp.</i>)	O
Ash (<i>Fraxinus excelsior</i>)	O
Oak (<i>Quercus sp.</i>)	O
Primrose (<i>Primula vulgaris</i>)	O
Buttercup (<i>Ranunculus sp.</i>)	O
Cleavers (<i>Galium aparine</i>)	O
Wood sage (<i>Teucrium scorodonia</i>)	F
Bramble (<i>Rubus fruticosus</i>)	F
Lords & ladies (<i>Arum maculatum</i>)	O
Violet (<i>Viola sp.</i>)	O
Wood avens (<i>Alliaria petiolata</i>)	O
Nettle (<i>Urtica dioica</i>)	O
Garlic mustard (<i>Alliaria petiolata</i>)	O
Ribwort plantain (<i>Plantago lanceolata</i>)	R
Hedge woundwort (<i>Stachys sylvatica</i>)	R

Appendix V: Planning Policy and Species Legislation Summary

1. Planning Policy

1.1. Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales. Section 6.4 relates to biodiversity and ecological networks.

1.2. Paragraph 6.4.3 states:

‘The planning system has a key role to play in helping to reverse the decline in biodiversity and increase the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and secure enhancement.’

1.3. Paragraph 6.4.11 states:

‘Planning authorities must follow a step-wise approach to maintain and enhance biodiversity, build resilient ecological networks and deliver net benefits for biodiversity by ensuring that any adverse environmental effects are firstly avoided, then minimised, mitigated, and as a last resort compensated for. Enhancement must be secured by delivering a biodiversity benefit primarily on site or immediately adjacent to the site, over and above that required to mitigate or compensate for any negative impact.’

2. Legislation Summary

Site	Legislation	
Locally Designated Sites	Locally designated sites are not covered by any statutory legislation but are protected by local development plans.	
Statutory Sites	Statutory sites are protected in different ways depending on the reason for the sites designated with sites being covered by legislation including the Wildlife and Countryside Act 1981 and the Habitats Directive.	
Species and Habitats of Principal Importance	Species and habitats of principal importance are covered by the Natural Environment & Rural Communities Act 2006.	
Species	Legislation	Offences include
Badgers	Protection of Badgers Act 1992	○ Wilfully kill, injure, take, possess or cruelly ill-treat a Badger, or attempt to do so; ○ To intentionally or recklessly interfere with a sett (this includes disturbing Badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it).
Bats	Conservation of Habitats and Species Regulations 2017 (as amended) Wildlife and Countryside Act 1981	○ Deliberately kill, injure or capture a bat; ○ Deliberately disturb bats; ○ Damage or destroy a breeding site or resting place of a bat. ○ Obstruct access to any structure or place which any bat uses for shelter or protection; or ○ Disturb any bat while occupying a structure or place which it uses for that purpose.

Birds	Wildlife and Countryside Act 1981	○ Intentionally kill, injure, or take any wild bird; ○ Intentionally take, damage or destroy a nest of any such bird whilst it is in use or being built; or ○ Intentionally take or destroy an egg of any such bird.
Crayfish	Wildlife and Countryside Act 1981	○ Obstruct access to any structure or place which a crayfish uses for shelter or protection; or ○ Disturb a crayfish while occupying a place which it uses for that purpose.
Great Crested Newts	Conservation of Habitats and Species Regulations 2017 (as amended) Wildlife and Countryside Act 1981	○ Intentionally or deliberately capture, injure, kill, or disturb the species; ○ Intentionally or recklessly damage, destroy or disturb a GCN in a place of shelter or protection, or obstruct access to such a place; or ○ Damage or destroy a breeding site or resting place.
Hazel Dormice	Conservation of Habitats and Species Regulations 2017 (as amended) Wildlife and Countryside Act 1981	○ Deliberately capture, injure or kill a dormouse; ○ Deliberately disturb dormice; ○ Damage or destroy a breeding site or resting place of a dormouse ○ Obstruct access to any structure or place which a dormouse uses for shelter or protection; or ○ Disturb a dormouse while occupying a structure or place which it uses for shelter or protection
Otters	Conservation of Habitats and Species Regulations 2017 (as amended) Wildlife and Countryside Act 1981	○ Deliberately capture, injure or kill any wild otter; ○ Deliberately disturb wild otters; ○ Damage or destroy a breeding site or resting place of an otters. ○ Disturb an otters while it is occupying a structure or place which it uses for shelter or protection; or ○ Obstruct access to such a place.
Red Squirrels	Wildlife and Countryside Act 1981	○ Kill, injure or take a red squirrel; ○ Damage, destroy or obstruct access to any structure or place which a red squirrel uses for shelter or protection; or ○ Disturb a red squirrel while it is occupying a structure or place which is used for that purpose.
Reptiles (non EPS)	Wildlife and Countryside Act 1981	○ Intentionally kill or injure a reptile.
Water Voles	Wildlife and Countryside Act 1981 Natural Environment & Rural Communities (NERC) Act 2006	○ Intentionally capture, kill or injure water voles; ○ Intentionally or recklessly damage, destroy or block access to their places of shelter or protection; or ○ Disturb water voles while occupying a place of shelter used for that purpose.

Local authorities therefore have a duty to consider protected species as a material consideration when assessing planning applications. The ODPM Government Circular 06/2005 states: *'It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision.'*

Appendix VI: **eDNA Analysis Report**

Folio No: 1300-2024
Purchase Order: 20240016
Contact: Switch Ecology
Issue Date: 31.05.2024

GCN Report

Technical Report

Folio No: 1300-2024
Purchase Order: 20240016
Contact: Switch Ecology
Issue Date: 31.05.2024



GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN0614	Maelor Works, P1	SJ3816047931	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Daisy Chambers

Approved by: Chelsea Warner



Folio No: 1300-2024
Purchase Order: 20240016
Contact: Switch Ecology
Issue Date: 31.05.2024



Methodology

The samples detailed above have been analyzed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample tube which then undergoes DNA extraction. The extracted sample is then analyzed using real-time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded. Analysis of eDNA requires attention to detail to prevent the risk of contamination. True positive controls, negative controls, and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added analytical security.

SureScreen Scientifics Ltd is ISO9001 accredited and participates in Natural England's proficiency testing scheme for GCN eDNA testing.

Interpretation of Results

Sample Integrity Check:	When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results. Any samples which fail this test are rejected and eliminated before analysis.
Degradation Check:	Pass/Fail. Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
Inhibition Check:	Pass/Fail. The presence of inhibitors within a sample is assessed using a DNA marker. If inhibition is detected, samples are purified and re-analyzed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
Result:	Presence of GCN eDNA (Positive/Negative/Inconclusive) Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location. Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with the WC1067 Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence. Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection. Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for GCN presence or absence.

SureScreen Scientifics Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE, UK
+44 (0)1332 292003 | scientifics@suresscreen.com | suresscreenscientifics.com

