

Habitat Suitability Index (HSI) Report P2019/0898

Project: Caretaker House, Hafod Road, Johnstown, Wrexham, LL14 6HF

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EXECUTIVE SUMMARY

The contents of this report detail the findings of a Habitat Suitability Index (HSI) great crested newts (GCN; *Triturus cristatus*) undertaken during November 2019 at Caretaker House, Hafod Road, Johnstown, Wrexham, LL14 6HF (hereafter referred to as 'the site'). The site is centred on approximate Ordnance Survey Grid Reference (OSGR) SJ 3135 4660. The findings of this report have been used to inform a planning application for the proposed erection of a stables and manège; classed as a minor development (small scale/ localised nature).

The site, set within a rural environment, is composed of improved grassland, tall ruderal vegetation, scattered tree(s) and fencing.

The site is situated within a 'Key Ecological Corridor' associated with the Johnstown Newt Site (SAC), located ~41m east of Bonc-Yr-Hafod Country Park (SSSI). A COFNOD data search returned a total of 706 records of GCN, recorded between 1992 and 2019, the vast majority of which originate from the Bonc-Yr-Hafod Country Park designation.

Seven (7) potential significant standing waterbodies (**WB1 – WB7**) were identified during the desktop study, within a 250m zone of influence, most of which are situated within Bonc-Yr-Hafod Country Park. **WB1** provides 'below average' suitability for GCN. **WB6** provides 'average' suitability for GCN and is a known GCN breeding pond. **WB7** provides 'poor' suitability for GCN. **WB2 – WB5** are all drains/ ditches which were found to be dry/ vegetated at the time of the survey; therefore, these are not considered suitable for supporting GCN.

The land within the development footprint has 'low' potential for GCN to be present, given the sub-optimal suitability of the habitat (short, grazed grassland pasture), absence of significant hibernation features/ refugia and high levels of disturbance. The habitat upon Bonc-Yr-Hafod Country Park which surrounds **WB6/ WB7** and intervenes these waterbodies from the site, provides significantly greater terrestrial opportunities for GCN than on the site itself.

There are no anticipated impacts upon any breeding/ resting place of GCN (or to any areas within 100m of a known breeding/ resting place), upon any core habitat (within 50m of a breeding pond) and/ or upon key connecting habitat. There is no anticipated temporary or permanent loss of any viable terrestrial GCN habitat on the site itself. It is considered that there is a 'low' risk of killing/ injuring GCN potentially commuting across the site during the works phase. No direct or indirect impacts upon the SAC are anticipated as a result of the proposed development.

No further survey with regard to GCN is considered necessary provided a strict mitigation and enhancement strategy is adhered to, including adherence to Reasonable Avoidance Measures (RAM's) detailed in a method statement for GCN; a pre-commencement survey by an Ecological Clerk of Works (ECW); sensitive groundwork timings; maintenance of short-sward grassland (sub-optimal for GCN) on the site; and improvement works to **WB2**. Should this strategy be unfeasible or become impractical/ insufficient at any time during the development, alternative measures must be implemented.

No evidence of other protected/ notable species was noted during the survey and no adverse impacts upon species or habitats of ecological importance are envisaged, provided the provisions detailed within this report are adhered to.

GREAT CRESTED NEWT LEGISLATION

- The great crested newt (GCN; *Triturus cristatus*) is listed as a European Protected Species (EPS) on Schedule 2 of the Conservation Regulations (Annex IV (a) to the Habitats Directive) and is afforded full protection under both Regulation 43 of the Conservation of Habitats and Species Regulations (2017) and the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:
 - i. Deliberately or recklessly capture, kill, injure or disturb GCN(s);
 - ii. Deliberately or recklessly damage or destroy a breeding or resting place of GCN(s);
 - iii. Deliberately or recklessly obstruct access to a breeding or resting place of GCN(s);
 - iv. Deliberately take or destroy the eggs of a GCN(s);
- Furthermore, GCN(s) are listed as Priority Species on the UK BAP, highlighting them as species of conservation concern.

1. INTRODUCTION

1.1 COMMISSION AND PROPOSALS

- Pearce Environment Ltd were commissioned by Ms Nicola Selvey in November 2019 to undertake a Habitat Suitability Index (HSI) at Caretaker House, Hafod Road, Johnstown, Wrexham, LL14 6HF (hereafter referred to as 'the site'). The site is centred on approximate Ordnance Survey Grid Reference (OSGR) SJ 3135 4660.
- The findings of this report have been used to inform a planning application for the proposed erection of a stable block and manège/ illuminated riding area (**Appendix 1**).

1.2 AIMS

- This report sets out the findings of a desk-based study, site-based study and Habitat Suitability Index (HSI) undertaken by Pearce Environment Ltd in November of 2019.
- The aims of this report are to:
 - i. Determine the suitability of the terrestrial habitat upon the site for GCN;
 - ii. Determine the suitability of significant standing waterbodies in close proximity with the site for GCN;
 - iii. Identify species constraints pertinent to the proposals, in accordance with statutory legislation and guidance given in given in national planning framework and local planning policy;
 - iv. Determine the need for any additional/ Phase 2 species surveys, where necessary;
 - v. Detail any mitigation and compensation schemes, Reasonable Avoidance Measures (RAM's) and/ or licensing requirements, where necessary;
 - vi. Identify opportunities for the proposed development to provide enhancements and add to the biodiversity resource within the site.

1.3 BACKGROUND

- No previous ecological reports relating to the site itself are known to the surveyor.

2. METHODOLOGY

- This section summarises the methodologies used during the ecological studies undertaken to inform the proposed development, in line with the aims set out in **Section 1** of this report.

2.1 DESK STUDY

- The desk study is an important part of the ecological assessment as it provides contextual information, notably the sites' proximity to designations of conservation concern, potential significant bodies of standing water and known records of protected/notable species (**Table 2.1**).
- This information is used to inform and support the recommendations and conclusions set out in this report.

Table 2.1 Summary of resources used and information requested during the desk study (2019)

Organisation/ Resource	Information Assessed (search distance from site boundary)
MAGIC website ¹	• Significant standing water bodies (250m)
COFNOD (North Wales Environmental Information Service)	• Protected/ UK BAP species records (1km) • Non-statutory designations (1km) • International statutory designations (1km) • National statutory designations (1km)

- All pertinent information obtained during the desk study is referenced within **Section 3**, **Section 4**, **Appendix 2** and **Appendix 3** of this report.

2.2 HABITAT SUITABILITY INDEX (HSI)

Great Crested Newts

- A desk-based study was undertaken using OS maps and online mapping resources to identify any waterbodies within 250m of the site boundaries.

Habitat Suitability Index (HSI)

- Those waterbodies identified within the search area not considered to be separated from the application site by major dispersal barriers were assessed for their potential to support great crested newts (GCN; *Triturus cristatus*) using the Habitat Suitability Index (HSI), developed by Oldham et al. (2000)². This assessment uses a scoring system, derived from several criteria including pond area, water quality, fish/ waterfowl presence and the value of the surrounding, terrestrial habitat. Waterbodies with high scores are considered more likely to support GCN than those with lower scores.

¹ Multi-Agency Geographic Information for the Countryside website (www.magic.gov.uk/)

² Oldham et al. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

- This tool has been developed to provide a quantitative measure of the suitability of a waterbody to support GCN and should not be used as a substitute for presence/absence surveys where they are required.
- HSI scores relating to the suitability of the waterbodies assessed to support GCN are described in **Table 2.2**.

Table 2.2 Pond suitability for great crested newts determined using HSI scoring system

HSI Score	Waterbody Suitability to Support GCN
<0.5	Poor suitability
0.5 – 0.59	Below average suitability
0.6 – 0.69	Average suitability
0.7 – 0.79	Good suitability
>0.8	Excellent suitability

- Appropriate biosecurity measures were taken during waterbody visits, where necessary.
- A thorough site walkover was undertaken to assess the terrestrial habitat suitability for GCN. A terrestrial hand search was carried out for GCN seeking refuge beneath any debris/ potential refugia (where appropriate).
- The survey was performed by Jonathan Molesworth BSc (Hons) Grad CIEEM, an ecologist with 4 years' experience and holder of Natural England (NE) and Natural Resources Wales (NRW) licenses for great crested newts (licence numbers: 2017-31597-CLS-CLS and 77860:OTH:SA:2017), NE licence for white-clawed crayfish (licence number: 2018-38384-CLS-CLS), a first class degree in Biology from the University of Liverpool, and membership with the Chartered Institute of Ecology and Environmental Management (CIEEM membership number: 15105). Jonathan is also a qualified tree climber, and is a member of the Shropshire Mammal Group and Shropshire Bat Group.
- The survey was undertaken during a daytime visit on 25th November 2019. This visit was carried out at a temperature of 10°C and in overcast conditions.

Other Species

- Observations of any other notable flora and fauna were noted during the survey.

2.3 LIMITATIONS

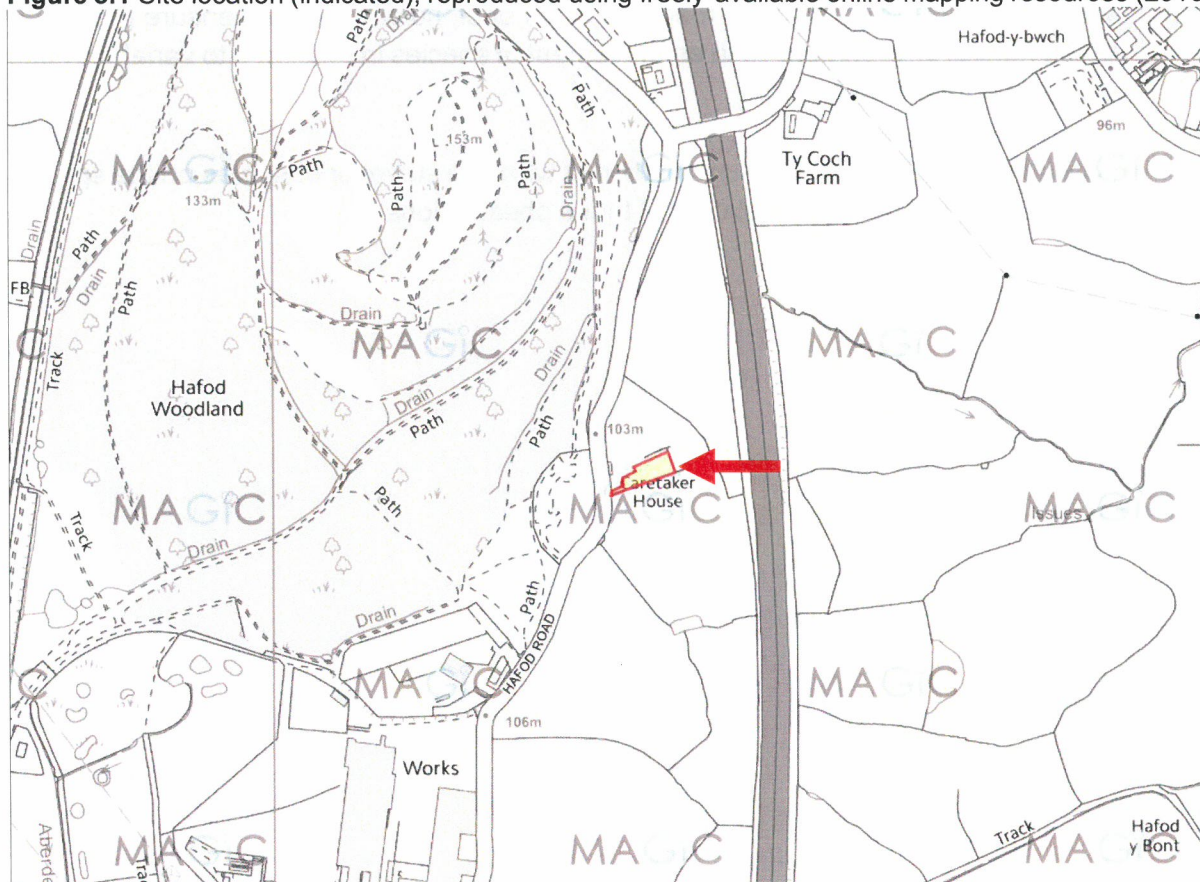
- December is outside of the breeding season for GCN; therefore, it was taken into consideration that GCN are most likely utilising terrestrial habitats at this time.
- All aspects of the site and immediate surrounds were fully accessible during the survey. All potential, significant standing waterbodies within 250m of the site were also fully accessible.
- Whilst we make every effort to meet the client brief, no site visit can ensure prediction of the natural environment such as movement of species in response to variables such as weather and seasonality.
- As with any survey, it is a documentation of what the surveyor observes on the specific survey day and their interpretation of those observations.

3. RESULTS

3.1 SITE DESCRIPTION

- The site is set within a rural environment, located approximately 2.5km south-southwest of Wrexham Town, beyond the eastern periphery of the village of Johnstown (**Figure 3.1**).

Figure 3.1 Site location (indicated), reproduced using freely-available online mapping resources (2019)



- The site is directly surrounded by pasture fields to the north and south, Bonc-Yr-Hafod Country Park to the west (on the other side of Hafod Road) and the A483 (a major road) to the east (**Figure 3.2**).
- The site itself (~0.09 hectares) comprises horse-grazed pasture. The following range of broad habitats are present on the site:
 - Improved Grassland;
 - Fencing;
 - Scattered Trees; and
 - Tall Ruderal Vegetation.
- Vehicular access into the site is currently gained via an entrance/ driveway which leads off Hafod Road and serves Caretaker House, north of the site (**Image 3.3**). A second informal entrance (field gate), which is also in current use, leads off Hafod Road further south and into the pasture field in which the site is set (**Image 3.4**).

Figure 3.2 Aerial view of the site (indicated in red) and immediate surrounds, reproduced using freely-available online mapping resources (2019)



Image 3.3 Existing vehicular access track/ driveway serving Caretaker House



Image 3.4 Second entrance to the site (field gate)



3.2 BROAD HABITATS

Improved Grassland

- The main body of the site consists of species-poor improved grassland, which is grazed by horses to a short sward height (**Image 3.5; Image 3.6**). Herbaceous species within the sward include common dandelion (*Taraxacum officinale*), common buttercup (*Ranunculus repens*), common daisy (*Bellis perennis*) and thistle (*Cirsium spp.*).

Fencing

- The majority of the site is bounded (and bisected/ compartmentalised) by timber post and wire fencing, some of which is in a poor state. Electric fencing is also present along part of the southern boundary (**Image 3.6 – Image 3.8**).

Scattered Trees

- Several scattered trees encroach the eastern (and lie near to the northern) site peripheries, with species including elder (*Sambucus nigra*), hawthorn (*Crataegus monogyna*) and sycamore (*Acer pseudoplatanus*), most of which range from young to semi-mature (**Image 3.5; Image 3.7; Image 3.8**).

Tall Ruderal Vegetation

- The majority of the site boundaries, marked by fencing, are populated with very narrow strips of tall ruderal vegetation, dominated by common nettle (*Urtica dioica*), broad-leaved dock (*Rumex obtusifolius*) and cleaver (*Gallium aparine*; **Image 3.8; Image 3.9**).

Image 3.5 A typical view of the eastern half of the site, showing improved grassland and scattered trees



Image 3.6 A typical view of the western half of the site, showing improved grassland and fencing



Image 3.7 Scattered trees at the eastern extent of the site, also showing fencing



Image 3.8 Scattered trees and tall ruderal vegetation adjacent to (but just outside) of the northern site boundary



Image 3.9 Narrow strip of tall ruderal vegetation along the southern boundary fence



3.3 DESK STUDY RESULTS

Statutory Designations

- A desk-based study was undertaken to identify the presence of statutory designations, which include:

International Recognised Statutory Designations

- Special Protection Areas (SPA's)
- Special Areas of Conservation (SAC's)
- RAMSAR Sites

National Recognised Statutory Designations

- Sites of Special Scientific Interest (SSSI's)
- National Nature Reserves (NNR's)

Local Level Statutory Designations

- Local Nature Reserves (LNR's)
- A review of information available from COFNOD and freely-available online resources identified the presence of one (1) statutory designations of conservation concern within 1km of the site (**Figure 3.10; Table 3.11; Appendix 2**).

Figure 3.10 Proximity of statutory designations to the site, reproduced using freely-available online resources (2019)

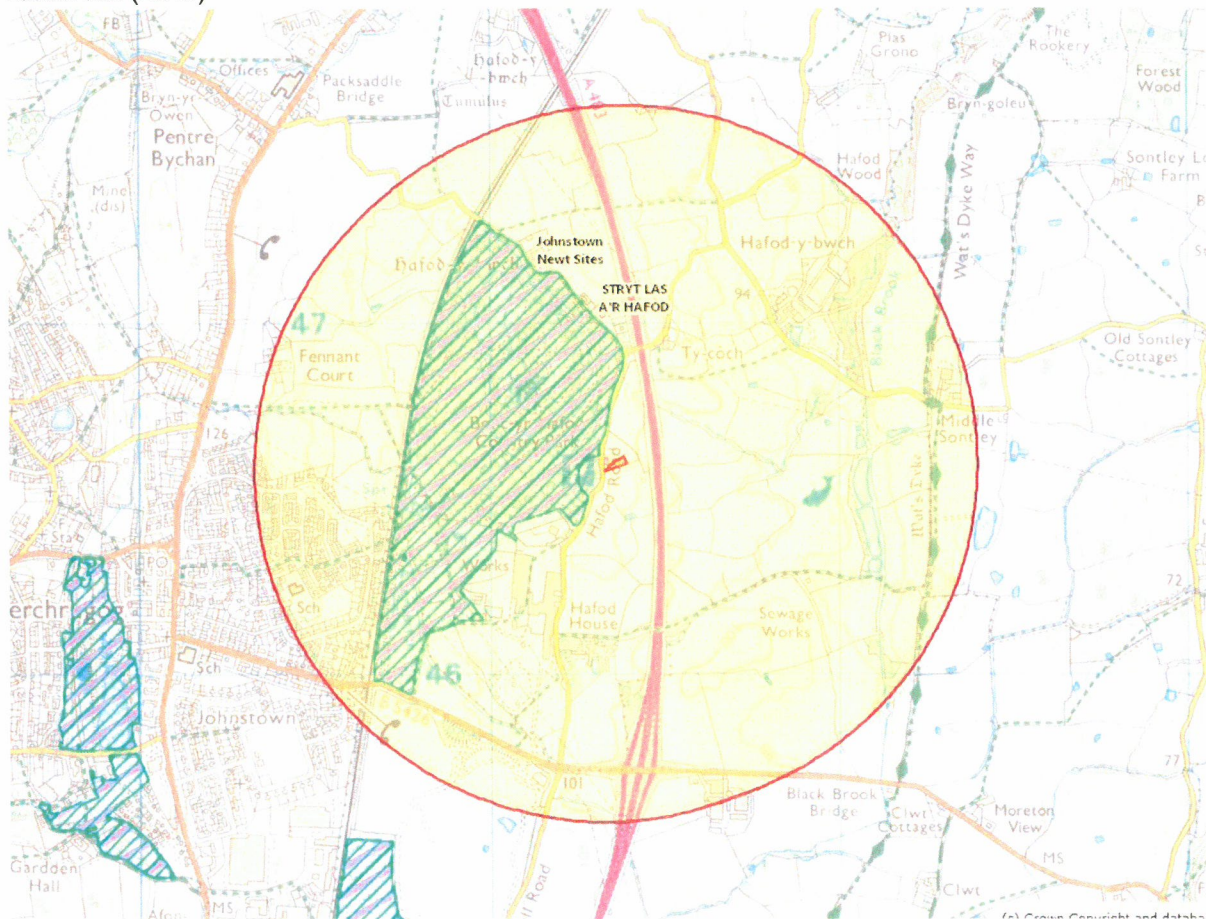


Table 3.11 Statutory Designations within 1km of the site

Site Name	Distance from site (km)	Grid Reference	Description
1376: Stryt Las A'r Hafod (SSSI)/UK0030173: Johnstown Newt Sites (SAC)	0.04 (west)	SJ 298 459	Stryt Las a Hafod (Bonc-Yr-Hafod Country Park) is a composite site located close to the village of Johnstown, of special interest for its amphibians – particularly great crested newts. The population of GCN is one of the largest known in Great Britain and has been the focus of conservation management over the last few years. Breeding sites are provided in part by a mining subsidence pool, and natural water-filled hollows on clay, whilst other ponds have been created as part of conservation management. Terrestrial habitat varies from marshy grassland, grazed farmland and swamp through to scrub and broad-leaved woodland. Good populations of common amphibian species are also present.

- The site is located within a 'Key Ecological Corridor' associated with the Johnstown Newt Site SAC (**Figure 3.13**)³.

Non-Statutory Designations

- A COFNOD search identified the presence of three (3) non-statutory designations of biological significance within 1km of the site (**Table 3.12; Appendix 2**).

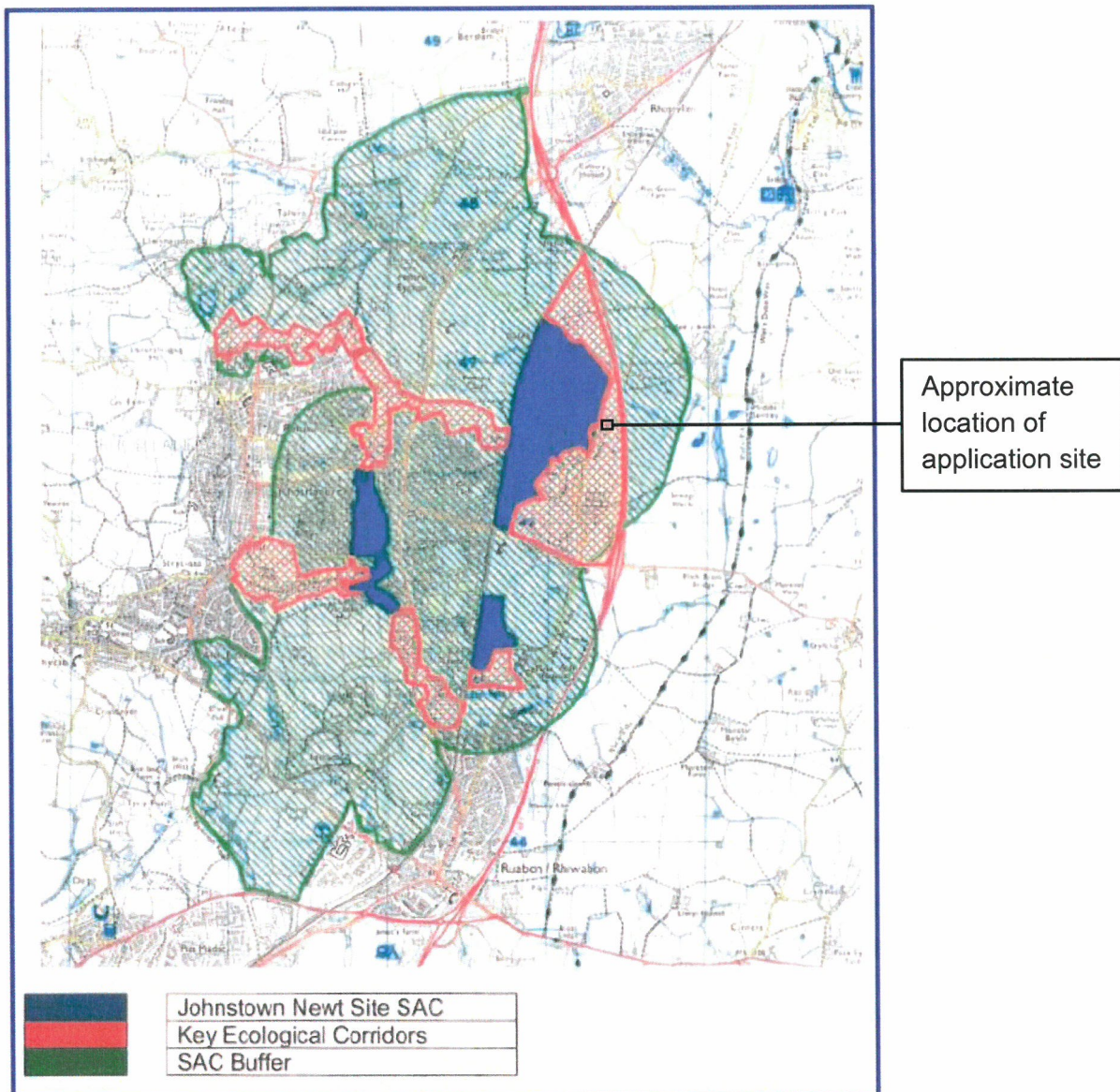
Table 3.12 Non-statutory designations within 1km of the site

Site Name	Distance from site (km)	Grid Reference	Description
W317: Erddig Estate	0.71 (northeast)	SJ 330 483	National Trust estate with woodlands, grasslands and marshes. The woodlands support a variety of ground flora and the various grassland communities are diverse. A great number of mature trees in the park have excellent insect communities including 12 notable species and 1 red data species.
30633: Restored Ancient Woodland Site	0.70 (northeast)	SJ 320 470	Restored ancient woodland site.
28947: Ancient Semi Natural Woodland	0.99 (northeast)	SJ 321 474	Ancient semi-natural woodland site.

- The A483 (a major barrier) intervenes the site and all non-statutory designations/ woodland sites, therefore connectivity is considered to be very poor.

³ Great Crested Newt Mitigation Requirements – Johnstown Newt Site SAC and the Wider Countryside (www.wrexham.gov.uk)

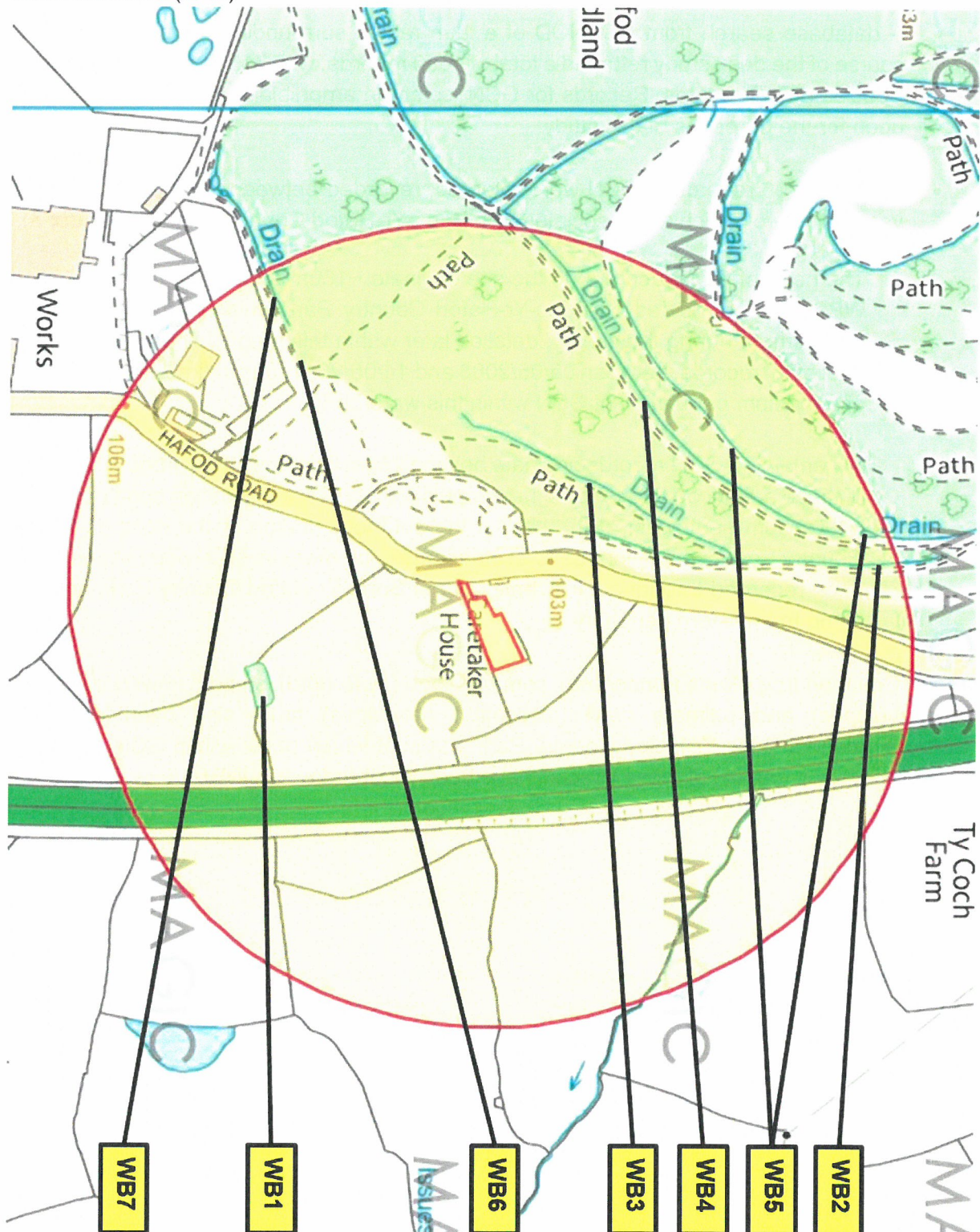
Figure 3.13 Map showing the extent of Johnstown Newt SAC and buffer



Habitats of Importance

- An assessment of the surrounding habitats using OS maps and online mapping resources, in combination with a walkover during the site visit, identified seven (7) potential significant bodies of standing water (**WB1 – WB7**) within a 250m zone of influence (**Figure 3.14**).
- No further habitats of importance, pertinent to the study, were identified during the desk study.

Figure 3.14 Proximity of standing waterbodies within 250m of the site, reproduced using freely-available online resources (2019)



3.4 SPECIES RECORDS

- A database search from COFNOD of a 1km radius surrounding the site during the course of the desk study returned a total of 1600 records, with 713 European Protected Species (EPS) records. Records for GCN/ common amphibian species are focussed upon for the purposes of this study.
- A total of 706 records of GCN were returned, recorded between 1992 and 2019, the vast majority of which are associated with Bonc-Yr-Hafod Country Park (**Appendix 3**).
 - The nearest GCN record(s) to the site originate ~180m southwest, recorded from **WB6** (a pond located on Bonc-Yr-Hafod Country Park which was subject to an assessment during the survey, detailed later within this report). These comprise a total of 37 records, between 06/05/2008 and 14/05/2019, and indicate the presence of a medium population of GCN within this waterbody.
 - All remaining GCN records originate beyond 250m from the site. A large proportion of these are accounted for by a metapopulation of GCN in mitigation ponds situated ~400-700m southwest of the site, in the southern portion of the Bonc-Yr-Hafod Country Park designation. Several other small and medium GCN populations have been recorded throughout the remainder of Bonc-Yr-Hafod Country Park, notably along the western periphery.
- Common frog (*Rana temporaria*), common toad (*Bufo bufo*), smooth newt (*Lissotriton vulgaris*) and palmate newt (*Lissotriton helveticus*) have also been recorded throughout Bonc-Yr-Hafod Country Park, many of which occur within GCN breeding ponds. All four (4) of these species have been recorded within **WB6**.

3.5 HABITAT SUITABILITY INDEX (HSI) SURVEY

Significant Waterbodies

- A daytime visit was undertaken on the 25th November 2019 to assess the suitability of all significant waterbodies (for which access was permitted) for GCN.

WB1

- **WB1** (SJ 31402 46453), located ~140m south of the site at its nearest point, is a medium-sized (~250m²) pond set on the boundary between horse-grazed pasture fields, alongside a defunct field boundary hedgerow (**Image 3.15**). The main body of **WB1** is highly over-shaded by trees, including willow (*Salix spp.*), silver birch (*Betula pendula*), holly (*Ilex aquifolium*) and hawthorn, with significant amounts of willow growing and fallen within the waterbody itself. Recent high rainfall has raised the water level in **WB1**, such that the eastern bank was partially flooded. No significant aquatic vegetation was noted, with marginal vegetation limited to occasional tussocks of soft rush (*Juncus effusus*) at the eastern end. The banks largely bare underneath the tree canopy, but with several stands of tall ruderal vegetation at the eastern end where over-shading is less severe. This waterbody is not currently fenced off from livestock.

WB2

- **WB2** (SJ 31311 46891 to SJ 31295 46661), located ~75m northwest of the site at its nearest point, is a drain/ ditch situated within Bonc-Yr-Hafod Country Park. **WB2** was completely dry and vegetated at the time of the survey, and appeared to have been so for some time (**Image 3.16**).

WB3

- **WB3** (SJ 31316 46755 to SJ 31213 46580), located ~105m northwest of the site at its nearest point, is a drain/ ditch situated within Bonc-Yr-Hafod Country Park which branches off **WB2**. **WB3** was completely dry and vegetated at the time of the survey, and appeared to have been so for some time (**Image 3.17**).

WB4

- **WB4** (SJ 31296 46824 to SJ 31069 46605), located ~160m northwest of the site at its nearest point, is a drain/ ditch situated within Bonc-Yr-Hafod Country Park. **WB4** was completely dry and vegetated at the time of the survey, and appeared to have been so for some time (**Image 3.18**).

WB5

- **WB5** (SJ 31107 46675 to SJ 31244 47001), located ~190m northwest of the site at its nearest point, is a drain/ ditch situated within Bonc-Yr-Hafod Country Park. **WB5** was completely dry and vegetated at the time of the survey, and appeared to have been so for some time (**Image 3.19**).

Image 3.15 A typical view of WB1



Image 3.16 WB2 – a dry and vegetated ditch



Image 3.17 WB3 – a dry ditch



Image 3.18 WB4 – a dry ditch



Image 3.19 WB5 – a dry ditch



WB6

- **WB6** (SJ 31168 46490), located ~180m southwest of the site at its nearest point, is a small (20m²) wildlife pond set just beyond the edge of broad-leaved woodland, within the Bonc-Yr-Hafod Country Park (**Image 3.20**). **WB1** is surrounded (but not over-shaded by) young self-set trees, including alder (*Alnus glutinosa*) and willow, has banks populated with common grasses and tall ruderal vegetation including willowherb (*Epilobium spp.*), common nettle and thistle, along with localised rush (*Juncus spp.*), reedmace (*Typha latifolia*) and common reed (*Phragmites australis*) in the margins. Scattered scrub, dominated by bramble (*Rubus fruticosus*), lies throughout the near surroundings. No significant aquatic vegetated is present.
- **WB6** is shown as two (2) adjacent waterbodies on aerial mapping resources; however, only one (1) waterbody was present at the time of the survey.

WB7

- **WB7** (SJ 31107 46675 to SJ 31244 47001), located ~190m northwest of the site at its nearest point, is a drain situated within woodland edge in the Bonc-Yr-Hafod Country Park (**Image 3.21**). **WB7**, which runs adjacent to a footpath, is approximately 100m in length, highly over-shaded by trees including oak (*Quercus spp.*), hazel (*Corylus avellana*), silver birch, hawthorn and alder, and contains much leaf litter. The water within **WB7** is very shallow and does not continuously fill the drain – multiple dry areas are present. No significant aquatic vegetation was noted, with occasional tussocks of rush noted in damp areas only.

Image 3.20 A typical view of WB6



Image 3.21 WB7 – the only ditch/ drain surveyed to be holding any water at the time of the survey



HSI Assessment

- A Habitat Suitability Index (HSI) for great crested newts (GCN) was run for those waterbodies which contain water (**Table 3.22**). It was determined that:
 - **WB1** provides 'below average' suitability for GCN;
 - **WB6** provides 'average' suitability for GCN;
 - **WB7** provides 'poor' suitability for GCN.

Table 3.22 HSI assessment of WB1, WB6 and WB7

Waterbody Reference	WB1	WB6	WB7
SI1 – Location	1	1	1
SI2 – Pond Area	0.5	0.1	0.1
SI3 – Permanence	0.5	0.5	0.1
SI4 – Water Quality	0.33	0.67	0.33
SI4 – Shade	0.2	1	0.1
SI6 – Fowl	1	1	1
SI7 – Fish	1	1	1
SI8 – Pond Count	1	1	1
SI9 – Terrestrial Habitat	0.67	1	0.67
SI10 – Macrophyte Cover	0.5	0.4	0.3
HSI score	0.59	0.65	0.38
Suitability	Below Average	Average	Poor

Terrestrial Habitat

- The suitability of the terrestrial habitat upon the site itself for GCN is generally considered to be sub-optimal, given the domination by grazed, short-sward grassland. There are deemed to be no terrestrial hibernation opportunities within the development footprint itself and no potential, artificial refugia (such as log/ brash/ rock piles, debris etc.) were found on the site. The most significant refuge opportunities are limited to tall sward vegetation along fences, and several trees/ tall sward vegetation at the eastern extent of the site. Levels of disturbance on the site are currently high, due to its current use for horse grazing.
- The treeline and associated tall ruderal vegetation beyond the northern site periphery are outside of the development footprint. A hawthorn-dominated hedgerow bounding the western edge of the property, abutting Hafod Road, is also outside of the development footprint. This hedgerow has a relatively sparse/ poor understorey and so it is deemed to offer limited hibernation potential, but may provide a small degree of connectivity between the site/ **WB1** and Bonc-Yr-Hafod Country Park.
- The terrestrial habitat immediately surrounding **WB1** is deemed to be of significantly greater suitability for GCN than that which is present on the site itself. It was also noted that the majority of land intervening **WB1** from the site (other than the defunct hedgerow bounding Hafod Road) is horse-grazed pasture.

- The terrestrial habitat observed throughout Bonc-Yr-Hafod Country Park, and intervening **WB6/ WB7** and the site (comprising broad-leaved woodland, scrub, tall ruderal vegetation and rank grassland; **Image 3.23**), is considered to be of high quality for GCN and of significantly greater suitability for GCN than that which is present on the site itself.

Image 3.23 The terrestrial habitat within Bonc-Yr-Hafod Country Park (and intervening WB6/ WB7 from the site) is considered to be of significantly greater suitability for GCN than that which is found on the site itself



4. CONCLUSIONS

4.1 IMPACTS OF THE PROPOSED DEVELOPMENT

Impacts Upon GCN

- The land within the development footprint has 'low' potential for GCN to be present, given the sub-optimal suitability of the habitat (short, grazed grassland), absence of significant hibernation features/ refugia and high levels of disturbance.
- **WB1** provides 'below average' suitability for GCN; **WB6** provides 'average' suitability for GCN; **WB7** provides 'poor' suitability for GCN; **WB2 – WB5** are dry/ vegetated and therefore not considered suitable for supporting GCN.
- **WB6**, located ~180m from the site upon Bonc-Yr-Hafod Country Park, is a known GCN breeding pond. This is also the location of the nearest GCN record(s) to the site.
- The habitat upon Bonc-Yr-Hafod Country Park which surrounds **WB6/ WB7** and intervenes these waterbodies from the site, provides significantly greater terrestrial opportunities for GCN than on the site itself.
- The proposals are classed as a minor development, and are of a very small scale and localised nature.
- Given the above factors:
 - There are no anticipated impacts upon any breeding or resting place of GCN (or to any areas within 100m of a known breeding/ resting place).
 - There are no anticipated impacts upon any core habitat (within 50m of a breeding pond).
 - There is no anticipated temporary or permanent loss of any viable terrestrial GCN habitat (including hibernation habitat) on the site as a result of the proposals.
 - It is considered that there is a 'low' risk of killing/ injuring GCN potentially commuting across the site during the works phase (trapping in excavations/ disturbing underneath building materials/ debris etc.).

Impacts Upon SAC

- The development lies within a 'Key Ecological Corridor' associated with the Johnstown Newt Site – a Special Area of Conservation (SAC) designated for GCN.
- The land within the development footprint has 'low' potential for GCN to be present, given the sub-optimal suitability of the habitat (short, grazed grassland), absence of significant hibernation features/ refugia and high levels of disturbance.
- The land within the development footprint is not considered to provide key connecting habitat/ important habitat for GCN – the site is unlikely to be a past or current migratory

route for GCN, given that it does not intervene significant breeding/ resting/ hibernation places for GCN. The hedgerow adjacent to the site (bounding Hafod Road) is considered the only potential connecting habitat in close proximity with the site; this is already in a relatively poor condition and it is understood that no additional works upon this feature are required to facilitate the proposals.

- The proposals are classed as a minor development, and are of a very small scale and localised nature.
- Given the above factors:
 - There is no anticipated loss of key connecting habitat/ important habitat type for GCN on the site.
 - There are no direct or indirect impacts upon any conservation features (terrestrial GCN habitat/ breeding ponds) upon the SAC.
 - Collective impacts from multiple, small developments are not anticipated, given the nature of the proposals (proposed stables/ manège, rather than housing) and surrounding land.

4.2 RECOMMENDATIONS

- No further survey(s) with regard to GCN is considered necessary, provided a strict mitigation and enhancement strategy is adhered to.

Mitigation/ Avoidance

- The grazed, improved grassland predominating the site is to be retained at a short-sward height before and during the proposed works, as is its current management, to ensure this habitat remains unfavourable for GCN throughout the works period.
- A pre-commencement walkover of the site will be undertaken by an Ecological Clerk of Works (ECW) immediately prior to the initiation of works, to ensure there have been no significant changes in the habitats/ conditions within the development footprint.
- Reasonable Avoidance Measures (RAM's) detailed in a method statement for GCN in **Section 4** of this report are to be followed during all development activities (including de-vegetation), to mitigate against the risk of killing or injuring GCN/ amphibians potentially commuting across the site.
- All groundworks are to occur during the winter months (mid-October to mid-March), when newts are inactive and are most likely to be hibernating within terrestrial habitat features away from the site – should groundworks extend beyond this timeframe, ECW supervision is advised.
- The hedgerow bounding Hafod Road (adjacent to the site but outside of the development footprint) is to be retained, wherever possible. Any section(s) of hedgerow(s) which require removal must be initially cut to ground level (outside of the bird nesting season or following a check for nests), after which all roots are to be

grubbed out only during August/ September, when temperatures are above 5°C (when newts are least likely to be hibernating in these features).

- The duration of works (particularly groundworks) is to be kept as short as is reasonably possible.
- No standing water is to be allowed to persist on the site.
- In the event GCN are discovered at any time during the development, works will immediately halt and Pearce Environment Ltd will be contacted for advice. The development may need to be suspended until the relevant licence from Natural Resources Wales (NRW) is obtained.

Enhancement

- It is recommended that **WB1**, under the ownership of the client, is enhanced for GCN:
 - Trees (particularly willow) are to be removed from the southern/ western banks and main body of **WB1**, to reduce over-shading and promote the growth of aquatic and marginal vegetation.
 - The arisings from tree works are to be formed into habitat piles immediately surrounding **WB1**, to provide shelter/ hibernation opportunities for GCN.
 - The erection of stock-proof fencing around the northern bank of **WB1**, to protect it from grazing, would be welcomed.
- These mitigation and enhancement measures are deemed sufficient to negate the need for any further survey(s) and/ or licensing with regard to GCN, and are expected to maintain the favourable conservation status of this species.
- Should this strategy become unworkable, impractical or insufficient (in the opinion of the appointed ecologist) at any point during the development, any development works must halt whilst appropriate measures are taken, which may involve implementation of alternative measures and/ or alterations to existing methodology.

4.3 OTHER SPECIES

- No further species pertinent to this study were found and no field signs of other protected or notable species were observed during the PEA.

5. METHOD STATEMENT (GCN)

5.1 IMPACT OF THE WORKS

- 'Low' risk of killing/ injuring GCN during groundworks/ de-vegetation.

5.2 REASONABLE AVOIDANCE MEASURES (RAM's)

- The following sensitive working methodologies are recommended to ensure impacts upon GCN (and common species of amphibian), are avoided during the period of the proposed works:
 - An experienced Ecological Clerk of Works (ECW) shall be appointed to ensure RAM's are enforced;
 - A copy of this report/ method statement must be kept on site at all times (we suggest keeping a laminated copy in the site office/ cabin);
 - A toolbox talk on GCN and development must be given to all site personnel during site inductions, and handouts on amphibian identification will be provided;
 - Removal of any tall-sward vegetation (if required) is to be undertaken between March and October inclusive, and during temperatures exceeding 5°C (when amphibians are active and can disperse naturally) – de-vegetation must be carried out in a phased fashion, using hand tools and with clearance undertaken from a central point outwards – vegetation will be subject to an initial cut to ~200mm ('boot height'), then remaining vegetation can then be removed below 100mm thereafter;
 - Any excavations will be back-filled on the same day as excavation, or checked by the ECW immediately prior to backfilling;
 - A means of escape, such as a wooden ramp, will be provided in all excavations that cannot be backfilled on the same day or alternatively, all excavations should be well-covered with plywood;
 - The holes resulting from the removal of fence posts must be filled in immediately;
 - No piles of loose construction materials are to be created during works – all material will be kept on hardstanding, stored on pallets, removed immediately from the site or checked by an ECW prior to being removed;
 - Any site compound must be sited upon hardstanding;
 - In the event GCN are discovered at any time during the development, works will immediately halt and Pearce Environment Ltd will be contacted for advice – contractors are not to handle GCN unless informed to do so by the ECW.
- Subject to the implementation of the RAM's described above, no significant impacts upon GCN/ amphibians are considered likely to arise.

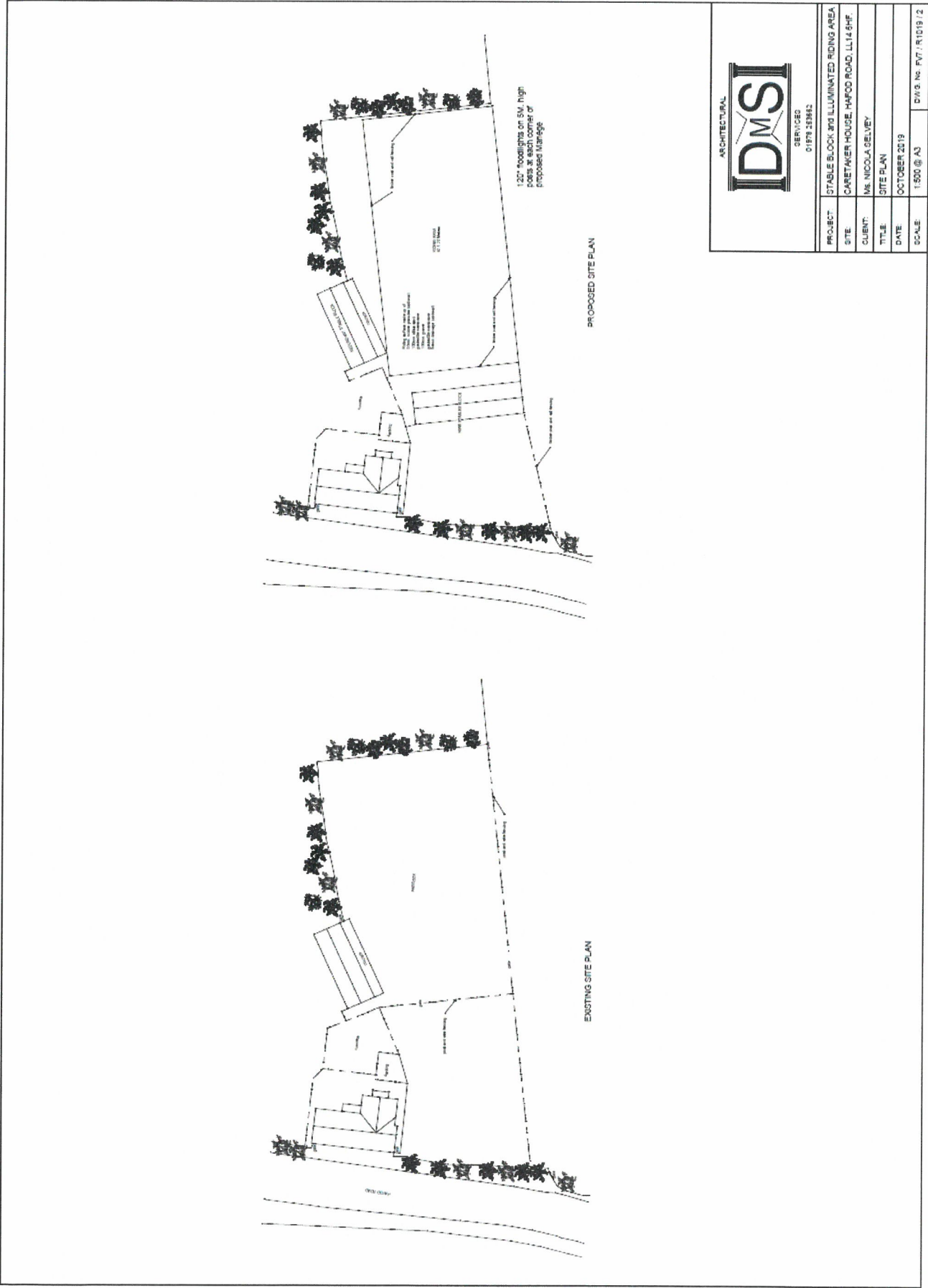
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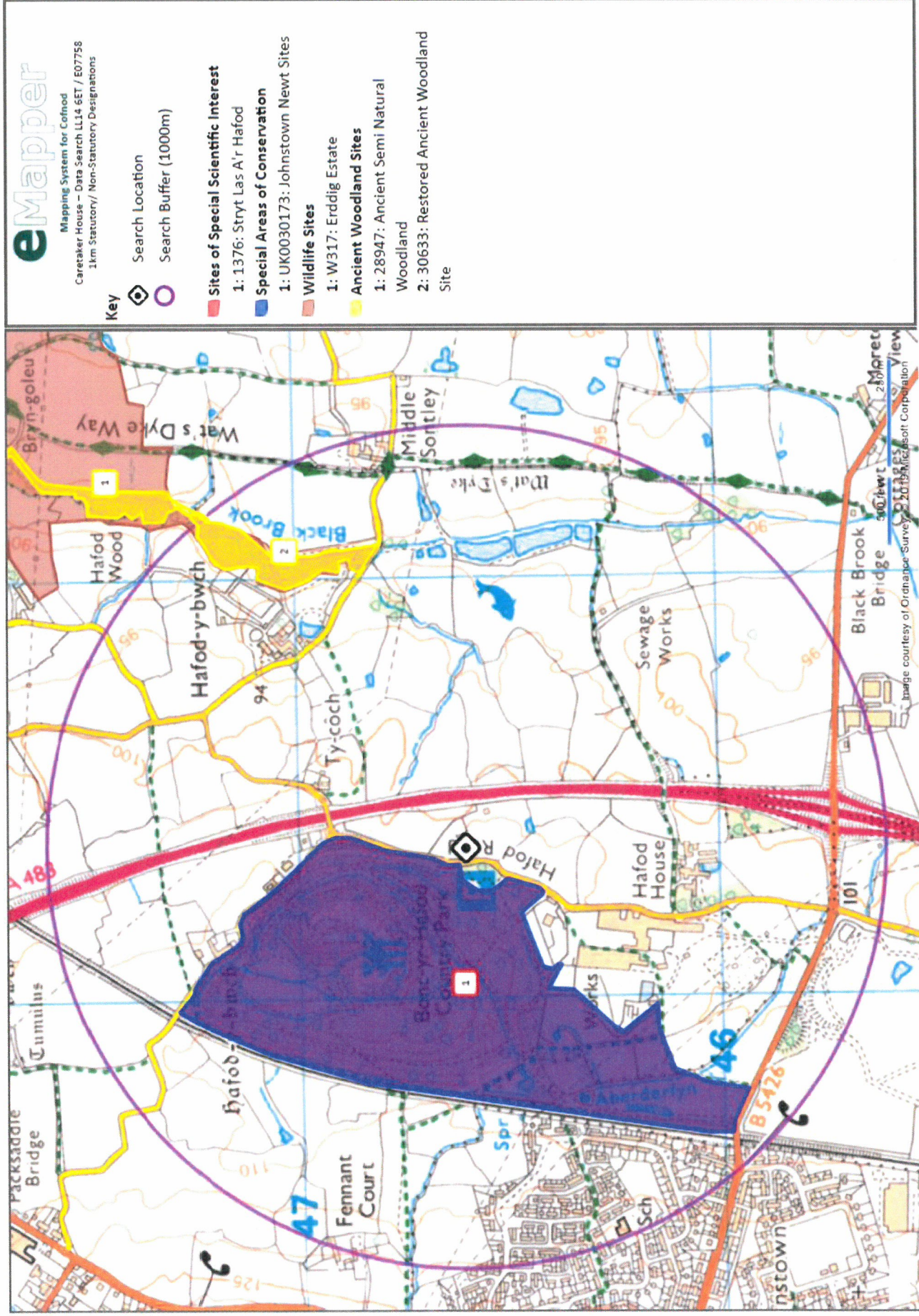
Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

Great Crested Newt Mitigation Requirements – Johnstown Newt Site SAC and the Wider Countryside (www.wrexham.gov.uk)

Appendix 1 Existing & Proposed Site Plans



Appendix 2 COFDOD 1km Statutory & Non-Statutory Designated Sites Map



Appendix 3 COFDOD 1km Great Crested Newt Records Map

