BIODIVERSITY ENHANCEMENT

PENRHOS FARM

SY22 6TF

FOR

ROGER PARRY AND PARTNERS
JANUARY 2020

Revision B April 2021

Arbor Vitae Environment Ltd
Lower Betton Farm
Cross Houses
Shrewsbury
Shropshire
SY5 6JD

ARBOR VITAE
ECOLOGY • FORESTRY • LAND USE

CONTENTS

1 INTRODUCTION 3

1.1 BACKGROUND TO DEVELOPMENT 3

2 SITE DESCRIPTION 3

2.1 LOCATION and LANDSCAPE 3

3 SUMMARY OF ECOLOGICAL SURVEY RESULTS 3

3.1 GREAT CRESTED NEWTS 3

3.2 BATS 4

4 BIODIVERSITY ENHANCEMENTS 5

4.1 GREAT CRESTED NEWTS 5

4.2 BATS 5

4.3 BREEDING BIRDS 5

5 BIOSECURITY PROTOCOL 6

REFERENCES 6

FIGURE 1 LOCATION. 1:50,000 7

FIGURE 2 AERIAL PHOTOGRAPH 8

FIGURE 3 POND LOCATIONS 9

FIGURE 4 BIODIVERSITY ENHANCEMENTS 10

APPENDIX 1 BIOSECURITY PROTOCOL 11

1 INTRODUCTION

1.1 BACKGROUND TO DEVELOPMENT

A protected species assessment of this site was carried out in March 2019. The report concluded that, although two ponds lay within 110 metres of the site (with one being partially within the haulage yard area of the site), these were not likely to support breeding populations of great crested newts.

The agricultural buildings which have been demolished to make way for the development were of a 'modern' construction with steel frames and asbestos roofs. This style of building does not provide suitable roost sites for bats, and bat roosting habitat has not therefore been impacted by the development. However, the recent felling of adjacent woodland has probably reduced roost opportunities.

Suggestions for biodiversity enhancements were made in that report and this report details these enhancements.

2 SITE DESCRIPTION

2.1 LOCATION and LANDSCAPE

The development site is located at Penrhos Farm which lies in a remote rural location on the edge of the hamlet of Penrhos, near Ardlleen. The farmstead sits adjacent to a large area of woodland to the west and is otherwise surrounded by improved, permanent grassland.

The adjacent woodland has been felled in the last three years and has been replanted. Two ponds are identifiable on OS maps, one being 60 metres to the north west of the site on the edge of an agricultural field and partially within the haulage yard area of the site, and one 110 metres to the south west within adjacent woodland.

3 SUMMARY OF ECOLOGICAL SURVEY RESULTS

3.1 GREAT CRESTED NEWTS

A field survey conducted on 19th March 2019 found two ponds within 110 metres of the site.

Pond 1 lies 60 metres to the north west at the lower edge of a grass field. Part of the pond is shown on maps as being within the haulage yard area of the site. Almost no open water now exists due to infilling of the pond in the past. A field drain empties into a small hollow but was barely running even after heavy recent rain. It appears likely that the pond dries in the spring.

Pond 2 lies 110 metres to the south west. It sits in a valley site within the adjacent woodland. No access to the site is available and an HSI score was calculated from a distant viewing which has been enabled by the fact of the woodland having been felled within the last 3 years.

The HSI scores indicate that Pond 1 has 'poor' suitability for GCN and Pond 2 has 'below average' suitability. This assumed that, prior to the recent felling of the woodland, the pond was in at least 90% shade (this is verifiable from aerial photographs). The pond may now be ranked slightly differently given the increase in light reaching the pond but, nevertheless, the HSI score would remain as 'average' suitability.

Reference to the Natural England Risk Assessment Tool indicates, given that less than 0.5 ha of land has been disturbed at a distance of more than 100 metres from a potential breeding pond, that the development is 'highly unlikely' to have caused an offence.

3.2 BATS

Aerial and other photographs indicate that the agricultural buildings which have been demolished to make way for the development were of a 'modern' construction with steel frames and asbestos roofs. This has been confirmed by the continued existence of some of the steel work on the site, awaiting removal. This style of building does not provide suitable roost sites for bats, being open, light and exposed to the elements, without suitable crevices for roosting.

However, the felling of the mature woodland adjacent to the site has probably reduced roost opportunities locally.

4 BIODIVERSITY ENHANCEMENTS

4.1 GREAT CRESTED NEWTS

Whilst the assessment of two nearby ponds indicates that it is unlikely that GCN would have been found on the development site, the report suggests improving future conditions for GCN as part of biodiversity enhancements.

It is suggested that a pond be constructed in a field to the south west of the new buildings (See Figure 4 Planting Plan). This will be a minimum of 20 metres x 20 metres in extent, designed to maximise its potential for amphibians. The pool will be fed from drainage from the extensive roofs of the new buildings. It will include at least two 'deep' zones of over 1.2 metre depth and have gradually shelving banks. These will be planted with native marginal plants, the species chosen to avoid those of an invasive nature. The pond will be fenced against stock and enclose an area of 0.2 hectares.

An area of dense scrub totaling 45 metres x 15 metres will be planted within the fenced area and the remainder of the area allowed to grow into tall, coarse grassland. Scrub species will be of local, native origin and include hawthorn, blackthorn, dogwood, guelder rose and holly.

Also, within the fenced GCN area will be constructed two refuges, or 'hibernacula', for GCN. These will measure 3 metres x 2 metres and form a one metre high mound of logs and boulders with a covering of soil and turf.

4.2 BATS

In order to enhance roosting habitat for bats, it is proposed to erect three artificial bat boxes including a Schwegler 1FQ and two Schwegler 1FF. These will be erected on existing buildings on the site, as directed by the ecologist.

A Lighting Design Scheme has been prepared by Roger Parry and Partners. External lighting will be restricted on the west elevation of the building. This will avoid illumination of the adjacent field and woodland edge which may provide bat foraging habitat.

4.3 BREEDING BIRDS

In order to enhance opportunities for breeding birds, three Schwegler 1B nest boxes will be installed on existing buildings on the site.

5 BIOSECURITY PROTOCOL

5.1 It is important that the construction of the dedicated GCN conservation area adheres to guidance on issues such as invasive species and disease control. A Biosecurity Protocol is provided in Appendix 1.

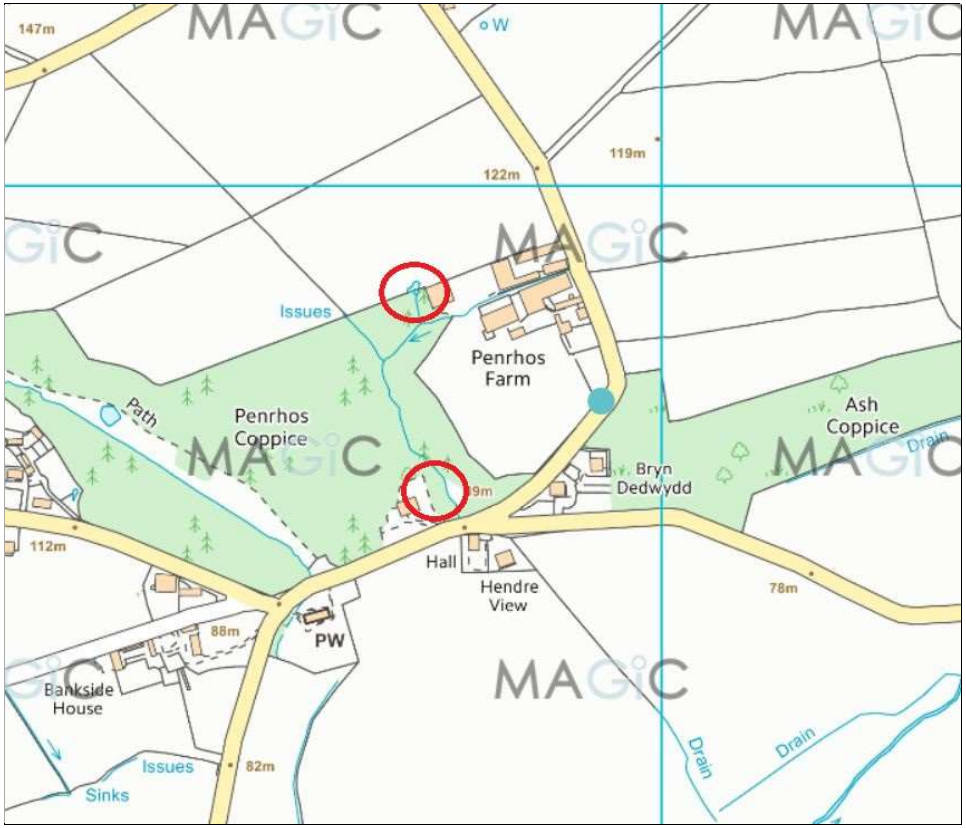
REFERENCES

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.

FIGURE 1 LOCATION. 1:50,000

FIGURE 2 AERIAL PHOTOGRAPH

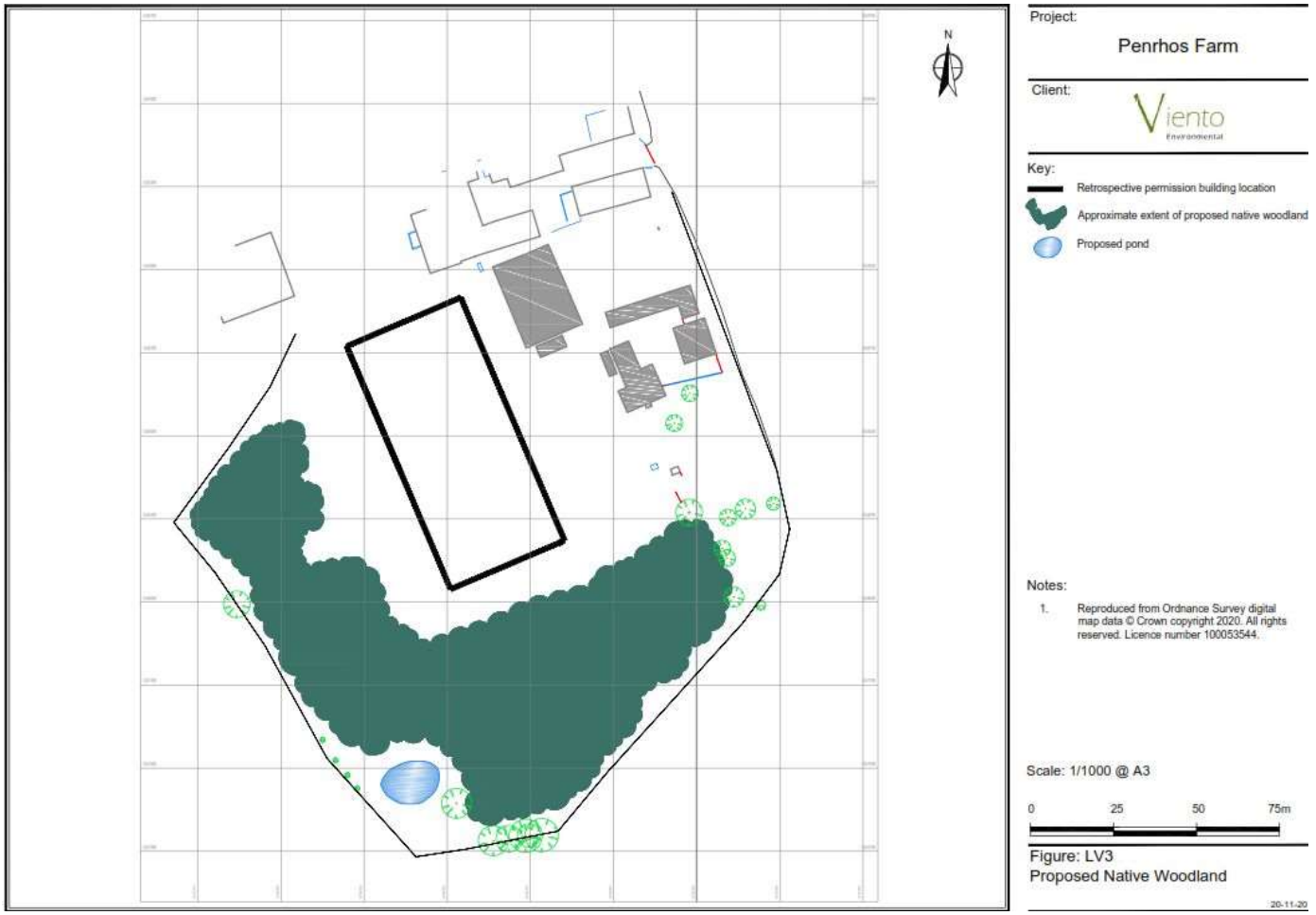
FIGURE 3 POND LOCATIONS



ARBOR VITAE

ECOLOGY • FORESTRY • LAND USE

FIGURE 4 PLANTING PLAN



APPENDIX 1 BIOSECURITY PROTOCOL

PENRHOS FARM			
BIOSECURITY PROTOCOL JANUARY 2020			
Species	**Potential contamination route**	**Likelihood of risk**	**Operational Procedures/Actions required to minimise risks**
Himalayan balsam	Introduction of species via construction machinery Introduction of seeds via contaminated soil.	Low. Himalayan Balsam is not known to be present on site or in the locality Low. There are no requirements to import soil.	Ensure owner and contractors know what Himalayan Balsam looks like. If any plants are identified these should be pulled up and left to dry before the seeds set (July/August).
Japanese knotweed	Introduction of species via construction machinery Introduction of fragments via contaminated soil.	Low. Japanese knotweed is not known to be present on site or in the locality Low. There are no requirements to import soil.	Ensure contractors know what Japanese knotweed looks like. If it is identified on site, refer to the Environment Agency's Japanese knotweed Code of Practice.
Invasive aquatic plants: Water fern, *Azolla filiculoides*	Introduction of species via construction machinery and as propagules on	Medium. Surveyors (and to a lesser extent, contractors) may well have previously been to	Clean all machinery before pond construction begins. Avoid entering ponds whenever possible

PENRHOS FARM			
BIOSECURITY PROTOCOL JANUARY 2020			
Species	**Potential contamination route**	**Likelihood of risk**	**Operational Procedures/Actions required to minimise risks**
Parrot's-feather, *Myriophyllum aquaticum* Floating pennywort, *Hydrocotyle ranunculoides* Australian swamp stonecrop *Crassula helmsii* Water hyacinth, *Eichornia crassipe* Water primrose, *Ludwigia peploides, Ludwigia uruguayensis* Canadian waterweed, *Elodea canadensis* Curly waterweed. *Lagarosiphon major* Nuttall's waterweed, *Elodea nuttalli*	boots, waders, bottle traps, nets etc.	sites where these species are present	

PENRHOS FARM			
BIOSECURITY PROTOCOL JANUARY 2020			
Species	**Potential contamination route**	**Likelihood of risk**	**Operational Procedures/Actions required to minimise risks**
Waterweeds (other Elodea), *Elodea spp* Least duckweed, *Lemna minuscula*			
Fish (all species)	Deliberate introduction	Low: The owner has agreed to a strict policy of no fish introduction	Continued agreement by the owner
Chyrid fungus	Ecologists, aquatic survey equipment	The Chyrid fungus has been identified in Powys. This fungus has affected amphibian globally and has caused the extinctions of species. The risk is low but serious.	Ecologists and other contractors to disinfect boots and equipment before entering ponds