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On behalf of Mr. Clint Shaw.

Draft Preliminary Ecological Appraisal

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Important Information to Readers

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This report aims to provide general advice on ecological constraints associated with any development of the proposed site and includes recommendations for further survey.

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1 Executive summary

- 1.1 Leigh Ecology Ltd was commissioned to undertake an Extended Phase 1 Habitat Survey of a parcel of land which has been identified as a site for a water park.
- 1.2 The site is an open mosaic habitat containing semi-improved neutral grassland, poor semi-improved grassland and marshy grassland with open water and ponds. The site has limited public access.
- 1.3 Trees within the site offered poor bat roosting habitat but do offer foraging and commuting opportunities for bats.
- 1.4 Areas of key ecological interest within the development site include marshy grassland, the lake itself, the ponds and the hedgerows.
- 1.5 The site contains habitat frequented by commoner and scarcer bird species, any habitat removal should be undertaken outside of the bird-nesting season March-August inclusive.
- 1.6 The provision of similar muddy bare ground should be provided as part of the site landscape design.
- 1.7 The habitats on site provided potential for use by reptile species. Although suitable reptile habitat within the site is limited in extent, and results will feed into any mitigation and method statement necessary to reduce the risk to common reptiles (if present) being injured as a result of the works.
- 1.8 Two ponds occur on site, these both have potential habitat for amphibians, however, these will not be impacted on by the proposal, though some safeguards to protect amphibians should be put in place.
- 1.9 It is suggested that an Ecological Mitigation Strategy be prepared for the proposed development of the site. This would ensure that potential impacts are minimised and that enhancements are provided, as deemed appropriate.

2 Introduction

Background

- 2.1 Leigh Ecology was commissioned by Mr. Clint Shaw to undertake an Extended Phase 1 of land identified for a leisure development, located adjacent to Llay Road, Cefyn-y-Bedd. The site is located at approximate National Grid Reference (NGR) SJ317556); refer to redline boundary on Figure 2.1.
- 2.2 Sites of biodiversity conservation value, habitats and species in UK and Local Biodiversity Action Plans (UK BAP and LBAP) and protected species are material considerations in the planning process (Department for Communities and Local Government 2012).
- 2.3 The study is documented in this report and includes the following:
1. Preliminary ecological baseline for the site;
 2. Potential ecological constraints to the development of the site; and
 3. Further ecological work necessary for a planning submission.
- 2.4 All Work was undertaken in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Practice.



Figure 2.1: Land at Cefn-y-Brith, with the red line representing the development site boundary and representing the survey area.

3 Methodology

- 3.1 A preliminary understanding of the ecological baseline of the development site (hereafter referred to as 'the site') was derived through desk study and site survey.

Desk study

- 3.2 The following on-line information was used in the compilation of the desk study of this report:
- www.magic.gov.uk – information on protected sites up to 1km from the site;
 - www.nbn.org.uk – protected species distribution.
- 3.3 In addition, the UK BAP and LBAP were reviewed, with reference to the potential value of habitats and species present, or likely to be present, within or adjacent to the site.

Site survey

- 3.4 An Extended Phase 1 habitat survey of the site was undertaken on 10th July 2021. The survey broadly followed the 'Extended Phase 1' methodology (Institute of Environmental Assessment (IEA), 1995 and JNCC 2010) and each of the main habitats were classified according to the relevant criteria. In addition to the mapping and description of habitats, incidental observations of protected and/or BAP priority species and the potential for such species to occur on site (and in the surrounding landscape where relevant) were also noted. The methodologies of the field surveys are described in more detail below.

Phase 1 Habitat Survey

- 3.5 The habitat survey involved identifying and mapping the dominant habitat types following the JNCC Phase 1 habitat survey methodology recommended by Natural England (NE). The outputs of this include a habitat map and a set of target notes. Dominant plant species were noted, as were any uncommon species or species indicative of particular habitat types. Botanical names follow 'New Flora of the British Isles' (Stace 1997). Particular attention was paid to hedgerows and trees within the survey area.
- 3.6 The DAFOR scale was used for semi-quantitative sampling, to provide a quick estimate of the relative abundance of species (generally plants) within the site.
- 3.7 To obtain useful abundance data the site was surveyed using a 2m square across the site within all habitat types identified. The squares were surveyed for species, and categories assigned according to percentage cover.

3.8 Table 3.1 presents the categories comprising the DAFOR scale.

Value	Percentage cover	Notes
D - Dominant	> 75%	Rarely used in practice.
A - Abundant	51 - 75%	Very common over most of the site
F - Frequent	26 - 50%	
O - Occasional	11 - 25%	
R - Rare	1 - 10%	

Table 3.1: DAFOR scale

- 3.9 It is generally recognised that recording plant cover using the DAFOR scale is extremely subjective, being affected by a number of factors and in particular recorder bias.
- 3.10 Water bodies within 250m of the site were also identified from Ordnance Survey (OS) maps and through aerial photography.

Protected Species Walkover Survey

- 3.11 The Extended Phase 1 habitat survey involved a critical assessment of the value of habitats suitable for use by protected species or species of conservation concern, as follows:
- The value of the site, and immediate surroundings for nesting birds and feeding ground.
 - The value of the site, and immediate surroundings for roosting, foraging and commuting bats. Mature trees and suitable structures were carefully scrutinised to assess their likely occupancy by roosting and/or hibernating bats.
 - The likely value of any aquatic and/or terrestrial habitat on site for use by foraging and hibernating amphibians, particularly with regard to protected species (such as great crested newt).
 - The likely value of any terrestrial habitat on site for use by foraging and hibernating reptiles.
 - Hedgerows, scrub and woodland habitats were appraised for their suitability for use by dormice.
 - The site was investigated for its use by badgers by searching for the characteristic signs of badger activity, including setts, latrines, paths, footprints, hairs and feeding signs. Where access allowed, the survey boundary was extended in order to search adjacent areas for badger setts.
 - The value of the site for other protected species or groups, or for other notable species such as water vole, otter, hedgehog and invertebrates.

Survey Limitations

- 3.12 Ecological surveys are limited by factors that affect species presence such as time of year, weather, migration patterns and behaviour.
- 3.13 No constraints were identified that are likely to significantly affect the conclusions drawn within this report, however the breeding bird assumptions are based on birds noted and habitats recorded on site.

4 Results

Site survey

Habitats

- 4.1 The location of the habitats within the survey area are shown in **Appendix 1**, which should be read together with the accompanying Target Notes (TNs) in **Appendix 2** and Photographs within the text. Habitat descriptions are provided below; plant species are referred to using their English names.
- 4.2 The site is a mosaic of open water, poor semi-improved grassland, improved neutral grassland, marshy grassland, ruderal vegetation and scrub.
- 4.3 The site habitats were subject to DAFOR survey assigning the species composition density and hierarchy occurring. DAFOR Tables representing habitat types within the site are presented in **Appendix 3**.



Photograph 1: A vista looking across the site from the south east.

Semi-improved neutral grassland

- 4.4 This habitat was identified within the south of the site creating a mosaic of habitat with marshy grassland areas within lower elevations.



Photograph 2: Semi-improved neutral grassland and marshy grassland mosaic within the site.

Marshy grassland

- 4.5 This habitat was identified within lower elevations, between the lake and the pond of the site and within a flat field at the south of the site
- 4.6 Marshy grassland is a LBAP priority habitat.



Photograph 3: Marshy grassland at the south of the lake.



Photograph 4: Closer view of the marshy area south of the lake.

Poor semi-improved grassland

- 4.7 This habitat type was dominant within the site and comprised most of the grassland fields present.



Photographs 5: Poor semi-improved grassland within the south west boundary of the site.



Photograph 6: Dense scrub adjacent to the site boundary at the north west corner of the site

Tall ruderal

- 4.8 This habitat was identified in patches at the west and center of the site around the pond.



Photographs 7: The pond located at the center east of the site, was partially dry seemingly previously poached by cattle giving a muddy beach type habitat.

Standing water

- 4.9 Two ponds occur on site in addition to the lake one was located at the south of the site and the other was located within the western boundary.
- 4.10 Both ponds were subjected to an HSI assessment and seem to have good amphibian potential.
- 4.11 The terrestrial habitat surrounding the ponds offers good foraging and hibernacula potential.
- 4.12 Ponds and Lodge are a LBAP priority habitat.
- 4.13 The lake is a large waterbody containing numerous waterfowls, and possibly predatory fish, therefore rendering it low potential for amphibians.



Photograph 8: *The pond within the south west of the site.*



Photograph 9: The southern edge of the lake contains number of wildfowls, including Grey Lag Geese, Canada Geese, Mallard, Coot, and Moorhen.



Photograph 10: The vista across the lake to the northern bank.

Bare ground

- 4.14 A small patch of bare muddy ground was identified within the marshy edges of the south of the lake, it was notable that the Lapwing were probing for invertebrates in this area. It also offers some potential nesting habitat.

Site Boundaries

- 4.15 Site boundaries comprised of species rich hedgerows containing broad-leaved trees and post and wire fences.
- 4.16 Hedgerows are a UK BAP and LBAP priority habitat.

Surrounding habitats

- 4.17 The wider landscape consists of mainly agricultural environment including cattle and arable.

Protected and notable species

Plants

- 4.18 No plant species of conservation concern were recorded within the site.

Invasive species

- 4.19 No invasive species were noted occurring within the proposal site or along site boundaries.

Invertebrates

- 4.20 No notable invertebrate species were recorded; however, marshy grassland has potential to support valuable invertebrate communities such as, hoverflies, crane flies and soldier flies.
- 4.21 The site also contained a number of flowering plant species likely to be of resource for bee species that will frequent the shrub habitat and flowers to harvest pollen.

Amphibians

- 4.22 Great crested newts are protected by Schedule 2 of the Convention of Habitats and Species Regulations (2010) and Schedule 5 of the Wildlife and Countryside Act (1981, as amended), which provide protection to both the individuals and the areas they use for rest, shelter or breeding. Great crested newts are also a UK BAP and LBAP priority species.
- 4.23 The site contains two pond and a large lake, one pond was almost dry whilst the other offered suitable amphibian habitat.
- 4.24 Given the presence of wildfowl and potential presence of fish it is unlikely that the lake will offer suitable amphibian habitat.

Reptiles

- 4.25 The habitats within the site provided by marshy grassland, semi-improved neutral grassland and scrubby species rich hedgerows with its glades and variable sward structures on south-facing slopes offer suitable habitat for reptiles.
- 4.26 Due to the isolated nature of the site created by barriers to dispersal, (roads to the north and the west) the potential for reptile immigration is limited.

Birds

- 4.27 The site provided suitable nesting and foraging habitat (e.g. scrub, hedgerows, marshy grassland and varied sward grassland) for a range of bird species, including UK BAP species such as lapwing *Vanellus vanellus*, curlew *Numenius arquata*, skylark *Alauda arvensis*, tree pipit *Anthus trivialis*, yellow wagtail *Motacilla flava*, song thrush *Turdus philomelos*, dunnoek *Prunella modularis*, starling *Sturnus vulgaris*, house sparrow *Passer domesticus*, tree sparrow *P. montanus*, bullfinch *Pyrrhula pyrrhula*, yellowhammer *Emberiza citrinella* and reed bunting *E. schoeniclus*.
- 4.28 Species recorded during the site survey included; grey heron *Ardea cinerea*, kestrel *Falco tinnunculus*, carrion crow *Corvus corone*, woodpigeon *Columba palumbus*, magpie *Pica pica*, starling, swallow *Hirundo rustica* chaffinch *Fringilla coelebs* and goldfinch *Carduelis carduelis* Lapwing.

Badgers

- 4.29 No signs of badger activity were recorded during the site survey.

Bats

- 4.30 The trees within the site were not mature, therefore were assessed as providing low bat roosting potential, i.e. they possessed little in the way of features suitable for roosting bats such as rot-holes, fissures, cracks and hollows. However, these trees and hedgerows are likely to provide abundant invertebrates, thus providing foraging opportunities for bats.

Other mammals

- 4.31 The site also provided potentially suitable habitat for red fox, brown hare and hedgehog.
- 4.32 The site does not offer any suitable habitat for water vole or otter; however, it is difficult to categorically discount a commuting otter stopping over at the lake.

5 Constraints and Recommendations

- 5.1 The proposed site will consist of housing and its associated infrastructure.
- 5.2 Construction and post construction impacts are therefore possible upon both the habitats and species within and immediately adjacent to the site. Ecological constraints and recommendations with regard to any development of the site are discussed below.

Designated sites

- 5.3 It is unlikely that the proposed development will have a negative impact on any statutory or non-statutory sites through land take, or increased disturbance.

Habitats

- 5.4 The lake, muddy marginal areas and marshy grassland vegetation habitat may provide suitable habitats for UK BAP priority species such as birds listed in section 4.45, as well as more common bird species.
- 5.5 Habitats within the site support fox and are likely to support hedgehog, common frog *Rana temporaria* and common toad *Bufo bufo*.
- 5.6 The two ponds are likely to provide habitat for amphibians.
- 5.7 Hedgerows within the site and marshy grassland can be considered as possessing some ecological value, as these habitats are both UK BAP and LBAP priority habitats.
- 5.8 The trees and hedgerows also offer good commuting and foraging habitat; therefore, it is important that they are retained within the project plans.
- 5.9 There is the potential for some of the habitats on site to support protected species; this is discussed below.

Protected species

Great crested newts

- 5.10 Due to nature of the lake within the site it is unlikely that great crested newt is present within it therefore no further action is required.
- 5.11 However, the two ponds that occur in the west and south of the site both offer favourable habitat, as does the adjacent terrestrial habitat.
- 5.12 Given the proposed development will not have a direct impact on the ponds and at this stage it is not definite that GCN occur within them, it is possible that any potential impacts can be designed out or any planned works can adopt amphibian safe working methods.
- 5.13 However, a full and complete detailed impact assessment should be undertaken, and a safe working method devised to ensure that the nature conservation status of GCN is not compromised by the proposals.
- 5.14 Common toad is a UK BAP species and may use scrub and hedgerows within the site for commuting, resting and hibernation. It is recommended that the conservation objectives for this species are considered and suitable terrestrial habitat such as scrub and hedgerows are retained, and log piles are provided within design plans for future development of the site.

Reptiles

- 5.15 Reptiles require a varied habitat structure that provides shelter, a range of shady and sunny spots, food, and frost-free areas to spend the winter.
- 5.16 The proposed development has the potential to impact the areas mentioned above and therefore it is recommended that reptile surveys are undertaken. If reptiles are recorded within the site, a mitigation plan and a method statement will be prepared that details the actions required to reduce the risk of reptiles being injured as a result of the works.

Birds

- 5.17 The lake and its marginal muddy area offer waders and wildfowl species excellent habitat for foraging and nesting.
- 5.18 Therefore, it is suggested that the water park design includes habitats specifically provided for wading and waterfowl.
- 5.19 Any potential removal of habitat associated with this development is regarded as relatively insignificant for birds given the abundance of similar habitat in the surrounding landscape. However, nesting birds are protected under The Wildlife and Countryside Act 1981 (and amendments) and it would be an offence to damage or destroy a nest or otherwise disturb a nesting bird.

- 5.20 Because of the possible presence of nesting birds, it is recommended that any necessary removal of vegetation takes place outside of the bird-breeding season (at least March to August)
- 5.21 Should this not be possible, a pre-works check by a qualified ecologist should be undertaken to ensure that nesting birds are absent.
- 5.22 Any habitat removed should be replaced with native species.

Bats

- 5.23 All bat roosts are fully protected under the Wildlife and Countryside Act 1981 (and amendments) and The Conservation of Habitats and Species Regulations 2010, which defines these animals as European Protected Species. An offence would be committed if roosts, whether occupied or not, were destroyed, damaged or obstructed, or if bats themselves were harmed or disturbed.
- 5.24 The trees on site provide little opportunity for roosting. However, trees to the south of the site around the fishing pools and along Trows Lane provide roosting opportunities and could potentially hold some importance for colonies of roosting bats that may be in close proximity to the site. Buildings along Trows Lane may also provide roosting opportunities.
- 5.25 Foraging habitat is provided by hedgerows and marshy grassland within the site while woodland edge on the boundaries of the site and hedgerows and scrub within the site provide navigational flight lines.
- 5.26 Given the composition of the habitat, which is likely to be removed during construction, it is considered unlikely that the development would result in a negative effect on the local bat population. However, further bat surveys are recommended to identify species presence and favourable commuting routes and foraging areas within the site. If any trees are to be removed, these should be subject to preliminary roost inspections and any subsequent emergence/re-entry surveys.
- 5.27 Additional, linear planting of native 'bat friendly' species is recommended within the site to provide commuting and foraging opportunities and to the wider area.
- 5.28 Light spillage within the proposed development should be prevented from falling on these corridors to prevent disturbance to bats.

Badger

- 5.29 Given that no badger activity was recorded during the phase 1 survey, direct impact on badgers is unlikely.
- 5.30 Badgers are mobile and it is acknowledged that the survey was constrained by dense areas of vegetation, therefore it is recommended that a pre-construction badger survey of the site is undertaken in order to ensure that it is not being used by badger.
- 5.31 The developer should also remain vigilant to the possible presence of badger and take further advice if any activity is recorded.

Other mammals

- 5.32 No evidence to suggest the presence of hedgehogs was recorded during the site survey, although signs other than actual sightings can be well hidden. Suitable foraging and hibernation habitat was present with hedgerows and scrub within the site.
- 5.33 Further hedgehog survey is not considered necessary given the abundance of similar habitat for this species in the surrounding landscape.
- 5.34 Hedgehogs have been listed as a UK BAP priority species as populations have reportedly been in decline. UK BAP therefore encourages the conservation of habitat such as hedgerows, which support this species.
- 5.35 In order to avoid works adversely affecting the local conservation status of hedgehogs, it is recommended that works avoid the hibernation period (November – March). Should this not be possible and there is the requirement for vegetation clearance during the hibernation period, then it should be carried out under a Precautionary Working Method Statement (PWMS). Such a PWMS would be designed to ensure that hibernating hedgehogs are not disturbed, or in extreme instances injured or killed as a result of the works. In addition, any clearance of hedgehog habitat should be restored following the works to adhere to UK BAP objectives.

Summary

- 5.36 Based on the above information it is recommended that further surveys are undertaken, and an Ecological Mitigation and Enhancement Strategy be produced to minimise impacts and provide enhancements, as appropriate, related to the development of this site.

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




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Appendices

Appendix 1 Phase 1 Habitat Map



Habitat	Key
Improved Grassland	
Poor Semi improved Grassland	
Standing Water	
Marshy Grassland	
Hedge	
Tree	
Target Note	
DAFOR Point	

Appendix 2 – Target notes

Target Note (TN)	Description
1	Pond in South with amphibian potential
2	Bare ground within marshy grassland
3	Species Rich Hedgerow containing oak
4	Lake containing wildfowl species

Appendix 3 - DAFOR Tables

Table 1: Poor semi-improved grassland

SPECIES	SCIENTIFIC NAME	D	A	F	O	R	Notes
common mouse-ear	<i>Cerastium fontanum</i>				×		
red fescue	<i>Festuca rubra</i>	×					
soft rush	<i>Juncus effusus</i>				×		
Yorkshire fog	<i>Holcus lanatus</i>	×					
Cat's ear	<i>Hypochaeris radicata</i>			×			
common ragwort	<i>Jacobaea vulgaris</i>				×		
ribwort plantain	<i>Plantago lanceolata</i>			×			
meadow buttercup	<i>Ranunculus acris</i>				×		
creeping buttercup	<i>Ranunculus repens</i>		×				
broad-leaved dock	<i>Rumex obtusifolius</i>				×		
lesser trefoil	<i>Trifolium dubium</i>					×	
red clover	<i>Trifolium pratense</i>				×		
white clover	<i>Trifolium repens</i>			×			

Table 2: Marshy grassland

SPECIES	SCIENTIFIC NAME	D	A	F	O	R	Notes
pendulous sedge	<i>Carex pendula</i>					×	
rosebay willowherb	<i>Chamerion angustifolium</i>				×		
marsh thistle	<i>Cirsium palustre</i>				×		
soft rush	<i>Juncus effusus</i>				×		
greater bird's-foot trefoil	<i>Lotus pedunculatus</i>			×			
bracken	<i>Pteridium</i>				×		

Table 3: Poor semi-improved grassland

SPECIES	SCIENTIFIC NAME	D	A	F	O	R	Notes
yarrow	<i>Achillea millefolium</i>				×		
common mouse-ear	<i>Cerastium fontanum</i>				×		
red fescue	<i>Festuca rubra</i>	×					
soft rush	<i>Juncus effusus</i>				×		
Yorkshire fog	<i>Holcus lanatus</i>	×					
Cat's ear	<i>Hypochaeris radicata</i>			×			
common ragwort	<i>Jacobaea vulgaris</i>				×		
perennial rye-grass	<i>Lolium perenne</i>				×		
ribwort plantain	<i>Plantago lanceolata</i>			×			
meadow buttercup	<i>Ranunculus acris</i>				×		
creeping buttercup	<i>Ranunculus repens</i>		×				
broad-leaved dock	<i>Rumex obtusifolius</i>				×		
lesser trefoil	<i>Trifolium dubium</i>					×	
red clover	<i>Trifolium pratense</i>				×		
white clover	<i>Trifolium repens</i>			×			

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