Preliminary Ecological Assessment for a proposed One Planet development on land at Wembley Road, Ystalyfera, Swansea

Client: Brendan Coles

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1. Introduction

Matt Sutton Ecology was contracted by Brendan Coles to carry out a Preliminary Ecological Assessment in support of an application to Swansea City Council for a One Planet development.

The proposed development is on land at Wembley Road, Ystalyfera. The holding is centred on grid reference SN76380869 (see figure 1 below).

The aim of the survey is to provide baseline data on habitat and species, both on and adjacent to the site, and to investigate potential impacts that may occur during building construction and changes to land-use. An assessment is made of any potential impact on protected species in the area.

Proposed Development Site at Wembley Road

Site Description

The proposed site comprises a south-east facing slope on the outskirts of Ystalyfera. The underlying ground appears, at least in part, to be former colliery spoil, and the planted woodland above is on an area marked on maps as a tip. A ravine with a small stream forms the western boundary of the site, housing lies adjacent to the northern boundary, and Wembley Road forms the eastern boundary.

Central part of Proposed Development Site

2. Methodology

2.1 Desk Exercise

A limited desk exercise was carried out. The LRC database 'Aderyn' was used to inform the present survey and to see if notable species were present in the 1km square encompassing the site. There are no protected sites within 2km.

2.2 Extended Phase I survey

A thorough site inspection was made by Matt Sutton on 13th September 2018. The survey followed the methodology set out by the Handbook for Phase 1 Habitat Survey (JNCC, 1993) and then subsequently by the Institute of Environmental Assessment (1995). The methods provide quick and accurate classification of habitats.

In addition the survey looked for field signs of protected species and assessed the habitat for their potential presence. Measures taken included:-

- A search for signs of badgers on the site.
- A search for signs of otters on site.
- Consideration of the potential impact of the development on bats and other protected species.
- Recording birds and identifying the suitability of the habitat for nesting birds especially those listed as species of conservation concern.
- Recording a list of plants found on the site, shown in Appendix 1.
- Surveying streamside areas of the ravine for notable bryophytes.

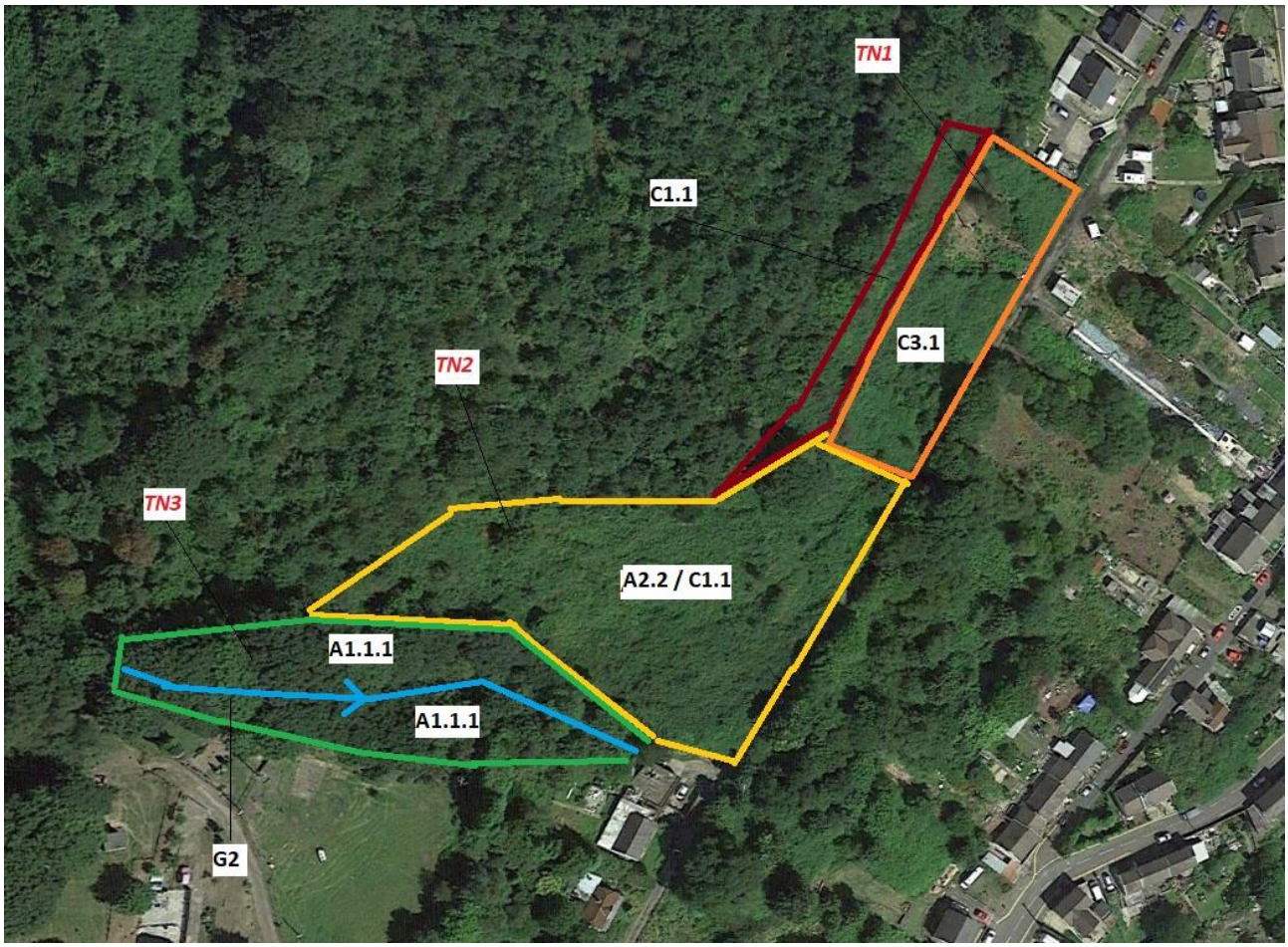
2.3 Constraints

There were no significant constraints to the survey, although the late summer date meant that recording of birds was limited.

3. Results

3.1 Vegetation and habitat survey

The habitats on the site were recorded in detail. Habitats adjoining the site are also mapped where relevant. The site comprises several habitat types: running water, rock exposure, semi-natural broad-leaved woodland, dense bracken, scattered scrub and tall ruderal vegetation.



Phase I Habitat Map

C1.1	Dense Bracken
C3.1	Tall Ruderal
A2.2	Scattered Scrub
A1.1.1	Semi-natural Broad-leaved Woodland
G2	Running Water
I4.1	Other Rock Exposure – Acid/Neutral
TN1	Birch trees
TN2	Hybrid Hawthorn on man-made bank
TN3	Wych Elm trees

Dense Bracken (C1.1) / Scattered Scrub (A2.2)

Dense bracken with some bramble

The bulk of the site comprises dense bracken. Some areas had recently been cut. Aside from some bramble patches, very few other plants are present. A bush of *Crataegus x media*, a hybrid between common and midland hawthorn, was found with holly on a low man-made bank which winds along the top part of the site. There are few records of this hybrid in south Wales, but it may be derived from the planting scheme on the tip above.

No violets were found under the bracken, so uncommon fritillary butterflies would not be present. Bracken-nesting birds such as nightjar and whinchat are unlikely to be present in this urban-fringe location. The habitat is of no ecological significance

Tall Ruderal (C3.1)

Partially cleared stand of Japanese knotweed

The north-eastern part of the site has dense Japanese knotweed, but attempts are being made to mechanically clear this. No other species are present underneath. The habitat is of no ecological significance.

Running Water (G2) / Other Rock Exposure – Acid/Neutral (I1.4.1)

Streamside cliff-face

A ravine forms the western edge of the site, and a stream drops down the centre of this. No aquatic higher plants are present in the stream, and the rocks in the channel support only common moss species such as *Platyhypnidium riparioides*. Exposed rocks alongside the stream have typical common mosses such as *Fissidens incurvus* and *Dichodontium pellucidum* and liverworts such as *Scapania nemorea*, *Plagiochila porelloides* and *Pellia endiivifolia*. Away from the stream, the bryophyte flora was harder to investigate but appears to comprise ubiquitous species of drier rocks such as *Fissidens taxifolius, Diplophyllum albicans*, and *Atrichum undulatum*. No uncommon species of humid 'Atlantic' woodlands were found, and the site does not appear to be of particular significance for bryophytes. No notable ferns were found either; maidenhair spleenwort (*Asplenium trichomanoides*) dominates one outcrop and scaly male fern (*Dryopteris affinis*) is on gully sides.

The habitat is of some minor or local ecological interest.

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Maidenhair spleenwort on rock outcrop (left); Dichodontium pellucidum (right)

Semi-natural Broad-leaved Woodland (A1.1.1)

Mature sessile oak near the top of the ravine woodland

The ravine slopes are dominated by broad-leaved woodland, with mature trees dominating towards the top end. Sessile oak (*Quercus petraea*) is most abundant, but there are several mature wych elm (*Ulmus glabra*) – an uncommon tree in mature form since the advent of Dutch elm disease. Some of these trees have long thick roots penetrating fissures on the cliff

faces. Younger trees or saplings of ash (*Fraxinus excelsior*), rowan (*Sorbus aucuparia*), alder (*Alnus glutinosa*) and yew (*Taxus baccata*) were also noted, and bushes of grey willow (*Salix cinerea*), hazel (*Coryllus avellana*) and holly (*Ilex aquifolium*) form a sparse understorey in places. The ground flora is dominated by common bent grass (*Agrostis capillaris*) above the ravine sides, where pignut (*Conopodium majus*), honeysuckle (*Lonicera periclymneum*) and hard fern (*Blechnum spicant*) were also noted. Damp-ground species occur on the slopes, where patches of opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*) are typical, and there are also a few plants of yellow archangel (*Lamiastrum galeobdolon* ssp. *montanum*), blackcurrant (*Ribes nigrum*) and wavy bittercress (*Cardamine flexuosa*).

The habitat is of local ecological significance.

Wych elm trunks (left); tree growing out of outcrop (right)

3.2 Protected species

No badger setts, runs or foraging signs were found; the development will not affect badgers.

The bracken areas hold some low potential for reptile species, but are densely covered and generally lacking in basking areas. There is little potential for amphibians.

There are limited foraging opportunities for otter in the ravine as the stream appears too small, fast-flowing and naturally obstructed to support potential prey such as eels. No field signs were seen.

The site is likely to be of fairly low value to nesting birds, but the ravine woodland will hold typical species. There is some potential for breeding dipper in streamside cliff areas, but none were seen and no old nests found.

No bat survey was carried out. There are no buildings or open mine shafts to support roosting bats. The mature trees, although having no obvious cavities, could potentially support roosting bats and the ravine is likely to provide foraging opportunities.

3.3 Invasive Non-Native Species

Japanese knotweed (*Reynoutria japonica*) dominates the eastern part of the site. A bush of pheasant berry (*Leycesteria formosa*) was noted by the road. A few bushes of Himalayan cotoneaster (*Cotoneaster simonsii*) are present in the lower part of the ravine.

Himalayan cotoneaster (left); Pheasant berry (right)

4. Discussion

4.1 Scheme Details

The proposal is for a One Planet development. A low-impact dwelling would be built below the bank which traverses the top of the slope. There would be associated vegetable production and aquaculture. Pigs would be kept on the bracken and Japanese knotweed areas. A micro-hydro scheme is proposed in the ravine for electricity production.

New accommodation and a permaculture enterprise would be located below the bank which runs along the slope here

4.2 Recommendations

Woodland

Mature trees in the ravine woodland, particularly the wych elms, should be retained. Fallen dead wood will enhance the woodland and should be retained where possible. Soil and vegetation cover on the slopes, particularly in damp areas where opposite-leaved golden saxifrage is found, is very susceptible to erosion so pigs should be excluded from the woodland and human foot traffic, for example when installing or maintaining the proposed hydro-electric turbine, should be limited to routes which avoid these areas where possible.

Damp slope covered with opposite-leaved golden saxifrage – these sensitive areas will support invertebrates such as craneflies and small molluscs

Stream Channel / Micro-hydro Scheme

There are no aquatic plants in the stream other than common bryophyte species. A provisional assessment of the saxicolous bryophyte species on rock faces alongside the stream concluded that no uncommon humidity-demanding 'Atlantic woodland' species were present. There appears to be little or no potential for a structure here to impact on fish or eels. No specific assessment of aquatic invertebrates was carried out; the ubiquitous snail

Potamopyrgus jenkinsii was the only species noted. The proposed hydro-scheme therefore appears to be of low risk to wildlife and no further survey should be required.

4.3 Promotion of Biodiversity at the Site

Protection of woodland and streamside habitats will be key to biodiversity promotion. Reduction of bracken and knotweed dominated areas would diversify plants and invertebrates.

5. Summary and Conclusions

There is scope for a development here which protects the current ecological interest and focusses building and food production activities on degraded land of low ecological quality.

6. References

Handbook for Phase I habitat survey Nature Conservancy Council 1990

Appendix 1

Species recorded at the site during the walkover visit 13/09/2018

Plants

Common Name	Species
Alder	*Alnus glutinosa*
Atlantic Ivy	*Hedera hibernica*
Ash	*Fraxinus excelsior*
Blackcurrant	*Ribes nigrum*
Bracken	*Pteridium aquilinum*
Bramble	*Rubus fruticosus*
Broad-leaved Dock	*Rumex obtusifolium*
Broad-leaved Willowherb	*Epilobium montanum*
Brooklime	*Veronica beccabunga*
Cock's-foot	*Dactylis glomerata*
Common Bent	*Agrostis capillaris*
Common Dog Violet	*Viola riviniana*
Common Polypody	*Polypodium vulgare*
Creeping Bent	*Agrostis stolonifera*
Creeping Buttercup	*Ranunculus repens*
Creeping Cinquefoil	*Potentilla reptans*

Cuckoo Flower	*Cardamine pratensis*
Dandelion	*Taraxacum officinale*
Enchanter's Nightshade	*Circaea lutetiana*
Field Sow-thistle	*Sonchus arvensis*
Foxglove	*Digitalis purpurea*
Gorse	*Ulex europaeus*
Grey Willow	*Salix cinerea*
Hard Fern	*Blechnum spicant*
Hawthorn hybrid	*Crataegus x media*
Hazel	*Coryllus avellana*
Herb Robert	*Geranium robertianum*
Holly	*Ilex aquifolium*
Honeysuckle	*Lonicera periclymneum*
Male Fern	*Dryopteris filix-mas*
Marsh Bedstraw	*Galium palustre*
Nettle	*Urtica dioica*
Opposite-leaved Golden Saxifrage	*Chrysosplenium oppositifolium*
Pheasant Berry	*Leycesteria formosa*
Remote Sedge	*Carex remota*
Rosebay Willowherb	*Chamaerion angustifolium*
Rowan	*Sorbus aucuparia*
Scaly Male Fern	*Dryopteris affinis*
Silver Birch	*Betula pendula*
Small Sweet-grass	*Glyceria declinata*
Soft Rush	*Juncus effusus*
Sycamore	*Acer pseudoplatanus*
Wavy Bittercress	*Cardamine flexuosa*
Wood Avens	*Geum urbanum*
Yorkshire-fog	*Holcus lanatus*

Birds

Buzzard, Woodpigeon, Nuthatch, Grey Wagtail, Meadow Pipit, Chiffchaff, Great Tit, Wren, Robin