

Report Title	Proposed Residential Development, Rivulet Road, Wrexham – Ecological Management Plan
Client	Anwyl Construction Ltd
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this report was produced by



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1 INTRODUCTION

1.1 Project Background

- 1.1.1 Marches Ecology was commissioned by Anwyl Construction Ltd to produce an Ecological Management Plan (EMP) for two areas within a proposed residential development site. The proposed development site is on land off Rivulet Road, Wrexham (OS Grid Ref. SJ 338 498). The site location and boundary is shown on a Munro Associates plan entitled '*Proposed Site Plan*', Dwg. no. 003/004 Rev. E, dated July 2011. Outline planning permission (Ref. P/2009/0969) has been provided for this proposal subject to a number of conditions. Two of these conditions are of relevance to this EMP; conditions 27 (in part) and 30. The wording of these conditions is as follows:

Condition 27: 'As part of the reserved matters application, details of a buffer zone between the stretch of the River Gwenfro to the north west of the site and the proposed built development, within which the pedestrian footway shall be a minimum of 3 metres from the river boundary, shall be submitted to and approved by the Local Planning Authority. The measures as are approved shall be fully implemented in accordance with a timetable which has been submitted as part of this scheme for written approval'.

Condition 30: 'The development shall be carried out in strict accordance with the results and recommendations as detailed with the ecology report as carried out by Marches Ecology and dated March 2010 approved as part of this application. As part of the reserved matters application a short and long term management plan and mitigation strategy, and ecological method statement to include any proposed works to the existing stone retaining wall shall be submitted to and approved in writing by the Local Planning Authority. The development, including any site clearance works, shall be carried out in strict accordance with these details as approved'.

- 1.1.2 This EMP has therefore been produced in order to provide part of the information required by Wrexham County Borough Council (WCBC) in order to discharge these conditions. This document briefly reviews the existing ecological resource identified in Marches Ecology (2010) and in a subsequent Phase 1 Habitat Survey completed on 4th May 2012.

1.2 The Ecological Management Plan

- 1.2.1 This Ecological Management Plan (EMP) has been prepared by Marches Ecology on behalf of Anwyl Construction Ltd. It sets out a ten-year management strategy for a proposed 'buffer strip' and an area of retained woodland. Management prescriptions are provided for a ten-year period after which a review will take place and a new Action Plan compiled for the next ten-year period.
- 1.2.2 The scope of this EMP concerns two areas within the site: a buffer strip to be retained adjacent to the River Gwenfro and an area of retained broad-leaved woodland located in the southeast corner of the site. It was proposed in Marches Ecology (2010) '*to provide an approximate 8 to 10.4 m wide 'buffer strip' between the boundary wall adjacent to the river and the closest buildings although this buffer would include a pedestrian access walkway*'.

The buffer strip is shown on a Munro Associates plan entitled '*Proposed Site Plan*' Dwg no. 383/ 003, Rev. F. The area of retained woodland is shown on a Munro Associates plan entitled '*Proposed Site Plan*', Dwg. no. 003/004 Rev. E, dated July 2011.

- 1.2.3 It should be noted that the boundary shown on the Munro Associates plan differs slightly from that included in Marches Ecology (2010). The difference being that the western corner of the site, an approximately rectangular plot of land immediately to the south of the River Gwenfro, is currently not included within the site boundary. As such this area of land is not considered in this EMP.
- 1.2.4 Details of the proposed soft landscaping scheme are presented on two The Ark Company Landscape Architects plans entitled '*Proposed new housing development Soft landscape proposals (1 of 2)*' Dwg no. 02/113/01 v4, dated November 2011 and '*Proposed new housing development Soft landscape proposals (2 of 2)*' Dwg no. 02/113/02 v4, dated November 2011. These plans provide information with regard planting and aftercare of the proposed soft landscaping. It should be noted that this EMP is concerned with ecological issues only; soft landscaping is not covered.
- 1.2.5 The EMP will cover a ten-year period after construction completion and will guide management of the ecological resource of the two areas identified above. As it is not known when construction would start/ end the start date of this management plan is not known at present. The management plan does not cover management of other areas of green space within the proposed development site. The Action Plan includes management prescriptions for after-care of the newly created habitats where appropriate.

1.3 Legislation

Introduction

- 1.3.1 This sub-section provides a brief summary of key legislation relevant to Otters, bats and birds. It should not be considered a comprehensive review and is not meant to be so. It is provided here for information only and is not intended to replace specialised legal advice. It does not replace the text of the legislation, but summarises the salient points.

Bats

- 1.3.2 All species of British bat are listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receive full protection under *Section 9*. They are also listed as European Protected Species on *Schedule 2* of *The Conservation of Habitats and Species Regulations 2010* which gives them full protection under *Regulation 40(1)*. Protection was extended by the *Countryside and Rights of Way Act 2000* (the CRoW Act).
- 1.3.3 Under the above legislation it is an offence to intentionally or recklessly:
- kill, injure or take an individual of such a species;
 - possess any part of such species either alive or dead;
 - damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
 - disturb such a species whilst using any place of shelter or protection; or

- sell or attempt to sell any such species.

1.3.4 Several species of bat are included as Priority Species in the UK Biodiversity Action Plan (UK BAP) and also as species of principal importance for the conservation of biological diversity in Wales under *Section 42* of the *Natural Environment and Rural Communities Act 2006* (NERC Act 2006).

1.3.5 All species of British bat are also protected under *Schedule 6* of the *Wildlife and Countryside Act 1981* (as amended). This protection relates specifically to trapping and direct pursuit of the species.

Otters

1.3.6 The Otter (*Lutra lutra*) is listed on *Schedule 5* of the *Wildlife and Countryside Act 1981* (as amended), and receive full protection under *Section 9*. The 1981 Act was amended by the *Countryside and Rights of Way Act 2000* (the CRoW Act) which further extends the protection. It is also listed on *Annexe IV* of the European Union Directive on Natural Habitats and Wild Fauna and Flora (*Council Directive 92/43/EEC*), which is implemented in the UK by *The Conservation of Habitats and Species Regulations 2010*. It is included on *Schedule 2* of these regulations which gives it full protection under *Regulation 40(1)*. The Otter is therefore a so-called European Protected Species.

1.3.7 Under the above legislation it is an offence to intentionally or recklessly:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

1.3.8 The Otter is a UK BAP priority species and is included in *Section 42* of the NERC Act 2006 as a species of principal importance for the conservation of biological diversity in Wales.

Birds

1.3.9 All species of bird are protected under *Section 1* of the *Wildlife and Countryside Act 1981* (as amended). The protection was extended by the *Countryside and Rights of Way Act 2000*.

1.3.10 The legislation makes it an offence to intentionally or recklessly:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

1.3.11 Certain species of bird are listed on *Schedule 1* of the *Wildlife and Countryside Act 1981* (as amended) and receive protection under *Sections 1(4)* and *1(5)* of the Act. The legislation confers special penalties where the above mentioned offences are committed for any such bird and also make it an offence to intentionally or recklessly:

- disturb any such bird, whilst building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

- 1.3.12 *Section 74(2) of the Countryside and Rights of Way Act 2000 (now under Section 42 of the Natural Environment and Rural Communities Act 2006) requires the government to prepare and publish a list of species and habitats that it considers to be of principal importance for the conservation of biological diversity in Wales. This list includes several birds. Section 74 places a duty on the government to have regard, in exercising all its functions, to conserve biological diversity in accordance with the United Nations Convention on Biodiversity.*
- 1.3.13 *Sections 40 to 42 of the Natural Environment and Rural Communities Act 2006 (NERC Act) replace S74 of the CRoW Act. Section 40 of the NERC Act extends to all public authorities (includes local planning authorities) the existing S74 duty to have regard to biodiversity as far as is consistent with the proper exercise of their functions.*
- 1.3.14 Due to the legal status of Otters, bats and birds this may have implications for any management/ maintenance undertaken within the proposed development site. The advice of CCW, WCBC's ecologist and or a consultant ecologist should be sought to clarify any potential licensing or RAMs requirements.

1.4 Structure of the Management Plan

- 1.4.1 The remainder of this Management Plan is structured as follows:

Section 2 provides the site description;
Section 3 outlines the (management) prescriptions;
Section 4 outlines the mechanisms for monitoring and review;
Section 5 presents the action plan; and
Section 6 provides references.

2 SITE DESCRIPTION

2.1 General Information

Location and Site Boundaries

- 2.1.1 The proposed development site is located close to Wrexham town centre. The site extends to approximately 1.1 hectares. The site boundaries are shown on the Munro Associates plan entitled '*Proposed Site Plan*', Dwg. no. 003/004 Rev. E, dated July 2011. This plan also shows the proposed buffer strip by the River Gwenfro and the retained woodland in the southeast corner of the site (which are the subject of this EMP).

2.2 Biological Description

Introduction

- 2.2.1 Wrexham Landmap identifies the site as within character area 10: Wrexham Town. This character area is dominated by buildings and other development. The area is largely noted as being of low ecological interest but features of value include mature trees, open spaces, former industrial sites, ponds and rivers. The River Gwenfro in particular is noted as providing one of the 'largest natural habitats' within Wrexham town.
- 2.2.2 The site is directly bordered to the north by Rivulet Road, and on the opposite side of this road, there are a number of small commercial premises. To the east there are also commercial premises while to the south there is residential housing. The northwest site boundary is delineated by the River Gwenfro. To the west is Salop Road.

Existing Habitat within the Proposed Development Site

Introduction

- 2.2.3 The description provided here is taken from Marches Ecology (2012). This summary of the ecological resource is largely based on that included within Marches Ecology (2010). This report should be consulted for further information. Where relevant the results of the Phase 1 Habitat Survey undertaken in May 2012 have also been used to update this description.

Sparse Grassland/ Ephemeral Vegetation

- 2.2.4 The site is generally characterised by piles of building materials and soil stock piles with the ground consisting of a range of substrates. Much of the central portion of the site has previously been levelled and cleared. It has also been subjected to a high level of recent disturbance/ compaction due to the construction of the housing development on adjacent land directly to the south. The site is largely unvegetated although there is some sparse vegetation associated with stock piles. Where present plant species are characteristic of such brownfield disturbed habitat. In some parts of the site these communities are relatively species-rich and include several 'Locally Scarce'¹ and 'Locally Rare'² plants.

¹ In Vice County 50, a scarce plant is described as being recorded in 4-15 10 km squares (Green, 2006).

Trees/ Woodland

- 2.2.5 There is a small stand of semi-natural broad-leaved woodland in the southeast corner of the site. The canopy of this woodland is largely dominated by semi-mature *Betula pendula* (Silver Birch) with *Acer pseudoplatanus* (Sycamore), *Fraxinus excelsior* (Ash) and *Salix caprea* (Goat Willow). The shrub layer is relatively sparse and the ground layer appears to be species-poor. A small stand of the non-native invasive plant *Fallopia japonica* (Japanese Knotweed) was recorded near the northern edge of this woodland in 2010. During the Phase 1 Habitat Survey in 2012 it appeared that the Japanese Knotweed had been treated with herbicide. It has subsequently been confirmed by Wales and West Housing Association that the Japanese Knotweed has been subject to control measures.
- 2.2.6 Other than at the woodland described above there are very few trees on the site; a small number of young saplings are present around the site periphery. Although *Buddleja davidii* (Butterfly-bush) is frequent throughout most of the site the majority of the plants present are young. There are a few small patches of semi-mature bushes.

Walls

- 2.2.7 The site boundaries are virtually all formed by free-standing or retaining walls of large stone blocks or brick. These walls support a number of species of plant in particular several ferns.

Fauna

- 2.2.8 Marches Ecology (2010) presents the results of a walkover survey that included assessment of the habitat within the site for its potential value for protected and other notable species. Species/ species groups considered to be of relevance to the site were:
- Bats;
 - Otters (*Lutra lutra*); and
 - Birds.
- 2.2.9 The site was considered to be of limited/ low value for bats and birds. While Otters are known to utilise the adjacent stretch of the River Gwenfro it was considered unlikely that they would be able to access the site as the river channel is contained by a wall on this boundary with an approximate 4 m vertical drop from the site to the water level. However as the River Gwenfro is located directly adjacent to the site boundary and the Otter is an *Annex II* species identified as a qualifying feature of the River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SSSI/ Special Area of Conservation (SAC) this species was considered to be the key ecological issue on this site.

² In Vice County 50, a rare plant is described as being recorded in 1-3 10 km squares (Green, 2006).

Proposed Habitat within the River Gwenfro Buffer Strip

- 2.2.10 As detailed in paragraph 1.2.4 the proposed soft landscaping scheme is presented in two The Ark Company Landscape Architects plans (referred to henceforth as the 'Ark plans'). The Ark plans indicate that a native species 'hedge' to 3 m wide will be planted directly adjacent to the river boundary. This hedge would include species such as *Ilex aquifolium* (Holly), *Corylus avellana* (Hazel) and *Rosa canina* agg. (Dog-rose). Ideally these plants should be of British native provenance. The remainder of the buffer strip at this location is to be planted with amenity grassland and various ornamental shrub/ perennial mixes.
- 2.2.11 Further information with regards planting and establishment/ aftercare is provided on the Ark plans.

Proposed Habitat within the Retained Woodland

- 2.2.12 As shown on the Ark plans most of the woodland in the southeast corner of the site is to be retained. It is also proposed to interplant the existing trees with four different species of tree. The ground beneath the trees will be sown with British Seed Houses WFG8 'Shaded Areas' mix. A new retaining wall is to be built on the northern edge of the retained area. It is also proposed to install and maintain five bird-boxes in this woodland.
- 2.2.13 Further information with regards planting and establishment/ aftercare is provided on the Ark plans. Proposed arboricultural works for the woodland are detailed in Amenity Tree Care Ltd (2012).

3 PRESCRIPTIONS

3.1 Management Objective - Buffer Strip

3.1.1 The purpose of the proposed buffer strip is to minimise potential disturbance during the operational phase of the development of Otters that use the River Gwenfro. While Otters are already likely to be subjected to relatively high levels of disturbance the proposed development will increase the presence of people at this location. The proposed hedge and planting regime will maintain a buffer between the river and the adjacent housing.

3.1.2 Otters/ the River Gwenfro are the primary feature of importance of the site. The aim of management of the buffer strip will be to maintain a dense hedge adjacent to the river.

3.2 Management Objective - Woodland

3.2.1 The woodland provides an attractive feature in an otherwise built-up urban landscape. It also provides a small number of opportunities for nesting birds and is likely to provide habitat for a range of common species.

3.2.2 It is proposed to retain much of this woodland. A small number of trees are to be removed for reasons of safety or due to poor form; further information is provided in Amenity Tree Care Ltd (2012). The Ark plans illustrate proposed inter-planting with four species of tree. The aim of this management/ planting is to enhance and diversify the structure of the woodland. At the present time no ongoing management of the woodland is proposed (following the initial tree felling/ planting). However the prescriptions include for a monitoring visit to be undertaken every five years to consider any potential requirement for management at that time going forwards.

3.2.3 Birds/ the woodland are a secondary feature of importance of the site. The aim of long-term management is to maintain a small diverse stand of broad-leaved woodland consisting predominantly of native species.

3.3 Management Projects

3.3.1 The following tables describe the prescribed management projects required to achieve the management objectives. The sub-sections are divided according to the key habitat types. Management will be subject to periodic review by the managing organisation. It should be noted that prescriptions for arboricultural work are included in Amenity Tree Care Ltd (2012) and for soft landscape planting and aftercare in the Ark plans. These documents should be referred to for further information.

Buffer Strip

- 3.3.2 Details concerning creation/ management of the buffer strip are provided in the table below.

Rationale
A buffer strip is to be established adjacent to the River Gwenfro. The purpose of this buffer strip is to minimise disturbance of Otters that use the river. The proposed 3m-wide hedge would prevent direct access to the wall by the river.
Buffer Strip Creation
Details of the proposed planting are provided on the Ark plans.
Buffer Strip Management
Details concerning establishment/ aftercare are provided on the Ark plans. The condition of the 'hedge' will be reviewed during a monitoring visit every five years. If considered necessary further management prescriptions would be proposed at this time. It is likely that detailed management prescriptions will be required for this hedge after 5-10 years and so should be included in the next EMP. It is hoped that the hedge would be managed to proportions of approximately 3 m wide and 2 m high. Litter/ debris should be removed from the buffer strip at least once a year.

Woodland

- 3.3.3 The table below provides information to facilitate long-term management of the woodland and sown wildflower mix.

Rationale
An area of broad-leaved woodland is to be retained within the southeast corner of the site. A small amount of arboricultural work including some felling is proposed in Amenity Tree Care Ltd (2012). Inter-planting of the woodland and sowing wildflowers beneath the trees is also detailed in the Ark plans. Following this initial work on completion of the construction phase no further management is currently prescribed. An area of broad-leaved woodland subject to minimal management/ disturbance will be provided in the medium to long-term.
Woodland/ Wildflower Planting
Details of the proposed (tree/ wildflower) planting are provided on the Ark plans.
Management
Initial management of the woodland is detailed in Amenity Tree Care Ltd (2012). Details concerning establishment/ aftercare of the trees and sown wildflowers are provided on the Ark plans. As detailed in the Ark plans the wildflower mix would initially be cut twice a year. It is likely to be possible to reduce the cutting frequency to once a year and possibly less when the sward is established. Ideally this should be achieved using a mower with the blades set at approximately 10 cm above the ground. Care should be taken not to damage any trees. The arisings should be removed from site. The condition of the wildflowers/ woodland will be reviewed during a monitoring visit every five years. If considered necessary further management prescriptions would be proposed at this time. Litter/ debris should be removed from the woodland at least once a year.

Bird-boxes

- 3.3.4 In accordance with Marches Ecology (2012) five bird-boxes are to be installed and maintained within the retained woodland. Details concerning installation/ maintenance are provided in the table below.

Rationale
Five bird-boxes are to be provided principally as compensation for the loss of any potential nesting opportunities from the site that may be lost due to the proposed development. The installation of the bird-boxes will be undertaken following the proposed arboricultural works and will be completed/ supervised by a suitably qualified ecologist as required.
Installation of Bird-boxes
To compensate for a limited short-term loss of nest sites, it is proposed to provide a small number (5 no.) of nest-boxes, suitable for species that nest in scrub/ woodland. Schwegler produce a range of appropriate nest-boxes (e.g. Schwegler 1B type ³). Bird nest-boxes should generally be sited between 1.5 m and 5 m above the ground but in this case should be at least 3 m above the ground. All of the nest-boxes should be located somewhere between (facing) north through east to southeast; avoiding prevailing winds and direct sunlight where possible. On trees the dry side of the tree trunk offers most protection. Nest-boxes should generally be sited near shrubs/ other vegetation that will provide good cover for young birds. To facilitate easy maintenance the nest-boxes should be attached to the trees with wire or similar (and not nails).
Management
Bird nest-boxes require annual maintenance as they can become heavily infested with parasites. All maintenance should be carried out when the last bird has left the nest-box; at least October. As such all nest-boxes should be cleaned in late-autumn (late October/ November). At least 2 to 3 weeks should be allowed after fledging before undertaking any cleaning. The <i>Wildlife and Countryside Act 1981</i> , as amended states that cleaning should only be carried out between 1st August and 31st January and that any eggs present should be destroyed immediately. All nest material should be completely removed and disposed of safely along with any other debris. To ensure that parasite build-up is controlled the inside of the nest-box should be cleansed with boiling water. For safety, this should be undertaken with the nest-box located on the ground. Care should be taken when opening nest-boxes as it is possible that they could be inhabited by bees, wasps or even bats.

³ <http://www.schwegler-natur.de/index.php?main=produkte&sub=vogelschutz&psub=nisthoehlen-allgemein&pcontent=nisthoehle-1b>

4 MONITORING AND REVIEW

- 4.1.1 The buffer strip and retained woodland should be inspected every five years and notes made on the success or otherwise of management and any other issues arising. This inspection should be undertaken in July/ August. A brief annual report covering the results of this site inspection and management undertaken in that year will be prepared and submitted for review by the WCBC ecologist in August of that year. This report will form the main component of the review process. The main purpose of this review will be to ensure that the site is being managed in accordance with the approved management plan. Compilation of the report may require records to be maintained throughout the year. The management plan will be reviewed every ten years or as deemed appropriate.
- 4.1.2 It should be noted that all planting is to be inspected monthly (between April and October) during the establishment period; the first five years after planting in accordance with the Ark plans.

5 ACTION PLAN

5.1.1 The table below provides a summary of the tasks to be completed as part of the EMP and the year (or years) that the task is to be completed. It details all management tasks required following creation of the new habitats. However it does not include prescriptions detailed in the Ark plans and Amenity Tree Care (2012).

Task	Year										Timing of management/ notes
	1	2	3	4	5	6	7	8	9	10	
Buffer Strip											
Remove litter/ debris											At least annually.
Woodland											
Remove litter/ debris											At least annually.
Bird-boxes											
Clean/ maintain											Annually in late-October/ November.
Site Inspection											
Site inspection and report											Site inspection in July every five years. Brief annual report.
Review											
Review Management Plan every 10 years											Managing organisation to convene review meeting every 10 years or as required.

6 REFERENCES

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