

Report Title	Proposed Housing Development at the Former Gittins Yard, Gutter Hill, Johnstown, Wrexham - Ecological Management Plan For Wildlife Corridor
Client	Wrexham County Borough Council
Date	October 2011

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1 INTRODUCTION

1.1 Project Background

- 1.1.1 Marches Ecology was commissioned by Wrexham County Borough Council (WCBC) to produce an Ecological Management Plan for a wildlife corridor on a proposed development site. The proposed development site is the former Gittins Yard, Gutter Hill, Johnstown, Wrexham (OS Grid Ref. SJ 298 464). A planning application (Planning Ref. P/2011/0645) has been submitted for outline permission. Subsequent to this application further information has been requested by the planning department including detailed information with regard management of the proposed 'wildlife corridor'. This wildlife corridor is illustrated on a WCBC plan entitled '*Location Plan, Existing and Site Layout*' (Dwg. no. SK01, dated June 2011).
- 1.1.2 The proposed development site is located no more than 10 m from the closest part of Johnstown Newt Sites Special Area of Conservation (SAC)/ Stryt Las a'r Hafod Site of Special Scientific Interest (SSSI) on the opposite side of Gutter Hill from the site. The special feature of the SAC is the population of Great Crested Newts (*Triturus cristatus*) (CCW 2008). The proposed wildlife corridor is to be provided to mitigate and compensate for any potential impacts on the Favourable Conservation Status of the local Great Crested Newt population/s as a result of the development. As such management of this area concentrates on this key species.

1.2 The Ecological Management Plan

- 1.2.1 This Ecological Management Plan (EMP) has been prepared by Marches Ecology on behalf of Wrexham County Borough Council (WCBC). It sets out a ten-year management strategy for the proposed wildlife corridor. 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 EMP will cover a ten-year period after construction completion and will guide management and enhancement of the ecological resource of the wildlife corridor. 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.

1.3 Legislation

Introduction

- 1.3.1 This sub-section provides a brief summary of key legislation relevant to Great Crested Newts. 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.

Great Crested Newts

- 1.3.2 Great Crested Newts are 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* (CRoW Act) which further extends the protection. It is also listed on *Annexes II and 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 the Habitats Regulations which gives it full protection under *Regulation 40(1)*. The Great Crested Newt is therefore a so-called European Protected Species. The legislation applies to all life stages of the Great Crested Newt, including eggs, larvae, juveniles and adults.
- 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 *Section 74(2)* of the *CRoW Act 2000* (now under *Section 42* of the *Natural Environment and Rural Communities Act 2006*) requires the National Assembly for Wales 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. The Great Crested Newt is included on this list. *Section 74* also places a duty on the National Assembly for Wales to have regard, in exercising all its functions, to conserve biological diversity in accordance with the United Nations Convention on Biodiversity.
- 1.3.5 The Great Crested Newt is a priority species in the UK Biodiversity Action Plan (UK Biodiversity Steering Group 1995, 1998a & b), which includes objectives and targets to protect and restore newt habitats and to create new sites through habitat management and re-creation. There is also a SAP for Great Crested Newts in Wrexham (Wrexham County Borough, 2003). The Wrexham BAP is a supplementary planning guidance document.
- 1.3.6 Due to the legal status of the Great Crested Newt this has implications for any management/maintenance undertaken elsewhere 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 between Johnstown and Rhosllannerchrugog off Gutter Hill, and approximately 5.5 km to the southwest of Wrexham town centre. The site extends to approximately 0.3 hectares. The site boundaries are shown on the WCBC plan entitled '*Location Plan, Existing and Site Layout*' (Dwg. no. SK01, dated June 2011). This plan also shows the proposed wildlife corridor on the eastern side of the site.

2.2 Biological Description

Introduction

- 2.2.1 Wrexham Landmap identifies the site as within character area 7c: Rhosllannerchrugog-Rhostyllen-Ruabon-Penycae. This character area is dominated by mixed rural and urban villages within a landscape of undulating farmland on the lower slopes of Ruabon Mountain. The residential areas are typically high density and include various industrial premises. The area has been affected by a history of mining and quarrying.
- 2.2.2 The site is directly bordered to the south by Gutter Hill (the B5426 road), and on the opposite side of this road, Stryt Las Park which includes areas of hard-standing and amenity grassland as well as some tall herbs/ rank grassland/ scrub and scattered trees. To the southeast the site borders residential housing while to the north/ northeast there is an area of tall herb vegetation and scrub. The Fire Station, various commercial premises and further residential housing are located to the west.

Existing Habitat within the Proposed Development Site

- 2.2.3 The description provided here is taken from Marches Ecology (2010). This report details the results of a Habitat Survey of the site completed in 2010. In addition the habitat present was assessed for its potential value to legally protected species.
- 2.2.4 Species-rich neutral grassland is largely located in a small open area near the historic site access point and around slabs of concrete hard-standing towards the centre of the site. It is of variable composition growing over hard-standing or in gaps between concrete slabs.
- 2.2.5 *Festuca rubra* (Red Fescue) is perhaps the most abundant grass with locally frequent *Agrostis capillaris* (Common Bent), *Lolium perenne* (Perennial Rye-grass), *Arrhenatherum elatius* (False Oat-grass) and occasional *Poa pratensis* (Smooth Meadow-grass). The Locally Scarce grass *Poa compressa* (Flattened Meadow-grass) was found to be locally frequent particularly around the large concrete slabs in the centre of the site (see photo below). Forbs are abundant throughout but again the composition is variable: locally frequent *Medicago lupulina* (Black Medick), *Pilosella officinarum* (Mouse-ear-hawkweed), frequent *Plantago lanceolata* (Ribwort Plantain), occasional *Erigeron acer* (Blue Fleabane), *Euphrasia nemorosa* (Eyebright), *Centaurea nigra* (Common Knapweed), *Leucanthemum vulgare* (Oxeye Daisy), *Trifolium pratense* (Red Clover) and *Trifolium repens* (White Clover).

- In places the grassland cover becomes sparser over the hard-standing and includes species such as *Sedum rupestre* (Reflexed Stonecrop) and *Sedum acre* (Biting Stonecrop). In all parts of the site the grassland is being colonised by young scrub.
- 2.2.6 Plant species of note recorded in this vegetation community include *Poa compressa* (Flattened Meadow-grass), *Aster cf. novi-belgii* (Confused Michaelmas-daisy), *Melilotus albus* (White Melilot) and *Sedum rupestre* (Reflexed Stonecrop).
- 2.2.7 There are a few patches of a comparatively species-poor, tall grassland community which is characterised by coarse-leaved grasses and tall ruderals. This vegetation type is generally located along the interface between the scrub and the shorter species-rich grassland. It includes dominant *Arrhenatherum elatius* (False Oat-grass), abundant *Dactylis glomerata* (Cock's-foot), frequent *Rubus fruticosus* agg. (Bramble), locally frequent *Equisetum arvense* (Field Horsetail), occasional *Centaurea nigra* (Common Knapweed), *Lotus corniculatus* (Common Bird's-foot-trefoil) and *Trifolium pratense* (Red Clover).
- 2.2.8 Perhaps two-thirds of the site is characterised by young scrub. Most of this vegetation community is characterised by Birch and Willow (most frequently *Salix caprea* Goat Willow) with other tree/ shrub species being occasional, e.g. *Buddleja davidii* (Butterfly-bush), *Acer pseudoplatanus* (Sycamore), *Fraxinus excelsior* (Ash) and *Rosa canina* agg. (Dog-rose). Adjacent to the western boundary there is a greater proportion of *Acer pseudoplatanus* (Sycamore) and *Fraxinus excelsior* (Ash). The diameter at breast height (dbh) of the largest trees is approximately 0.05-0.1 m and they are 4-5 m tall. The largest trees within the site, generally along the western boundary have dbh's of 0.1-0.15 m (Sycamore) and 0.15 m (Goat Willow). The scrub is largely growing over hard-standing or through cracks. The field layer incorporates components of the species-rich grassland community described above although it is generally less species-rich.
- 2.2.9 The fourth vegetation type is characterised by an increase in tall ruderal species as well as a number of species escaped from gardens. It is typically located around the edges of some of the scrub and the larger concrete slabs. It includes species such as *Chamerion angustifolium* (Rosebay Willowherb), *Epilobium hirsutum* (Great Willowherb), *Sedum rupestre* (Reflexed Stonecrop), *Artemisia vulgaris* (Mugwort), *Artemisia absinthium* (Wormwood) and *Crocodymia x crocosmiiflora* (Montbretia). Plant species of note recorded in this vegetation community include *Poa compressa* (Flattened Meadow-grass), *Sedum rupestre* (Reflexed Stonecrop) and *Artemisia absinthium* (Wormwood).
- 2.2.10 The north, east and west site boundaries are characterised by brick walls. Along much of the northern and eastern boundary these walls have been constructed on top of high stone-block retaining walls. The brick walls extend to approximately 2.5 m high in places while the stone retaining walls are up to approximately 5 m high. These walls support a sparse vegetation community of ferns, ruderals and some shrubs. This community includes *Asplenium ruta-muraria* (Wall-rue), *Phyllitis scolopendrium* (Hart's-tongue), *Dryopteris filix-mas* (Male-fern), *Senecio squalidus* (Oxford Ragwort), *Epilobium montanum* (Broad-leaved Willowherb) and *Buddleja davidii* (Butterfly-bush).

Proposed Habitat within the Wildlife Corridor

2.2.11 The wildlife corridor is illustrated on a WCBC plan entitled '*Location Plan, Existing and Site Layout*' (Dwg. no. SK01, dated June 2011). It is located on the eastern side of the proposed development site and would be approximately 10 m wide. The following habitat is proposed for creation within the wildlife corridor:

- Infrequently managed grassland.
- Native scrub.
- An amphibian hibernaculum.

3 PRESCRIPTIONS

3.1 Management Objective

- 3.1.1 The Great Crested Newt is the largest of the three species of newt that are native to Britain. The British population is amongst the largest and by implication, most important in Europe. As amphibians Great Crested Newts need aquatic habitat during the breeding period and terrestrial habitat for foraging (throughout the year) and hibernation. The number of ponds that support breeding Great Crested Newts in Wales is approximately 500; 200 of these are within Wrexham borough.
- 3.1.2 Great Crested Newts are the primary feature of importance of the wildlife corridor. The aim of management of the wildlife corridor will be to provide high quality terrestrial habitat for Great Crested Newts throughout the year and a potential dispersal link to land to the north of the proposed development site. The habitat will be enhanced through the provision of a new hibernaculum. An area of infrequently managed grassland and a new area of native scrub will be established. Terrestrial habitat management will produce a mosaic of scrub and infrequently managed grassland.
- 3.3.1 The habitat will be managed to provide suitable conditions for Great Crested Newts for foraging and shelter throughout the year. In addition newt-friendly management should be practised throughout the green space in the remainder of the proposed development site.
- 3.3.2 A new hibernaculum will be provided for shelter/ hibernation. The aim of management will be to provide enhanced habitat capable of supporting Great Crested Newts throughout their terrestrial life-cycle within the site. This will strengthen a potential dispersal link to a large area of terrestrial habitat.

3.2 Management Projects

- 3.2.1 The following tables describe the prescribed management projects required to achieve the management objective. The sub-sections are divided according to the key habitat types. Management will be subject to periodic review by the managing organisation.

Grassland

- 3.2.2 Details concerning grassland creation and subsequent management are provided in the table below.

Rationale
An area of species-rich grassland will be provided in the wildlife corridor. The grassland will provide potential terrestrial habitat for Great Crested Newts as well compensating for the loss of this resource from the remainder of the proposed development site. Soil/ vegetation material from the existing grassland resource on the proposed development site will be spread across part of the wildlife corridor and this grassland will be allowed to naturally regenerate. It is hoped that plants/ plant fragments/ propagules of the identified locally scarce plants will be retained within this soil. Once established the grassland will be managed to promote floristic species-richness as well as providing dense vegetative cover for Great Crested Newts. The grassland will be managed to maintain species-rich neutral grassland of varying lengths. Management will be achieved through infrequent mowing and control of scrub where necessary. Mowing will be undertaken once a year in July, during a hot, dry period as this minimises the risk of harming any amphibians that may be present.
Grassland Creation
It is proposed that the grassland creation works are undertaken during the construction stage. It may be necessary to break up the existing areas of concrete/ hard-standing within the wildlife corridor. Ideally this material would be crushed and mixed with the soil substrate and or used for the construction of at least one hibernaculum (further discussed below). Soil (and vegetation) material from the existing neutral grassland on the proposed development site will be stripped. Every effort will be made to utilise soil/vegetation from locations where locally scarce plants were recorded where considered appropriate to do so (e.g. where these plants are considered to be native). Following stripping, the vegetation and soil material will be spread across the receptor area within the wildlife corridor to a depth of approximately 200 to 250 mm. Wherever possible vegetation will be transferred in 'turves'. If weed species (e.g. docks/ thistles) become established in the first 1-2 years they should be hand-pulled or spot-treated with a glyphosate-based herbicide as appropriate. Should the grassland not establish satisfactorily, seeding with an appropriate wild flower seed mix (ideally of local provenance but at least of British native origin) may be required. There are a number of commercially available grassland seed mixes that are appropriate for creation of a species-rich neutral grassland community, for example British Seed House's 'RE1 Traditional Hay Meadow' or 'WFG4 Neutral Soils'¹. Emorsgate Wild Seeds also supply several appropriate mixtures (e.g. EM1 Basic General Purpose Meadow Mixture or EM2 Standard General Purpose Meadow Mixture²). Where existing vegetation/ soil from the proposed development site is not spread other areas of grassland will be created through sowing with an appropriate seed mix as detailed above. Where sowing is required, the seed-supplier will be contacted to ascertain how the substrate should be prepared prior to seeding. Sowing rates vary between seed mixes and therefore the supplier's instructions will be followed, but, for example WFG4 requires an application rate of 3-5g/m². As the grassland area is small it may be possible to hand broadcast the seed (using a carrier to bulk up the seed, and stirring regularly). Sowing should take place in calm weather during late summer/ early

¹ <http://www.bshamenity.com/files/Wildflower-brochure.pdf>

² <http://wildseed.co.uk/mixtures/category/meadow-and-grassland>

autumn (August-September). The seed should be lightly raked in with a spring-tined rake. If autumn sown the sward should be cut to 10 cm in March if there is sufficient material or in May to 10 cm in the first year. After each cut the clippings should be removed.

Grassland Management

When established approximately half of the grassland along a north-south orientation should be cut once annually in July, ideally in hot, dry, conditions. The sward should be cut to a height of above 10 cm. The other half of the grassland would be cut in the following year. A mower with a reciprocating blade should be used. The cutting blade should be set at a height of about 12 to 15 cm. The grass cuttings should be left in-situ and then raked off after 24 hours. Grass heaps can be created within the adjacent scrub. Ideally the heap should be mixed with fine woody material and be constructed over a base of criss-crossed coarse material such as branches or logs (providing suitable refugia for Grass Snakes).

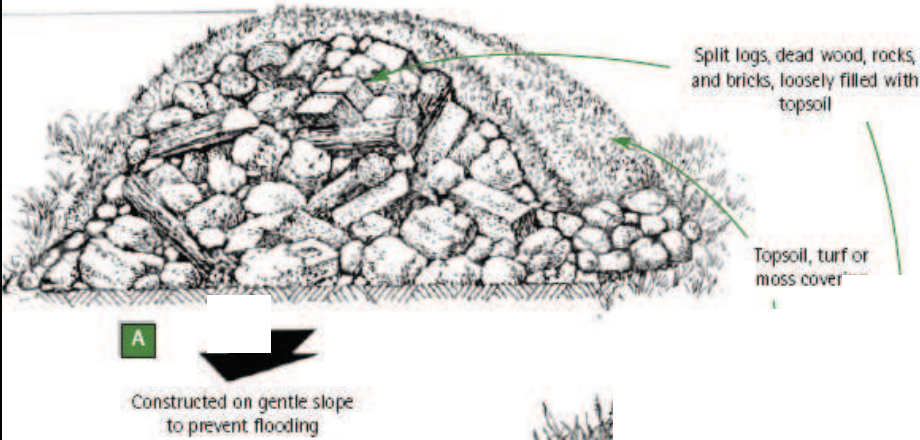
Scrub

3.3.3 The table below provides information to facilitate long-term management of the scrub.

Rationale
An area of scrub is to be planted within the wildlife corridor. It will be subject to occasional management in order to maintain areas of dense scrub for hibernating/ foraging newts and breeding birds. Scrub colonisation of the area of created grassland will be controlled to maintain the open nature of the grassland. However small amounts of scrub in this area may be tolerated.
Scrub Creation
It is proposed that the scrub planting is undertaken during the construction stage. It may be necessary to break up the existing areas of concrete/ hard-standing within the wildlife corridor. The scrub planting will utilise British native species ideally of local provenance. The shrubs will be planted employing a variable spacing (although a guide is 2 m spacing). The individual plants will be notch planted during October to November using a T- or L-shaped notch following initial removal of the turf. Each shrub should be protected with a tree-shelter attached to a stake. Frosty periods will be avoided as this may harm the shrubs and there is a risk of disturbing hibernating amphibians. Bare-rooted forestry size transplants of native shrub species of local provenance will be used. Suitable species include <i>Crataegus monogyna</i> (Hawthorn), <i>Prunus spinosa</i> (Blackthorn), <i>Rosa canina</i> agg. (Dog-rose), <i>Salix caprea</i> (Goat Willow), <i>Salix cinerea</i> (Grey Willow) and <i>Corylus avellana</i> (Hazel). The following approximate proportions for the scrub would be appropriate respectively 45%, 25%, 10%, 10%, 5% and 5%. Once the shrubs have been planted, an area of at least 1 m² around them should be kept weed-free through appropriate application of glyphosate-based herbicide such as Roundup (although use of herbicide will be kept to a minimum). This will control competition with grasses/ other plants. This maintenance operation should be undertaken once a year for the first three years during the growing season. Any losses should be replaced in the first five years after planting during November.
Scrub Management
The planted scrub within the wildlife corridor should be inspected every 15 years – shrubs that require removal at this time (for health and safety reasons) will be cleared and replaced. Coppice/clear approximately 15% of the scrub in any one year on a 15 year cycle in October/ November. This scrub may be cleared using hand-tools. The work should not be undertaken in cold weather to avoid disturbing hibernating newts. Cut logs can be stacked in the wildlife corridor to provide refuges for newts. These logs may need to be wired together.

Hibernaculum

- 3.3.4 At least one amphibian hibernaculum is to be created on the edge of the grassland/ scrub boundary. Details concerning construction of hibernacula are provided in the table below.

Rationale
At least one hibernaculum is to be provided principally as compensation for the loss of any potential refugia/ hibernacula from the site that may be lost due to the proposed development. The hibernaculum will be constructed at the same time as the grassland creation and will be supervised by a suitably qualified ecologist as required.
Creation of Hibernacula
As Great Crested Newts are known to spend a considerable proportion of their terrestrial phase either underground or just above ground under refuge sites, it is of great benefit to provide artificial sites, known as hibernacula, which they can utilise. Suitable rubble and soil (and/or other materials, refer below) from the proposed development site will be identified prior to site clearance and will be stored in a suitable location throughout the duration of the works. Post construction, this material will be used to create the hibernaculum. Dimensions of the hibernaculum should not be below 2 m length x 1 m width x 1m height. The construction is straightforward – a mixture of hardcore, brick rubble, logs, sleepers <i>etc</i>, and loose topsoil is piled into a mound which is then covered with a topsoil cap and, ideally, a turf covering. The lower margins of the mound should be exposed to facilitate access. The following diagram is from page 31 of Langton <i>et al</i> (2001).  Split logs, dead wood, rocks, and bricks, loosely filled with topsoil Topsoil, turf or moss cover A Constructed on gentle slope to prevent flooding
Management
None required.

4 MONITORING AND REVIEW

- 4.1.1 No particular monitoring of the wildlife corridor is proposed, however it should be inspected annually and notes made on the success or otherwise of management and any other issues arising. The inspection should be undertaken in July/ August following the grass cut. 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 each 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.

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.

Task	Year										Timing of management/ notes
	1	2	3	4	5	6	7	8	9	10	
Grassland											
Cut 50% of grassland area											Annually in July in hot conditions. Sward to be cut no lower than 10 cm height. An additional cut in March and or May will be required in the first year. All cuttings to be removed.
Spot treat/ hand-pull weed species											Specialist contractor required. Growing season. Glyphosate-based herbicide only.
Manage all grassland areas in 'newt-friendly' manner											Cutting blades to be set no lower than 10 cm. Management to be undertaken in hot, dry weather wherever possible.
Scrub											
Herbicide application around planted shrubs											Specialist contractor required. Growing season. Glyphosate-based herbicide only.
Replace losses											Replace all dead plants in November.
Coppice scrub											Year 15, Oct-Nov. Coppice 15% in any one year.
Site Inspection											
Site inspection and report											Site inspection in July/ August following grass cut. 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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