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1 INTRODUCTION

1.1 Project Background

1.1.1 Marches Ecology was commissioned by James Jones & Sons (Pallets and Packaging) Ltd to prepare an Ecological Mitigation Method Statement (EMMS) for a small development comprising a biomass boiler house/ kilns/ dry pallet store and associated infrastructure on land at James Jones & Sons Ltd, Off Oak Road, Wrexham Industrial Estate, Wrexham (approximate OS Grid Ref. SJ 3938 4931). The proposed mitigation measures are principally required due to the presence of, or potential presence of, legally protected species either on the site or close to it. The principal aim of this EMMS is to prescribe and guide implementation of the mitigation measures. Compensation/ enhancement measures are also provided.

1.1.2 This EMMS is informed by a background data search, an Extended Phase 1 Habitat Survey and a suite of other surveys (including for plants, Great Crested Newts (*Triturus cristatus*) and reptiles); the findings of this survey and assessment work are provided in an Ecological Appraisal report (Marches Ecology 2021). This EMMS should be read and used in conjunction with the information provided in the aforementioned report. This EMMS prescribes an Ecological Mitigation Area (EMA) which is remote from the proposed development site. The boundary of the EMA is indicated in *Figure 1* of this report, and the boundary of the proposed development site in *Figure 1a* of Marches Ecology 2021. The acceptability a remote EMA has been agreed in principle with Emma Broad (Ecologist, Wrexham County Borough Council).

1.1.3 The Ecological Appraisal identified the following valued ecological resources (either present or potentially present) for which mitigation/ compensation measures are considered necessary:

- Habitat: unimproved neutral grassland and dense scrub.
- Flora: no notable plants¹ have been recorded from the proposed development site. One Locally Scarce plant, *Vicia* cf. *tetrasperma* (Smooth Tare), has been recorded from adjacent grassland. The Locally Scarce *Silene silene* (Pepper-saxifrage) has been recorded from the EMA.
- Badgers: use of surrounding area to proposed development site and EMA, potential sett construction opportunities within proposed development site.
- Bats: the habitat within the proposed development site is of moderate to high value for commuting/ foraging. The proposal would not have any impact on roosting bats.
- Great Crested Newts: known use of terrestrial habitat adjacent to proposed development site. EMA footprint currently largely of negligible potential value.
- Reptiles: no reptiles recorded from the proposed development site.
- Birds: opportunities for nesting within the proposed development site are provided by a small area of dense *Rubus fruticosus* agg. (Bramble) scrub, scattered shrubs and a single tree; two built structures provide minimal opportunities.

Marches Ecology (2021) provides a brief summary of relevant legislation.

¹ Marches Ecology (2021) notes the presence of Common Stork's-bill but that 'it is understood by the author that the status of [this plant] is to be revised in the near future, where upon it will no longer be considered locally scarce (or rare)'. This has been confirmed further to Williams (2021). Mitigation measures with regards this plant are no longer deemed warranted.

1.2 Author

1.2.1 This document was produced by Max Ellson of Marches Ecology. Max is an ecologist with over twenty years of consultancy experience. His relevant academic qualifications and professional memberships are as follows:

- Chartered Environmentalist (Society for the Environment).
- Full Member of the Chartered Institute of Ecology and Environmental Management (CIEEM).
- MSc Vegetation Survey and Assessment.
- BSc (Hons) Environmental Biology.

2 USING THIS DOCUMENT

2.1 Structure of the EMMS

2.1.1 Sections 3 to 10 of this EMMS present all of the proposed mitigation, compensation and enhancement measures. Section 3 details 'general' measures while the subsequent Sections (4 to 10) apply to specific ecological resources (habitats/ species/ species groups). Each Section is generally divided under three main sub-headings as follows:

- Summary of Resource Status. This sub-section provides a brief summary of the status and value of the identified ecological resource within the Site or adjacent area where applicable. The Ecological Appraisal report mentioned in Section 1.1 should be referred to for detailed information.
- Mitigation. This sub-section details all required mitigation measures during the relevant stage of the project as far as is reasonably possible.
- Compensation/ Enhancement. This sub-section, where included, details all proposed compensation measures.

2.1.2 All retained/ created ecological features will be subject to ongoing inspection as detailed in Section 11.

2.1.3 The proposed development will be the subject of a Great Crested Newt licence application to Natural Resources Wales (NRW). The licence application will include an 'Ecological Management Plan' for the proposed mitigation area. As such ongoing management of retained/ created ecological features will not be covered in this EMMS.

2.2 Implementation

2.2.1 This EMMS will be referred to throughout the pre-construction/ construction phases by all those responsible for works associated with the proposed development that may impact the ecological resource. It is envisaged that a consultant ecologist will be retained to co-ordinate and supervise as necessary the implementation of certain mitigation measures.

2.2.2 All site personnel will be made aware of the importance and sensitivity of identified ecological resources and the proposed ecological mitigation measures through this EMMS and a tool-box talk and will subsequently be responsible for their own actions completed under a watching brief or overseen by the consultant ecologist. A consultant ecologist will be appointed to ensure appropriate delivery of all requirements detailed in this EMMS. The consultant ecologist will only attend site where required to do so by measures prescribed in this EMMS or any protected species licence.

2.2.3 The consultant ecologist (in conjunction with the main construction contractor) will also be required to ensure the following:

- All appropriate wildlife legislation obligations are met;
- All necessary (wildlife) licensing requirements are met;
- Any requirements with regards wildlife related planning conditions are met;
- All (ecological) monitoring requirements are completed; and
- All temporary fencing/ signage requirements are established as detailed within this EMMS.

3 GENERAL

3.1 Introduction

3.1.1 This Section of the EMMS details best practice or 'generic' mitigation measures that are applicable for all operations during the pre-construction and construction phases. These generic measures will be achieved through the successful implementation of the detailed measures outlined in the following Sections.

3.1.2 Tasks that could impact the ecological resource include, but are not necessarily limited to:

- Site clearance works and soil stripping (vegetation (e.g. trees, shrubs, grassland), building demolition, soil removal and handling);
- Site establishment (temporary contractors compound(s) and associated infrastructure, storage areas (including soil mounds), soil movement/ excavation, temporary lighting);
- Groundworks (site investigations, excavations, installation/ realignment/ connection of underground services and watercourses);
- Construction (dust, noise, vibration, traffic movements);
- Incidents (pollution (air, water and ground), erosion/ sediment run off (e.g. to watercourses); and
- Removal of temporary features post-construction.

3.2 Generic Mitigation Measures

3.2.1 Generic measures to mitigate potential impacts on ecological resources are as follows:

- where possible, the physical works would be designed to avoid or minimise impacts on features of ecological importance;
- where there is potential for impact on protected species, mitigation measures will be designed to ensure compliance with the law and licensing procedures;
- where possible, measures will be taken to minimise adverse impacts on other species;
- where possible, potential impacts will be avoided through seasonal timing of work, e.g. avoiding vegetation clearance and building demolition during the bird nesting season;
- through implementation of best practice in relation to construction sites, disturbance to wildlife will be minimised as much as possible. Routine construction site practices will be implemented to control dust, spillages, releases to watercourses, vibration and noise;
- a consultant ecologist will be retained prior to, for the duration of the construction phase, and the post-construction phase, to ensure the necessary delivery of all ecological mitigation measures outlined in the EMMS and as required by any protected species licence;
- compliance and site awareness will be ensured through the provision (by the retained consultant ecologist) of a toolbox talk to all site personnel as required as well as direct monitoring where necessary. Further to the initial toolbox talk its contents will be included within all subsequent site inductions. The consultant ecologist will supervise works as detailed in the following Sections/ protected species licence method statement and would be available to attend site should unforeseen ecological issues arise;
- compliance with the mitigation measures required by any protected species licence will be ensured through monitoring and auditing by the retained consultant ecologist; and

- pre-construction surveys should be undertaken to provide up-to-date data to inform mitigation measures if required.

3.2.2 The general advice contained in the Guidance for Pollution Prevention (GPP) leaflets² produced by SEPA, EA and the Environment and Heritage Service (Northern Ireland) will be adhered to where applicable, particularly the following:

- GPP1: Understanding Your Environmental Responsibilities - Good Environmental Practices.
- PPG6: Working at Construction and Demolition Sites.

² <https://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/>

4 HABITAT AND FLORA

4.1 Resource Status

- 4.1.1 The proposed development site (*Figure 1a*, Marches Ecology 2021) comprises two distinct areas. To the north it supports a small area (approximately 0.24 hectares) of unimproved neutral grassland with dense and scattered scrub particularly *Rubus fruticosus* agg. (Bramble). This habitat resource extends outside the proposed development site. To the south it comprises an area of amenity grassland with hard-standing, buildings/ built structures and a single mature tree/ associated small area of scrub; this is located within the existing James Jones Ltd facility. Individually the habitat resources are of no more than site value³, however, when considered as a whole the neutral grassland/ scrub habitat within the proposed development site/ adjacent land is considered to be of local value.
- 4.1.2 The proposed EMA (*Figure 1b*, Marches Ecology 2021) dominated by frequently mown semi-improved neutral grassland/ with unmanaged margins of neutral grassland. This resource is unlikely to be of any more than site value.
- 4.1.3 The locations of Smooth Tare (recorded from grassland adjacent to the proposed development site) and Pepper-saxifrage (recorded on the edge of the EMA) will not be directly impacted by the proposals.

4.2 Mitigation Measures

- 4.2.1 The proposal would result in the permanent loss of all the habitat within the proposed development site. Loss of the small area of neutral grassland and scrub is not considered likely to affect the overall integrity/ ecological value of adjacent/ retained habitats. As such no particular mitigation measures are proposed other than the avoidance/ best practice measures as detailed below.

Ecological Mitigation Area

- 4.2.2 The ecological mitigation area (EMA) is shown on *Figure 1*. This is remote from the proposed development site. It is located in the south-east corner of the James Jones & Sons Ltd landholding, approximately 160 m from the proposed development site. The use of this ex-situ location is deemed to be justified based on it including part of and/ or being adjacent to a corridor which has been allocated as part of the Wrexham Industrial Estate Strategic Ecological Network (WIESEN)⁴. The proposed EMA would enhance/ provide robustness to the effectiveness of this corridor at this location.
- 4.2.3 Although the EMA will be provided principally for the benefit of Great Crested Newts it will also benefit other valued ecological resources. The EMA will be subject to long-term management for the benefit of the valued ecological resources. Further detail with regards habitat to be retained/ created within the EMA is provided in the following Sections, particularly *Section 7 – Great Crested Newts*.

³ CIEEM (2018) recommends the use of geographical context as a frame of reference for identifying the importance (value) of ecological features. The frame of reference has the following categories: International/ European - National - Regional - Metropolitan/County/Vice-county/ other local-authority wide area - Local. Within this report Local is defined as relating to district or parish; less than local refers to features of value at a Site level.

⁴ As illustrated on Map 2 of the Wrexham LDP 2013-2028 available at http://wrexhamldp.wrexham.gov.uk/portal/ldp/dldp/local_development_plan

Temporary Protective Fencing

- 4.2.4 Prior to the start of construction or preparatory operations temporary protective fencing will be installed around the boundary of the proposed development site (see *Figure 1a* of Marches Ecology 2021). The fence is to be installed so as to avoid inadvertent disturbance of adjacent (retained) habitats to the proposed development site. This temporary protective fencing will be of a type that would halt the uncontrolled movement of any materials/ soils (e.g. heras). It is likely that it will be acceptable to limit this fencing to the northern part of the proposed development site where adjacent grassland/ scrub will require protection; the southern part of the site is within the existing James Jones Ltd facility.
- 4.2.5 The temporary protective fencing will be appropriately maintained throughout the construction period. It will be retained in-situ, and in an effective state of repair, for the duration of all the works. No work of any kind will be allowed within this (buffer) area (unless it is required as part of any licensed measures and would therefore be supervised by the consultant ecologist). A large, clearly visible sign will be attached to the top of this fence approximately every 10 - 20 m along its length facing into the site. These signs will measure at least 30 cm by 30 cm (as a minimum). The signs will take the format of normal construction site prohibition notices. The sign will state 'Ecology Area – Do Not Enter' or similar.
- 4.2.6 There will be no construction activities/ access by personnel/ lighting of fires/ use of machinery/ vehicles or storage of equipment/ materials/ tools/ chemicals on the opposite side of the fence to the construction site. Furthermore, no tools, machinery/ vehicles and equipment will be left within this area. Other materials and spoil, etc will not be stored outside the fenced area. The purpose of this fence and importance of not entering the fenced area will be reinforced through the toolbox talk. Should any work be deemed necessary outside the fenced area then the retained consultant ecologist will be contacted for advice and may need to supervise such work if necessary.
- 4.2.7 Additional temporary fencing may be required within the EMA itself to protect retained habitats from e.g. pond creation. This will be decided by the retained consultant ecologist on a case-by-case basis and may involve e.g. netlon fencing only as deemed necessary.
- 4.2.8 A suitably qualified ecologist will be consulted with regards the appropriate installation of all fencing and the ecologist will review its installation.

Biosecurity

- 4.2.9 A very small number of Ash saplings were recorded within the proposed development site and proposed EMA. Although no symptoms of 'Ash dieback' (caused by the fungus *Hymenoscyphus fraxineus*) were recorded, as a precautionary approach, basic biosecurity measures will be required particularly when undertaking initial vegetation clearance. Best practice guidance is available on the Natural Resources Wales website⁵.
- 4.2.10 A Biosecurity Risk Assessment and Method Statement will be provided as part of the Great Crested Newt licence application (see below). This document will consider potential risks to the local amphibian population as well as the spread of invasive non-native species and propose measures to minimise any perceived risks.

⁵ <https://naturalresources.wales/guidance-and-advice/business-sectors/forestry/tree-health-andbiosecurity/?lang=en>

4.3 Compensation Measures

Habitat Retention/ Creation

- 4.3.1 A new native species-rich hedge will be established around the edge of the development footprint (where it abuts the remainder of the grassland/ scrub resource). Any scrub or hedge planting should include shrubs that are of ideally locally native provenance but as a minimum certified British native origin.
- 4.3.2 The hedgerow should be planted as a staggered, double row with five or six plants per metre. The species composition will reflect hedges near to the proposed development site and include *Crataegus monogyna* (Hawthorn), *Prunus spinosa* (Blackthorn), *Corylus avellana* (Hazel), *Acer campestre* (Field-maple), *Ilex aquifolium* (Holly) and *Rosa canina* agg. (Dog-rose). This planting will utilise native species of certified British origin and local provenance (Local Seed Zone 304⁶). An appropriate mix might be: 50%: 20%: 10%: 10%: 5%: 5%. At the present time *Fraxinus excelsior* (Ash) should not be used.
- 4.3.3 The individual plants should 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 newts.
- 4.3.4 A suitably qualified ecologist will review any landscaping proposal/ planting schedule once available with their advice adopted as appropriate.
- 4.3.5 The young plants within the hedgerow should be cut back in the first year to approximately one-third of their height to promote bushy growth. Once the hedge has been planted it 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 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 October/ November.
- 4.3.6 A well established hedge will require trimming from about the sixth year. The hedge shape should be 1.8-2 m high and at least 1.8-2 m wide. Once established, the requirement for annual management should be reviewed. If possible, the top and side opposite to the development could be left uncut every other year. Otherwise cutting should be undertaken after January but before March.
- 4.3.7 Once established the hedge should be laid every 10-30 years between mid-November and early March. The best time to lay the hedge would be when stem growth reaches between 5-10 cm diameters at the base.
- 4.3.8 Habitat retention/ creation within the EMA is covered in the following Sections, in particular with regards Great Crested Newts and Birds. It is entirely possible that the creation of the EMA could allow the Pepper-saxifrage at this location to spread.

⁶ Hubert, J. & Cundall, E. (2006). *Choosing Provenance in Broadleaved Trees*. Forestry Commission, Edinburgh.

5 BADGER

5.1 Resource Status

- 5.1.1 No setts were recorded within the proposed development, proposed EMA, or immediately adjacent areas ((Marches Ecology 2021). Evidence, including footprints, caught guard hairs, two paths, a dung-pit, and occasional foraging was recorded from land immediately adjacent to the proposed development site in March 2021. Potential sett excavation opportunities are provided by dense Bramble scrub within the proposed development site, and scrub adjacent to the EMA. The unmanaged grassland within the proposed development site provides habitat of moderate potential value for Badger foraging, and the grassland within the proposed EMA is of moderate-high potential value.

5.2 Mitigation Measures

Watching Brief

- 5.2.1 Due the Badger activity recorded on the site, there remains the potential for a sett(s) to be obscured by the dense Bramble scrub vegetation within the proposed development site which is up to approx. 10 m deep. A pre-construction survey is not deemed likely to provide any additional information in the short-term, although if site clearance/ construction work is not implemented within 12 months of the final survey visits which are detailed within this report (June 2022) then the site will be re-surveyed by a suitably qualified ecologist to check for any setts.
- 5.2.2 However regardless of this, scrub clearance works will be supervised by an ecologist. This will encompass scrub being cleared with hand-tools only in a methodical manner from one edge of the scrub at a time. It should be cleared in narrow strips only with hand-/ visual searches being completed for setts as it progresses. Should a sett/ possible sett be located by the ecologist during this process, all clearance works will cease immediately. Further decisions will be made at that time with regards potential licencing requirements.

EMA – Pre-works Sett Check

- 5.2.3 As a precautionary approach a sett check will be conducted prior to the initiation of any habitat creation works within the EMA. This will focus on potential sett construction habitats within approximately 30 m of proposed works (including where outside the James Jones & Sons Ltd landholding). Again, further decisions will be made at that time with regards potential licencing requirements, however if micro-siting of works can be undertaken instead, this would be the preferable option.

Best Practice

- 5.2.4 Should the work include the excavation of deep holes or trenches, such features will be filled in over night or otherwise made safe by securely covering them or the provision of suitable ramps. The ramps can either be provided with a suitable piece of timber (e.g. scaffold planks are ideal) or the edge of the hole/ trench can be re-profiled in at least one location. The re-profiling will give a slope of around 45° or less. The plank will be placed in the excavation so that it is stable and provides a clear option for egress. This should allow any Badger that might become trapped in the excavation to escape.

5.2.5 All open ends of pipes (above approximately 150 mm diameter) or other materials (whether installed or stored) that Badgers may access must be securely capped/ plugged over night so as to prevent Badgers gaining access.

5.2.6 All liquids or other potentially harmful substances must be stored appropriately and securely. They will not be left uncovered and lids will be fastened.

Tool-box Talk/ On-going Requirements

5.2.7 The requirement and detail of these best-practice measures will be incorporated into the toolbox talk/ all site inductions. Excavator buckets, other plant, pipes, etc will all be checked by construction personnel at the start of each day for any trapped animals. All trenches/ deep holes, should any be excavated, will be inspected each morning by construction personnel to check whether any Badgers have become trapped overnight. Should a Badger become trapped in a trench it may attempt to dig itself into the side of the trench and form a temporary sett. Should a trapped Badger be encountered at any time the retained consultant ecologist will be contacted immediately for advice.

5.2.8 Should a sett/ large animal hole (or suspected sett) be found during construction the following measures will be enacted:

- All work within 30 m of the sett will immediately cease.
- The retained consultant ecologist will be contacted for advice. The consultant ecologist will need to attend site to confirm the status of the sett/ animal hole.
- The consultant ecologist will identify any further mitigation measures/ licensing that might be required including the installation of temporary protective fencing around the sett.
- Work will not re-commence in this area until the consultant ecologist has confirmed that it is safe to do so.

Fencing

5.2.9 There is currently no perceived conflict with temporary or permanent fencing and (known) Badger movements. However, as detailed in *Section 4.2* a suitably qualified ecologist will be consulted with regards the appropriate installation of all fencing and the ecologist will review its installation. Should new information result in any perceived conflicts with Badger movements these will be addressed as required, so that animals are not unnecessarily obstructed. Potential solutions include retaining gaps (at least 25 cm high) under permanent fencing where such fencing will bisect a Badger path, and/ or excavating a gap of appropriate height beneath temporary fence panels or raising the panel using four heras feet.

6 BATS

6.1 Resource Status

- 6.1.1 There are no trees that could provide potential roosting features located within the proposed development site or EMA (Marches Ecology 2021). Potential roosting features provided by adjacent trees are limited to a line of Poplars near the EMA (low potential) which will not be indirectly impacted. None of the built structures present within the proposed development site provide any more than negligible bat roost potential. The habitat within/ adjacent to the proposed development site provides a potential foraging/ commuting resource of moderate to high value.

6.2 Mitigation Measures

Best Practice - Lighting

- 6.2.1 Any external lighting at the proposed development site will follow guidance provided by The Bat Conservation Trust and Institution of Lighting Professionals (2018). The proposed retained/ adjacent habitat to the north and east of the proposed development site, will be kept as dark as possible, with ideally lighting adjacent to these areas avoided. There are no requirements for any additional external lighting near the EMA associated with the proposals.
- 6.2.2 Measures to avoid/ minimise light spillage should include:
- 'Warm white' LED lamps should be used.
 - All luminaires should lack UV elements when manufactured and have an upward light ratio of 0%.
 - All luminaires used will be fully directional (e.g. LED) and will point straight down to where the light is required. They will be mounted on the horizontal, *i.e.* no upward tilt.
 - Lighting that reduces vertical and horizontal light spillage will be used.
 - The number of poles/ bollards/ lamps installed will be kept to a minimum and will be as low (in height) as possible.
 - Low wattage lamps (<70W) will be used.
 - All external lighting will only be turned on when the area is in use wherever possible (and should be fitted with motion detectors, automatic timers and/ or dimmers).
 - Cowls/ hoods/ baffles or similar will be used where the light spillage is likely to cause an unacceptable light level increase in adjacent retained habitat.
- 6.2.3 The ecologist will review the external lighting specification and layout. Any required amendments to this specification and layout in order to minimise impacts adjacent/ retained habitat will be adopted.
- ### **6.3 Compensation**
- 6.3.1 The EMA will create an area of un-/ in-frequently managed grassland, and scrub, in an area of currently frequently managed grassland. The proposed scrub planting (*Figure 1*) seeks to enhance existing sheltered lines/ corridors/ bolster connectivity associated with the WIESEN. The EMA will also be enhanced by the creation of two new ponds. Further information on habitat creation/ enhancement is provided in *Section 7*. The proposals should enhance this corner of the James Jones Ltd land-holding for foraging/ commuting bats; the new/ enhanced habitat is likely to be of high potential value.
-

6.4 Enhancement

- 6.4.1 The proposed development presents an opportunity to increase potential roost features within the Site. The proposed development presents an opportunity to increase potential roost features: 2 no. pole-mounted bat-boxes will be installed within the EMA as an enhancement measure, as shown on *Figure 1*.
- 6.4.2 Each location will comprise 1 no. 4 m high wooden pole with 1 no. 'single crevice box' and 1 no. 'small hollow box' installed⁷ (i.e. 4 no. boxes in total). The 'single crevice box' is designed for small groups of crevice dwelling bats (e.g. Common Pipistrelle (*Pipistrellus pipistrellus*) and other small crevice-dwelling species. The 'small hollow box' is designed for small groups of bats who prefer a wider cavity, such as Brown Long-eared (*Plecotus auritus*), Noctules (*Nyctalus noctula*) and *Myotis* sp. These boxes are made from 'ecostyrocete'. This comprises used polystyrene, which is shredded and mixed with cement, then moulded to make an insulated and durable box.
- 6.4.3 These bat-boxes will be installed by or under the direction of a suitably qualified ecologist to ensure correct installation. Approximately 1m of the pole should be buried below ground/ concreted in as required. There should be no overhanging branches/ other vegetation and there should be direct and easy access to the entrances. Generally, the bat-boxes should be located in the darkest areas, away from artificial light sources.
- 6.4.4 The bat-boxes do not require annual maintenance as such, beyond checking they are in-situ and fit for purpose. This will be completed as part of an annual check of the EMA. No annual monitoring of use is proposed.
- 6.4.5 It is important to remember that once discovered, a bat roost is legally protected and must not be disturbed. If a bat roost is suspected to be present a suitably qualified bat consultant or the local bat group should be contacted if (maintenance) works to the boxes are required and/ or occupants might be disturbed. To discover whether a bat-box is being used they can be watched at dusk during the summer to see if any bats emerge or a search can be conducted beneath the box entrance for the characteristic crumbly bat droppings. Again, should it be necessary to inspect the bat-box an appropriately licensed individual may be required to undertake this work.

⁷ Supplier: <https://www.greenwoodsecohabitats.co.uk/shop>

7 GREAT CRESTED NEWTS

7.1 Resource Status

- 7.1.1 Marches Ecology (2021) outlines the results of a detailed survey, with three ponds within approximately 250 m of the proposed development site supporting breeding Great Crested Newts: Pond 1 (130 m away) with a maximum count of 4, Pond 7 (190 m), maximum count of 1, and Pond 2 (265 m), maximum count of 14. These equate to small/ small/ medium breeding populations (respectively) of Great Crested Newts (in accordance with English Nature (2001)). These ponds are also within 250 m of the EMA (Pond 7: 90 m, Pond 2: 120 m, and Pond 1: 200 m).
- 7.1.2 English Nature (2001) details that population estimate surveys '*may reveal from around 2% to 30% of the population*'. Although only 2 survey visits were completed to each pond, it is still considered a useful tool. As such populations supported by each pond may currently be in the region of between; 13 and 200 animals (Pond 1), 3 and 50 (Pond 7), and 46 and 700 (Pond 2).
- 7.1.3 A juvenile Great Crested Newt was recorded under a tin located just outside of the proposed development site during the reptile survey.
- 7.1.4 The habitat resources provided by the proposed development site frequently provide high quality potential terrestrial habitat for Great Crested Newts (for example unmanaged grassland and scrub) that is immediately linked to further high quality habitat. The amenity grassland resource is of negligible value, however there are features within this area which could be utilised by amphibians, for example an unmanaged scrub corner, a small debris pile, and the bases of buildings/ associated hard-standing (for example patio slabs).

7.2 Mitigation Measures

Licensed Translocation

- 7.2.1 Due to the small area of (albeit high quality) terrestrial habitat that will be impacted, distance from ponds, and there being likely no impacts on dispersal opportunities or fragmentation of habitats/ creation of barriers, the proposed development is unlikely to result in a significant impact on the local Great Crested Newt population (in the absence of mitigation measures). However, as there is a risk of disturbing/ killing individual Great Crested Newts during the proposed development, a 'development' licence will be required from Natural Resources Wales (NRW) in order for the scheme to legally proceed. Further detail on proposed mitigation/ compensation/ enhancement measures for Great Crested Newts will be provided in the licence application documents. Mitigation to be included within the licence application will be as follows:
- Subject to granting of the licence Great Crested Newts/ other amphibians will be translocated from the proposed development site prior to the commencement of development-related works.
 - The proposed development site will be fenced with temporary amphibian exclusion fencing and subsequently subject to a minimum trapping period of 30 days in suitable weather conditions. All amphibians would be transferred to a suitable receptor site (the location of the receptor site will be determined during the licence application stage). The proposed arrangement of the amphibian exclusion fencing will be included in the

licence application document, however an initial/ indicative arrangement is indicated on *Figure 2*.

- It is not deemed necessary to fence the EMA/ subject this area to the translocation, as physical habitat creation works will be of short duration and restricted to frequently mown grassland. Such works will be completed using Reasonable Avoidance Measures (RAMs), a RAMs Method Statement for which will be included in the licence application. This document will also cover any small-scale works undertaken outside the amphibian exclusion fence.
- The temporary amphibian fencing will be maintained throughout the construction phase to ensure that Great Crested Newts do not return to the proposed development site. The fencing will be removed following completion of the construction phase.
- Hand-/ destructive searches of particular features within the proposed development site will be undertaken during the translocation period. This will be combined with phased removal of vegetation as required.
- The design for the surface water drainage arrangement associated within the development site itself is not currently available, however it will be ensured that this will be amphibian-friendly. It will avoid the use of gulley-pots as far as is possible. The drainage scheme will be reviewed by the retained consultant ecologist. It will subsequently be discussed and agreed with Emma Broad (Ecologist, WCBC) as required and/ or be confirmed at the licence application stage. If gulley-pots are utilised they would be combined with a 'wildlife kerb' system⁸.
- A compliance audit will be implemented throughout the licensed scheme. Due to the small size of the proposal this will be an internal (Tier 2) audit. Appropriate Key Performance Indicators (KPIs) will be identified in the licence application.
- The licence application will incorporate a biosecurity risk assessment and method statement. Any measures required by the method statement will be implemented throughout the construction phase. This document will propose measures for minimising the risk of introducing/ spreading amphibian diseases in accordance with the ARG UK Advice Note 4⁹.
- A toolbox talk will be provided by the licensed ecologist to all site personnel prior to the start of any preparatory or construction works. This is likely to be a requirement of the NRW licence.

7.3 Compensation Measures

Ecological Mitigation Area

- 7.3.1 An ecological mitigation area (EMA) is to be provided, as indicated on *Figure 1* (also refer to *Section 4.2*). The EMA extends to approximately 0.34 hectares. The EMA will be retained and managed for the benefit of Great Crested Newts as well as other valued ecological resources. Whilst the EMA is not like-for-like in terms of surface area when compared with the habitat lost, the proposal does include for significant enhanced habitat provision.
- 7.3.2 The EMA will include areas of retained grassland but otherwise will be enhanced with the creation of two new ponds and associated amphibian hibernacula and planted diverse native scrub. A butterfly bank/ scrapes and also 2 no. bat boxes will also be provided. Once

⁸ e.g. <https://www.aco.co.uk/products/wildlife-kerb>

⁹ *Amphibian & Reptile Groups of the United Kingdom Advice Note 4 – Amphibian Disease Precautions: A guide for UK Fieldworkers*. Version 2, revised March 2017.

established the scrub will be subject to non-intervention. The grassland will partly be subject to minimal management and partly mown.

- 7.3.3 Long-term management of the EMA will be secured with an appropriate funding mechanism. This management would be undertaken by a suitable third-party nature conservation organisation with experience of managing such sites. It is understood that James Jones & Sons will engage the services of Wildbanks Conservation Ltd (<https://www.wildbanksconservation.com/>) in this regard; this will be confirmed within the licence application documents.
- 7.3.4 It is understood that long-term security of the EMA would be confirmed through a Unilateral Undertaking (s106 agreement) or similar legal agreement. James Jones & Sons Ltd (the Applicant) would retain ownership of this land. All development rights (to the EMA) would be relinquished by the landowner in perpetuity. Should the business/ property be sold at any time in the future the Applicant will be required to ensure that the new owner is aware of the requirements of maintaining the EMA and that they are subject to a new legal obligation to secure the ongoing management. This will be confirmed in the licence application documents.

Ponds

- 7.3.5 Two new ponds will be created towards the southwest corner of the EMA. The minimum size of these ponds would be 100 m² each and be up to 2 m deep; *Figure 3* provides an indicative design. The actual design of the ponds is likely to be determined by ground conditions and other practical factors. Due to the location of the ponds, they will not be linked to existing/ new surface water drainage systems or similar. As such, a facility will be maintained on the James Jones Ltd site whereby the ponds can be 'topped-up' with suitable quality water as required (for example if water levels drop during summer months/ after prolonged periods of low rainfall).
- 7.3.6 It is not currently proposed to line the ponds. However further to trial pits to test water infiltration rates/ retention, should the substrate prove unsuitable for retaining the water then this may become necessary. The water level/ depth profile in each pond will be monitored in the first two years to confirm whether the pond design achieves the desired depth profile. If required some re-sculpting of the pond edges and depths could be carried out in the second year.
- 7.3.7 It is not currently proposed to plant up the ponds with suitable aquatic/ emergent vegetation. It is deemed appropriate to allow vegetation to colonise naturally. This will be reviewed after two years and if necessary, at this time the pond will be planted. Artificial egg-laying strips (black plastic bin-liners cut into strips approximately 1 cm wide) will be provided in the new ponds for the first two years.

Scrub Planting

- 7.3.8 As this resource is largely being provided to off-set the loss of potential nesting (Bramble scrub) habitat for nesting birds, it is dealt with in *Section 9* below. Once established however this resource will provide valuable terrestrial habitat for foraging/ hibernating newts.

Hibernacula

- 7.3.9 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. 2 no. hibernacula will be

created using material from the proposed development site wherever possible (e.g. logs/ root-plates from shrubs/ trees to be removed, building rubble, along with material from the pond excavation works). A mixture of hardcore, brick rubble, logs, sleepers etc, and loose topsoil will be piled into a mound which will then be covered with a topsoil cap and, ideally, a turf covering. The lower margins of the mound should be exposed to facilitate access. The design can follow that provided in Langton, *et al.* (2001). They will measure at least 2 m length x 1 m width x 1m height, but can be significantly larger if required (for example to use pond excavation material).



Management of the EMA

- 7.3.10 The licence application documentation will include a Management Plan for the EMA. It will cover a 10-year period with a 5-year review mechanism. It is proposed that management of the EMA will be minimal. Detailed management prescriptions are not provided here but would broadly include the following:
- 50% of the grassland resource will be managed by a cut once a year (in July/ August), during hot, dry weather. The other 50% will be subject to scrub control (hand-cutting only) with the aim of this area developing a tussocky sward in the long-term.
 - No management of the planted scrub is proposed (further to successful establishment).
 - The ponds will be subject to long-term rotational clearance of silt/ vegetation. Clearance of marginal vegetation may be required every 2-4 years once they are established. Removal of silt may be required approximately every 15 years.
 - The bat-boxes (*Section 6*) will be checked annually to ensure they are present and fit for purpose.
 - The butterfly bank (*Section 9*) will be subject to vegetation management and maintenance of bare areas on a rotational basis.
 - Removal of litter.
- 7.3.11 It should be noted that some management prescriptions (e.g. rotational pond clearance) may require a separate application for a 'conservation' licence.

8 REPTILES

8.1 Resource Status

- 8.1.1 No reptiles were found during the presence/ absence survey of the proposed development site/ immediately adjacent land. All habitat creation works within the EMA will be located within regularly mown grassland of negligible value to reptiles.

8.2 Mitigation Measures

Watching Brief

- 8.2.1 As the risk to reptiles at the proposed development site is negligible a purely precautionary approach will be adopted. The licensed ecologist will maintain a watching brief during the implementation of mitigation measures for Great Crested Newts. Should any reptiles be found at this time it may be necessary to temporarily halt work whilst appropriate reptile mitigation/ avoidance measures are designed and implemented.
- 8.2.2 If no reptiles are found during the implementation of mitigation measures for Great Crested Newts it will not be necessary for site personnel to maintain a watching brief during the construction phase.

9 BIRDS

9.1 Resource Status

9.1.1 The proposed development site provides nesting opportunities for species of bird associated with trees/ dense scrub and possibly built structures (for example the features at *Target Notes 1a* and *1c* (*Figure 1a*, Marches Ecology 2021) provide some, albeit minimal, opportunities). A small number of Snipe (*Gallinago gallinago*) were flushed away on several occasions from the grassland within/ adjacent to the proposed development site at on one occasion; these would be using the grassland for wintering/ feeding purposes only.

9.1.2 The EMA does not provide any particular value for nesting birds, although the unmanaged edges could be used in places (where shrubs are dense enough).

9.2 Mitigation Measures

Pre-construction Check

9.2.1 The destruction of any bird nests that are in use is illegal. The simplest option to avoid issues arising from the presence of nesting birds is to schedule work that affects nesting habitat (e.g. clearance of trees/ scrub, demolition of buildings) outside the nesting period (March to August inclusive). Such work should seek to ensure that, as far as is possible, all areas within the footprint of the proposed development remain unattractive to breeding birds for the duration of the work.

9.2.2 Should any occupied nests be found during the construction phase, a buffer zone (determined on the basis of the species concerned and the location of the nest in the context of the surrounding vegetation, but no less than 5 m) would be retained until it can be ascertained that the chicks have left the nest. The buffer zone will be appropriately fenced and signed. In the event that such a nest is found all work would immediately cease in the area and the consultant ecologist would be contacted to provide advice. Work will only recommence when the consultant ecologist has confirmed any avoidance measures to be implemented.

9.2.3 If it is not possible to clear vegetation/ fell trees/ demolish buildings outside the nesting season all such areas should be checked by a suitably qualified ecologist prior to commencement of works. If any active nests are found at this time a buffer zone as detailed above would be provided.

9.3 Compensation Measures

Habitat Creation/ Retention

9.3.1 As detailed in *Sections 4* and *7* above, a new hedgerow is to be planted around part of the proposed development site, and two stands of species-rich native scrub are to be established in the EMA. This would, once established, at least partly offset the loss of Bramble scrub within the proposed development site.

Scrub Planting

- 9.3.2 The two areas of scrub within the EMA will be established (with locally native) species of value to birds. An appropriate mix is as follows (this is similar to the hedgerow mix as outlined in *Section 4* but with elements of shrubs tolerant of wetter conditions): Hawthorn, Blackthorn, Dog-rose, *Sambucus nigra* (Elder), *Salix caprea* (Goat Willow) and *Viburnum opulus* (Guelder-rose). The following approximate proportions would be appropriate respectively: 45%, 30%, 10%, 8%, 5% and 2%. Planting should reflect soil conditions, for example, Goat Willow will be planted in wetter areas. Shrubs of certified British origin and local provenance (Local Seed Zone 304¹⁰) should be used.
- 9.3.3 Individual plants will be notch planted during October to November using a T- or L-shaped notch following initial removal of the turf (if present). Each shrub/ tree should be protected with a (biodegradable/ plastic free) 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 newts. Bare-rooted forestry size transplants should be used and notch-planted employing a variable spacing (although a guide is 2 m spacing).
- 9.3.4 Once the shrubs have been planted an area of at least 1 m² around them should be kept weed-free. This will be achieved either through the use of mulch mats or the appropriate application of glyphosate-based herbicides during the growing season. This maintenance operation should be undertaken once a year for the first 3 years. This will also allow any plants that die to be replaced.
- 9.3.5 Once the scrub resource is successfully established, no long-term management is likely to be required, except with regards preventing its colonisation of areas of rough grassland (refer to *Section 7* above).

¹⁰ Hubert, J. & Cundall, E. (2006). *Choosing Provenance in Broadleaved Trees*. Forestry Commission, Edinburgh.

10 OTHER SPECIES

10.1 Resource Status

- 10.1.1 Marches Ecology (2021) notes that '*Further to dialogue with Emma Broad it is proposed for the EMA to be enhanced (where possible) for Skipper butterflies by the creation/ on-going management of suitable habitats (for example scraped areas of turf to create bare areas, and/ or a butterfly bank).*'

10.2 Enhancement Measures

- 10.2.1 *Figure 1* indicates the approximate location of a butterfly bank. The creation of this structure should follow guidance in the Butterfly Bank Factsheet, by Butterfly Conservation¹¹. It is assumed that it will be constructed at the same time as the ponds and associated hibernacula. It will be approximately 10 m long and in the long-term should aim to provide a varied micro-topography and a range of vegetation types/ habitat niches. It is possible that these banks may also be of value for amphibians as refugia/ hibernacula.
- 10.2.2 The bank should be approximately south facing and not shaded; it will be approximately 'C-shaped' to allow for varied aspects. Essentially the footprint of the bank is excavated with the turf, top soil and sub-soil being inverted, and with additional soil from adjacent areas being buried within the structure to increase the height. The top/ sides of the shaped bank is then covered with calcareous aggregate or rubble to approximately 5-10 cm depth, and the adjacent flat areas on either side to 10 cm (leaving e.g. 2 m bare soil in between).
- 10.2.3 Adjacent small areas can also be scraped to remove turf/ top soil and if possible laid with aggregate (mixed with soil) as well.
- 10.2.4 Further to the construction of the bank/ adjacent scrapes, these features will be assessed to by the retained consultant ecologist to determine if seeding/ plug planting is required. If so, this will utilise an appropriate seed mix/ suite of plug-plants (using seed/ plants of ideally local, but minimum British provenance). The Butterfly Bank Factsheet contains further advice on seed-mixes to use as does a leaflet provided by Butterfly Conservation with regards Grizzled Skipper¹². The retained consultant ecologist will determine if seeding/ planting is required and if so investigate a final proposed seed mix/ suite of plug plants, ascertain a suitable supplier and devise an appropriate schedule/ methodology for the chosen route. Alternatively, it may be concluded that the bank/ scrapes can be left to naturally colonise.
- 10.2.5 During the establishment period of the bank/ scrapes, vigorous weed growth will need to be prevented by either hand pulling or using the appropriate application of glyphosate-based herbicides during the growing season. Once established it may be necessary to cut the vegetation (half every other year) to maintain a species-rich resource and to discourage scrub. Management will focus on creating species-rich grassland with an abundance of spring nectar sources and suitable larval host-plants (mix dependant on if sowing/ plug planting was undertaken or if was to left to naturally colonise). Subsequent management will focus on long-term maintenance of this grassland resource to include provision of different sward heights and patches of bare ground. This should be combined with grassland

¹¹ <https://butterfly-conservation.org/sites/default/files/1.butterfly-bank-factsheet.pdf>

¹² <https://butterfly-conservation.org/sites/default/files/habitat-grizzled-skipper.pdf>

management for the wider EMA as detailed in *Section 7* above. In the long-term maintenance/ re-creation of bare patches is also likely to be required; this will be undertaken with hand-tools only.

11 MONITORING

11.1.1 The following monitoring is proposed:

- Great Crested Newt population monitoring.
- Site inspection.

11.1.2 The methodology for the Great Crested Newt monitoring will be discussed and agreed with Emma Broad in consultation with NRW. At present the following is suggested: Great Crested Newt population monitoring will consist of two visits per year (in mid-April to mid-May) in Years 2 and 5 (prior to review of the Management Plan), following the creation of the new ponds. Subsequent monitoring visits will be undertaken every three years. All Great Crested Newt surveys will be undertaken by a suitably experienced ecologist who retains an NRW 'disturbance' licence.

11.1.3 It may be necessary to increase the number of survey visits should fish or any invasive non-native species be recorded at any time. Specific monitoring of such species may be required with the results used to inform any relevant management actions.

11.1.4 Each survey visit will involve a torch survey unless other techniques (e.g. bottle-trapping) are deemed necessary to obtain robust count data. During these survey visits the presence of Great Crested Newt eggs will be recorded at each pond. The results will be uploaded on to the Wales GCN Monitoring Database.

11.1.5 A single site inspection (of the EMA) will be undertaken in May-August annually in suitable weather conditions. The purpose of this inspection would be to review the success of management undertaken and subjectively assess the condition of the created habitats/features/ valued ecological resources, as such it should be undertaken once grassland cutting works have been completed. Any requirements for changes to the management regime or remedial measures would be identified. No particular monitoring of any new potential (skipper) butterfly resource is suggested at the current time, although it may be appropriate in time to complete an additional inspection in suitable weather conditions during the flight period in May. If Dingy or Grizzled Skippers are recorded in subsequent years a specific monitoring visit may be proposed.

11.1.6 A brief annual report covering the results of these surveys/ site inspection and management undertaken in that year will be prepared and submitted for review by the WCBC ecologist in December 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 EMA is being managed in accordance with the approved Management Plan and that the proposed habitat creation has been successful. Compilation of the report may require records to be maintained throughout the year. The Management Plan will be reviewed every five years or as deemed appropriate. The new Management Plan would be submitted to WCBC and NRW.

12 REFERENCES

Bat Conservation Trust and Institution of Lighting Professionals (2018). *Guidance Note 08/18. Bats and Artificial Lighting in the UK. Bats and the Built Environment Series.*

CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester.

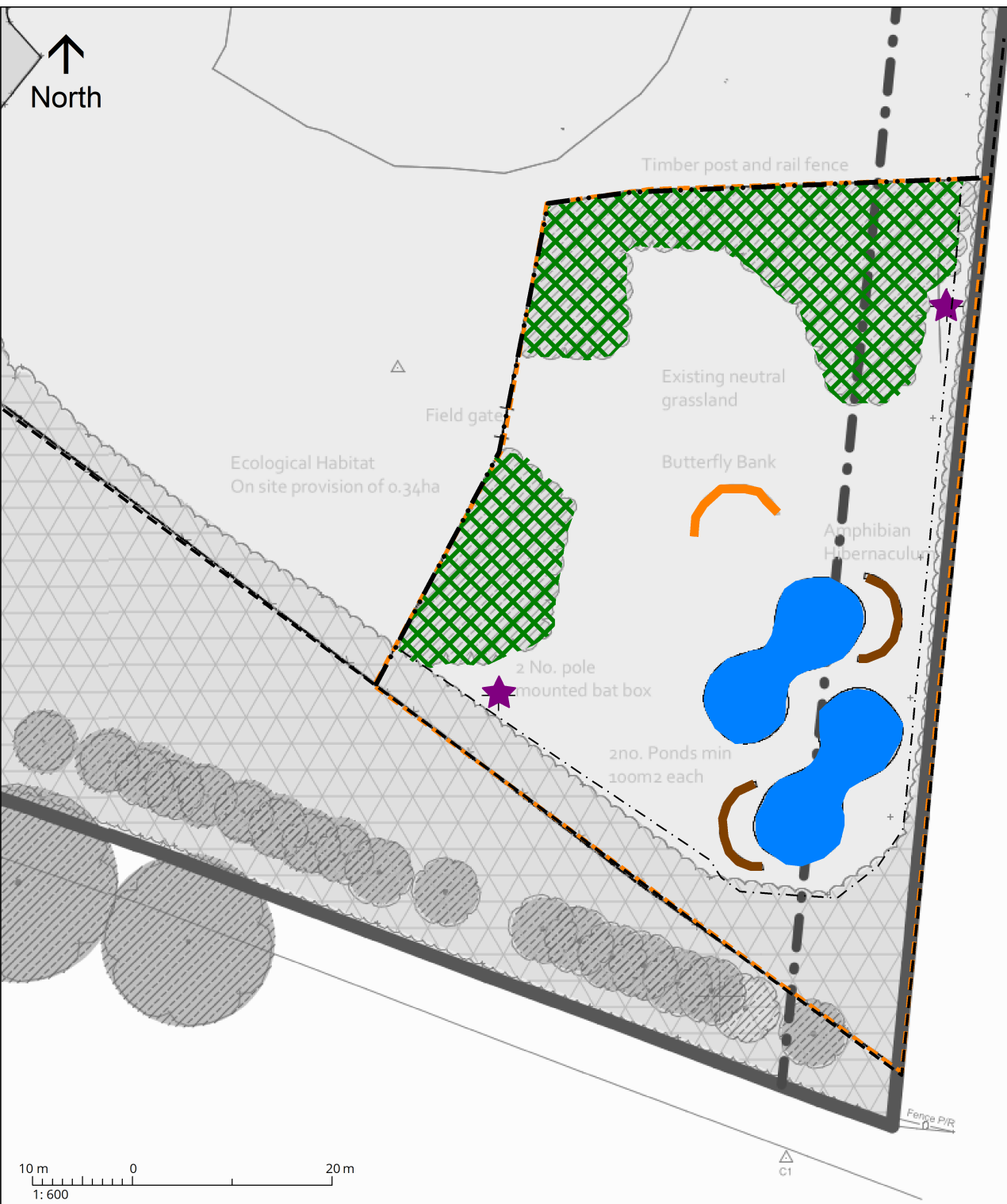
English Nature (2001). *Great Crested Newt Mitigation Guidelines – Version – August 2001.* English Nature, Peterborough.

Hubert, J. & Cundall, E. (2006). *Choosing Provenance in Broadleaved Trees.* Forestry Commission, Edinburgh.

Langton, T, Beckett, C. & Foster J. (2001). *Great Crested Newt Conservation Handbook.* Froglife, Halesworth.

Marches Ecology (2021). *Proposed Development at James Jones & Sons Ltd, Off Oak Road, Wrexham Industrial Estate, Wrexham – Ecological Appraisal.* Produced on behalf of James Jones & Sons (Pallets and Packaging) Ltd.

Williams, D. (2021). *Denbighshire (VC50) Rare Plant Register.* Third Edition. BSBI & Cofnod.



- Ecological Mitigation Area (EMA) boundary
- XXXX Proposed species-rich native scrub
Approx. 0.079 ha
- Proposed ponds (2 no.)
Minimum 100m2 each
- . - . Proposed timber post and rail fence
With field gate for future machine access as required.
- ★ Proposed pole-mounted bat box (2 no.)
- Proposed amphibian hibernacula (2 no.)
- Proposed butterfly bank
A small number of areas of scrapped/ bare ground to be created and maintained on/ in the immediate vicinity of the bank.
- - - - Existing 'boundary' between mown and unmown grassland
50% of grassland resource to be managed by a single annual cut. Remainder to be subject to scrub control only.
- Existing boundary fencing
To be retained

Note - mapping is for illustrative purposes only. No measurements should be taken from this plan.

C442 Proposed Development at James Jones & Sons Ltd, off Oak Road, Wrexham Industrial Estate, Wrexham - Ecological Mitigation Method Statement

Figure 1 - Ecological Mitigation Area

Date: 27/01/2022

marches ecology

www.marchesecology.co.uk



-  Indicative alignment of amphibian exclusion fence
-  Indicative alignment of internal amphibian fence
-  Indicative aco channel
To be installed on completion of translocation

Site Boundary

Fuel Store

Boiler Room

Dry Store

Development Boundary

Kilns

Note - mapping is for illustrative purposes only. No measurements should be taken from this plan.

C442 Proposed Development at James Jones & Sons Ltd, off Oak Road, Wrexham Industrial Estate, Wrexham - Ecological Mitigation Method Statement

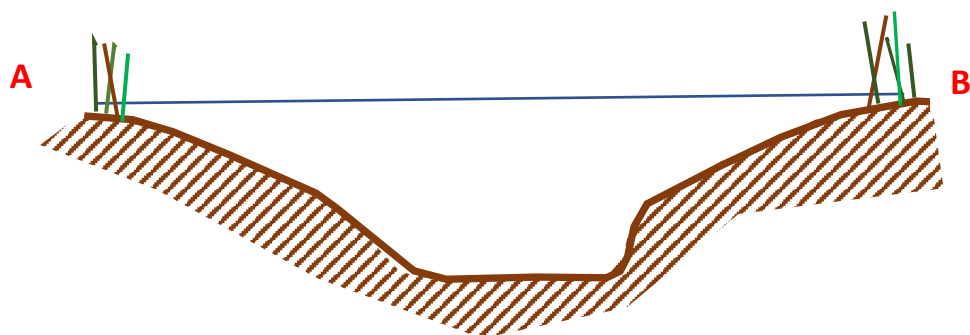
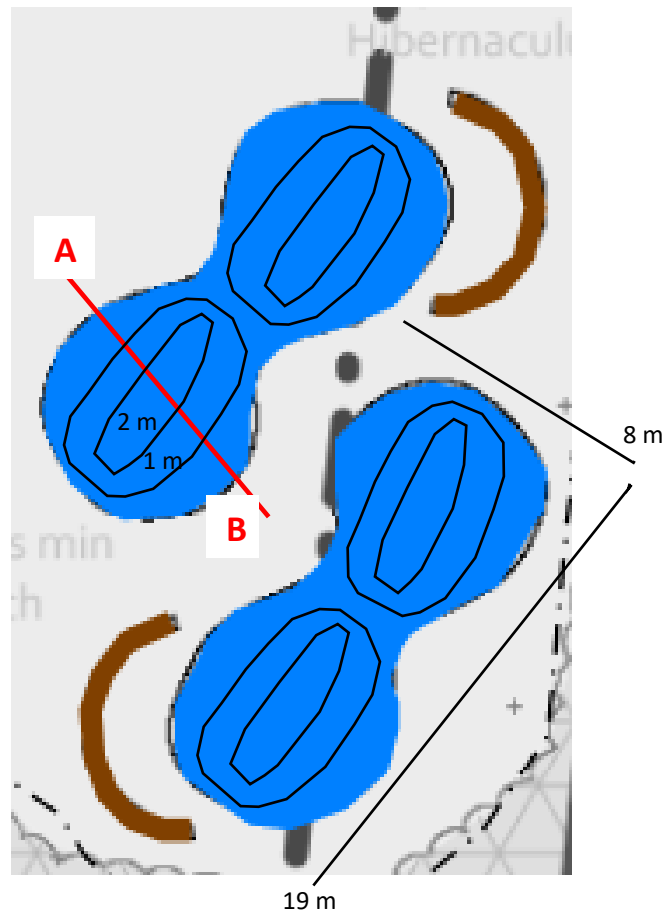
Figure 2 - Indicative Alignment of Amphibian Exclusion Fencing

Date: 27/01/2022

marches ecology

www.marchesecology.co.uk

10 m 0 20 m
1:600



Not to scale.

marches ecology

C442 Proposed Development at James Jones & Sons Ltd, off Oak Road, Wrexham Industrial Estate, Wrexham – Ecological Mitigation Method Statement

Figure 3 – Indicative Pond Design

Drawn by: ME
 Checked by: TK
 Date: 27.02.22