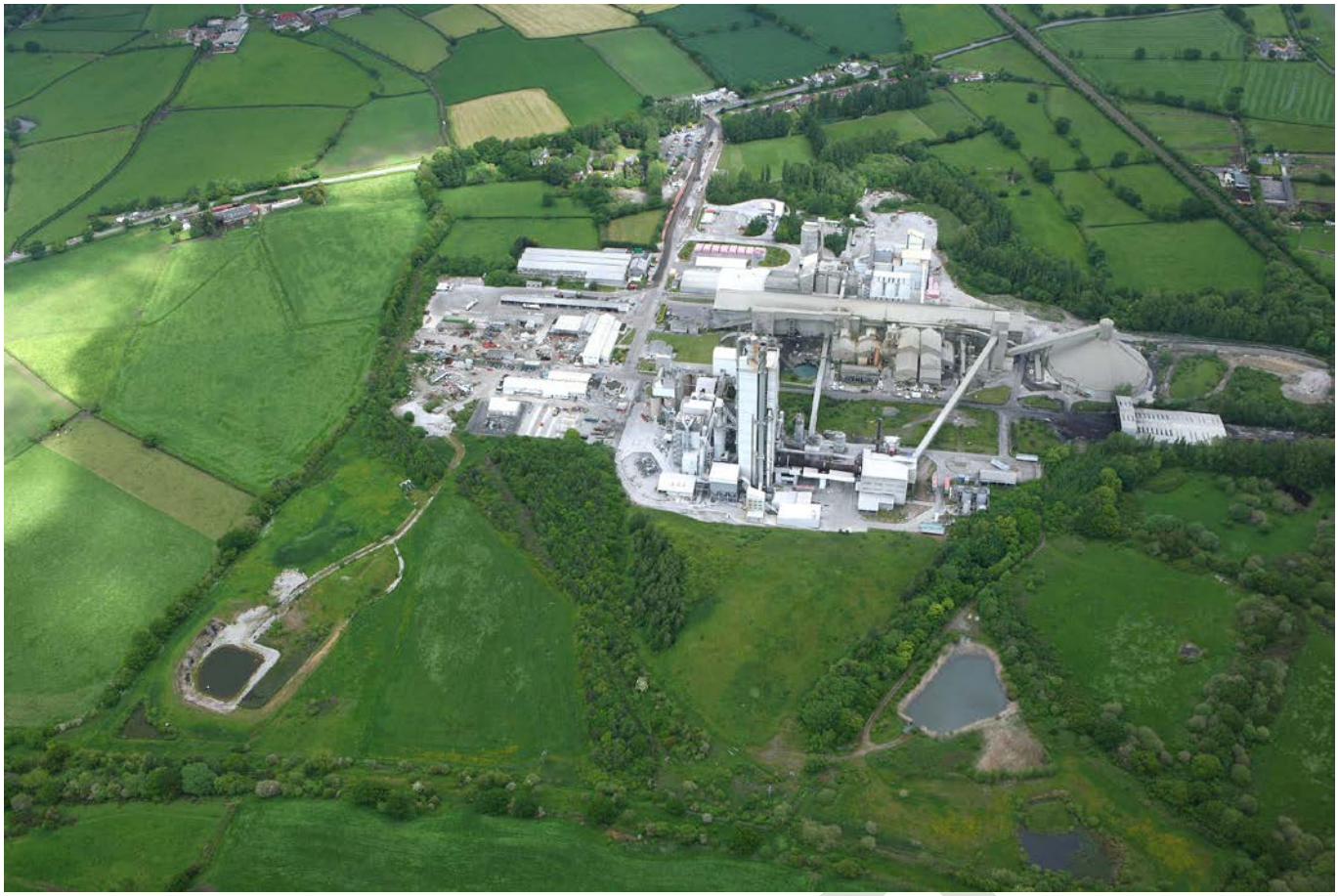

Castle Cement Limited

Carbon Capture and Storage Project – Padeswood, North Wales

Habitat Creation and Management Plan

663575

JUNE 2024

RSK biocensus
EXPERTS IN ECOLOGY

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1 INTRODUCTION

1.1 Purpose of the Report

1.1.1 This document has been prepared by RSK Biocensus to provide guidance for the creation of new habitats and long-term management of land at the Padeswood Cement Works, Flintshire, North Wales (Ordnance Survey Grid Reference: SJ 292 622), hereafter called the 'Site'.

1.1.2 The proposals for the Site are anticipated to result in the loss of two breeding ponds and c. 10.2 ha of suitable Great Crested Newt (GCN) (*Triturus cristatus*) terrestrial habitat including a mixture of, woodland, grassland, scrub and tall herb/ruderal vegetation, which without mitigation would result in a significant impact by permanently reducing the Site's capacity to support GCN during their breeding and terrestrial phases. Longer term it is likely that permanent loss of habitats would result in a localised negative impact upon the local GCN population.

1.1.3 This document provides a description of the ecological management and habitat creation, described as the Landscape and Biodiversity Mitigation Area, which is proposed for the Site. The Landscape and Biodiversity Mitigation area are the areas identified for Proposed Landscape and Habitat Enhancements as shown on the Landscape and Habitat Strategic Proposals submitted as part of this DNS application. The Landscape and Biodiversity Area includes the creation of four new ponds covering 9 hibernacula and 17 refugia, planting of mixed deciduous woodland and the enhancement of grassland which will total an area of 7.69ha to improve its value for great crested newt foraging, and wider biodiversity benefit. The created ponds will be situated close to existing hedgerows and lines of trees at the edge of existing semi-improved agricultural grassland fields, and within 250m of existing ponds known to support populations of great crested newts.

1.1.4 The scope of this habitat creation and management plan (HCMP) includes:

- Description and evaluation of the features present at the Site, as well as those to be created and managed in line with the GCN EPS licence method statement;
- Aims and objectives of management; and
- Appropriate management options for achieving aims and objectives.

1.2 Site Description and Ecological Context

1.2.1 Different areas and site boundaries are referred to in this report. A summary is given below but the Ecological Survey Area is outlined for each survey type in the relevant sections:

1.2.2 The Site is bordered by the A5118 road to the north, agricultural fields to the west and to the east and south by railway lines, although the railway line to the south is understood to be disused. These railway lines, bordered by scrub, trees and rough grassland, provide a habitat corridor linking the Site to the wider landscape, which is

predominantly agricultural with the residential areas of Buckley to the north west and Penymynydd to the east.

1.2.3 Both the area of the Proposed Development and the wider Site contain a variety of man-made and natural habitats including woodland, scrub, grassland, standing and running water, ditches and hedgerows. The central area of the Site is an active cement works dominated by areas of hardstanding, including access roads, parking areas, storage areas and numerous buildings and industrial structures, such as tanks and silos.

1.2.4 There are 22 designated sites within 10km of the Site, of which the closest and most significant to the development are considered to be the Deeside and Buckley Newt Sites Special Area of Conservation (SAC) and Buckley Claypits and Commons Site of Special Scientific Interest (SSSI). These sites are situated c. 1km from the boundary of the Site and 1.7km from the proposed works area. Due to their proximity and the scale of the development potential impacts upon these areas have been considered in greater depth in the Habitats Regulations Screening Assessment (RSK Biocensus, 2024).

1.3 Project Description

1.3.1 Castle Cement Limited (hereafter referred to as "the Applicant") proposes the construction of a new carbon capture and storage project.

1.3.2 The individual components of the Proposed Development can be summarised as follows:

- A Combined Heat and Power (CHP) plant with 15 MWe (minimum) and 83MW (minimum) thermal of installed capacity, to produce electricity and heat to power the carbon capture equipment;
- A Post Combustion Carbon Capture and Compression (PCCCC) plant, to extract CO_2 from waste gases and compress it for transport and storage; and
- Various temporary and permanent enabling development to support and facilitate the Proposed Development.

1.3.3 A full description of the Proposed Development's components is presented in **Volume 2, Chapter 2: Description of the Purpose and Nature of the Proposed Development, Table 2.1**.

1.3.4 Different areas and site boundaries are referred to in this HCMP, in line with those discussed within the EPS Development Licence – Great Crested Newt Method Statement (RSK Biocensus, 2024). A summary is given below and boundaries are outlined on **Figure 1**.

1.3.5 To facilitate the Proposed Development, vegetation clearance is required, clearing areas of suitable GCN terrestrial habitat across the Site, which amounts to a total area of 10.2 ha vegetation clearance, which will include the removal of woodland, grassland, scrub and ruderals.

2 BASELINE CONDITIONS

2.1 Great Crested Newts

eDNA and population survey results

2.1.1 GCN eDNA surveys and egg searches were first conducted across the Site in 2014 by URS (now AECOM) and included 11 different waterbodies. Of these, five returned positive eDNA results, with GCN eggs recorded in two. The combination of the two methods resulted in great crested newts being detected in P2, P5, P7, P8, P9 and P10. Ponds P1 and P4 were dry and so not surveyed and ponds P6 and P11 could not be sampled due to difficulties of safe access.

2.1.2 Standard GCN surveys including bottle trapping and torching methods were undertaken in 2016, comprising six visits and included two additional waterbodies to the initial URS surveys - (P6a) an area of reedbed and (P1a), a wetland area, both within the south of the Site. In spring 2016, standard survey methods (torching, bottle trapping and egg searching) were used to survey the ponds. The survey found that there was a Medium population present in and around the cluster P7, P8 and P9 in the north east; a Large population based in and around P1a, P2, P3, P5, P6 and P6a in the south east and a small population based in and around P10 and P11 in the south west. P1 and P4 remained dry. In total, of the 13 waterbodies visited in 2014 and 2016, 11 were positive for GCN.

2.1.3 Ongoing monitoring surveys are a condition of an existing GCN licence (S088466/2), which included an annual check of six visits comprising bottle trapping and torching, for the first three years (2018-2020). Subsequent checks from 2021 onwards were every three years, comprising three torching surveys each season.

2.1.4 In 2022 RSK Biocensus undertook an eDNA survey of a pond in the extreme south west of the Site which had not previously been surveyed (P12). The result of the eDNA survey was negative for GCN.

Interpretation of GCN survey results

2.1.5 GCN have been confirmed present within 11 waterbodies across the Site. Monitoring surveys have continued to show GCN presence on the Site with two metapopulations now noted, one in the north east (P7, P8 and P9) and one in the south (P1-P6 and P10-11).

2.1.6 The northeast waterbodies contain a medium metapopulation, whilst a small/medium metapopulation is present to the south. It is therefore considered likely that GCN will be present within habitats present across the Site, which are likely to be impacted by the development proposals. All waterbodies within the Site are located within suitable areas of GCN terrestrial habitat, with no significant barriers to movement between terrestrial habitats and aquatic breeding habitats.

2.1.7 The status of the populations present on-site is a function of the quality and connectedness of the aquatic and terrestrial habitat present within the Site. Whilst the Proposed Development will not result in the direct loss of any aquatic habitat, pre-construction and main construction work is likely to restrict and/or sever connectivity

to foraging, resting and breeding sites and as such has the potential to adversely impact local GCN populations.

Potential long term impacts

2.1.8 Aquatic and terrestrial GCN habitats within the Site will be removed. This would result in the loss of breeding, resting and foraging habitat, the clearance of which could kill and injure individual GCN. The proposal will involve the loss of suitable GCN habitat including ponds, woodland, scrub, hedgerows, ruderal, grassland.

2.1.9 In the absence of appropriate mitigation, the Proposed Development would likely result in a significant negative impact upon GCN locally, by reducing the Site's capacity to support GCN during their breeding and terrestrial phases. Based upon discussions with Natural Resources Wales, replacement of lost GCN habitat is to be on a like for like basis in terms of habitat type, with the expectation that created habitats within the Landscape and Biodiversity Mitigation Area will be of greater value for biodiversity than what was previously present on the Site. GCN breeding ponds will be replaced on a two-for-one basis.

3 LEGISLATION AND BIODIVERSITY ACTION PLANS

3.1.1 The main constraints at the Site relate to great crested newts, bats and badgers particularly with regard to clearance of suitable habitats to enable construction. This plan focuses specifically upon habitat creation and management specifically to benefit GCN within the northeastern area of the Site. The relevant legislation for all species which the Site has historically been surveyed for and specifically to the area under consideration is, however, included below for completeness. There are also local policies applicable to species and habitats. It is to this legislation and policy that the following HCMP has been designed.

3.2 Applicable Legislation

3.2.1 The legislation applicable to the species present, or potentially present, at the Site are summarised below, taking account specifically of those likely to potentially be encountered within the area under consideration.

Invasive Non-Native Plant Species

3.2.2 Under Schedule 9 of The Wildlife and Countryside Act (1981) (as amended)[1] and/or part 2 of the Invasive Alien Species (Enforcement and Permitting) Order 2019[2], It is an offence to cause the spread of any other plant or animal species listed under the orders into the wild.

Badger

3.2.3 Badger (*Meles meles*) is protected in Britain under the Protection of Badgers Act 1992[3] and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended)[4].

3.2.4 The legislation affords protection to badgers and badger setts, and makes it a criminal offence to:

- Wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so;
- Interfere with a sett by damaging or destroying it;
- To obstruct access to, or any entrance of, a badger sett; or
- To disturb a badger when it is occupying a sett.

[1] https://www.legislation.gov.uk/ukpga/1981/69

[2] https://www.legislation.gov.uk/uksi/2019/527/contents/made

[3] http://www.legislation.gov.uk/ukpga/1992/51/contents

[4] https://www.legislation.gov.uk/ukpga/1981/69

Bats

3.2.5 All species of British bat are protected by The Wildlife and Countryside Act 1981 (as amended)[5] extended by the Countryside and Rights of Way Act 2000 (the CRoW Act)[6]. This legislation makes it an offence to:

- Intentionally kill, injure or take a bat;
- Possess or control a bat;
- Intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- Intentionally or recklessly disturb a bat whilst is occupies a bat roost.

3.2.6 Bats are also European Protected Species listed on The Conservation of Species and Habitats Regulations 2017 (as amended)[7]. This legislation makes it an offence to:

- Deliberately capture, injure or kill a bat;
- Deliberately disturb a bat, including in particular any disturbance which is likely (a) to impair their ability - (i) to survive, to breed or reproduce, or to rear or nurture their young; or (ii) hibernate or migrate, where relevant; or (b) to affect significantly the local distribution or abundance of the species to which they belong.
- Damage or destroy a breeding site or resting place of a bat; and
- Possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

3.2.7 All bat roosting sites receive legal protection even when bats are not present.

Birds

Birds General Protection

3.2.8 All species of bird are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended)[8]. The protection was extended by the CRoW Act[9].

3.2.9 The legislation makes it an offence to intentionally:

- 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.

[5] https://www.legislation.gov.uk/ukpga/1981/69

[6] http://www.legislation.gov.uk/ukpga/2000/37/contents

[7] https://www.legislation.gov.uk/uksi/2017/1012/contents/made

[8] https://www.legislation.gov.uk/ukpga/1981/69

[9] http://www.legislation.gov.uk/ukpga/2000/37/contents

Birds (Specially Protected Species)

3.2.10 Certain species of bird are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)[10] and receive protection under Sections 1(4) and 1(5*)* of the Act. The protection was extended by the CRoW Act[11]. 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.

Common Reptiles

3.2.11 Common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica*), slow-worm (*Anguis fragilis*) and adder (*Vipera berus*) are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)[12], in respect of Section 9(5) and part of Section 9(1). This protection was extended by the CRoW Act[13].

3.2.12 Under the above legislation it is an offence to:

- Intentionally or deliberately kill or injure any individual of such a species; or
- Sell or attempt to sell any part of the species alive or dead.

Great Crested Newt

3.2.13 Great crested newt (*Triturus cristatus*) is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)[14], and receives full protection under *Section 9*. Great crested newts are also European Protected Species listed on The Conservation of Species and Habitats Regulations 2017 (as amended)[15]. This legislation makes it an offence to:

- Deliberately capture, injure or kill a great crested newt;
- Deliberately disturb a great crested newt (in such a way as to be likely to significantly affect, (i) the ability of a significant group of great crested newt to survive, breed or rear/nurture their young; and (ii) the local distribution or abundance of the species concerned);
- Deliberately take or destroys the eggs of such an animal;
- Damage or destroy a breeding site or resting place of a great crested newt; and
- Possess, control, transport, sell, exchange a great crested newt, or offer a great crested newt for sale or exchange.

[10] https://www.legislation.gov.uk/ukpga/1981/69

[11] http://www.legislation.gov.uk/ukpga/2000/37/contents

[12] https://www.legislation.gov.uk/ukpga/1981/69

[13] http://www.legislation.gov.uk/ukpga/2000/37/contents

[14] https://www.legislation.gov.uk/ukpga/1981/69

[15] https://www.legislation.gov.uk/uksi/2017/1012/contents/made

3.2.14 All resting and breeding places of great crested newts receive legal protection even when great crested newts are not present.

Invertebrates

3.2.15 23 UK invertebrate species are afforded varied levels of protection under the Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive)[16].

3.2.16 A further 66 invertebrate species are protected under Section 9 of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)[17]. Protection was extended by the CRoW Act[18].

3.2.17 Under this legislation, it is an offence (without a licence) to:

- Intentionally kill, injure, or take animals listed on Schedule 5 from the wild;
- Possess any of these wild animals (live or dead, including all stages: eggs, caterpillars, and pupae, as well as adults) or any part or derivative of them;
- Intentionally or recklessly damage, destroy or obstruct the places these animals use for shelter and protection or intentionally disturb them when they are using such places; and
- To trade in any of these wild animals (live or dead) or any part of them.

3.2.18 In addition, 36 UK invertebrate species are listed as a priority species in the UKBAP.

[16] https://eur-lex.europa.eu/eli/dir/2009/147/oj

[17] https://www.legislation.gov.uk/ukpga/1981/69

[18] http://www.legislation.gov.uk/ukpga/2000/37/contents

4 CONSTRUCTION MITIGATION

4.1.1 Following the grant of planning permission for the Proposed Development, construction activities will have impacts on the habitats and animal species present at the Site. Continued measures to mitigate these impacts will therefore be required to help ensure that ongoing development activities do not commit wildlife offences as stated in **Section 3.1**. The general principles of the proposed mitigation for each species are described below.

Reptiles

4.1.2 Aims and Objectives: *To mitigate against causing direct or indirect impacts to reptiles and to ensure that the development does not commit offences under legislation applicable to these species.*

4.1.3 It should be noted that no reptiles were recorded during surveys, and as such they are assumed absent from the Site. As a precautionary measure, phased vegetation clearance under ecological supervision, including destructive searches of suitable refugia and fingertip searches of suitable vegetation will safeguard low numbers of reptiles that commute onto the Site from the surrounding landscape.

Common nesting birds

4.1.4 Aims and Objectives: *To mitigate against causing direct or indirect impacts to common nesting birds and to ensure that the development does not commit offences under legislation applicable to these species.*

4.1.5 Should vegetation clearance of habitat suitable for nesting birds (eg. scrub or woodland) be required between March – August (inclusive), a suitably trained ecologist will observe possible nesting locations in areas where vegetation is to be removed or otherwise impacted by the works, to seek to identify any nesting bird behaviour. Vegetation will be systematically inspected, with a particular focus on any places where birds were observed, and looking for nesting material or other signs of an active nest (i.e. a nest with eggs or young, or adults in the process of nest-building or sitting in preparation for laying eggs).

4.1.6 If any active nest is found the ecologist will mark out a surrounding buffer zone of c.5 m (its width dependent on the bird species) within which no works can take place. Once any young have fledged and the nest is no longer in use, then works can

proceed in this location. Note that some nesting birds can lay a second clutch on a nest in one season.

4.1.7 Once the ecologist has declared the area free of nesting birds, then clearance should follow within 48-hours, beyond which rechecking is needed (as birds can quickly establish new nests or re-occupy old ones).

Barn owl and peregrine

4.1.8 Aims and Objectives: *To mitigate against causing indirect impacts to barn owl (Tyto alba) and peregrine (Falco peregrinus) and to ensure that the development does not reduce the viability of the Site for the species.*

4.1.9 The nest box underneath the footprint of the Proposed Development has been removed and a replacement erected in the south west of the Site, outside of the anticipated impact zone of the proposed works.

4.1.10 A pair of peregrine nest within the existing cement works. Due to the current baseline levels of disturbance it is expected the development will have no direct impacts on peregrines.

4.1.11 The neutral grassland proposed as part of habitat compensation will provide foraging habitat for barn owls in the wider area, and foraging habitat for peregrine prey species.

Great Crested Newts

4.1.12 Aims and Objectives: *To mitigate against causing direct or indirect impacts to great crested newts and to ensure that the development does not commit offences under legislation applicable to this protected species.*

4.1.13 Great crested newts are known to be present across the Site on the basis of previous survey findings. Therefore, the construction works pose a high risk to GCN and consequently will require a European Protected Species (EPS) mitigation licence. The accompanying licence method statement (RSK Biocensus, 2024) outlines in detail the measures to be put in place both pre-construction and during the main works to protect GCN from harm. A brief outline of the type of measures to be included within the method statement is provided below:

- Translocation of GCN by erection of temporary exclusion fencing around construction works areas within the Site, to allow trapping and movement of GCN to a safe area of the Site to the east, close to where the new ponds will have been created;
- Phased vegetation clearance under ecological supervision, including destructive searches of suitable refugia and fingertip searches of suitable vegetation;
- Habitat creation to provide new and enhanced areas of terrestrial habitat for GCN within the east of the Site, including the creation of four new ponds, four new areas of planted deciduous woodland and enhancement of semi-improved grassland currently used for livestock grazing.

4.1.14 The newly created ponds will be subject to monitoring to provide evidence of population size, surveys will be undertaken annually for the first three years beginning in spring 2026 and then every three years in accordance with the conditions discussed in **Section 6** of this HCMP.

Roosting, foraging and commuting bats

4.1.15 Aims and Objectives: *To mitigate against causing direct or indirect impacts to roosting, foraging and commuting bats and to ensure that the development does not commit offences under legislation applicable to this protected species.*

4.1.16 There are several strategies that can be used to reduce the impact of lighting on bats. Some options include;

- Strategic lighting placement;
- Use of shields and baffles on luminaires to limit light spill;
- Low level lighting;
- Use of passive infra-red to trigger lighting in some locations after a set time (e.g. only come on when required, and allowed to turn off if nobody is present); and
- Amending light spectrum or colour. Red lighting has been used previously under the belief bats are more tolerant towards it.

Badgers

4.1.17 Aims and Objectives: *To mitigate against causing direct or indirect impacts to badgers (Meles meles) and to ensure that the development does not commit offences under legislation applicable to this protected species.*

4.1.18 No badger setts were recorded on the Site during the survey. However, the Site provides a potential foraging resource and habitat for sett building for badgers.

4.1.19 Prior to the commencement of works, a suitably experienced ecologist will check all areas of the site for signs of badger activity or active setts. In the unlikely event an active badger sett is identified, works will temporarily stop and a suitable buffer (up to 30m) provided to avoid impacts or interference. Should impacts be unavoidable then a badger licence from Natural Resources Wales will be obtained before works would recommence.

4.1.20 At the end of each working day, mammal ramps or sloped sides will be provided to ensure any badgers that enter can safely escape of their own accord.

Pollution prevention measures

4.1.21 Pollution prevention measures to be implemented during construction will be detailed in a Construction Environmental Management Plan (CEMP).

5 HABITAT MANAGEMENT AND ENHANCEMENT

5.1.1 Management of ecological features and new habitat creation, together with habitat enhancement within the Landscape and Biodiversity Mitigation Area, will ensure that there is an improvement in habitat diversity and will increase the biodiversity value of the Site for protected species, particularly GCN.

5.1.2 The following section provides recommendations for the management of the proposed Landscape and Biodiversity Mitigation Area within the north east and north west areas of the Site.

5.1.3 The HCMP and objectives have been split by the areas of habitat known to be created and enhanced in line with the Landscape and Habitat Mitigation Strategic Proposal (Stephenson Halliday, 2024). Approximately 7.69ha of habitat will be created and enhanced and will include;

- Aquatic habitat will be created in the form of four new ponds;
- Broadleaved woodland will be created; and
- Semi-improved agricultural grassland will be enhanced.

5.1.4 Proposals for management in respect to each habitat can be found in **Section 5.2** below.

5.2 Habitat Management

Created ponds

5.2.1 Aims and Objectives: *To provide suitable aquatic breeding habitat for great crested newts, well linked to areas of good quality terrestrial habitat, suitable resting places and hibernacula.*

5.2.2 Four new ponds will be created in the northeastern area of the Site, with 9 hibernacula and 17 refugia, as shown on the Landscape and Habitat Mitigation Strategic Proposals (as provided in **Volume 4, Technical Appendix 9.4**).

5.2.3 Pond creation is proposed to be in line with the existing, approved Padeswood: Management Plan (AECOM, 2017) and Great Crested Newt Conservation Handbook (Langton et al. 2001)[19]:

- Chosen locations will be managed to minimise potential for GCN to be present. This is likely to require regular cutting short of vegetation (lower than 150mm) prior to pond construction;
- To minimise potential for impact on GCN, construction is ideally to be undertaken during winter when GCN are hibernating principally within scrub, woodland and hedgerows;

[19] https://www.froglife.org/wp-content/uploads/2013/06/GCN-Conservation-Handbook_compressed.pdf

- Where this is not possible (for example where ground conditions are not suitable) then construction will be undertaken during late spring when a high proportion of GCN will be in the existing ponds. To prevent incidental incursion of animals during construction and establishment, and to allow for a future translocation, an amphibian fence will be erected to enclose each pond and the new hibernacula and log piles; and
- The new pond is to be around 300m^2 with maximum depth of 2m but shelving sides to provide shallow areas for display. Overall design to follow the guidelines presented in the Great Crested Newt Conservation Handbook (Langton et al. 2001)[20].

5.2.4 Trial pits will be required to ascertain whether there is impermeable clay material to line the pond. Should none be present within the area, an artificial lining will be installed to ensure water within the ponds is retained.

- Arisings, brash and felled wood from site clearance and construction will be used to construct hibernacula close to the new ponds. Only soils/overburden arisings would be used to reinstate the ponds in the event that planning permission for the proposed development is not granted; and
- Plant material for the new ponds will be sourced from the existing ponds.

Woodland

5.2.5 Aims and Objectives: *To maintain created woodland habitats in a manner which provides suitable terrestrial habitat for great crested newts, creating opportunities for foraging, resting, and hibernation.*

5.2.6 Woodland creation is to take place in the north east and north west sections of the Landscape and Biodiversity Mitigation Area (as provided in **Volume 4, Technical Appendix 9.4**), in the vicinity of the existing ponds 7, 8 and 9 and the four new proposed mitigation ponds. These new woodland blocks referred to as woodlands A-E are shown on the Landscape and Habitat Mitigation Strategic Proposal (Stephenson Halliday, 2024). These woodland areas are to be subject to an ongoing management regime to increase their biodiversity value and their suitability for GCN. This plan will align these newly created habitats with those currently being managed on the Site as outlined in the 'Wildlife and Landscape Management Scheme' produced by DRaW UK Ltd (2018) and the 'Padeswood: Management Plan' set out by AECOM (2017).

5.2.7 GCN show a preference for deciduous woodland, with vegetated ground cover and significant amounts of available dead wood on the ground (Langton et al. 2001[21]). It will take time for newly planted woodland to mature sufficiently to be valuable for newts, in particular the development of suitable ground layer vegetation and litter layer, however following appropriate management practices during establishment will help to create the desired structural diversity.

5.2.8 The management prescriptions outlined below aim to create a structurally diverse woodland, with significant deadwood resource, which will support valuable populations of invertebrates including saproxylic (deadwood specialist) invertebrates.

[20] https://www.froglife.org/wp-content/uploads/2013/06/GCN-Conservation-Handbook_compressed.pdf

[21] https://www.froglife.org/wp-content/uploads/2013/06/GCN-Conservation-Handbook_compressed.pdf

This will help to enhance habitat value for GCN but will also benefit other amphibians, reptiles, birds and bats.

Management Prescriptions

5.2.9 Tree species planting composition and will follow that prescribed in Table 2 found in the 'Wildlife and Landscape Management Scheme' produced by DRaW UK Ltd (2018).

5.2.10 Planted trees will be inspected every 2 months during the first year following establishment (April-August) for signs of damage or disease. Following this a bi-annual check will be carried out during the growing season, between years 2 and 10. Trees which have failed will be replaced in the subsequent planting season November/December, to achieve an overall 90% survival rate.

5.2.11 All areas of woodland will be enhanced by the provision of dead wood piles for hibernating amphibians and invertebrates, utilising wood generated through vegetation clearance elsewhere on-site. These should ideally be located in shady positions, where they will not be dried excessively by sunlight and should take account of the need for future access to minimise disturbance.

5.2.12 During years 1-4 tree guards are to be checked annually and where necessary re-firmed with ties and guards adjusted or replaced if significantly damaged. On successful establishment, guards should be removed from year 4 or 5 as required and all arisings removed from site. Adjustment, replacement and removal of tree guards is to be carried out during winter November to February.

5.2.13 Control of weeds around planted trees will be carried out twice a year in April and August between years 1-5, until all plants are fully established. This may include the use of targeted glyphosate herbicide spot treatments although preferably by mechanical means. To provide initial weed suppression it is recommended that the base of all newly planted trees be surrounded with a deep mulch of deciduous bark woodchip (10cm deep) and extending out in a circle 1m from the stem. Woodchip used for mulching should be sourced from site where possible.

5.2.14 Areas of woodland will be allowed to grow into high canopy woodland with the selective removal of species such as Sycamore, which tends to outcompete other species and produces dense canopy shading. (bat roost assessments to be completed prior to activities such as tree removal and/or pruning).

5.2.15 A rotational coppicing and thinning regime will be carried out on a five year cycle dependent upon growth rates, with these activities accounting for 5% of total woodland area (within each woodland block) per rotation. The newly planted areas of woodland should be ready to coppice from years 7-10. Coppicing shall take place in winter (November to January), with arisings used to create deadwood habitat piles for GCN. Trees which are to be coppiced or thinned will be selected on the basis of their health and surrounding ground conditions, for example to reduce shading of developing areas of woodland ground flora.

5.2.16 The coppicing and thinning regime is to be reviewed after each five year cycle, with the need for further coppicing and thinning being determined by the rate of tree

growth within each of the woodland blocks, with future rotation lengths determined according to these findings.

5.2.17 Areas of bare ground on the woodland floor will be planted with a seed mix suitable for woodland habitats (Emorsgate Seeds EW1 Mix is suitable). Prior to this the earth will be lightly scarified to a depth of 10mm using only hand tools such as a rake. The seed will be sown in Spring. Sown areas will be monitored for establishment after a year and any areas where establishment of the seed is poor will be resown.

5.2.18 Until the canopy develops and begins to close and create greater shade, sown woodland mixtures exposed to high light levels should be managed as grassland, a mid-summer cut in July may be beneficial to help control growth of semi-shade species such as nettle and bramble to prevent these from becoming dominant (Emorsgate seeds, 2023[22]).

5.2.19 If monitoring here finds the colonisation of invasive non-native plant species in this area, e.g., Japanese Knotweed or Himalayan Balsam, these will be eradicated using an appropriate method immediately.

Grassland

5.2.20 Aims and Objectives: *To improve suitability of foraging habitat for great crested newts by encouraging greater invertebrate diversity and increasing available resting areas by improving grassland structure.*

5.2.21 Newts have been shown to favour terrestrial habitats which offer a well-developed litter layer, rough grassland with dense tussocks helps to provide both food and areas of shelter beneath tussocks. Rough grassland also favours several small mammal species in particular field vole (*Microtus agrestis*), the burrow networks of which can also be utilised by GCN for refuge (Langton et al. 2001[23]).

5.2.22 Grassland management for GCN particularly in the vicinity of breeding ponds should aim to provide a botanically diverse, invertebrate rich and structurally varied habitat whilst causing the minimum amount of disturbance to newts in the process.

5.2.23 The grassland areas to the north east of the Site have historically been used for livestock grazing, however it is proposed that these areas are to be enhanced to low nutrient rough grassland/ meadow to improve their suitability for GCN foraging in particular to support the establishment and use by GCN of the four new mitigation ponds.

5.2.24 Grazing may potentially still be used as part of the management regime for this land, however stocking density would need to be closely controlled to reduce the risk of overgrazing, which would adversely impact grassland structure. If livestock grazing is to remain as a management practice in these areas, ponds should fenced to limit the risk of excessive poaching of the banks, however fencing would need to allow

[22] https://wildseed.co.uk/wp-content/uploads/2023/05/2023-Seeds-Web-Catalogue.pdf

[23] https://www.froglife.org/wp-content/uploads/2013/06/GCN-Conservation-Handbook_compressed.pdf

sufficient space to permit access for vegetation management around the ponds.

Management Prescriptions

5.2.25 All grassland for enhancement to rough grassland should be subject to an annual 'hay cut'. The cut should take place in mid-late August and should be high; cutting to 150mm to reduce the potential risk of harming GCN that may be present within the sward.

5.2.26 Arisings should be raked and cleared to limit nutrient inputs. If suitable, hay may be taken off site and utilised by tenant farmers. Some cuttings may be used to create habitat piles along woodland and scrub edges and at the base of hedges.

5.2.27 Where possible and to ensure that at least some dense cover remains present throughout the year, a 10m wide margin of uncut vegetation should be maintained alongside hedges or any other field boundaries, including around at least some of the pond margins.

5.2.28 If monitoring here finds the colonisation of invasive non-native plant species in this area, e.g., Japanese Knotweed or Himalayan Balsam, these will be eradicated using an appropriate method immediately.

Other Habitat Enhancement Features

5.2.29 Aims and Objectives: *To improve the general suitability of the Site for birds and bats.*

5.2.30 Bird and bat boxes will also be installed in and attached to suitable retained trees.

Bat Box Installation

5.2.31 Boxes suitable for a range of bat species should be erected in groups of two on suitable mature trees. Placement should consider a range of aspects and conditions from west to east via a southern arc and must be 3m to 5m from the ground to prevent predation and human interference.

5.2.32 It is recommended that the following are installed:

- 5 boxes (Schwegler 2F) suitable for smaller crevice dwellers such as common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmeaus*), on retained trees; and
- 5 boxes (Schwegler 1FF) suitable for larger species such as noctule (*Nyctalus noctula*), on retained trees.

5.2.33 Bat boxes should be inspected every five years after installation for signs of significant damage or missing boxes. Bat boxes are generally low maintenance and do not require regular cleaning, they should not be opened unless done so by a suitably licenced ecologist.

Bird Box Installation

5.2.34 A variety of bird boxes will be installed on retained trees to provide additional nesting habitat for breeding birds. Open-fronted boxes will be erected at 2m height, and hole-

fronted boxes will be installed at 3m height. All boxes should be situated on a north to east aspect so as to avoid direct sunlight and overheating of boxes. They should be installed during the winter to give birds the opportunity to find them prior to the breeding season commencing.

5.2.35 It is recommended that the following bird boxes are installed:

- 5 open-fronted boxes (Schwegler 2H) on Hawthorn scrub and other smaller trees where they can be well hidden in vegetation, for use by robins and wrens;
- Two 26 mm hole-fronted bird boxes (Schwegler 1B) on five trees, not obscured by vegetation, for use by blue tit and great tit; and
- One 32 mm hole-fronted box (Schwegler 1B) on a retained tree, not obscured by vegetation, for use by great tits.

5.2.36 Bird boxes should be monitored annually for signs of significant damage or missing boxes. Bird boxes are generally low maintenance but will require cleaning-out outside of the breeding bird season (March and August inclusive) in order to reduce incidences of persistent diseases and parasites.

6 MONITORING

6.1.1 All habitats and enhancements for protected species will be monitored on an annual basis to make sure that they retain their maximum value for nature conservation, and to check that habitats are establishing themselves effectively.

6.1.2 The management prescriptions for the Landscape and Biodiversity Mitigation Area (as provided in **Volume 4, Technical Appendix 9.4**) should run for a period of 25 years, with monitoring results being used to inform amendments to the HCMP. A full review of the HCMP should be conducted at the end of rolling five-year management programmes, as well as the management report detailed in **Section 6.1.7**. A brief outline of the monitoring requirements for the habitat creation and GCN mitigation areas is given below.

6.1.3 Monitoring of the newly created ponds to provide evidence of colonisation and population size will be undertaken annually for the first three years, and subsequently every three years over a 25 year period, beginning in spring 2026. Standard population monitoring is to be undertaken, comprising six bottle trapping and torching surveys per season and habitat, which will be supported by habitat quality assessments using Habitat Suitability Index (HSI) scores. It should be noted that population monitoring of GCN will be subject to agreement with Natural Resources Wales and will be included as part of the new licence application.

6.1.4 Habitat monitoring for new planting (woodland and waterbodies) is to take place every two months during the first year following establishment (April - August). Following this, a bi-annual check will be completed during the growing season between years 2 and 10.

6.1.5 Habitat monitoring for enhanced habitat, primarily grassland is to take place bi-annually during the growing season between years 2 and 10. This data will be used to refine the management strategy, for example altering the cutting regime frequency and timings, or to inform alterations to management, for example the introduction of low intensity grazing.

6.1.6 The HCMP recommendations are for general guidance and are subject to change. Should a more effective management method or schedule become more appropriate for the habitat(s) in question, then the plan should be updated by an ecologist with the aim of facilitating an improvement in ecological value.

6.1.7 At the end of each 5 year period a management report will be submitted to Flintshire County Council setting out:

- The condition of the planting and habitats within the Landscape and Biodiversity Mitigation Area;
- All wildlife and landscape management operations undertaken during the previous 60 months:
- Recommendations for remedial works if required; and
- A details programme of works to be undertaken during the following 60 months.

6.1.8 Each review and management report will be coordinated and completed by a suitably qualified representative of Castle Cement Limited, with advice from specialist consultants where necessary.

6.1.9 The review will identify any changes to site conditions and circumstances, whether the management prescriptions are being met, and where identified changes are needed to existing management practices and timeframes.

7 SUMMARY

7.1.1 This Habitat Creation and Management Plan has been produced to provide guidance for the creation of new habitats and long-term management of land for a proposed development at the Padeswood Cement Works, Flintshire, North Wales.

7.1.2 The aims and objectives of management, along with appropriate management options for achieving these, have been stated.

7.1.3 A description of the ecological management and habitat creation proposed for the Site has been detailed, focussing on the areas within the north east and north west of the Site identified for GCN mitigation, including the creation of four new ponds with 9 hibernacula and 17 refugia, planting of mixed deciduous woodland and the enhancement of grassland to cover an area of 7.69ha to improve its value for GCN foraging.

7.1.4 Management prescriptions have been detailed for each habitat to ensure they retain maximum value. Regular monitoring of habitat will be employed to check that they are establishing themselves effectively fulfilling their role in nature conservation.

FIGURES

Figure 1 – Padeswood Phase 1 Habitat Plan

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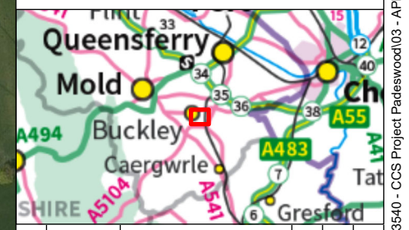
TN32 TN30 TN31 TN30 TN24 TN9 TN27 TN29 TN28 TN27 TN25 TN26 TN25 TN9 TN8 TN10 TN3 TN2 TN7 TN1 TN1 TN4 TN6 TN5 TN20 TN13 TN14 TN12 TN11 TN17 TN16 TN14 TN15 TN18 TN16 TN19 TN23 TN23 TN23 TN20 TN33 TN33 TN21 TN22 TN20 TN33

Legend:

- Site Boundary
- Works Area
- Refuse Tip

Phase 1 Habitats

- Amenity Grassland
- Broadleaved Plantation Woodland
- Building
- Dense Scrub
- Ephemeral Short Perrenial
- Hardstanding
- Improved Grassland
- Mixed Plantation Woodland
- Neutral Grassland
- Ornamental Scrub
- Poor Semi-Improved Grassland
- Private Properties
- Ruderals
- Semi-Improved Grassland
- Spoil
- Standing Water
- Fence
- Hedgerow With Trees
- Line of Broadleaved Trees
- Running Water
- Species Poor Intact Hedge
- Wet Ditch
- Target Notes



Rev	Date	Description	Drn	Chk	App
00	14/09/2022	2483540	TG	SP	SR

Padeswood Carbon Capture and Storage Project

RSK biocensus
EXPERTS IN ECOLOGY

TITLE: Habitat Creation and Management Plan, Figure 1: Phase 1 Habitats Survey Map

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Metres
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APPENDIX A MANAGEMENT SUMMARY

Management target	Management operation	Time of year	Frequency
Wildlife management			
Great crested newt	Pond establishment will be undertaken in accordance with the requirements of the new EPS licence. Ongoing monitoring and management prescriptions for great crested newts are expected to be covered in more detail in a GCN management plan required by the new EPS permit.	-	-
	Monitoring of the newly created ponds to provide evidence of colonisation and GCN population size.		Annually for the first 3 years, and subsequently every 3 years over a 25 year period, beginning in spring 2026.
Bats	Erection of bat boxes in existing woodland	Winter 2024/2025	One off operation 2024/2025
	Check and refix loose or damaged bat boxes	Winter	Every 5 years post-installation
Birds	Erection of bird boxes in existing woodland	Winter 2024/2025	One off operation 2024/2025
	Check and refix loose or damaged bird boxes	Winter	Every 5 years post-installation
Newly created woodland areas A-E	Inspection and replacement of failed planting	November/December	Every 2 months during the first year following establishment

Management target	Management operation	Time of year	Frequency
Wildlife management			
			(April-August) for signs of damage or disease. Following this a bi-annual check will be carried out during the growing season, between years 2 and 10.
	Repair and replace guards	November to February.	During years 1-4 tree guards are to be checked annually and. On successful establishment, guards should be removed from year 4 or 5.
	Weed control	Twice a year in April and August	Between years 1-5
	Coppicing and thinning	November to January	A rotational coppicing and thinning regime will be carried out on a 5 year cycle dependent upon growth rates. The newly planted areas of woodland should be ready to coppice from years 7-10.

Management target	Management operation	Time of year	Frequency
Wildlife management			
	Woodland seed mix planting and monitoring	Spring	Sown areas will be monitored for establishment after 1 year and any areas where establishment of the seed is poor will be resown.
Existing grassland enhancement	Annual 'hay cut'	Mid-late August	Every year