
Great Crested Newt Mitigation Strategy

FIVE FORDS GLASSHOUSES, WREXHAM

28th August 2020

SCALES Consultancy Ltd

Sarah Carver Amphibians Landscape Ecology Services

Balancing Ecology and Development

Client

Greenlight Environmental

SCALES CONSULTANCY LTD

Document	Five Fords Glasshouses Great Crested Newt Mitigation Strategy Report
Version	Draft 1 – 28 th August 2020
	Final –
Authors	Sarah Carver BSc (Hons) MSc, MCIEEM Natural England Licences Great Crested Newt licences - GCN Survey licence England 2015-16713-CLS-CLS GCN Survey licence Wales S085140/1
Reviewer	Sarah Carver

SCALES CONSULTANCY LTD Tan-y-Coed, Wrexham Road Pontblyddyn Mold Flintshire CH7 4HG Tel 07980 780879 sarahmariecarver@btinternet.com	SCALES Consultancy Ltd Sarah Carver Amphibians Landscape Ecology Services Balancing Ecology and Development
--	--

CONTENTS

- 1.0 INTRODUCTION**
- 2.0 GCN STATUS**
- 3.0 EVALUATION & POTENTIAL IMPACTS**
- 4.0 SPECIES PROTECTION & MITIGATION RECOMMENDATIONS**
- 5.0 HABITAT CREATION**
- 6.0 HABITAT MANAGEMENT AND MONITORING**

References

DRAWINGS

Five Fords Glasshouses Phase 1 Habitat Plan SC/FFG/001A dated July 16th 2020 illustrating the Locations and Numbering of Waterbodies

Five Fords Glasshouses Ecological Mitigation Site Layout Revised 26/08/20 SC/FFG/006 dated August 26th 2020

Five Fords Glasshouses Ecological Mitigation Sites Habitat Creation PSC/FFG/007 dated August 26th 2020

APPENDIX A - LEGISLATION & POLICY

1.0 INTRODUCTION

SCALES Consultancy Ltd designed a Great crested newt mitigation strategy further to recommendations presented by Greenlight Environmental in the Interim EclA 13th July 2020, Five Fords Sesswick Way for Low Carbon farming 2 Limited. This strategy has been devised in relation to a project involving the proposed development of glasshouses.

1.1 Site Context

The site is accessed of Sesswick Way, a busy road to the south of Wrexham Industrial Estate. The site centre is at NGR SJ3688847980.

1.2 Site Description

The site comprises a large arable field divided into two separate compartments separated by a track bordered by a hedgerow and public right of way. Surrounding the site are a number of woodlands including mature woodland, ponds, river, mature trees and hedgerows.

1.3 Evaluation

An evaluation of the significance of GCN within the ponds surrounding the proposed development was made in relation to potential impacts of the development on the species, ponds and terrestrial habitats.

1.4 Mitigation Strategy

A strategy has been designed to protect GCN and set out long term habitat provision, management and monitoring for their sustainable conservation.

2.0 GCN STATUS

2.1 Ponds

There are no ponds or waterbodies within the red line boundary. Although there are twenty six ponds within 250m of the red line boundary

Refer to **Table 1** for a summary of the status of the ponds surrounding the proposed development site.

Some of the ponds are mitigation ponds (2, 3, 4, 8, 9 & 14) constructed approximately 10 years ago as compensation for the construction of Sesswick Road. Ponds 3, 7, 20, 17, 18 & 19, are old. Ponds 22 and 23 were 'functional' lagoons within the Welsh Water Site with ponds 25 and 26 understood to be mitigation ponds within the Welsh Water site.

Table 1 – Pond Status Summary. See Habitat Drawing for Pond Locations

Pond	HSI Value	Pond Suitability for GCN	GCN Present 2020 eDNA result	GCN Present Historically (Cofnod records)
1	No Access	No Access	No Access	No records Identified
2	0.93	Excellent	Positive	Adults and Larvae between 2005-2015
3	0.83	Excellent	Positive	3 male in 2017
4	0.90	Excellent	Positive	Adults between 2017-2019
5	0.94	Excellent	Negative	Adults and larvae between 2014-2019
6	0.89	Excellent	Positive	Adults 2015
7	0.92	Excellent	Positive	Adults 2015
8	0.78	Good	Positive	Adults and larvae between 2014-2017
9	0.83	Excellent	Positive	Adults and larvae between 2014-2017
10 & 11	No Access	No Access	No Access	Adults, larvae and eggs in 2000 Adults between 2001 and 2009
12 Dry	No Access	No Access	No Access	Present 2000 Adults and eggs between 1999-2000
13	No Access	No Access	No Access	The following are possible records for Pond 13 or nearby. Possible Adults and larvae in 2014-2015 Possibly present in 2013
14	No Access	No Access	No Access	Adults and juveniles 2014-2017
15	No Access	No Access	No Access	Adults 2014-2015
16 Dry	-	-	-	-
17	0.92	Excellent	Positive	Male in 2017 Male and female 2000 and 2017
18	0.86	Excellent	Positive	The following are possible records for Pond 18 or nearby. Present 1992-2000
19	0.84	Excellent	Negative	Adults 2014-2015 and before 2003
20	0.90	Excellent	Negative	-
21	No Access	No Access	No Access	-
22	0.85	Excellent	Negative	Adult 2002
23	0.72	Good	Positive	-
24 Dry	-	-	-	-
25	0.59	Below Average	Positive	-
26	0.74	Good	Positive	-

Pond east of Bedfield Road on 250m buffer radius from development Grid Ref SJ3744247716	-	Not Assessed	Not Assessed	Adults, eggs, larvae – 30 records from 1999-2005
--	---	--------------	--------------	--

2.2 Legal Protection and Planning Status

Great Crested Newt (*Triturus cristatus*) is protected under Schedule 5 Section 9 of the Wildlife and Countryside Act 1981 (as amended) which was amended by the Countryside and Rights of Way Act 2000 (The CROW Act) further extending their protection. In addition, this species is protected under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 and are as such regarded as European Protected Species (EPS).

The legislation affords protection to all life stages of the Great Crested Newt, including eggs, larvae, juveniles and adults.

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

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

The 2017 Habitats Regulations PART 5 Licences states that

Regulation 55 – Subject to the provisions of the regulation a licensing body may grant a licence for the purpose as specified in paragraph 2 (e)

2(e)

‘preserving public health and safety or other reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment’.

Subsection (9) The relevant licensing body must not grant a licence under this regulation until they are satisfied –

- a) That there is no satisfactory alternative; and
- b) That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Favourable Conservation Status (FCS)

Favourable Conservation Status (FCS) of a species is defined by the British Standard ‘Biodiversity – Code of Practice for Planning and Development BS 42020 as when population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; the natural range of the species is not being reduced for the foreseeable future; and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The Great Crested Newt is a UK and Local Biodiversity Action Plan species for which objectives and targets to protect and restore newt habitats and create new sites through habitat management and re-creation are set. Section 41 in England and Section 42 in Wales of the Natural Environment and Rural Communities Act 2006 (NERC Act) provide lists of habitats and species of principal importance for the conservation of biological diversity. The Great Crested Newt is included on these lists. This requires local authorities to have due regard for the presence of this species in exercising their duties.

2.3 Great crested Newt Status at and around the Development Site

Wrexham is considered to be of national importance for Great crested newt. There are numerous records for great crested newt within 1km of the site and several for the individual ponds within 250m of the site. In addition, there is a terrestrial record from 2016 for a sub-adult on the southern edge of the track. It is considered that due to the proximity of the water-bodies to each other that there is a reasonable certainty of animal interchange between them and therefore a meta-population of great crested newts exists to the south of the site, possibly spread across two main population centres. There are also numerous records for common amphibians.

There were two additional ponds identified on the boundary of the 250 buffer zone but separated from the site by barriers. One was present to the south west of Pond 21 on the 250m buffer line border which was south of the A525 road and the other to the east of Pond 7 east of Bedfield Road at Grid Reference SJ37444771 which held records of GCN adults, eggs and larvae from 1999 - 2005.

The proposed development areas comprise the main agricultural fields and the temporary disturbance areas; one each to the north, centre and west (pipelines). The main arable field compartment to the east of the track will involve permanent habitat loss by construction of commercial scale glasshouses and reservoirs. The arable compartment to the west of the track and habitats in the north west will be retained with the exception of the construction of a reservoir.

The mosaic of terrestrial habitats across and around the site including mature woodland, grassland and tall ruderal vegetation and to a lesser extent the arable land, were considered suitable for great crested newts.

The reptile surveys undertaken in July and August 2020 found GCN to be present in the on the southern field margin of the northern arable maize field, in the south west on the arable barley field margin and on the mid-east of the arable maize field margin.

3.0 EVALUATION & POTENTIAL IMPACTS

3.1 Great Crested Newt Status of Habitats

No ponds will be directly affected by the development proposals.

The total permanent land losses are predicted to be 21.74ha with 1.948ha of land temporarily disturbed and reinstated. The land to be lost is recently disturbed arable land in regular agricultural use. A remnant section of species poor hedgerow and two mature oak trees will also be lost to development.

The majority of the proposed development area is likely to constitute sub-optimal terrestrial habitat for GCN with, however, some good quality corridors of dispersal. The arable compartments are less favourable than grassland, hedgerows and woodland. The peripheral margins and the grassy track dividing the arable compartments could provide habitat linkages and foraging opportunities.

In terms of its suitability as terrestrial habitat for GCN, although it is accepted that intensively managed arable land is not a barrier to dispersal, it can regulate migration and dispersal, (Great crested newt conservation handbook NE, 2001). The arable field itself when in intensive use and depending upon the crops sown, offers little opportunities for refuge (daytime, summer or winter), few foraging opportunities and some dispersal though limited. The field margins and hedgerows do however provide habitat linkages and corridors.

Two areas of temporary disturbance for the purposes of pipeline installation will be affected. These are 1.95ha in total. They are situated to the west in primary core habitat <50m from known GCN ponds and more distantly to the north approximately 450m from GCN ponds; most of which is in primary habitat and a proportion of which is in more distant sub-optimal habitat and a grassland track (0.319ha) and footpath in the centre. These primary good quality GCN habitats are classified as such because they comprise grassland, scrub and tall ruderal vegetation. Those classified as sub-optimal comprise arable intensively managed farmland.

Both the 2020 eDNA results and the historic Cofnod records show that a GCN population or populations exist to south, south east and south west of the proposed development site. The habitats within the landscape are likely to facilitate good interchange between the ponds and general dispersal where continuity exists and where no major barriers are present. Ponds that do not currently support GCN could feasibly do so in the future based on the results of the H.S.I. Assessment.

Some of the ponds to the south east of the development were constructed in 2010 as part of the mitigation and compensation measures for the development of Sesswick Road and are under monitoring and management for the purposes for great crested newt conservation.

3.2 GCN Status

The current full population status of GCN in ponds around the site is not known. The GCN status in Wrexham is accepted to be of National Importance and of European Importance within North East Wales.

3.3 Predicting Impacts of the development on the GCN population status

Impacts have been assessed below in accordance with guidance set out in section 6 of the Great Crested Newt Mitigation Guidelines EN 2001: -

3.3.1 Pre and mid development short term impacts

There is perceived to be a general increased disturbance to habitats and species during the construction period. Site clearance, regrading, drainage work and degradation of habitats are likely to be the main effects. There is the potential for killing, injuring or disturbing GCN.

3.3.2 Long-term impacts

Permanent loss and modification of terrestrial habitat, comprising foraging, refuge/hibernation and dispersal routes is considered to be the primary impacts. Even when ponds are unaffected directly, GCN populations can become less viable through terrestrial habitat loss and fragmentation and isolation.

Other impacts could be deemed as alteration in runoff volumes and water chemistry, changes to water quality, alteration in other amphibian and invertebrate assemblage and effects relating to biosecurity.

3.3.3 Post-development interference impacts

Alteration in lighting, hydrology and traffic and noise could be considered as potential impacts.

3.3.4 Cumulative Influences

Cumulative influences on existing ponds must be considered and assessed in the context. These include past, present and future potential developments, for example both the construction of Sesswick Way Road, developments at Welsh Water and the proposed new glasshouse development.

3.3.5 Positive Impacts

Positive impacts that have been identified include increased dispersal opportunities for newts from the south to the new mitigation site in the north. This could lead to a higher more viable metapopulation less prone to future threats. Furthermore, the long term management of a site designed for the benefits of GCN is considered to have more conservation and biodiversity value than that of a large intensively farmed arable compartment.

3.4 Current Conservation Status and Determining Impacts

In order to achieve long term FCS, Current Conservation Status must be assessed. Some work assessing population changes in ponds to the south and south east of the proposed development by Middlemarch as part of the Sesswick Road development has already been undertaken.

The Spatial Action Plan for Great Crested Newts in Wrexham Report Number 77 Natural Resources Wales Modelling NRW March 2017 is a Manual for Achieving Favourable Conservation Status. It provides a strategy for setting out how to achieve the greatest conservation benefit for great crested newts.

The Spatial Action Plan report sets out scoring methodology that can be used to determine the Current Conservation Status (CCS) of great crested newts at a single pond or a series of ponds and predictive modelling techniques to determine FCS for the county of Wrexham.

It uses a number of attributes and considers for assessment both positive and negative factors in relation to site protection and surrounding land use, pollution risk, human disturbance, natural succession, environmental change. The scores are derived from assessing population size, pond density, habitat quality and prospects to the pond persisting.

The distribution of pond quality across the whole population must be considered.

In accordance with the Spatial Plan, *'the impact of a project upon a great crested newt population can be assessed as the predicted change in CCS as a result of the activity'*.

In accordance with the Spatial Plan the following methodology must be adopted to assess an impact of a development:-

- ‘1. The total CCS for the population should be calculated in absence of the proposed activity. This is calculated as detailed in Chapter 5 where each pond comprising the population is scored in terms of its population size, HSI score and number of ponds within the vicinity. The total CCS can be used to establish a baseline metric for assessing the population prior to the activity. Individual pond scores should be assessed to see if the population is in a favourable conservation status.*
- 2. The CCS should be calculated for the population after the proposed activity, in the absence of any mitigation.*
- 3. The difference between the total CCS before and after should be calculated in order to quantify the loss of conservation status.*
- 4. Individual pond scores should be used to assess whether the population is favourable after the activity. An accurate impact assessment relies on being able to accurately predict CCS after the activity. Some aspects of this are relatively straightforward, whereas others are more difficult’.*

The Spatial Plan states that ...

‘The CCS of a species is considered to be the sum of all elements of its biological condition and all influences acting upon it, and can be described by the status of its:

- range/area of occupancy within the range*
- viability and abundance of populations*
- amount of habitat*
- future prospects*

The conservation status of a species can be considered favourable when the species is prospering (in both quality and extent/ population) and with good prospects to do so in the future (Evans & Arvela 2011)’.

Table 7.2 in The Spatial Action Plan provides advice for predicting the impacts of development on pond HSI scores.

The Spatial Action Plan maintains that the primary objective of great crested newt mitigation is to maintain the conservation status of great crested newts in the long term and as such it must ensure that in the very least there is no long-term loss. Because successful mitigation cannot be guaranteed, it upholds the provision of additional resources as an ‘insurance’ mechanism to increase the chance of success. It specifies that

‘the mitigation targets should be proportional to the value of the population (i.e. the contribution of the population to overall FCS) and the severity of the predicted impact’.

The Spatial Plan goes on to say that

‘The likely effectiveness of a mitigation scheme can be assessed using the same method as the impact assessment. Once the mitigation has been designed, the predicted total and relative CCS for the affected population post mitigation can be calculated and compared to that prior to the development. The aims of any mitigation scheme should be:

- 1. To ensure that there is no net loss in CCS as a result of the development*
- 2. To maintain affected populations at FCS*

3. *Dependent on the level of impact, to enhance the CCS of affected populations. For high impact schemes (any project involving the loss of ponds or core terrestrial habitat) the mitigation should aim to increase the total CCS by at least 1.3x the pre- development level, and ensure all affected populations are at FCS, regardless of their CCS before the development. For a moderate impact project, the mitigation should aim to increase the CCS of the affected populations. For low impact schemes, the CCS is not predicted to decline as a result of the development and therefore the mitigation will be would be focussed on the protection of individual animals in order to ensure legal compliance’.*

3.5 Impacts of the development on the GCN population status in relation to CCS

On balance, based on **predicting Impacts of the development on the GCN population status** above, the impact is assessed to be **Moderate-High** with no loss of aquatic habitat and the majority of the habitat lost considered sub-optimal. Some loss of **primary core habitat** is acknowledged and the close proximity of the development is noted in relation to the ‘Sesswick Way’ Road existing mitigation ponds. Intermediate and distant losses of poorer quality newt habitat are also envisaged. Temporary disturbance of good quality habitat followed by reinstatement are likely to exert impacts.

The CCS and the FCS of the affected GCN population to the south east of the proposed development has been taken into account and used to determine the requirements of the new habitat creation. The overall aim is to significantly increase the CSS and ensure high quality habitat creation, management and monitoring by a third party or specialist body.

3.5 Proposed Targets

In order to achieve, maintain and measure FCS, targets are set out in the following section 4.

4.0 SPECIES PROTECTION & MITIGATION RECOMMENDATIONS

4.1 General Principles

The main impacts requiring mitigation are considered to be the loss of terrestrial habitat along with interference in habitat connectivity. Other influences include temporary disturbance and reinstatement of terrestrial habitat, general disturbance effects, road layout and installation of drainage and engineering features, noise, lighting, changes in runoff and water quality affecting existing ponds.

4.2 Key Principles of mitigation

Principles of mitigation have been assessed below in accordance with guidance set out in section 7 of the Great Crested Newt Mitigation Guidelines EN 2001: -

It is recognised by the Great Crested Newt Mitigation Guidelines EN 2001 that there are two main elements –

1. **Mitigation** which is defined as practises to reduce or remove damage by for example altering the layout of the proposed development, or capturing newts to avoid killing.
2. **Compensation** which is offsetting the damage caused by the development by creation and management of new habitat and newt population.

The primary aim being to ensure that there is no detriment to conservation status of GCN. In addition, the conservation of common amphibians ought to be promoted.

The level of mitigation required is said by the Great Crested Newt Mitigation Guidelines EN 2001 to '*depend on the size and type of impact, and the importance of the population affected*'.

A full population assessment has not been undertaken within ponds surrounding the proposed development, but the ponds to the south are accepted in the very least as supporting or capable of supporting a breeding population and should be evaluated in the very least, collectively as large size class and of **European Importance**. Based on using section 5.8.5 of NE GCN Mitigation Guidelines, 'Site Status Assessment' it would qualify as of **High Importance** in terms of **quantitative assessment** in accordance with Natural England (NE) guidance. **Qualitatively**, it is categorised as of **moderate importance** because although breeding is occurring, habitats are common in the county of Wrexham and the locality of North East Wales. **Functionally**, because there is dispersal to and from other nearby populations and the site plays an important role for nearby populations, this would qualify it as of **major importance**. From a **contextual** view point, the population is not fully assessed but is thought to be either typical of that in the local area and so of **moderate importance**.

4.3 Mitigation Approach

The development would need to meet the three tests in the European Protected Species licensing process (EPSL) which includes demonstrating that there are reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment, providing evidence of no other satisfactory alternative to the development and that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range. Furthermore, the provision of the suitable compensation areas of habitat to replace that lost to development would need to be approved. NRW have advised that there is a policy of needing to provide an equivalent compensation area to that of the size of area lost to development. The provision of habitat could be achieved on site, off site but close to the site or based on a combination of both which is the chosen approach in this case.

Compensation site safeguarding will be secured in addition to long term sustainable management and monitoring implemented for a period of circa 25 years to the satisfaction of Wrexham Borough Council and Natural Resource Wales.

Mechanisms will be adopted to ensure long term secure management such as transfer of land and/or resources to an appropriate independent entity on a management agreement basis for example.

The proposals will require a European Protected Species Licence from Natural Resources Wales to legally permit the development. The impact to great crested newts has however been greatly reduced by amending the development proposals and retaining and providing as much habitat as possible. Attempts have been made to achieve this with the reduction of reservoir provision and designation of areas to the east and south as newt mitigation habitat.

Appropriate levels of mitigation and compensation would include:

- The trapping and translocation of GCN and all amphibians/reptiles with a post-translocation management and monitoring period of 25 years with the mitigation sites managed and monitored by an appropriate organisation.

Suitable receptor sites have been identified to the north west and south and east of the proposed development and trapping and translocation would take place between March and October. Receptor Mitigation Site creation will be undertaken in advance of trapping and release of GCN in order to ensure that the habitats are in a suitable condition to support them.

The GCN status in Wrexham is accepted to be of National Importance and of European Importance within North East Wales.

- The minimum number of trapping nights for a small population is 30 days, increasing to 60 for a medium population and 90 days for a large population (NE, 2001) and therefore the proposed trapping regime will consist of 60 days with increased effort in areas of primary habitat such as field margins, grassland and scrub;
- Exclusion of amphibians for the duration of construction including temporary disturbance;
- Reinstatement of habitats temporarily disturbed;
- Retain and enhance existing terrestrial habitat to sustain newts;
- Create new ponds (of greater diversity than those currently present) and suitable terrestrial habitats, e.g. scrub, grassland, woodland and hibernacula within the designated mitigation areas.

The detailed layout of the development scheme and mitigation habitat creation has been tailored to retain and improve as much habitat and connectivity as possible.

Independent auditing of the licenced work is proposed and a biosecurity risk assessment will be undertaken and incorporated into the licence application and subsequently implemented.

Monitoring of the reservoirs will be undertaken annually to assess for fish and invasive plants. Measures will be devised and implemented to control fish / invasive plant colonisation and appropriate corrective action taken.

However, if reservoirs remain open to GCN colonisation, de-sedimentation or desilting operations will consider the potential presence of GCN and avoidance of harm measures employed.

4.4 Mitigation Site Creation

It is proposed that two mitigation sites with a combined size of **7.711ha** will be created and managed and monitored for a period of 25 years. Mitigation Area 1 to the north west is **3.2374ha** and Mitigation Area 2 is **4.474ha**.

Appropriate areas to the north west and an area to the west and south of the proposed development have been carefully selected as GCN mitigation habitat sites. They are currently intensively managed arable farmland. They are bordered by mature woodland, river corridor, grassland, scrub and ponds.

A total of 4 ponds in a cluster to the north and 8 ponds in the east and south approximately 150-300m² each (ponds of 100-300m² are considered to be preferable for GCN) will be established. Terrestrial habitat creation will include woodland establishment, native species rich hedgerows, species diverse grassland of varying structure, species diverse wet grasslands on the pond margins and hibernacula and refuges.

Habitat corridors will be maintained to encourage dispersal from the south. A track of 565m in length and about 5m wide (0.32ha) consisting of a modified tall ruderal grassland mosaic and a hedgerow will be temporarily disturbed and reinstated and protected.

Habitat creation also includes the planting of a new hedgerow of 565m in length and native woodland and scrub establishment.

Management will be implemented to achieve long term habitat sustainability and appropriate condition for newt conservation and capable of supporting reptiles and a range of other priority species of principle importance.

4.5 Summary of Habitat Losses, Temporary Disturbance and Creation

Table 2 Sets out the areas of habitat losses, disturbance and mitigation site creation.

Table 2 Summary of Habitat Losses, Temporary Disturbance and Creation

Habitat Type	Permanent Losses (ha)	Temporary Disturbance	Created Mitigation Area 1	Created Mitigation Area 2
Aquatic Habitat (excluding reservoirs)				
(ha & number newt ponds)	0	0	0.08 (total of 4 ponds)	0.23 (total of 8 ponds)
Terrestrial Habitat				
Grassland/ruderal mosaic (ha)	0	0.88	2.61 species rich grassland	3.83 species rich grassland
Woodland (ha)	0	0	0.21	0.41
Arable (ha) (excluding arable lost to new mitigation area)	21.75	0.87	0	0
Hedgerow (m)	95 (remnant isolated in centre of arable field)	30	-	565 (outside Mitigation area) 1657 trees and shrubs
Scrub (ha)	0	0.2	0.33	0
Woodland Belt (m)	0	0	-	325 (36 trees)
Mature Trees	2 (or possibly 3)	0	-	See Woodland Belt

Key

Mitigation Area 1 is a total area of 3.2374ha made up of	Ponds, grassland, woodland and scrub
Mitigation Area 2 is a total area of 4.474ha made up of	Ponds, grassland and woodland
Total Permanent Losses	217,466m ²
Temporary Disturbance losses	19,483 m ²

4.6 Proposed Targets

The proposed targets for the ponds within the GCN mitigation areas and Ponds to the south of the development are as follows:

- For all new Glasshouses Mitigation Ponds the HSI score should be aim to be between Good and Excellent (0.7+);
- Proposals will aim to ensure that ponds that supporting great crested newt populations prior to the development should continue to support them at least equal to the population prior to works commencing;
- All ponds that were created as aquatic mitigation habitat should support great crested newt populations with a target of 'medium' class size;

- The overall population level for the new Glasshouses mitigation area and ponds to the south collectively should be greater than the overall population (ponds deemed to be with 250m of each other) and greater than for the metapopulation (ponds deemed to be within 500m of each other) that existed in the south prior to works commencing.

5.0 HABITAT CREATION

Drawing Five Fords Glasshouses Ecological Mitigation Sites Habitat Creation PSC/FFG/007 dated August 26th 2020 illustrates the proposed habitat layout and species compositions including seed, woodland, scrub and hedgerow mixes. It provides detail on the proposed pond creation profiles and hibernacula construction.

5.1 Woodland and Trees

Trees and shrubs within the woodlands will be planted at a spacing of **1.5 – 2.0 metres** in groups of 3 – 5 of the same species. They will be fitted with protective tree guards.

Woodland Tree and Tree Belt planting mix

Scientific name	Common name	% mix
<i>Quercus robur</i>	English Oak	10
<i>Acer campestre</i>	Field Maple	15
<i>Betula pendula</i>	Silver Birch	10
<i>Alnus glutinosa</i>	Common Alder	10
<i>Sorbus aucuparia</i>	Rowan	5

5.2 Woodland Understory and Scrub

Shrubs within the woodlands will be planted at a spacing of **1.0 – 1.5 metres** in groups of 3 – 5 of the same species and mainly confined to the edges to create a natural profile. They will be fitted with protective tree guards.

Woodland understory and scrub planting mix

Scientific name	Common name	% mix
<i>Crataegus monogyna</i>	Common Hawthorn	15
<i>Corylus avellana</i>	Hazel	10
<i>Prunus spinosa</i>	Blackthorn	10
<i>Salix caprea</i>	Goat Willow	5
<i>Ilex aquifolium</i>	Holly	5
<i>Rosa canina</i>	Dog Rose	5

5.3 Hedgerows

Planting will be in staggered double rows of 10 plants per metre run. They will be fitted with protective tree guards.

Hedgerow planting Mix

Scientific name	Common name	% mix
<i>Crataegus monogyna</i>	Common Hawthorn	70
<i>Corylus avellana</i>	Hazel	10
<i>Rosa canina</i>	Dog Rose	5
<i>Prunus spinosa</i>	Blackthorn	5
<i>Acer campestre</i>	Field maple	10

Planting would be undertaken in the dormant season between November and March and only whilst the soil is free from ground frost, snow and waterlogged conditions.

All landscaping areas will be set out and demarcated prior to the commencement of works.

The position of underground and overhead services including gas pipes, cables, drains, sewers and other equipment will be established and care taken to avoid damage. No planting or cultivation work will take place within the specified easements.

All specimens would be nursery grown native stock in a well grown, healthy form and be free from pests and diseases. Root systems would be in good state and free from damage and/or desiccation and would be adequately protected during transit and handling. The plants shall contain the correct proportion of fine fibrous rootlets and be in a suitable condition to ensure successful transplantation.

5.4 Wildflora Seed Mix for Species Rich Grasslands

Having been stripped of the top organic layer, the bare soil will be locally scarified and seeded with the following mix at a rate of 5g/m²:

Wildflowers 10%

Botanical Name	Common Name	Composition by %
<i>Achillea millefolium</i>	Yarrow	4
<i>Anthyllis vulneria</i>	Kidney Vetch	4
<i>Daucus carota</i>	Wild Carrot	5
<i>Lotus corniculatus</i>	Bird's Foot Trefoil	10
<i>Plantago lanceolata</i>	Ribwort Plantain	10
<i>Primula veris</i>	Cowslip	10
<i>Vicia sativa</i>	Common Vetch	5
<i>Agrimonia eupatoria</i>	Agrimony	10
<i>Centaurea nigra</i>	Common Knapweed	8
<i>Leucanthemum vulgare</i>	Ox-eye Daisy	12
<i>Medicago lupulina</i>	Black Medick	4
<i>Prunella vulgaris</i>	Self-heal	13
<i>Ranunculus acris</i>	Meadow Buttercup	5

Grasses 90%

Botanical Name	Common Name	Composition by %
<i>Agrostis capillaris</i>	Common Bent	15

<i>Cynosaurus cristatus</i>	Crested Dogstail	21
<i>Festuca rubra ssp. rubra</i>	Red Fescue	18
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass	7
<i>Festuca pratensis</i>	Meadow Fescue	29
<i>Poa pratensis</i>	Smooth Stalk Meadow Grass	10

5.5 Wildflora Seed Mix for Wetland Pond edges

Ladies bedstraw *Galium verum*, ragged Robin *Lychnis flos-cuculi*, lady's smock *Cardamine pratensis*, sheep's sorrel *Rumex acetosella*, harebell *Campanula rotundifolia*, marsh marigold *Caltha palustris* and water mint *Mentha aquatica*.

6.0 HABITAT MANAGEMENT AND MONITORING

6.1 Management Objectives

- Maintenance of grassland areas to minimise invasive weed growth while introducing a sympathetic management regime to encourage other priority species;
- Replacement of all failed trees and shrubs in woodland, scrub and hedgerows during the establishment phase;
- Removal of tall and herbaceous vegetation around planted areas to minimise soil moisture competition;
- Promotion of rapid tree and shrub growth and reducing the risk of pest damage;
- Promotion of species rich wet meadow grasslands;
- Management of ponds for the maintenance of the great crested newt population at a favourable conservation status;
- Maintenance of habitat connectivity to promote newt dispersal;
- Maintenance of fencing, drainage infrastructure, footpaths and access points.

6.2 Species Rich Wetland Meadow and Amenity Grassland Management

Once an established sward is achieved grasslands will be trimmed to a height no lower than 75mm once annually in either April or May (following an ecology assessment for nesting birds). Grasslands will be cut with a mower with the cutting bar specially adjusted to be raised.

A zoned management approach will be taken to grassland management leaving some areas un-mown at different times of the year to encourage structural diversity to provide habitat for nesting birds, encourage late flowering species to seed and to provide refuges for insects.

Arisings will be raked off and either removed from site or placed on top of the hibernacula.

Mowing will not be undertaken within the immediate vicinity of the ponds.

6.3 Pond Monitoring, Management and Maintenance:

- Ponds will be monitored annually in spring by inspection during the monitoring surveys or separately if not being surveyed for great crested newts that year and should any one species become dominant the spread will be controlled through hand pulling of encroaching vegetation in November -January to maintain no less than 60% open water;
- The ponds will remain free of any over-shading and leaf litter;
- The ponds will be fenced and secure from public interference therefore dumping of rubbish / litter will be unlikely; however, any rubbish found during annual monitoring will be removed;
- In the event of the ponds not retaining water, they will be repaired.
- The ponds and reservoirs will be monitored for the presence of fish and invasive plant species and should they become present methods will be implemented to ensure they are safely eradicated.
- In the event of fire, acute pollution or other major damage, methods will be implemented to reinstate the pond.

- Fencing will be maintained around the ponds to discourage public access.

6.4 Woodland Management to Proposed Woodland

- Ring weed all establishing trees and shrubs with approved glyphosate herbicide applied at manufacturers recommended rates annually if required, to maintain a weed free zone within a 0.5m radius of the base of each plant. This shall include weed growth within the spirals; where weeds must be carefully removed by lifting the guard and folding the weeds out onto the ground where they can be sprayed;
- Where appropriate a Controlled Droplet applicator (CDA) or Knapsack sprayer with a shield shall be used to minimise spray drift (No herbicide will be used in the vicinity of ponds);
- Application will be limited to once a year in the months of either April or May to ensure no terrestrial newts are adversely affected.
- Should any trees die or become diseased during the aftercare phase they will be replaced with a tree of the same species and size
- Selective thinning and pruning of scrub and woodland and woodland planting blocks reaching approximately 10 years will be undertaken to promote species and structural diversity.

6.5 GCN Monitoring

- Monitoring of the GCN population in the 12 new mitigation ponds will be carried out annually for the management and monitoring duration of 25 years.
- Monitoring will consist of egg searches and two GCN torch count visits.
- Common species of amphibian and reptile will also be recorded.
- Invasive species will be recorded and control/eradication measures implemented accordingly.
- An annual assessment of pond aquatic/marginal vegetation cover, fish, wildfowl and invasive species will be carried out.
- An annual inspection of terrestrial habitats will be undertaken and records kept to determine management prescriptions.
- The results will be entered onto the Cofnod online Wales recording system.

6.6 Annual Report

- A report summarising the management and results of the monitoring undertaken in the preceding year will be submitted annually to WCBC and NRW in December.
- An annual meeting will be held with the management organisation, WCBC and NRW.

- Management and monitoring will be reviewed every 5 years and appropriate adjustments made in liaison with WCBC and NRW.

References

Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. Analytical and methodological development for improved surveillance of Great Crested Newt. Appendix 5 Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford

Edgar, P., Foster, J. and Baker, J. (2010) *Reptile Habitat Management Handbook*, Amphibian and Reptile Conservation: Bournemouth

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

Froglife (1999), *Reptile survey: an introduction* to planning, conducting and interpreting surveys for snakes and lizard conservation, Froglife advice sheet 10.

Griffiths, R.A., Raper, S.J., Brady, L.D. (1996). Evaluation of a standard method for surveying common frogs (*Rana temporaria*) and newts (*Triturus cristatus*, *T. helveticus*, and *T. vulgaris*). Joint Nature Conservation Committee Report No. 259.

JNCC (1993), *Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit*, England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

Langton, T., Beckett, C. and Foster, J. (2001) GCN Conservation handbook. Froglife.

Mitchell-Jones (2004), *Bat mitigation guidelines*, English Nature: Peterborough

Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000), Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10 (4), 143-155.

Greenlight Environmental, Interim EclA 13th July 2020, Five Fords Sesswick Way for Low Carbon farming 2 Limited

Cofnod North Wales Environmental Information Service Records Search 15/05/2020

Wrexham Borough Council, Local Planning Guidance Great Crested Newt Mitigation Requirements – Johnstown Newt Site SAC and the Wider Countryside Planning Document

Spatial Action Plan for Great Crested Newts in Wrexham Report Number 77 Natural Resources Wales Modelling NRW March 2017 - A Manual for Achieving Favourable Conservation Status. Liam Russell, Thomas Starnes & John Wilkinson Amphibian & Reptile Conservation

Middlemarch Environmental - Wrexham Industrial Estate Access Road, Great Crested Newt Monitoring 2014, November 2014

Middlemarch Environmental - Wrexham Industrial Estate Access Roads Scheme, Handover Management Plan, February 2018.

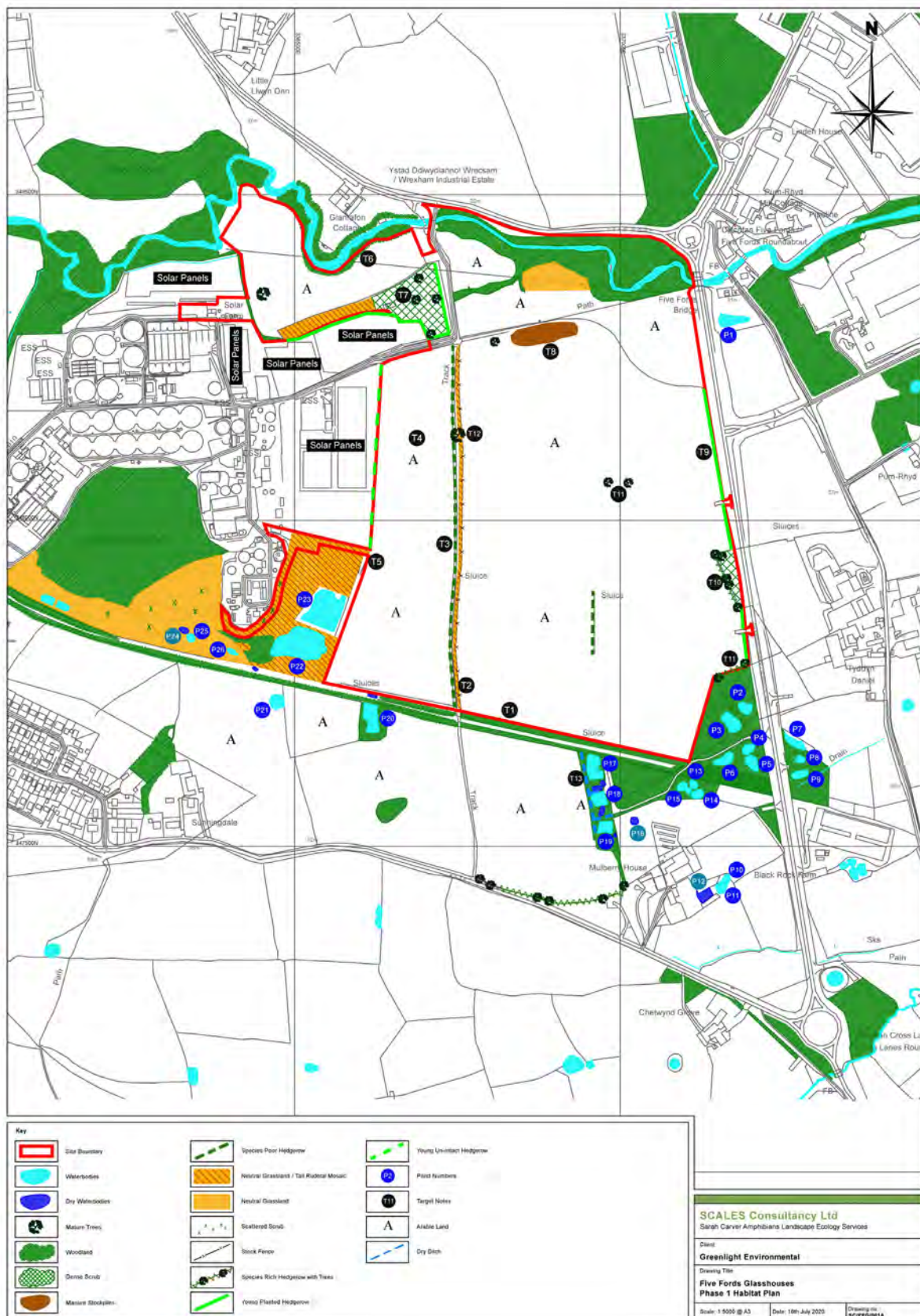
Wildlife and Countryside Act 1981

The Countryside and Rights of Way Act 2000

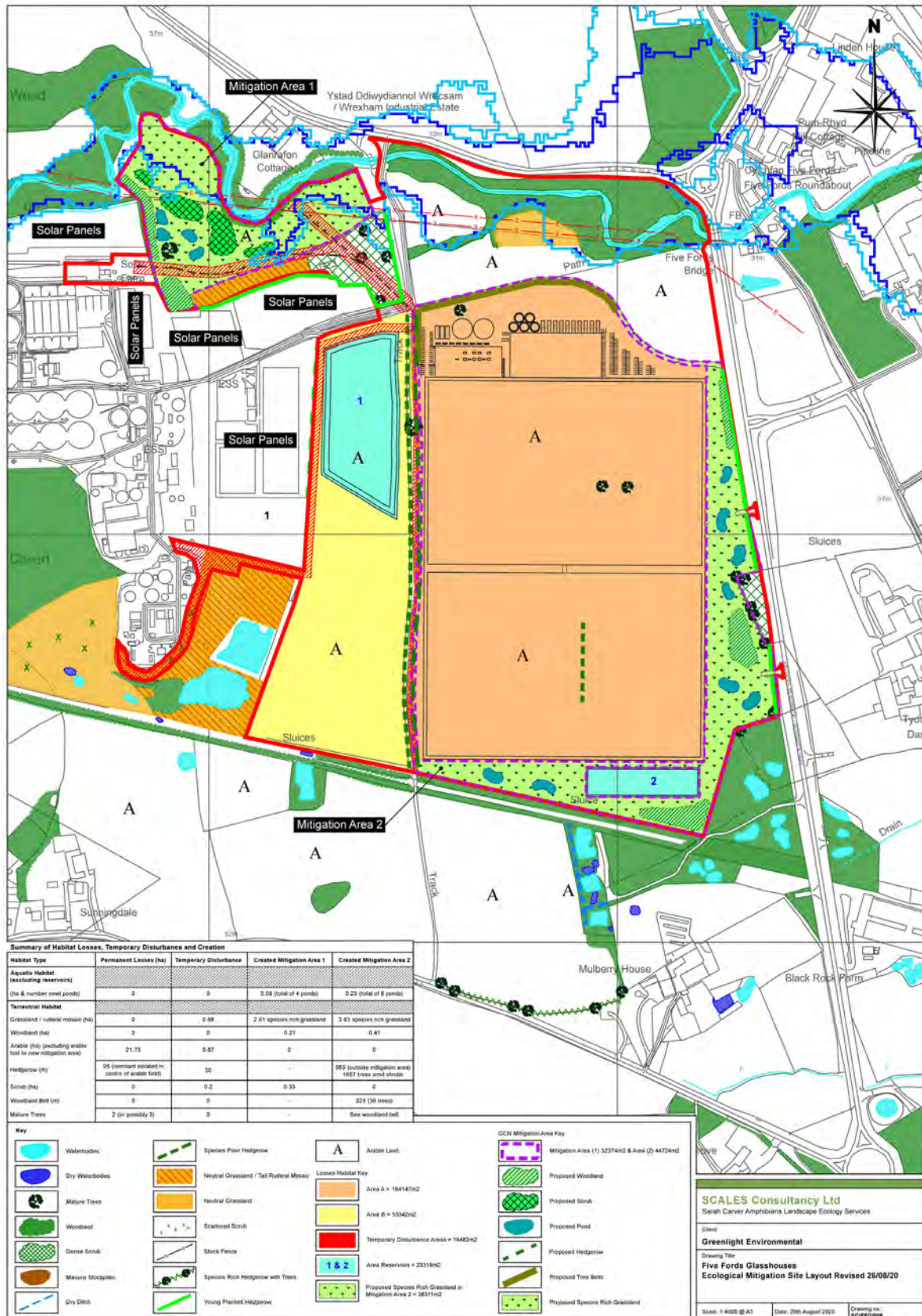
The Conservation of Habitats and Species Regulations 2017

British Standard 'Biodiversity – Code of Practice for Planning and Development BS 42020, August 2013

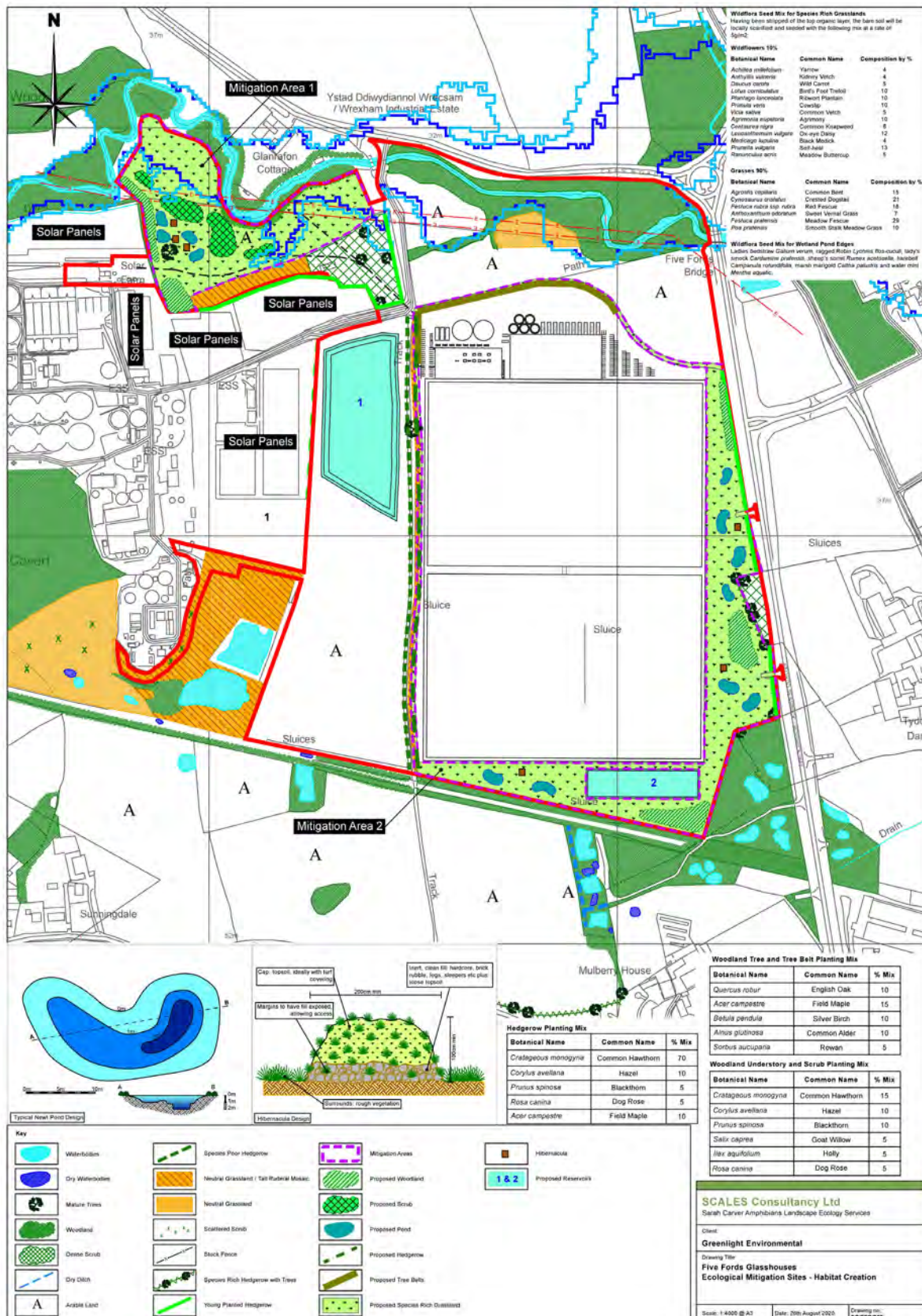
Five Fords Glasshouses Phase 1 Habitat Plan SC/FFG/001A dated July 16th 2020 illustrating the Locations and Numbering of Waterbodies



Five Fords Glasshouses Ecological Mitigation Site Layout Revised 26/08/20 SC/FFG/006 dated August 26th 2020



Five Fords Glasshouses Ecological Mitigation Sites Habitat Creation PSC/FFG/007 dated August 26th 2020



APPENDIX A - LEGISLATION & POLICY

Great Crested Newt Legislation

Great Crested Newts are protected under section 9 and listed on schedule 5 of the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000 (CROW Act) which further extends their protection). They are also classed as European Protected Species listed on Annexes II and IV of the European Union Directive on Natural Habitats and Wild Fauna and Flora (Council Directive 92/43/EEC). This is implemented in the UK by The Conservation of Habitats and Species Regulations 2017 (as amended). They are on Schedule 2 of the Habitats Regulations which provide full protection under Regulation 40(1). The legislation is relevant to all life stages of the Great Crested Newt including eggs, larvae, juveniles and adults.

Under this legislation it is an offence to intentionally or recklessly:-

- Kill, injure or take an individual of such a species;
- Possess any part of such species either alive or dead;
- Damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- Disturb such a species whilst using any place of shelter or protection;
- Sell or attempt to sell any such species.

In order to undertake surveys for Great Crested Newt, a surveyor must hold an appropriate licence issued by Natural England, Natural Resources Wales or Scottish Natural Heritage accordingly.

The Great Crested Newt is a UK Biodiversity Action Plan species for which objectives and targets to protect and restore newt habitats and create new sites through habitat management and re-creation are set. Section 41 in England and Section 42 in Wales of the Natural Environment and Rural Communities Act 2006 (NERC Act) provide lists of habitats and species of principal importance for the conservation of biological diversity. The Great Crested Newt is included on these lists.

The 2017 Habitats Regulations PART 5 Licences states that

Regulation 53 – Subject to the provisions of the regulation a licensing body may grant a licence for the purpose as specified in paragraph 2 (e)

2(e)

‘preserving public health and safety or other reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment’.

Subsection (9) The relevant licensing body must not grant a licence under this regulation until they are satisfied –

- a) That there is no satisfactory alternative; and
- b) That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.