

Green Gates Phase 3 – Habitat Management Plan 2025-2034

A report for: Denbighshire County Council

Document Reference: R-BA197-01

Date: June 2024

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Report Validity and Confidentiality

This report provides a Habitat Management Plan for an area of land known as Green Gates Phase 3, at Green Gates, St Asaph, Denbighshire to Denbighshire County Council. The management plan covers the period from January 2025 to December 2034 and will be used by Denbighshire County Council to manage the site during the habitat establishment phase as well as into the future. The plan will also be submitted to Natural Resources Wales in support of a Great Crested Newt EPS licence application associated with the proposed habitat creation work at Green Gates Phase 3, in addition to the installation of a Biodiversity Hub and associated access and parking.

The report has been prepared by Biodiversity Advanced Ltd in line with the scope of works agreed with the client and in accordance with the specified purpose stated and to the applicable cost, time and other constraints. Works have been carried out in accordance with CIEEM guidelines and BS42020:2013. In preparing this report Biodiversity Advanced Ltd have relied upon information from the client / third parties which was not verified by Biodiversity Advanced Ltd except to the extent required by the scope of services, and Biodiversity Advanced Ltd does not accept responsibility for any omissions or inaccuracies in this information. Field data has been collected as part of this report, and where the report relies on this data, Biodiversity Advanced Ltd accepts no responsibility for the data or any changes subsequent to its date of collection.

This report has been prepared solely for the use by, and is confidential to the client and Natural Resources Wales and Biodiversity Advanced Ltd accepts no responsibility for its use by other persons. This report does not constitute legal advice. This report is valid for a period of 24 months from the date of issue.

Report Issue Record

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Dr Katy Read has over 20 years experience as a professional ecologist and habitat creation expert with a proven record of working closely with clients to achieve biodiversity gains for their projects. She has considerable experience in the hydro-ecological assessment of wetland habitats, and has applied her science-led approach to habitat creation projects including wet woodlands, reedbeds, wet grassland, chalk streams and terrestrial habitats. Katy is a Chartered Ecologist (CEcol) and Chartered Environmentalist (CEnv) who adopts a professional approach to the ecological assessment schemes she works on. She has considerable experience in the production of ecological impact assessments, Habitats Regulations Assessments, and complex ecological mitigation strategies. She has acted as an expert witness at a number of planning appeals including public inquiries. She holds survey and mitigation licences for great crested newts in England and Wales and is a full member of CIEEM. Katy also has a Diploma in Safety Management, which is reflected in her professional approach to health, safety and welfare.

Dr Philip Fermor is a highly qualified and enthusiastic habitat creation specialist with 30 years experience in the design and delivery of high-quality habitat restoration, rehabilitation and creation schemes throughout England and Wales. With a PhD in ecological engineering related to the creation of wetland habitats within former industrial land, Phil has extensive experience leading client teams towards biodiversity-positive outcomes, ensuring that costs are balanced with sustainable large-scale biodiversity gain opportunities. As a full member of CIEEM, a Chartered Environmentalist (CEnv) and a member of the British Hydrological Society, Phil promotes sustainable habitat design through the application of a detailed understanding of site-specific requirements (sediments, topography, hydrology, and existing biodiversity features) and local biodiversity strategies. His proven ability to work closely with commercial and corporate clients, third-sector organisations and government bodies, as well as having an in-depth understanding of business-needs and the science of the natural environment, is key to delivering successful biodiversity net gains.

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1. Introduction

1.1 Background

- 1.1 In June 2024, Biodiversity Advanced Ltd were instructed by Denbighshire County Council to produce a Habitat Management Plan (HMO) for the created habitats at Green Gates Phase 3 land, near St Asaph, Denbighshire. Habitat creation works are proposed for winter 2024/25 and as such, this HMP sets out management prescriptions during the establishment phase, as well as during the longer-term management period. It is anticipated that the HMP will be reviewed and, if necessary, revised after 5 years, to ensure that the proposed management prescriptions remain appropriate and relevant to the site.
- 1.2 The site at Green Gates Phase 3 comprises the western part of the former Green Gates Farm, a site which is owned by Denbighshire County Council. The farm now includes the recently established Denbighshire Tree Nursery, and it is understood that a new nature reserve is proposed for the eastern part of the site, which will support new woodland, scrub, ponds and species-rich grassland habitats. Habitat creation proposals for the western (Phase 3) part of the site include the restoration of existing ponds, the creation of new ponds, the creation of a wetland area adjacent to two small watercourse and creation of woodland and grassland habitat areas.
- 1.3 The site is located at national grid reference SJ 019 744 with the city of St Asaph to the east and St Asaph Business Park to the immediate west and south of the study area. The A55 is located along the northern boundary of the site. The Phase 3 land is c.15ha in size and comprises three large fields with associated field boundaries, watercourses and ponds.
- 1.4 The area in which the Green Gates site sits is known to support a number of great crested newt populations, both within existing and created ponds. To the immediate west of the Green Gates Phase 3 land is St Asaph Business Park which contains a series of retained and created ponds for great crested newts, with Glascoed Nature Reserve located immediately west of the Business Park. Across these two areas, great crested newt populations fluctuate from medium – large sized populations. Biodiversity Advanced Ltd have produced two supporting reports 'Green Gates Phase 3 – Great Crested Newt European Protected Species Licence Application: Method Statement' (ref: R-BA194-01) and 'Green Gates Phase 3 – Ecological Protection Plan' (ref: R-BA194-02) which detail ecological protection strategies associated with the project.
- 1.5 Biodiversity Advanced Ltd and Systra have worked as co-consultants on a number of projects at Green Gates. The documents detailed in Table 1.1 have been produced by the project team and are relevant to the Phase 3 proposals.
- 1.6 In addition to the habitat creation works at Phase 3, it is proposed that a Biodiversity Hub building and an associated car park be constructed to provide an educational facility and centre for use by DCC's Biodiversity Team. Access to this building will be provided by a boardwalk / all abilities access route. As it is understood that this building will be a self-contained feature and will include a green roof, designed to the manufacturers specifications.

Title	Organisation	Report Reference	Date
Green Gates Phase 3, St Asaph, Denbighshire – Preliminary Ecological Appraisal	Biodiversity Advanced Ltd	R-BA188-01	December 2023
Green Gates Phase 3 – Great Crested Newt European Protected Species Licence Application: Method Statement	Biodiversity Advanced Ltd	R-BA194-01	June 2024
Green Gates Phase 3 – Ecological Protection Plan	Biodiversity Advanced Ltd	R-BA194-02	June 2024
Green Gates Phase 3 – Vegetation Establishment Strategy	Biodiversity Advanced Ltd	R-BA914-03	June 2024
Green Gates Phase 3 – Habitat Management Plan	Biodiversity Advanced Ltd	R-BA917-01	June 2024
Systra Design Drawings ‘Proposed Layout – Area 1a’ ‘Proposed Layout – Area 1b’, ‘Proposed Layout – Area 1c’ and Proposed Layout - North Field’.	Systra Ltd	23C33-DWG-12 23C33-DWG-13 23C33-DWG-14 23C33-DWG-15	June 2024

Table 1.1: Relevant Documents Produced by Project Team for Green Gates Phase 3

1.2 Site Introduction

- 1.7 The site at Green Gates Phase 3 is owned and managed by Denbighshire County Council (DCC). The Phase 3 land is allocated in the adopted Denbighshire Local Development Plan 2006-2021¹ under PSE2 Land for employment uses. However, it is understood from DCC that subsequent to this land allocation, the area has had a number of significant overhead and underground services installed across it, making it un-viable for development for employment use.
- 1.8 Denbighshire County Council are currently working on a replacement Local Development Plan 2018 – 2033, with the plan currently at ‘Deposit Consultation and consideration of representations’ stage between September 2023 and May 2024². The LDP is proposed to be submitted for Examination in May 2024. This replacement LDP has not yet been adopted, and as such does not form a material consideration in planning matters.
- 1.9 The site at Green Gates was formerly tenanted out and used as a farm, predominately for horse grazing. An area to the south of the former farm building has been established as Denbighshire Tree Nursery, with tree growing areas, poly tunnels, and associated equipment storage. Two small ponds were built in 2021 and form part of the Tree Nursery’s Sustainable Drainage System (SuDS), taking excess water from the polytunnels before outfalling in the watercourse which flow in the northerly direction to the east of the Tree Nursery.
- 1.10 The proposed habitat creation works at the site are detailed in Section 2 and are scheduled to be completed by March 2025.
- 1.11 With respect to public access to the site at Green Gates, a bridleway exists outside of the Phase 3 site boundary immediately to the west. This access route runs north-south between the Green Gates site at the St Asaph Business Park and connects to a public footpath that then extends to the west towards Glascoed Nature Reserve which exists to the west of the Business Park.
- 1.12 There is currently no public access onto the site at Green Gates. Within the eastern part of the site, proposed to be a nature reserve, permitted footpaths are proposed to allow members of the public to access these areas for walking and educational purposes. No public access is proposed

¹ Available at: <https://www.denbighshire.gov.uk/en/planning-and-building-regulations/local-development-plan/adopted-local-development-plan.aspx>

² See: <https://www.denbighshire.gov.uk/en/documents/planning-and-building-regulations/ldp/replacement-ldp/denbighshire-replacement-ldp-2018-to2033-revised-delivery-agreement-december-2022a.pdf>

within the Phase 3. It is understood that use of the Biodiversity Hub will be through organised visits with DCC staff.

- 1.13 Table 1.2 provides a summary of information related to the Green Gates Phase 3 Habitat Management Plan as detailed in the NRW Conservation Management Plan template. The management of ponds within the Green Gates Phase 3 site will be required as part of an NRW EPS GCN licence for the site (yet to be granted) which has been applied for in accordance with the *'Imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment'*.

Species Present	Great crested newt	
Name of Site	Green Gates Phase 3	
Status	SSSI Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	SAC Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	NNR Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	SPA Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ramsar Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Other _____
Grid Reference for Site	SJ 019 744	
Grid References for working area(s). Please attach maps.	See Tables 2.1, 2.2 and 2.3 which includes grid references of each pond included within this Habitat Management Plan and provide details of the proposed habitats. See maps in Appendix 1.	
Is/are protected species identified above listed as site feature(s)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
If no, are protected species considered to be factors?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Is/are there specific conservation objectives for protected species features?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Does the proposal involve loss, deterioration or damage to protected species habitat?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
If yes, has mitigation, compensation or off-setting habitat been provided? Please quantify habitat to be lost, managed or provided and include maps/drawings to evidence your answer.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Does the management plan consider protected species (either as a feature or as a factor)? Include DMS link	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
If no, please provide further comment on updating management plans to ensure appropriate consideration of protected species.		

Table 1.2: Summary of Site Information for Habitat Management Plan

1.3 Overall Description of Works

- 1.14 This Habitat Management Plan includes a period of 10-years, between January 2025 and December 2034. Given the presence of great crested newts within the Phase 3 land, which are likely to be breeding in the retained, restored and created ponds within the Phase 3 land, the

majority of management activities at each pond will be completed over the winter period when the great crested newt individuals are in hibernation and are not present within any of the ponds.

- 1.15 This Habitat Management Plan includes the retained, restored and created ponds within the Green Gates Phase 3 land, and the three ponds associated with the existing Tree Nursery to the north of the Phase 3 area. In addition, the other habitat areas within the Phase 3 land, which include species-rich grassland, marshy grassland, reedbed and pond edge plants, fen-type habitats, hedgerows and planted woodland blocks are included in this Habitat Management Plan.
- 1.16 The habitat restoration and creation works at Green Gates Phase 3 are proposed to be completed by March 2025. This Habitat Management Plan therefore includes proposed management prescriptions for the created habitats during their establishment phase, and also once they are established. It is recognised that the establishment phase of different habitats will take different lengths of time, pond habitats may establish more quickly than woodland habitats for example.

2. Survey, Record Management and Impact Assessment

2.1 Pond Survey Summary

- 2.1 The ponds within the Green Gates Phase 3 land, and at the Tree Nursery were subject to an amphibian survey by Denbighshire County Council Biodiversity Team in April and May 2024, in accordance with English Nature (2001) survey guidelines. A full summary of the surveys completed is given in Biodiversity Advanced Ltd 'Green Gates Phase 3 – Great Crested Newt EPS Licence Method Statement' report (ref: R-BA191-01) and is not repeated here.
- 2.2 Table 2.1 provides a summary of each of the existing ponds within the Green Gates Phase 3 land which are included in this Habitat Management Plan. A Habitat Suitability Index (HSI) assessment of each pond was also completed by Denbighshire County Council Biodiversity Team in April / May 2024 in accordance with Oldham et al (2000) methodology.
- 2.3 Ponds GG4 and GG6 will be restored as part of the proposed habitat restoration and creation works at Green Gates Phase 3. The information presented in Table 2.1 therefore includes information about these ponds in their 'pre-restoration' state as the restoration work has not yet been completed.
- 2.4 In addition to the restoration of Ponds GG4 and GG6, 6 no. additional ponds are proposed to be created as part of the habitat creation scheme. These ponds do not yet exist and as such, information regarding their locations, proposed pond size and general description are included in Table 2.2.



Pond & Grid Reference	Description	Photographs (April 2024 / December 2023)	GCN HSI Score (2024)	GCN Peak Count (2024)
Pond GG1 (SJ 02172 74520)	<p>Pond GG1 is a clay bottomed pond to the east of the polytunnels at the Denbighshire Tree Nursery located at grid reference. The pond has shallow margins, reaching a depth of approximately 600mm in the centre. The pond is fed by rainwater and runoff from the surrounding access track from the tree nursery. The pond has some emergent and floating vegetation including <i>Juncus sp</i> and <i>Potamogeton sp</i>. The pond is surrounded by a neutral semi-improved grassland with a variety of native grass and forb species. The pond is separated from Pond GG2 by a bund containing an artificial hibernaculum for great crested newts and other amphibians comprised of rubble, river stones, woody debris, and clay soil.</p>	 <p>Plate 2.1: Pond GG1 (looking north)</p>	0.71 Good	2 GCN Common toad and smooth newt also recorded
Pond GG2 (SJ 02182 74544)	<p>Pond GG2 is a clay bottomed pond to the east of the polytunnels at the Denbighshire Tree Nursery. The pond has shallow margins, reaching a depth of approximately 400mm in the centre. The pond is fed by rainwater and runoff from the surrounding access track from the tree nursery. The pond has some emergent vegetation including greater reedmace <i>Typha latifolia</i> and marginal vegetation including great willowherb <i>Epilobium hirsutum</i>. The pond is surrounded by a neutral semi-improved grassland with a variety of native grass and forb species. The pond is separated from Pond GG1 by a bund containing an artificial hibernaculum for great crested newts and other amphibians comprised of rubble, river stones, woody debris, and clay soil.</p>	 <p>Plate 2.2: Pond GG2 (looking north)</p>	0.71 Good	0 GCN Common frog and smooth newt recorded

Table 2.1: Summary of Existing Ponds Included in Habitat Management Plan at Green Gates Phase 3 (continues)



Pond & Grid Reference	Description	Photographs (April 2024 / December 2023)	GCN HSI Score (2024)	GCN Peak Count (2024)
Pond GG3 (SJ 02197 74531)	<p>Pond GG3 is a clay bottomed pond to the east of the polytunnels at the Denbighshire Tree Nursery, adjacent to the watercourse running through the site. The pond has shallow margins, reaching a depth of approximately 1500mm in the centre. The pond is fed by rainwater and runoff and excess irrigation from the polytunnels on site. Two inlets feed water from the French drains within and to the side of each polytunnel, and a small swale adjacent to the parking area. A single outlet with a flow control chamber releases water into the stream at a maximum rate of 1l/s during storm events. The pond has some emergent vegetation including greater reedmace and marginal vegetation including great willowherb and grass species growing across much of the pond’s surface. The pond is surrounded by a neutral semi-improved grassland with a variety of native grass and forb species. This pond shows signs of eutrophication, presumably as a result of irrigation water leaching nutrients from compost when the plants at the tree nursery are watered.</p>	 <p>Plate 2.3: Pond GG3 (looking north-east)</p>	0.71 Good	0 GCN Common toad, common frog and smooth newt recorded.
Pond GG4 (SJ 02028 74486)	<p>This ephemeral pond is located in the north-eastern corner of Field 1a. The pond contained approximately 0.3m depth of water during a site visit on 11-12-2023. No aquatic vegetation was noted in this pond, and the depression was covered with creeping bent grass.</p> <p>NOTE – THIS POND IS PROPOSED FOR RESTORATION</p> <p>Post-restoration this pond will be 21 m² in size surrounded by 58 m² of pond edge plants.</p>	 <p>Plate 2.4: Pond GG4 pre-restoration (looking north-east)</p>	0.59 Below Average	0 GCN Smooth newt recorded.

Table 2.1: Summary of Existing Ponds Included in Habitat Management Plan at Green Gates Phase 3 (continues)



Pond & Grid Reference	Description	Photographs (April 2024 / December 2023)	GCN HSI Score (2024)	GCN Peak Count (2024)
Pond GG5 (SJ 01919 74396)	This pond is located in the southern edge of Field 1a. The pond is a shallow depression at the base of an overhead electricity pylon. The pond supported approximately 0.40m depth of water. The centre of the pond was dominated by goat willow <i>Salix caprea</i> scrub, and some marginal plants recorded around the edges including hard rush <i>Juncus inflexus</i> and great willowherb <i>Epilobium hirsutum</i> . No aquatic species were recorded in this pond. Deer-damage was noted on the willow trees in the centre of the ephemeral waterbody.	 <p data-bbox="831 546 1107 602">Plate 2.5: Pond GG5 (looking north)</p>	0.65 Good	0 GCN Smooth newt recorded.
Pond GG6 (SJ 01870 74312)	<p>This is another ephemeral pond located in the southern part of Field 1c. This depression contained water up to approximately 0.40m deep. No aquatic vegetation was recorded in the pond, although grassland and marginal species were recorded which included hard rush, jointed rush <i>Juncus articulatus</i>, a sedge <i>Carex</i> sp., creeping bent, cocksfoot, creeping buttercup and marsh bedstraw <i>Galium palustris</i>.</p> <p>NOTE – THIS POND IS PROPOSED FOR RESTORATION</p> <p>Post-restoration this pond will be 245 m² in size surrounded by 60 m² of pond edge plants.</p>	 <p data-bbox="831 1039 1107 1128">Plate 2.6: Pond GG6 pre-restoration (looking north).</p> <p data-bbox="799 1131 1139 1220">Note – willow scrub at Pond GG5 in distance, at base of electricity pylon.</p>	0.78 Good	2 GCN Smooth newts and common toad also recorded.

Table 2.1 (continued): Summary of Existing Ponds Included in Habitat Management Plan at Green Gates Phase 3

Pond & Grid Reference	Description	Photographs (TBC)	GCN HSI Score - TBC	GCN Peak Count – TBC
Pond GG7 (created location TBC)	Pond GG7 is proposed to be created in Field 1a. This pond has been designed to provide optimal GCN habitat with marginal vegetation shelves around the pond's edge. The pond is designed to have 242 m ² of open water, surrounded by 367 m ² of pond edge plants and reedbed vegetation.	-	-	-
Pond GG8 (created location TBC)	Pond GG8 is proposed to be created in Field 1a. This pond has been designed to provide optimal GCN habitat with marginal vegetation around the pond's edge. The pond is designed to have 240 m ² of open water, surrounded by 366 m ² of pond edge plants and reedbed vegetation.	-	-	-
Pond GG9 (created location TBC)	Pond GG9 is proposed to be created in Field 2. This pond has been designed to provide optimal GCN habitat with marginal vegetation around the pond's edge. This pond will be larger than the other ponds to provide pond size variation and also act as a significant pond feature outside of the Biodiversity Hub building. The pond is designed to have 1159 m ² of open water, surrounded by 1681 m ² of pond edge plants and reedbed vegetation.	-	-	-
Pond GG10 (created location TBC)	Pond GG10 is proposed to be created in Field 1c. This pond has been designed to provide optimal GCN habitat with marginal vegetation around the pond's edge. The pond is designed to have 280 m ² of open water, surrounded by 62 m ² of pond edge plants vegetation.	-	-	-
Pond GG11 (created location TBC)	Pond GG11 is proposed to be created in Field 2. This pond has been designed to provide optimal GCN habitat with marginal vegetation around the pond's edge. The pond is designed to have 280 m ² of open water, surrounded by 62 m ² of pond edge plants vegetation.	-	-	-
Pond GG13 (created location TBC)	Pond GG13 is proposed to be created in Field 1b. This pond has been designed to provide optimal GCN habitat with marginal vegetation around the pond's edge. The pond is designed to have 300 m ² of open water, surrounded by 66 m ² of pond edge plants vegetation.	-	-	-

Table 2.2: Summary of Proposed Ponds Included in Habitat Management Plan at Green Gates Phase 3

2.2 Records Management

- 2.5 The site at Green Gates is both owned and managed by Denbighshire County Council (DCC) and since the management of the site has been transferred to the Biodiversity Team, ecological monitoring of the site has become well established. Details of the baseline species surveys completed by DCC at the site are given in the 'Green Gates Phase 3 – Ecological Protection Plan' report (ref: R-BA194-02).
- 2.6 The following monitoring works have been completed by DCC Biodiversity Team staff at the Green Gates site:
- Great crested newt population monitoring. A six-visit survey was completed in 2024. Prior to that two-visit surveys have been completed in previous years.
 - Reptile survey. A seven-visit reptile survey of the site has been completed in 2024. Reptile surveys of the Green Gates east site were also completed by Enfys Ecology in 2018.
 - Bat surveys of the former Green Gates farm building have been completed for DCC by ecological consultants. Bat activity surveys of the Green Gates east site were completed by Enfys Ecology in 2018.
 - Camera traps have been installed at the site and used to capture images of mammals using the site.
 - Monthly bird surveys of the Green Gates Phase 3 site have been completed by DCC in 2022 and 2023.
 - Bat static detectors are proposed for installation within the site in 2024.
- 2.7 Records of protected and notables species recorded from these surveys have been uploaded to Cofnod, the North Wales Environmental Information Service, by the DCC Biodiversity Team, illustrating the commitment of the team to record keeping, and the dissemination of ecological information to record keeping organisations.
- 2.8 A review of the context of the site at Green Gates Phase 3 in relation to great crested newt distribution in North Wales was completed as part of the supporting documentation provided to Natural Resources Wales in the Method Statement that supported the NRW EPS licence application. Please see the 'Green Gates Phase 3 – Great Crested Newt European Protected Species Licence Application: Method Statement' report (ref: R-BA197-01).
- 2.9 Denbighshire County Council sit as a member of the St Asaph Business Park Steering Group, which also include representatives from Welsh Government, Natural Resources Wales and Amphibian and Reptile Conservation (ARC). Whilst this meeting is initially focused on the population of great crested newts associated with the Business Park and Glascoed Nature Reserve, the group provides an opportunity for landscape-scale conservation approaches to be discussed and knowledge sharing in relation to current ecological trends, habitat management approaches and other local projects and research. Minutes from the meetings are prepared and circulated to all Steering Group members every six months.
- 2.10 Denbighshire County Council already use an App-based monitoring tool called 'Survey-123' for record keeping across their meadow sites within the county. It is proposed that this tool, which is now widely used within the DCC Biodiversity Team, be used to monitor the habitats within the Green Gates Phase 3 site. The App allows instant digitisation of the data collected, and records are automatically uploaded to COFNOD as part of the record management / data sharing approach adopted by DCC Biodiversity Team.

2.3 Impact Assessment

- 2.11 A detailed assessment of the impact of the proposed habitat restoration and creation works at Green Gates on habitats, great crested newts and other protected and notable species are given in the following reports:
- ◆ 'Green Gates Phase 3, St Asaph, Denbighshire – Preliminary Ecological Appraisal'. Ref: R-BA188-01, December 2023.
 - ◆ 'Green Gates Phase 3 – Great Crested Newt European Protected Species Licence Application: Method Statement'. Ref: R-BA194-01, June 2024.
 - ◆ 'Green Gates Phase 3 – Ecological Protection Plan'. Ref: R-BA194-02, June 2024.
- 2.12 In summary the proposed habitat restoration and creation works at Green Gates Phase 3 will result in the following impacts:
- ◆ Permanent loss of c.5.3 ha of improved grassland habitats.
 - ◆ Temporary damage to Ponds GG4 and GG6 as the ponds will be restored. Long-term benefit to these ponds from restoration proposals.
 - ◆ Temporary displacement of great crested newts and grass snake from the Phase 3 area whilst works are completed. Long-term benefit to both species from enhanced habitat provision and hibernacula features at the site.
 - ◆ Enhancement of Ponds GG1, GG2 and GG3 from additional aquatic species planting.
 - ◆ Creation of Ponds GG7, GG8, GG9, GG10, GG11 and GG13.
 - ◆ Creation of an area of open water (GG12) and wetland habitats at a confluence of two watercourses.
 - ◆ Diversion of a small watercourse to provide a hydrological connection to GG9.
 - ◆ Deposition of excavated material to create landscape bunds and planting of 3.25 ha of broadleaved woodland habitat.
 - ◆ Creation of species-rich grassland, marshy grassland, fen-type habitats, pond edge planting and reedbed, willow carr and woodland and scrub habitats within the site.
 - ◆ Installation of 8 no. hibernacula suitable for use by amphibians and reptiles.
 - ◆ Installation of a 'Biodiversity Hub' building to be used by Denbighshire County Council for educational purposes.
 - ◆ Installation of an accessible access route to the 'Biodiversity Hub' building.
- 2.13 Table 2.3 details the habitat creation proposals and identifies the habitats that will be present at the site on completion of the habitat restoration, enhancement and creation works. The habitats detailed in Table 2.3 are those which will be managed in accordance with this HMP.
- 2.14 The habitat management works set out in this document have the potential to disturb great crested newt individuals and could result in damage of a resting or breeding place. Where works are required to be carried out under GCN licenced Ecological Clerk of Works supervision, this is identified in Chapter 5.
- 2.15 Systra 'Proposed Layout' plans showing the proposed habitats at Green Gates Phase 3 are included in Appendix 1.

Habitats	Habitat / Feature Area (m ²)					
	Tree Nursery	Area 1a	Area 1b	Area 1c	North Field	TOTAL
Retained Habitats						
Pond GG1	30	-	-	-	-	30
Pond GG2	30	-	-	-	-	30
Pond GG3	40	-	-	-	-	40
Pond GG5	-	283	-	-	-	283
Existing grassland	-	22,868	20,521	21,276	23,356	88,218
Tall ruderal	-	-	-	3,552	-	3,552
Existing trees	-	-	-	1,380	-	1,380
Proposed Habitats						
Open water	-	1,827	545	805	-	3,040
Pond edge plants	-	1,374	150	184	-	1,648
Reedbed	-	1,374	150	-	-	1,524
Fen	-	3,210	75	-	-	3,284
Willow carr	-	3,210	75	-	-	3,284
Marshy grassland	-	2,064	76	256	-	2,396
Species-rich grassland	-	5,989	-	-	-	5,989
Woodland	-	5,126	-	5,115	22,280	32,521
Biodiversity Hub	-	249	-	-	-	249
TOTAL (m²)	100	47,573	21,591	32,568	45,636	147,468

Table 2.3: Summary of Proposed Habitat Areas at Green Gates Phase 3

3. Avoidance, Mitigation, Compensation or Offsetting Measures

3.1 Introduction

3.1 This chapter considers the avoidance, mitigation, compensation or offsetting measures required at Green Gates Phase 3 in relation to the proposed habitat management activities. Table 3.1 shows the assessment, based on the questions posed in the NRW conservation management plan template. It is understood that proposed conservation or countryside works are not likely to require specific compensation or off-setting actions.

Can the management activity be carried out without breaching species protection legislation?	Yes <input type="checkbox"/> No or Not known <input checked="" type="checkbox"/>
Are mitigation measures required?	Yes <input checked="" type="checkbox"/> No or Not known <input type="checkbox"/>
Are compensation measures required?	Yes <input type="checkbox"/> No or Not known <input checked="" type="checkbox"/>
Are offsetting measures required?	Yes <input type="checkbox"/> No or Not known <input checked="" type="checkbox"/>

Table 3.1: Consideration of Requirement for Avoidance, Mitigation and Compensation – Green Gates Phase 3 Habitat Management

3.2 A Step-Wise approach (as set out in PPW12³) has been adopted in developing this management plan, and where potential impacts of great crested newt individuals, or their breeding and resting places, can be avoided, this approach has been adopted (see Section 3.2). However, it is recognised that as winters in North Wales trend towards being generally warmer, great crested newts may still be present in some of the ponds over the winter periods.

3.3 It is clear from Table 3.1 that the proposed management activities cannot be carried out without potentially breaching species protection legislation (in this instance, the species being great crested newts). This is due to the requirement for management of ponds which are to be used by great crested newts for breeding.

3.4 Mitigation measures are therefore required, and are considered in Section 3.3. No compensation or offsetting measures are required in relation to the proposed habitat management activities as this management plan is associated with a habitat creation scheme which has been designed to benefit great crested newts and other wildlife.

3.2 Avoidance

3.5 Chapter 5 sets out the management activities proposed for the site at Green Gates Phase 3, most of the management activities associated with the ponds will be completed during the winter months, when great crested newt individuals will be hibernating, and therefore unlikely to be present within the ponds.

3.6 Adoption of the timing of works set out in Chapter 5 represents the application of Reasonable Avoidance Measures and will minimise the potential risk of killing and injury to great crested newt individuals from the proposed management works.

³ See: <https://www.gov.wales/planning-policy-wales>

3.3 Mitigation

- 3.7 Mitigation is required where there remains a potential risk to individual great crested newts or other protected species at the site (including grass snake) from management activities, once the avoidance measures have been put in place. Given the management works proposed in this plan, mitigation will include pre-works checks and supervision of management activities by a licenced GCN Ecological Clerk of Works (ECoW). The licenced ECoW will be named on the Green Gates Phase 3 GCN EPS licence (ref: TBC) or acting as an accredited agent or assistant to the named ecologist on this licence.

4. Scheduling, Phasing of Work and Preparatory Work

4.1 Rationale

- 4.1 As discussed in Chapter 3, the management of habitats which are known to support breeding great crested newts, could result in adverse impacts on great crested newt individuals, or the breeding success of the meta-population of great crested newts within the Green Gates Phase 3 land, if the work schedule and phasing is poorly designed.
- 4.2 This section of the management plan sets out some of the control measures which will be adopted to ensure that the proposed management activities do not result in potential adverse impacts on great crested newts and other protected species (such as grass snake and bats).

4.2 Preparatory Work

- 4.3 As the habitats within Green Gates Phase 3 are proposed to be established as part of a habitat restoration / enhancement / creation project, preparatory works will be completed as part of the habitat creation activities. The scheme at Green Gates Phase 3 includes the installation of a Biodiversity Hub building with an associated all abilities access route (a boardwalk) to the building. The land at Phase 3 is located to the west and south of the established Denbighshire Tree Nursery which already has established access routes suitable for management vehicles to enter the Phase 3 land. No additional access arrangements are therefore considered necessary for management purposes.
- 4.4 No preparatory works are therefore required in order to facilitate habitat management access etc.
- 4.5 Habitat management works are currently proposed to be completed by Denbighshire County Council staff, under the management of DCC's Biodiversity Team. The Biodiversity Team at DCC will be the named ecologists on the Green Gates Phase 3 licence, and as such the management works will be completed under their control.
- 4.6 Prior to the commencement of habitat management works at the Green Gates Phase 3 site, either for DCC staff, or their specialist contractors, a Tool Box Talk will be provided as part of a site induction. It is proposed that this Tool Box Talk be delivered by the named ecologist or their accredited agents, on the GCN EPS licence for the Green Gates Phase 3 site. The Tool Box Talk will include an introduction to great crested newt ecology, details of biosecurity arrangements and details of the ecological control measures required as part of the habitat management activities.
- 4.7 The tool box talk should include information about other species protected and notable present at the site, including grass snake, nesting birds and potentially badgers.

4.3 Timing and Works Programme

- 4.8 The proposed management work programme (see Chapter 5) has been devised to ensure that management activities are timed in such a way as to avoid (the first stage of the ecological mitigation hierarchy, or Step-Wise approach) adverse impacts on the key ecological features (great crested newts, grass snake and nesting birds).

4.9 In general the timings / works programme principles set out in Table 4.1 have been adopted.

Habitat Management Action	Timing and Programme Notes
Cutting of above-ground vegetation which could be used by nesting birds (e.g. trees, scrub, hedgerows)	To be completed outside of the nesting bird season, i.e. works will be completed between October and February (inclusive). No below-ground excavation, such as root removal, will be completed between November and February, when amphibians and reptiles could be hibernating.
Management works to mature trees which have the potential to support roosting bats.	<p>If tree management works are scheduled for mature trees which have the potential to support roosting bats, specific avoidance, mitigation and compensation may be required, depending on the presence or otherwise of a bat roost.</p> <p>Bat surveys may be required prior to the completion of tree management works to determine whether the works present any risk to individual bats / bat roosts. All works to be done in accordance with recommendations from suitably experienced and licenced bat ecologists.</p> <p>Tree management timings to be agreed on a case-by-case basis.</p>
Removal of aquatic, marginal and emergent vegetation from ponds	To be completed during winter months when great crested newts are less likely to be present in ponds, i.e. works will be completed between November and February (inclusive). Works involving excavation in / surrounding ponds to be carried out under licenced GCN Ecological Clerk of Works supervision.
Grassland management works	<p>To be completed during the great crested newt and reptile active season and once grassland plants have set seed. Grassland habitats could be used by ground nesting birds so management activities should be timed to occur after nesting has finished.</p> <p>Grassland management works will be completed between mid-July and October (inclusive).</p>
Remedial works to amphibian / reptile hibernacula	To be completed during the great crested newt and reptile active season to ensure that no individuals are impacted during their hibernation period. Remedial works will be completed between April and October (inclusive).
Activities to remove fish from ponds (if required)	To be completed during winter months when great crested newts are less likely to be present in ponds, i.e. works will be completed between November and February (inclusive). Specification / timing for works to be agreed with specialist fish-removal contractor. Any works involving fish removal activities in ponds to be carried out under licenced GCN Ecological Clerk of Works supervision.

Table 4.1: Habitat Management Actions – Timing and Programming at Green Gates Phase 3

5. Site Management Prescriptions

5.1 General Principles

5.1 This section sets out the general principles to be adopted when carrying out habitat management works at Green Gates Phase 3.

- ◆ No use of fertilizer, herbicide, or pesticide within 20m of each pond, unless use is specifically agreed with the GCN licence holder and a Method Statement has been approved.
- ◆ All works to be completed in accordance with the agreed Biosecurity Risk Assessment provided in Chapter 8.
- ◆ Management works which involve any excavation within the pond (ie removal of aquatic / emergent vegetation) must be carried out under supervision of a licenced GCN Ecological Clerk of Works.
- ◆ If any protected species are found during management works (e.g. great crested newt individuals, grass snake individuals) they should be left to move out of the way before management activities commence. If protected species is injured during management activities, then DCC's lead ecologist should be informed.

5.2 Objectives

5.2 This section of the Habitat Management Plan sets out the Key Performance Indicators (KPIs) for the different habitats within the Green Gates Phase 3 land. These KPIs will allow Denbighshire County Council (DCC) to monitor the success of the habitat creation works, and subsequent habitat management activities. KPIs have been developed for the following key habitats: ponds and pond edge plants, reedbed and fen-type habitats, marshy grassland, species-rich grassland, woodland and scrub, hedgerows, scattered mature trees and amphibian / reptile hibernacula.

5.2.1 Ponds

5.3 Objectives for the ponds at Green Gates Phase 3 combine two different Key Performance Indicators (KPIs): one associated with the pond habitat itself; and, the other associated with the number of great crested newt individuals recorded within each pond.

5.4 The first of these can be measured using the Habitat Suitability Index (HSI) assessment, a methodology developed by Oldham et al (2000) as a measure of habitat suitability. Oldham et al (2000) state that in general, ponds with high HSI scores are more likely to support great crested newts than those with low scores. The HSI score can therefore be used to measure the habitat suitability of each pond within the business park as a proxy for habitat quality. A higher score indicates that a pond is more suitable to support breeding great crested newts, and thus suggests that for this target species, it has a higher ecological value.

5.5 Haysom et al (2018) support this proposed approach and state the following in relation to long-term monitoring of great crested newt habitats:

“The great crested newt Habitat Suitability Index (HSI) (Oldham et al, 2000) offers an extremely useful tool for assessing habitat quality. “Habitat” is one of the four Habitats

Directive conservation status parameters, and so an explicit aim to monitor habitat condition seems appropriate.”

- 5.6 HSI scores for each pond can be assessed at the same time that great crested newt monitoring data are collected, and as such, the use of this as a KPI for the ponds does not place additional burden on DCC in relation to data collection. This is therefore considered to be a proportionate KPI to set for each pond.
- 5.7 The HSI uses for great crested newts incorporates ten suitability indices, all of which are factors thought to affect great crested newts. Some ponds will never achieve an ‘excellent’ HSI score (ie a score >0.8) due to factors such as pond size, pond location etc (ponds GG1, GG2, GG3 and GG4 are too small to reach an ‘excellent’ score for example). Using the knowledge of the existing ponds (two of which will be restored as part of the project), the wider site at Green Gates, and the results from HSI assessments completed by DCC in 2024, an initial assessment of the potential maximum score has been made, and these have been set as the HSI KPI’s for each pond, detailed in Table 5.1. These are considered to be stretch targets, and management activities should aim to allow the ponds to move closer to their target HSI (where they do not already achieve this). These KPIs will be reviewed by DCC as part of their on-going site management review. The targets may be revised when the HMP is reviewed in full (Year 5).
- 5.8 It is recognised that an HSI score will likely be different each year, due to the impact of management activities such as removal of aquatic, marginal and emergent vegetation, however, the scores collected each year can be used to review progress against this KPI.
- 5.9 With respect to KPIs associated with use of the ponds by great crested newt individuals, the targets set out in Table 5.1 have been developed using knowledge of the current GCN population levels within the site, and the aspiration for the site to provide a valuable pond landscape within the wider GCN metapopulations present in the landscape surrounding the Green Gates site. In some instances the ponds have been ‘clustered’ and a target set for each cluster, reflecting the fact that GCN often used different nearby ponds for breeding, depending on the exact condition of each pond in a given year. Clustering the peak GCN targets in this way also allows the pond management activities to be focused on significant interventions at different times within each pond cluster, ensuring that the ponds in each cluster provide different vegetation phases for the GCN and other amphibians and invertebrates to use.
- 5.10 Whilst target peak GCN numbers have been set for each pond, in fact, the primary KPI for the population of GCN at Green Gates (which includes both the Phase 3 land and the proposed nature reserve land to the east), should be that a ‘medium’ sized population is recorded and maintained across the site. Using English Nature (2001) GCN population bands, this means a peak count of between 11-99 GCN, recorded on a single night, using a single survey technique, across those ponds which are considered to be accessible to a single GCN metapopulation. Great crested newt populations within North Wales are known to fluctuate quite widely from year to year (Ellis, 2024, *Pers. Comm.*) and as such, the establishment and maintenance of a medium population of GCN at the Green Gates site should be an achievable KPI, assuming that the habitat management activities set out in this plan are successfully implemented.
- 5.11 The HSI and GCN peak count targets set out in Table 5.1 should be reviewed and updated if required, on a minimum 5-year cycle, or if there are other reasons for a change to the proposed targets.

Pond Reference	Target Habitat Suitability Index (Range)	Target Peak GCN Count
GG1	Good (score between 0.70 - 0.79)	15 (target for pond cluster including ponds GG1, GG2 and GG3)
GG2	Good (score between 0.70 - 0.79)	
GG3	Good (score between 0.70 - 0.79)	
GG4	Good (score between 0.70 - 0.79)	20 (target for pond cluster including ponds GG4, GG5, GG7, GG8, GG9)
GG5	Good (score between 0.70 - 0.79)	
GG7	Excellent (score >0.80)	
GG8	Excellent (score >0.80)	
GG9	Excellent (score >0.80)	
GG6	Excellent (score >0.80)	20 (target for pond cluster including ponds GG6, GG10, GG11)
GG10	Excellent (score >0.80)	
GG11	Excellent (score >0.80)	
GG3	Excellent (score >0.80)	10 (target for pond GG13)

Table 5.1: Key Performance Indicators for Ponds at Green Gates Phase 3

5.2.2 Pond Edge Plants, Reedbed, Fen-Type and Willow Carr Habitats

5.12 Objectives for the areas of pond edge plants, reedbed, fen-type habitats and willow carr mosaic within the Green Gates Phase 3 land are associated with both their hydrological functioning and their species composition. It is recognised that as the pond / wetland / willow carr / marshy grassland habitat areas will form part of a mosaic of habitats at the site, specific area requirements are not included as a KPI as the great crested newts and grass snakes which are present at the site will benefit from a complex mosaic of habitats where the habitats are interspersed together.

5.13 Table 5.2 sets out KPIs for the wetland and willow carr habitat areas within Green Gates Phase 3 land.

Key Performance Indicators – Wetland and Willow Carr Habitats		
Attribute	Attribute rationale and other comments	Targets
A1. Extent and distribution of pond edge plants, reedbed, fen-type habitat and willow carr.	<p>Pond edge plants, reedbed and fen-type habitats and willow carr are part of the overall habitat mosaic to be created within the Phase 3 land. The extent of these habitat areas may change over time depending on the hydrological functioning of the site.</p> <p>However, within the habitat mosaic it is important that invading terrestrial scrub (e.g. hawthorn and blackthorn) does not encroach and that areas of bare ground are minimal.</p>	<p>Cover of terrestrial shrub within the habitats <10%.</p> <p>Cover of bare ground within the habitat <5%.</p>
A2. Hydrology	The hydrology of wetland habitats is an important indicator of the habitat's long-term maintenance, as dry wetland habitat areas will eventually trend towards more terrestrial habitat types.	The water table is at or near the ground surface throughout the year, either as visible open water, or saturation of soil at the surface.

Table 5.2: Key Performance Indicators for Pond Edge Plants, Reedbed and Fen-Type Habitats and Willow Carr (continued)

Key Performance Indicators – Wetland and Willow Carr Habitats		
Attribute	Attribute rationale and other comments	Targets
A3. Distinctive species	The range of plants present should reflect that which is to be expected in an area of pond edge plants, reedbed or fen-type habitat.	Within the reedbed, common reed <i>Phragmites australis</i> forming 60-80% of the total habitat composition. Other habitat areas could include open water (<10%), pond edge plants, fen-type habitat or wet woodland.
A4. Negative indicator species	In addition the presence of species indicative of sub-optimal condition can be used to identify wetland habitats which are not achieving their optimal targets. Sub-optimal species include creeping thistle <i>Cirsium arvense</i> , spear thistle <i>Cirsium vulgare</i> , common nettle <i>Urtica dioica</i> , docks <i>Rumex</i> spp., and common ragwort <i>Jacobea vulgaris</i> .	Presence of species indicative of sub-optimal condition <5%.
A5. Invasive Non-Native Species (INNS)	The presence of invasive non-native species (specific to North Wales) within the wetland habitats is a negative indicator.	Absence of INNS within habitat.

Table 5.2 (continued): Key Performance Indicators for Pond Edge Plants, Reedbed and Fen-Type Habitats and Willow Carr

5.2.3 Marshy Grassland

5.14 Objectives for the marshy grassland habitats within the Green Gates Phase 3 land are associated with both their hydrological functioning and their species composition. It is recognised that as the pond / wetland / marshy grassland habitat areas will form part of a mosaic of habitats at the site, specific area requirements are not included as a KPI as the great crested newts and grass snakes which are present at the site will benefit from a complex mosaic of habitats where the habitats are interspersed together.

5.15 Table 5.3 sets out KPIs for the marshy grassland habitat areas within Green Gates Phase 3 land.

Key Performance Indicators – Marshy Grassland Habitats		
Attribute	Attribute rationale and other comments	Targets
A1. Extent and distribution of marshy grassland habitat	Marshy grassland habitats are part of the overall habitat mosaic to be created within the Phase 3 land. The extent of these habitat areas may change over time depending on the hydrological functioning of the site. However, within the habitat mosaic it is important that invading scrub does not encroach and that areas of bare ground are minimal.	Cover of shrub within the habitats <5%. Cover of bare ground within the habitat <5%.

Table 5.3: Key Performance Indicators for Marshy Grassland Habitats (continues)

Key Performance Indicators – Marshy Grassland Habitats		
Attribute	Attribute rationale and other comments	Targets
A2. Hydrology	The hydrology of marshy grassland habitats is an important indicator of the habitat's long-term maintenance, as dry marshy grassland habitat areas will eventually trend towards a more terrestrial habitat types.	The soils at the surface are saturated during the winter months as water levels within the soils recharge due to winter rainfall (approximately December – March).
A3. Distinctive species	The range of plants present should reflect that which is to be expected in a marshy grassland habitat.	Refer to species-mix used to establish the habitat. From Year 5 onwards 80% of the species sown should still be present.
A4. Invasive Non-Native Species	The presence of invasive non-native species (specific to North Wales) within the wetland habitats is a negative indicator.	Absence of INNS within habitat.

Table 5.3 (continued): Key Performance Indicators for Marshy Grassland Habitats

5.2.4 Species-Rich Grassland

5.16 Objectives for the species-rich grassland habitats within the Green Gates Phase 3 land are generally associated with their species composition and the provision of wildflowers which provide nectar sources for invertebrates, which in turn provide food for other species such as reptiles, birds and bats. It is recognised that the species-rich grassland habitat areas will form an ecotone between the wetland and the scrub, woodland and hedgerow habitats and specific area requirements are not included as a KPI as the faunal species at the site will benefit from a complex mosaic of habitats where the habitats are interspersed together.

5.17 Table 5.4 sets out KPIs for the species-rich grassland habitat areas within Green Gates Phase 3 land. It should be noted that there are no KPIs provided for the improved grassland habitats which surround the habitat creation areas.

Key Performance Indicators – Species-Rich Grassland Habitats		
Attribute	Attribute rationale and other comments	Targets
A1. Extent and distribution of species-rich grassland habitat	Species-rich grassland habitats are part of the overall habitat mosaic to be created within the Phase 3 land. This habitats forms an ecotone between the wetland habitats and scrub, hedgerow and woodland habitats. However, within the habitat mosaic it is important that invading scrub does not encroach and that areas of bare ground are minimal.	Cover of shrub within the habitats <5%. Cover of bare ground within the habitat <5%. Combined cover of species indicative of suboptimal condition (see A3) and physical disturbance <5%.
A2. Distinctive species	The range of plants present should reflect that which is to be expected in a species-rich grassland habitat.	Refer to species-mix used to establish the habitat. From Year 5 onwards 70% of the species sown should still be present.

Table 5.4: Key Performance Indicators for Species-Rich Grassland Habitats (continues)

Key Performance Indicators – Species-Rich Grassland Habitats		
Attribute	Attribute rationale and other comments	Targets
A3. Negative indicator species	<p>In addition the presence of species indicative of sub-optimal condition can be used to identify wetland habitats which are not achieving their optimal targets.</p> <p>Negative indicator species include: Agricultural weeds – creeping thistle <i>Cirsium arvense</i>, spear thistle <i>Cirsium vulgare</i>, cleavers <i>Galium aparine</i>, Common nettle <i>Urtica dioica</i>, broad-leaved plantain <i>Plantago major</i> and broad-leaved dock <i>Rumex obtusifolius</i> indicative of increase in nutrients. Common ragwort <i>Senecio jacobaea</i> indicative of over-grazing.</p> <p>Overabundance of bulky grasses, rushes or sedges from adjacent wetland habitat areas (e.g. reed sweet grass <i>Glyceria maxima</i>, reed canary grass <i>Phalaris arundinacea</i>, common reed <i>Phragmites australis</i>, false oat grass (<i>Arrhenatherum elatius</i>), large sedges <i>Carex sp.</i>, cat grass <i>Dactylis glomerata</i>, tufted hair grass <i>Deschampsia cespitosa</i>, soft or hard rush <i>Juncus sp.</i>) may be present to moderate cover but when unchecked by grazing or cutting management will suppress less competitive species.</p>	Presence of species indicative of sub-optimal condition <u>plus</u> bare ground areas <5%.
A4. Grassland structure	A varied sward height provides microhabitats within the grassland which are used by different invertebrate species, thus increasing the diversity of the fauna which the grassland supports.	Sward height is varied – at least 20% of the sward is <7cm and a least 20% is >7cm.
A5. Invasive Non-Native Species	The presence of invasive non-native species (specific to North Wales) within the grassland habitats is a negative indicator.	Absence of INNS within habitat.

Table 5.4 (continued): Key Performance Indicators for Species-Rich Grassland Habitats

5.2.5 Scrub, Hedgerows, Woodland and Scattered Trees

5.18 Objectives for these habitats have been presented together, as the two hedgerow features within the Phase 3 land may trend towards a scrub habitat as they grow out from the central hedgerow line. Many of the mature scattered trees within the Phase 3 land are associated with the hedgerow features and field boundaries. Woodland habitats are proposed to be created within the site. Denbighshire County Council have an overall target of 20% woodland and scrub cover across their entire landholding, and as such these habitats are considered together and they would all contribute towards this target. For some sites, the hedgerows would need to form important boundary features, however, as the hedgerows within the Phase 3 land are internal to the fields, their functionality as a barrier is not required, hence they are included within this overall habitat feature.

5.19 Table 5.5 sets out KPIs for the scrub, hedgerows, woodland and scattered trees within Green Gates Phase 3 land.

Key Performance Indicators – Scrub, Hedgerow, Woodland and Scattered Trees		
Attribute	Attribute rationale and other comments	Targets
A1. Extent and distribution of scrub, hedgerow, woodland and scattered trees	Within the site at Green Gates Phase 3, these habitats are considered to be a valuable part of the habitat ecotone. However, overall the woody vegetation at the site will be assessed in accordance with DCC's woodland and scrub cover targets.	Cover of woody vegetation, including scrub, hedgerows, woodland and scattered trees to be 20% of the total land area within the Green Gates Phase 3 site. Proposed area of created broadleaved woodland = 3.29 ha
A2. Habitat structure	Within the woody habitats, a variety of age ranges should be present, and the structure of the habitat should allow regeneration opportunities for new growth.	A varied age structure of woody species is shown across all of the woody habitats. Ages should include seedlings, saplings, young, semi-mature and mature specimens. NOTE – the woodland habitats will be planted as part of the habitat creation project and will therefore only provide young specimens throughout the period of this Habitat Management Plan. It is therefore important to retain the existing mature trees in order to provide a varied age of woody specimens across the site.
A3. Dead wood	Dead wood from mature trees forms a valuable part of a woodland ecosystem, providing habitat niches for fungi and invertebrates. Overtime any fallen dead wood will rot into the soil, providing habitat niches during the rotting process. If possible retain standing dead wood where it is, as this provides different habitat opportunities for fungi, invertebrates and potentially bats and birds for roosting / nesting.	Dead wood habitat present. Dead wood from the mature trees (e.g. branches / fallen trees) should be retained on site. Ideally the wood should be retained at the location where it fell (or remained standing), although if this is not possible, the dead wood should be moved to a habitat pile.
A4. Habitat ecotone	The scrub, hedgerow, woodland and scattered trees should have an ecotone around the edge which provides scattered scrub, tall forbs or longer grassland as an ecotone.	Ecotone (scattered scrub, tall forbs or grassland) around edge of scrub, hedgerow, scattered trees and woodland habitats is 1m wide.

Table 5.5: Key Performance Indicators for Scrub, Hedgerows, Woodland and Scattered Tree Habitats
(continues)

Key Performance Indicators – Scrub, Hedgerow, Woodland and Scattered Trees		
Attribute	Attribute rationale and other comments	Targets
A5. Negative indicator species	The following species are negative indicator species for these woody habitats. Their presence shows that the habitats are in sub-optimal condition. Negative indicator species include: non-native conifers, tree-of-heaven <i>Alianthus altissima</i> , holm oak <i>Quercus ilex</i> , European turkey oak <i>Quercus cerris</i> , cherry laurel <i>Prunus laurocerasus</i> , snowberry <i>Symphoricarpos</i> spp., shallon <i>Gaultheria shallon</i> , American skunk cabbage <i>Lysichiton americanus</i> , buddleia <i>Buddleja</i> spp., cotoneaster <i>Cotoneaster</i> spp., Spanish bluebell <i>Hyacinthoides hispanica</i> and hybrid bluebells <i>Hyacinthoides x massartiana</i> .	Negative indicator species <5% of habitat area.
A6. Invasive Non-Native Species	The presence of invasive non-native species (specific to North Wales) within the woody habitats is a negative indicator.	Absence of INNS within habitat.

Table 5.5 (continued): Key Performance Indicators for Scrub, Hedgerows, Woodland and Scattered Tree Habitats

5.2.5 Tall Ruderal

5.20 The tall ruderal habitats already exist at the site at Green Gates, within Area 1c. This area is the only significant area of this habitat type at the site and as such it is proposed for retention.

5.21 Table 5.6 sets out KPIs for the tall ruderal habitats within Green Gates Phase 3 land.

Key Performance Indicators – Scrub, Hedgerow, Woodland and Scattered Trees		
Attribute	Attribute rationale and other comments	Targets
A1. Extent and distribution of tall ruderal habitats is maintained	Within the site at Green Gates Phase 3, these habitats are considered to be a valuable part of the habitat ecotone.	Tall ruderal habitat area is currently c.3552 m ² .
A2. Habitat structure	Within the tall ruderal habitats there is some vegetation structure which allows growth of	Single structural component doesn't form more than 80% of the habitat.
A3. Species diversity	Diversity of species within the tall ruderal habitat area to provide nectar sources for different invertebrates.	Target 4 different species present with no one forming more than 80% of the tall ruderal habitat composition.
A4. Invasive Non-Native Species	The presence of invasive non-native species (specific to North Wales) within the tall ruderal habitats is a negative indicator.	Absence of INNS within habitat.

Table 5.6: Key Performance Indicators for Tall Ruderal Habitats

5.2.7 Amphibian and Reptile Hibernacula

5.22 Key Performance Indicators for the amphibian and reptile hibernacula that will be installed at the site are presented in Table 5.7. The KPIs are associated with maintaining the species features during the lifetime of the Habitat Management Plan, as these features can, overtime, become overgrown and lose their functionality for the target species.

Key Performance Indicators – Amphibian and Reptile Hibernacula		
Attribute	Attribute rationale and other comments	Targets
A1. Total number of hibernacula	It is important to ensure that the created hibernacula are maintained throughout the period of the Habitat Management Plan. Should a hibernacula collapse or be destroyed for another reason (e.g. tree fall) then it should be restored or replaced before the next hibernation season.	Total number of created amphibian and reptile hibernacula within the Phase 3 land = 8.
A2. Hibernacula structure	The hibernacula will only function effectively when suitable gaps are maintained at the ground level to allow amphibians and reptiles access to the feature.	Suitable 'gaps' should be maintained and visible at each hibernacula to allow access into the feature.

Table 5.7: Key Performance Indicators for Amphibian and Reptile Hibernacula

5.3 Management Activities

- 5.23 The proposed management activities are detailed in Table 5.8. This table has been produced as a simple plan, suitable for use on-site by DCC staff or specialist landscape contractors (alongside this wider management plan document). The plan has been produced using an Excel format, which is available alongside this Habitat Management Plan document.
- 5.24 The accompanying spreadsheet is therefore also provided alongside this management plan. Table 5.7 is an A3 format, which can be printed, laminated, and provided to DCC staff or a landscape contractor. The requirement for attendance by an Ecological Clerk of Works, or the need for certain works to be completed by a licenced ecologist is also shown on Table 5.8.
- 5.25 Details of the proposed management activities are given in Sections 5.3.1 to 5.3.8 below.

Table 5.8: Green Gates Phase 3 - Habitat Management Prescriptions

Habitat	Management Activity	1	2	3	4	5	6	7	8	9	10
All habitats within Phase 3 area.	Removal of any INNS species recorded. To be completed annually.	x	x	x	x	x	x	x	x	x	x
All habitats within Phase 3 area.	Ensure protective deer fencing is maintained and effective.	x	x	x	x	x	x	x	x	x	x
Ponds	Ensure protective fencing around plug plants is maintained and effective.	x	x	x							
Ponds	Ensure water levels within pond are maintained during vegetation establishment phase.	x	x	x							
Ponds	Cut and remove 100% of marginal and emergent vegetation at given pond every 4 years (under GCN ECoW supervision).				GG1 GG4 GG8 GG10	GG2 GG6 GG7	GG3 GG9 GG12		GG1 GG4 GG8 GG10	GG2 GG6 GG7	GG3 GG9 GG12
Reedbed / fen-type habitat	Ensure protective fencing around plug plants is maintained and effective.	x	x	x							
Reedbed / fen-type habitat	Cut 50% of reedbed and fen-type vegetation and remove arisings.					x					x
Marshy grassland	Cut to 100mm in mid July - early August and remove arisings.	x									
Marshy grassland	Dig out perennial weeds by hand. Cut to 100mm in mid July - early August with hay left to drop and then removed from site. Further autumn cut in early October, with arisings removed.		x								
Marshy grassland	Cut to 100mm in mid July - early August and remove arisings. Second cut (to 100mm and remove arisings) before end of October if required.			x	x	x	x	x	x	x	x
Species-rich grassland and existing grassland	Cut to 100mm in mid July - early August and remove arisings.	x									
Species-rich grassland and existing grassland	Cut to 100mm in mid July - early August and remove arisings. Second cut (to 100mm and remove arisings) before end of October if required.		x								
Species-rich grassland and existing grassland	Cut to 100mm in mid July - early August and remove arisings. Second cut (to 100mm and remove arisings) before end of October if required.			x	x	x	x	x	x	x	x
Tall ruderal	Cut to 100mm in mid July - early August and remove arisings.	x			x			x			x
Scrub	Manage on 10 year rotation. Cut 50% of scrub habitat every 5 years and remove arisings. Removal of above-ground material only. Works to be completed in September / October to avoid amphibian and reptile hibernation period.					x					x
Willow carr	Manage on 15 year rotation. Cut 33% of willow carr habitat every 5 years and remove arisings. Removal of above-ground material only. Works to be completed in September / October to avoid amphibian and reptile hibernation period.					x					x
Willow carr	Sowing of wet woodland field layer seed mix to create field-layer habitats.					x					
Willow carr	Management of wet woodland field layer vegetation during establishment by annual cut and removal of arisings.						x	x	x		
Hedgerows	Cut one side of the hedgerow every 3 years. Removal of above-ground material only. Works to be completed in September / October to avoid amphibian and reptile hibernation period. Any stump removal to be done during amphibian / reptile activity period (April - October) under ECoW supervision. Trees to be managed as mature standards (see prescription below).	x			x			x			x
Scattered mature trees	Trees to be managed as mature standards with pruning for health and safety reasons only. Bat surveys may be required if significant management works / felling is necessary. Retain standing and fallen dead wood on site. Any stump removal to be done during amphibian / reptile activity period (April - October) under ECoW supervision.	x	x	x	x	x	x	x	x	x	x
Woodland	Annual management of competitive vegetation (mowing / hand pulling). Maintenance of tree tubes, guards and shelters (if used) and removal by Year 10.	x	x	x	x	x	x	x	x	x	x
Woodland	Replacement of tree losses.	x	x	x							
Woodland	Targeted woodland plug planting in designated glades to introduced target woodland plants. Assume 20% of wooded area planted with plugs.										x
Amphibian and reptile hibernacula	Annual check to ensure continuing functionality of hibernacula. Any remedial works necessary to be completed in August - October under supervision of GCN ECoW.	x	x	x	x	x	x	x	x	x	x
Green roof on Biodiversity Hub building	To be managed to manufacturers specifications. Please refer to building installation and management guide.	x	x	x	x	x	x	x	x	x	x
Habitat Management Plan - 5-Year Review	Review of establishment success and confirmation of management prescriptions for remaining 5-year of HMP.					x					

5.3.1 Management Activity A – Grass Cutting

5.26 Management details associated with grass cutting and tall ruderal cutting in the Green Gates Phase 3 land are presented in Table 5.9.

Rationale	<p>Grassland management is required to maintain grassland habitat surrounding the GCN ponds as part of the habitat mosaic at the site. Grassland habitats offer good foraging opportunities for great crested newts, and provide an ideal ecotone between marginal emergent vegetation surrounding the ponds and scrub, hedgerow, scattered trees and woodland habitats.</p> <p>The management regime should optimise the grassland diversity, allowing opportunities for a diverse botanical composition to develop over time. Removal of arisings from the grassland habitats will potentially decrease nutrient levels within the grassland soils over time, allowing opportunities for a more diverse grassland sward to develop.</p> <p>Cutting of tall ruderal habitats every 3 years is also required to maintain this habitat.</p>
Methods	<p>Grassland and tall ruderal management should be carried out during the active period for great crested newts and reptiles. Grassland should be cut using a mower, set with the blade at 100mm above ground level. Tall ruderal habitats may need to be strimmed if the vegetation is too thick for cutting using a mower.</p> <p>In order to maximise the opportunity for creation of a diverse grassland and tall ruderal sward, all arisings should be removed from the habitat areas. Arisings should either be removed off site, or composted at a location within the Green Gates Phase 3 site which is agreed with DCC’s Biodiversity Team.</p> <p>Grassland and tall ruderal cutting should be carried out between mid July and October to ensure that grassland species have an opportunity to flower and set seed before seed heads are cut. This timing will also ensure that the risk of disturbance to ground nesting birds is minimised, as they should be finished nesting by mid July.</p>
Disposal of plants / other materials	<p>All arisings should be removed from the grassland habitats and either taken off site or composted at an agreed location within the wider Green Gates site.</p>
Site-specific considerations	<p>If any amphibians or reptiles are seen using the grasslands or tall ruderal habitats before cutting commences, the cutting works should be delayed until the animals have left the grassland area. Amphibian and reptile individuals should not be handled by management operatives.</p>

Table 5.9: Management Activity A – Grass and Tall Ruderal Cutting

5.3.2 Management Activity B – Tree Management Works

5.27 Management details associated with the management of mature scattered trees in the Green gates Phase 3 land are presented in Table 5.10.

Rationale	<p>The site at Green Gates Phase 3 includes a number of existing mature scattered trees, often associated with the existing hedgerows and field boundaries.</p> <p>All of the trees within the Phase 3 land will be retained and any necessary pruning / branch removal or tree felling management works will only be carried out for health and safety reasons.</p> <p>If tree health declines, where safe to do so, standing dead wood should be retained in its standing position. Where dead branches or trees fall, the fallen dead wood should also be retained in its fallen position, unless this causes problems to the site’s infrastructure / fences / access routes etc. If dead wood has to be moved, it should be retained onsite somewhere as a dead wood habitat pile.</p>
Methods	<p>Tree works are to be completed outside of the nesting bird season to minimise impacts on nesting and nest-building birds (protected by the Wildlife and Countryside Act, 1981, as amended). Above-ground tree management works are to be completed between November and February (inclusive). During this period no stump removal or excavation is allowed. If necessary, the removal of tree stumps / roots etc must be carried out during the amphibian and reptile activity season April to October inclusive), under the supervision of an Ecological Clerk of Works.</p> <p>All tree management / felling works should be carried out by suitably licenced and experienced tree surgeons.</p> <p>Specific tree felling methods may be required if bat roosts are identified (see below).</p> <p>Tree management works include tree felling, coppicing, pruning of limbs and pollarding.</p>
Disposal of plants / other materials	<p>Felled woody material should be retained on site and used to create habitat piles. If there is any risk of any woody material being removed from the site, it may be necessary to pin the wood piles down, to ensure that they can rot in situ.</p>
Site-specific considerations	<p>Any trees which are to be subject to significant management or felling will need to be assessed for bat roosts prior to any works being agreed. A licenced bat ecologist will need to carry out a ground level bat roost assessment, and may also need to complete emergence surveys (which should be undertaken between May and August) to determine whether the trees support roosting bats. Should a bat roost be identified, works can only proceed once a licence has been granted by Natural Resources Wales.</p>

Table 5.10: Management Activity B – Tree Management

5.3.3 Management Activity C – Scrub and Willow Carr Management Works

5.28 Management details associated with the management of scrub and hedgerow in the habitat areas within Green Gates Phase 3 are presented in Table 5.11.

<p>Rationale</p>	<p>The scrub and willow carr habitats at Green Gates Phase 3 will provide a valuable ecotone between the grassland and fen-type habitats, adding to the complex habitat mosaic within the site. The habitats will be created through allowing expansion of existing scrub / hedgerow areas and also planting.</p> <p>Scrub and willow carr habitats provide hibernation and refuge opportunities for reptiles, amphibians and hedgehogs and nesting and feeding areas for bird species which are likely to use the site. Management of these habitats therefore needs to consider the potential presence of nesting birds and hibernating reptiles, amphibians and small mammals.</p> <p>Once the habitats are developed, it will be important to ensure that scrub and willow carr habitats are managed in order to maintain the habitats within the site. These habitat should not be allowed to develop within 3m of the southern, eastern and western edges of the ponds which support breeding great crested newts, as they can result in pond overshadowing, loss of light to support growth of aquatic plants, shading of open courtship areas for great crested newts, and terrestrialsation of the pond and wetland habitats.</p>
<p>Methods</p>	<p>Above-ground scrub / willow carr management works will involve coppicing of the scrub or willow carr at 150mm above ground. These works are to be completed outside of the nesting bird season to minimise impacts on nesting and nest-building birds (protected by the Wildlife and Countryside Act, 1981, as amended). Above-ground scrub / willow carr management works are to be completed between November and February (inclusive). During this period no excavation or removal of below ground stems / roots is allowed. The removal of stems / roots etc must be carried out during the amphibian and reptile activity season (April to October inclusive), under the supervision of an Ecological Clerk of Works. For scrub / willow carr which is located within the ponds, the removal of roots will be completed as part of the aquatic vegetation management works (see Management Activity F).</p> <p>All scrub / willow carr coppicing works should be carried out by suitably experienced landscape contractors.</p>
<p>Disposal of plants / other materials</p>	<p>Felled scrub / willow carr material should either be used to create habitat piles within the habitats, or should be chipped and chipped material should be spread thinly within adjacent woodland / scrub / willow carr habitats.</p> <p>Any scrub / willow carr plants which are considered to be Invasive Non-Native Species (INNS) should be removed from the site and disposed of at a registered waste facility.</p>
<p>Site-specific considerations</p>	<p>Much of the scrub / willow carr habitat at the Phase 3 site does not yet exist. However it is proposed that this habitat establishes / is planted as part of the habitat restoration / creation works within the site. Implementation of the scrub / willow carr management activities will depend on the success of establishment and review of the habitat's management requirements once fully established.</p>

Table 5.11: Management Activity C – Scrub / Willow Carr Management

5.3.4 Management Activity D – Hedgerow Management Works

5.29 Management details associated with the management of the hedgerows in the Green Gates Phase 3 land are presented in Table 5.12.

<p>Rationale</p>	<p>The hedgerows at Green Gates Phase 3 exists between the northern and southern fields in the western part of the site, along the northern boundary of the northern field, and along the edge of Area 1a and 1c. This existing hedgerows have been managed to allow the hedgerow species to grow out from the original hedgerow line, providing thick hedgerows.</p> <p>Maintenance of these connecting features is considered to be important as a wildlife corridor, and visual and physical barriers between the fields.</p> <p>Whilst the hedgerow management will continue to allow growth into the adjacent fields, it is proposed that the line of the hedgerows be maintained by cutting each side on a 6-year rotation, with one side cut every three years.</p> <p>The hedgerows provide hibernation and refuge opportunities for reptiles, amphibians and hedgehogs and nesting and feeding areas for bird species which are likely to use the site. Management of these habitats therefore needs to consider the potential presence of nesting birds and hibernating reptiles, amphibians and small mammals.</p>
<p>Methods</p>	<p>Above-ground hedgerow management works will involve cutting back of overhanging hedgerow branches to the original hedge line. Any cutting back should only be done to 150mm above ground. These works are to be completed outside of the nesting bird season to minimise impacts on nesting and nest-building birds (protected by the Wildlife and Countryside Act, 1981, as amended). Above-ground hedgerow management works are to be completed between November and February (inclusive).</p> <p>All hedgerow management works should be carried out by suitably experienced landscape contractors.</p>
<p>Disposal of plants / other materials</p>	<p>Cut hedgerow material should either be used to create habitat piles within the habitats in the Phase 3 land, or should be chipped and chipped material should be spread thinly within the woodland / willow carr / scrub habitats.</p> <p>Any hedgerow plants which are considered to be Invasive Non-Native Species (INNS) should be removed from the site and disposed of at a registered waste facility.</p>
<p>Site-specific considerations</p>	<p>-</p>

Table 5.12: Management Activity D – Hedgerow Management

5.3.5 Management Activity E – Woodland Management Works

5.30 Management details associated with the management of the planted woodland habitats in the Green Gates Phase 3 land are presented in Table 5.13.

Rationale	<p>The woodland habitats at Green Gates Phase 3 will provide a valuable habitat, adding to the complex mosaic within the site. The habitats will be created through planting using specimens grown at the Tree Nursery from local provenance sources.</p> <p>It is recognised that the woodland habitats will take a long time to develop into their climax habitat. In the short-term these habitats areas will provide foraging and (after some establishment period) hibernation and refuge opportunities for reptiles, amphibians and hedgehogs and nesting and feeding areas for bird species which are likely to use the site. Management of these habitats therefore needs to consider the potential presence of nesting birds and hibernating reptiles, amphibians and small mammals.</p>
Methods	<p>Above-ground woodland management works will involve thinning of planted trees to ensure growth of a well structured habitat in the long-term. Any cutting back should only be done to 150mm above ground. These works are to be completed outside of the nesting bird season to minimise impacts on nesting and nest-building birds (protected by the Wildlife and Countryside Act, 1981, as amended). Above-ground woodland management works are to be completed between November and February (inclusive).</p> <p>Whilst the habitat is establishing, competing grasses should be managed by cutting as per Management Activity A.</p> <p>The removal of tree stumps / roots etc must be carried out during the amphibian and reptile activity season (April to October inclusive), under the supervision of an Ecological Clerk of Works.</p> <p>All woodland management works should be carried out by suitably experienced landscape contractors.</p>
Disposal of plants / other materials	<p>Cut woodland material should either be used to create habitat piles within the woodland habitats in the Phase 3 land, or should be chipped and chipped material should be spread thinly within the woodland / willow carr / scrub habitats.</p> <p>Any woodland plants which are considered to be Invasive Non-Native Species (INNS) should be removed from the site and disposed of at a registered waste facility.</p>
Site-specific considerations	<p>The woodland habitat at the Phase 3 site does not yet exist. However it is proposed that this habitat is planted as part of the habitat restoration / creation works within the site. Implementation of the woodland management activities will depend on the success of establishment and review of the habitat's management requirements once fully established.</p>

Table 5.13: Management Activity E – Woodland Management

5.3.6 Management Activity F – Management of Aquatic, Marginal and Emergent Plants

5.31 Management details associated with the management of aquatic, marginal and emergent plants from within the ponds at Green Gates Phase 3 are presented in Table 5.14.

<p>Rationale</p>	<p>The ponds at Green Gates Phase 3 have been retained / restored / designed to provide optimal habitat for great crested newts. The wider landscape area surrounding the Green gates site supports a significant, large concentration of great crested newts, a European Protected Species. Each of the ponds within the Green Gates Phase 3 area will therefore contribute to the conservation of this species, providing valuable habitat links through the landscape, and ensuring that should one pond provide sub-optimal breeding opportunities in one year, then other ponds are present which could be used by great crested newts instead. The necklace of ponds within the Green Gates site and the surrounding land parcels therefore provides an ecological buffer against the potential adverse effects of climate change (by supporting different ponds with different conditions), and also ensures that there is a contingency within the site should some of the ponds suffer from drying, pollution events or other potential risks.</p> <p>The management of vegetation from within the ponds is therefore necessary to ensure that the ponds maintain suitable areas of open water for great crested newt courtship. This is a valuable part of the lifecycle of this species, and encroaching vegetation can reduce the displaying opportunities which a clear open water column provide.</p> <p>The removal of aquatic, marginal and emergent vegetation from the ponds on a cyclical basis is therefore necessary to ensure that the ponds achieve their highest possible habitat suitability (see Table 5.1 for targets). The scheme of vegetation removal outlined in Table 5.7 has been designed to provide a rolling programme of vegetation removal amongst the pond clusters, so that within each cluster, the ponds contain different quantities of open water vs vegetation.</p>
<p>Methods</p>	<p>Works to remove / excavate aquatic, marginal, emergent vegetation from the pond should be completed outside of the amphibian activity period. Works should be completed between November and February (inclusive).</p> <p>Floating aquatic vegetation should be removed from ponds using a grappling hook (or similar) and raked to the edges of the ponds, then removed.</p> <p>Marginal and aquatic vegetation which is growing in the pond should be excavated using the bucket of a hydraulic excavator. None of the ponds at Green Gates Phase 3 are proposed to be lined, and as such, this is considered to be the most effect management approach. Material should be excavated which includes the roots of the vegetation which is to be removed (no more than 0.30 m depth of material is to be excavated).</p> <p>All aquatic, marginal and emergent vegetation clearance works should be carried out by suitably experienced (and licenced if hydraulic excavators are being used) landscape contractors.</p> <p>All aquatic, marginal and emergent vegetation clearance must be carried out under supervision of a licenced GCN Ecological Clerk of Works.</p>
<p>Disposal of plants / other materials</p>	<p>Excavated aquatic, marginal and emergent vegetation should be placed around the edges of the ponds / nearby at the edges of the adjacent woodland / scrub habitats and allowed to rot-down. Any trapped aquatic fauna will be able to re-access the ponds if the vegetation is placed near to the pond's edge.</p> <p>Any Invasive Non-Native Species (INNS) which are recorded in the ponds should be disposed of offsite at an appropriate registered waste facility.</p>
<p>Site-specific considerations</p>	<p>All aquatic, marginal and emergent vegetation clearance must be carried out under supervision of a licenced GCN Ecological Clerk of Works.</p>

Table 5.14: Management Activity F – Aquatic, Marginal & Emergent Plant Management

5.3.7 Management Activity G – Management of Reedbed and Fen-Type Habitats

5.32 Management details associated with the management of reedbed and fen-type habitats at Green Gates Phase 3 are presented in Table 5.15.

Rationale	<p>The reedbed and fen-type habitats at Green Gates Phase 3 form an important ecotone between the ponds and the grassland habitats. These habitat areas will likely be used by reptiles and amphibians for foraging as part of the wider habitat areas.</p> <p>The management of vegetation from within these habitats is necessary to ensure long-term provision of these ecotones within the site. The proposed management is cyclical, with a 10 year rotation, meaning that 50% of the habitat is cut every 5 years. This will allow different habitat stages within these wetland areas.</p>
Methods	<p>Works to cut the habitats could be completed at the same time as grassland cutting works in adjacent habitat areas. These management works should be carried out during the active period for amphibians and reptiles. The reedbed and fen-type habitats should be cut using a mower, set with the blade at 100mm above ground level.</p> <p>In order to maximise the opportunity for creation of a diverse sward, all arisings should be removed from the wetland habitats. Arisings should either be removed off site, or composted at a location within the Green Gates Phase 3 site which is agreed with DCC's Biodiversity Team.</p> <p>Cutting of the reedbed and fen-type habitats should be carried out between mid July and October to ensure that species have an opportunity to flower and set seed before seed heads are cut. This timing will also ensure that the risk of disturbance to ground nesting birds is minimised, as they should be finished nesting by mid July.</p>
Disposal of plants / other materials	<p>All arisings should be removed from the wetland habitat areas and either taken off site or composted at an agreed location within the wider Green Gates site.</p>
Site-specific considerations	<p>If any amphibians or reptiles are seen using the habitats before cutting commences, the cutting works should be delayed until the animals have left the grassland area. Amphibian and reptile individuals should not be handled by management operatives.</p>

Table 5.15: Management Activity G – Reedbed and Fen-Type Habitat Management

5.3.8 Management Activity H – Fish Removal

5.33 Details associated with the removal of fish from ponds (if necessary) at Green Gates Phase 3 are presented in Table 5.16.

<p>Rationale</p>	<p>The ponds at Green Gates Phase 3 have been retained / designed to provide optimal habitat for great crested newts. The area including and surrounding the site supports a significant, large concentration of great crested newts, a European Protected Species. Each of the ponds within the Green Gates Phase 3 site therefore contributes to the conservation of this species, providing valuable habitat links through the landscape, and ensuring that should one pond provide sub-optimal breeding opportunities in one year, then other ponds are present which could be used by great crested newts instead. The clusters of ponds within the Green Gates site therefore provides an ecological buffer against the potential adverse effects of climate change (by supporting different ponds with different conditions), and also ensures that there is a contingency within the landscape should some of the ponds suffer from pollution events or other potential risks.</p> <p>The Habitat Suitability Index identifies that the presence of fish within a pond can have an adverse effect on the breeding success of great crested newts. This can be attributed to two factors: (1) fish may predate GCN tadpoles and efts; and, (2) fish can eat aquatic vegetation leaving ponds denuded of vegetation on which GCN lay their eggs.</p> <p>The removal of fish from the ponds (if fish are recorded in the ponds) may therefore be necessary to ensure that the ponds achieve their highest possible habitat suitability (see Table 5.1 for targets).</p>
<p>Methods</p>	<p><u>Stage 1</u> – Seine Netting. Once pre-works fish health checks have been completed, fish will be removed by hand using a specialist fisheries team. Seine nets will be used to capture the fish, which will then be translocated into suitable tanks for transportation off site.</p> <p><u>Stage 2</u> – Additional Fish Kill. If seine netting identifies a significant remaining population of fish within a pond, additional fish management activities may be required to kill any remaining fish which were not captured during the seine netting operation. These will be identified by a specialist contractor if required.</p> <p>Specialist contractors should be used, and will need to provide a Method Statement for all fish removal activities, which should be approved by NRW prior to the works taking place.</p> <p>Any chemical control methods will only be used as a last resort. Application will be allowed only during winter months (November to February inclusive), when great crested newt individuals will not be present in the ponds. The works will be carried out under supervision of a GCN licenced Ecological Clerk of Works. All dead fauna will be collected from the pond surface using nets, and will be removed immediately.</p>
<p>Disposal of plants / other materials</p>	<p>Fish captured during Stage 1 works should be taken offsite to a suitable receptor location (to be determined by specialist fisheries contractor). No live fish should be disposed of in any ponds on the Green Gates site or any adjacent sites.</p> <p>Fish killed during the Stage 2 works should be taken offsite by the specialist fisheries contractor and disposed of in accordance with their own waste management procedures. No dead fish are to be disposed of within the Green Gates site.</p> <p>Any Invasive Non-Native Species (INNS) fish (or other aquatic faunal species) which are recorded in the ponds should be disposed of offsite in accordance with the recommendation of the specialist fisheries contractor.</p>
<p>Site-specific considerations</p>	<p>The need for fish removal works will be identified by the pond monitoring works. All fish removal works are to be completed by a specialist fisheries contractor who holds the necessary permissions and licences to complete the works. Pre-capture fish health checks are required prior to any works commencing and the method of fish removal being agreed upon.</p>

Table 5.16: Management Activity H – Fish Removal Works (if required)

6. Access Routes and Working Areas

- 6.1 Access routes and working areas at Green Gates will be established as part of the habitat restoration / creation works. Access for management will be via the road access to the Tree Nursery and then through field gates into the relevant fields in the Phase 3 area.
- 6.2 A parking area exists at the Tree Nursery and any plant maintenance, cleaning, re-fuelling should take place at this location, which is away from the main habitat areas in the Phase 3 land. If possible, no plant / equipment maintenance work or re-fuelling (or any activity which could result in the pollution of waterbodies) should take place within 10m of the Ponds GG1, GG2 and GG3.
- 6.3 Appendix 1 includes a plan which shows the location of the Tree Nursery in relation to the Phase 3 pond and habitat locations.

7. Reporting and Records Management

7.1 Objectives

- 7.1 Reporting and feedback loops are well established within the DCC Biodiversity Team given its role as a local authority and public body. The objectives of the reporting for this site will be to ensure the successful establishment of the habitats at the site, and monitoring populations of protected and notable species. It is hoped that the Green Gates site will provide an additional expansion of optimal habitat which can be used by the important population of great crested newts, and that the population of GCN within the site experiences an upward trend in population numbers.
- 7.2 As DCC are a member of the St Asaph Business Park GCN Steering Group, this forum allows an open discussion across different sites, with different management approaches to consider the impacts of changes in management or other external factors, to be discussed, and, where necessary, remedial works on both a site-specific and a landscape scale can be agreed with NRW representatives.

7.2 Reporting Methods

- 7.3 The St Asaph Business Park GCN Steering Group is well established and meets twice a year. It is understood that this group has been meeting since c.2006 and, with the exception of 2020 and early 2021 (when COVID-19 restrictions meant that attendance at group meetings was discouraged), this forum has met twice a year (in Spring and Autumn). Mechanisms have been established to ensure that if there are restrictions to future in-person meetings, this forum can continue to meet virtually.
- 7.4 The liaison group includes, as a minimum, representatives from Natural Resources Wales, Welsh Government, their contractor VINCI Facilities, the EPS Compliance Auditor for the Business Park and Wild Ground. The Denbighshire County Council Biodiversity Team lead also sits on this group alongside other interested parties, including owners of development plots within and adjacent to the Business Park and the Amphibian and Reptile Conservation group (ARC).
- 7.5 The GCN Steering Group discusses a wide range of considerations associated with the Business Park and other projects in the area, including pond management, fish management issues, and the presence of Invasive Non Native Species (INNS) within the business park and Glascoed Nature Reserve. Minutes from the meetings are produced and circulated to all attendees, so that any management decisions are detailed.
- 7.6 The GCN Steering Group are already aware of the proposed habitat creation projects at Green Gates, and opportunities to visit the site at Green Gates have been provided by DCC to the Steering Group attendees. It is therefore anticipated that this forum can also be used to consider management activities within the Green Gates site which will support the landscape scale conservation of great crested newts. Other protected and notable species, and any recorded evidence of INNS are also discussed.
- 7.7 Periodic review of this Habitat Management Plan document will take place if required and any revisions will be reported to Natural Resources Wales. It is anticipated that the Habitat Management Plan will be reviewed on a 5-year basis. At the end of the first 5-years, some of the habitats (with the exception of the woodland blocks) are likely to be moving from their establishment, to their management phases.

- 7.8 Great crested newt population monitoring data (including HSI results from each pond and GCN and other amphibian records) will be submitted to Cofnod's GCN Monitoring Database each year. The data is therefore available for use not only by the Green Gates team, but it can also be used by NRW / Cofnod / other partners as part of a wider dataset associated with GCN population in North Wales.
- 7.9 A programme of internal Ecological Compliance Audits are proposed as part of the GCN EPS licence for the Green Gates site. These audits will be completed by DCC's Ecological Compliance and Support Officers as part of their job role. The audits set out below will be completed and records will be maintained which would be available to NRW Species Permitting team upon request. The audits would utilise NRW's standard Ecological Compliance Audit form (see example in Section M of the GCN Method Statement, report R-BA194-01).
- ◆ **EPS Internal Compliance Audit 1** – To be completed once exclusion fencing has been installed, and prior to commencement of trapping and translocation works. This audit will ensure that the exclusion fencing has been installed as per the licence.
 - ◆ **EPS Internal Compliance Audit 2** – To be completed after trapping and translocation works have been completed and during the programme of habitat creation / installation of Biodiversity Hub. This 'spot check' audit will assess the status of the exclusion fencing during the works. Records of fencing-check logs, to be completed by the contractor will be reviewed. This audit will include a check to make sure that the following activities have been completed within the receptor site:
 1. Installation of GCN hibernacula.
 2. Planting of Ponds GG1, GG2 and GG3 with suitable aquatic, marginal and emergent plants to enhance their habitat provision for GCN egg laying.
 - ◆ **EPS Internal Compliance Audit 3** – To be completed after the habitat creation works have been completed, the exclusion fencing has been removed and any habitat reinstatement has been carried out. This audit will confirm that the mitigation measures set out in this licence document have been delivered.
- 7.10 Denbighshire County Council already use an App-based monitoring tool called 'Survey-123' for record keeping across their meadow sites within the county. It is proposed that this tool, which is now widely used within the DCC Biodiversity Team, is used to monitor the habitats within the Green Gates Phase 3 site. The App allows instant digitisation of the data collected, and records are automatically uploaded to COFNOD as part of the record management / data sharing approach adopted by DCC Biodiversity Team. Further information is given in Section 9.

7.3 Non-Compliance Reporting and Remediation Procedures

- 7.11 Non-compliance of management activities associated with the ponds and surrounding habitats are to be considered formally during the Ecological Compliance audit site visits. Any non-compliance will be recorded on the EPS ecological compliance audit monitoring form which will then be submitted to NRW species-licencing team.
- 7.12 Any issues identified by the internal Ecological Compliance auditor will be raised immediately with the DCC Biodiversity team lead. Where immediate remediation is required, this will be carried out without delay. Natural Resources Wales representative on the St Asaph Business Park Steering Group will be informed immediately and any guidance provided will be followed.

7.13 Any changes to management regimes or the proposed programme of works set out in this document will be discussed internally by DCC's Biodiversity Team and any revisions will be noted and circulated to Natural Resources Wales.

7.14 Table 7.1 provides potential risks to the ponds within Green Gates Phase 3, the remediation works which may be required and the actions that should be taken should these works become necessary.

Potential Risk	Remediation Activities / Restrictions
Pollution of ponds from incident on adjacent roads. Potential risk of spillages (chemical, oil, sediments) entering ponds. Most relevant to Ponds GG1, GG2 and GG3.	<p>Immediate action to be taken. NRW to be kept informed of issue and proposed remedial activities.</p> <ul style="list-style-type: none"> For Ponds GG1, GG2 and GG3 which is connected to the surface water system associated with the Tree Nursery and which eventually outfall into the watercourse that flows in a northerly direction through the Green Gates site, bunds and / or barrages may be required to minimise pollution entering the waterbody, or indeed exiting the waterbody and entering the local watercourse system. Clean up operation likely to be required. NRW species permitting team should be informed if the activities will result in the pond being unavailable for GCN breeding. For Ponds GG4, GG5, GG6, GG8, GG9, GG10, GG11 and GG13, clean up operations are likely to be required post-incident. NRW species permitting team should be informed if the activities will result in the pond being unavailable for GCN breeding.
Drying of pond in 3 or more consecutive years.	Planned action to be taken. Remediation to be discussed and agreed within DCC Biodiversity Team. If pond is regularly dry, it is not providing breeding opportunities for GCN. Creation of replacement ponds, or re-excavation of pond may be required. Scope and approach to be agreed with Natural Resources Wales species permitting team through GCN EPS licence amendment.
Fish recorded in ponds.	Adopt fish removal approach set out in Management Activity H (see Section 5.3.8). Strategy to be agreed with NRW.
Excessive litter recorded in ponds (e.g. from illegal fly-tipping activity).	Litter to be removed from pond as soon as possible. Where possible this should be undertaken by hand. Works will need to be supervised by GCN licenced Ecological Clerk of Works if carried out during the GCN activity season (March to October inclusive). Litter to be removed off site and disposed of appropriately.
Introduction of invasive non-native wetland plants or animals	<p>The introduction of invasive non-native species (INNS) to the ponds at Green Gates Phase 3 could happen accidentally or from an intentional release by a member of public who could access the ponds.</p> <p>If INNS are recorded, remediation is to be discussed and agreed internally within the DCC Biodiversity Team. Any works are to be reported to NRW species-permitting team.</p>

Table 7.1: Potential Risks to GCN Ponds and Remediation Approaches

8. Biosecurity and Other Considerations

8.1 Biosecurity

8.1 Biosecurity considerations aim to reduce the risk of introducing or spreading invasive non-native species (and other harmful organisms such as diseases) in the wild⁴. The Wales Biodiversity Partnership⁵ states that Invasive Non-native Species (INNS) are plants, animals, fungi and microorganisms which have been introduced to parts of the world where they would not naturally be found. They have the ability to spread causing damage to the environment, the economy, our health and the way we live. INNS are the second greatest threat to biodiversity after habitat loss and fragmentation.

8.2 A biosecurity risk assessment for the Green Gates Phase 3 was developed as part of the GCN Licence Method Statement (see report R-BA194-01). The activities which were considered in this assessment and are relevant to pond management works include:

- ◆ EPS Compliance Audits (Internal).
- ◆ Habitat creation works involving reduced level excavation and deposition of materials.
- ◆ Removal of GCN exclusion fencing and habitat reinstatement works.
- ◆ Planting of habitats within Phase 3 land.

8.3 Table 8.1 identifies the key invasive species and activities which are of relevance to Green Gates Phase 3.

Invasive Species	Habitat / Species At Risk
<p>Himalayan Balsam Himalayan Balsam is widely distributed in North Wales and occurs in both lowland and upland localities. The species is thought to have extended its range and abundance, particularly in wetland habitats.</p>	<p>Habitats: Ponds and watercourses</p>
<p>Australian swamp stonecrop <i>Crassula helmsii</i> <i>Crassula helmsii</i> is known to exist in North Wales. The species is highly invasive and represents one of the principle factors that affect the long term ecological functionality of ponds as breeding sites for amphibians.</p>	<p>Habitats: Ponds Species: Great crested newt</p>
<p>Water fern <i>Azolla filiculoides</i> <i>Azolla filiculoides</i> is known to exist in North Wales and has been previously recorded at Glascoed Nature Reserve to the west. The species is highly invasive and can spread rapidly across a pond, shading the water surface and causing problems for pond functioning. Considered to be a high risk non-native invasive species.</p>	<p>Habitats: Ponds Species: Great crested newt</p>
<p>Other Invasive Non-Native Aquatic Plant Species A range of invasive non-native plant species have been recorded to date in North Wales. The list below reviews risk species:</p> <ul style="list-style-type: none"> ◆ Parrot’s-feather <i>Myriophyllum aquaticum</i> – medium risk ◆ Floating pennywort <i>Hydrocotyle ranunculoides</i> – high risk ◆ Canadian waterweed <i>Elodea Canadensis</i> – medium risk ◆ Curly waterweed <i>Lagarosiphon major</i> – medium risk ◆ Nuttall’s waterweed <i>Elodea nuttallii</i> – medium risk ◆ Waterweeds (other <i>Elodea</i> sp.) <i>Elodea</i> spp. – medium risk ◆ Least duckweed <i>Lemna miniscula</i> – high risk 	<p>Habitats: Ponds Species: Great crested newt</p>

Table 8.1: Habitats and Species with Specific Biosecurity Considerations for Green Gates Phase 3
(continues)

⁴ GB Non-Native Species Secretariate. Biosecurity and Pathways webpage. Accessed: 15-12-23. Available: <https://www.nonnativespecies.org/biosecurity/>

⁵ Wales Biodiversity Partnership. Invasive Non Native Species Group webpage. Accessed: 15-12-23. Available: <https://www.biodiversitywales.org.uk/Invasive-Non-Native-Species-Group>

Invasive Species	Habitat / Species At Risk
<p>Chytrid (potential) The Chytrid fungus was identified in Talacre and Johnstown in 2008 and is known to be widespread in Great Britain. This fungus has affected amphibian populations globally and has caused the extinctions of species. ARG-UK Advice Note 4 (March 2017)⁶ provides generic guidance in respect of amphibian disease precautions.</p>	<p>Habitats: Non affected Species: Common toad <i>Bufo bufo</i> Great crested newt <i>Triturus cristatus</i> Smooth newt <i>Lissotriton vulgaris</i> Palmate newt <i>Lissotriton helveticus</i></p>

Table 8.1 (continued): Habitats and Species with Specific Biosecurity Considerations for Green Gates Phase 3

- 8.4 Table 8.2 provides details of the biosecurity risks associated with the habitat management works at Green Gates Phase 3 (based on the risk assessed in the GCN EPS licence Method Statement) and sets out the control measures which will need to be put in place to ensure that the potential biosecurity risks from the proposed management works are low.
- 8.5 The Risk reference is taken from the overall biosecurity risk assessment and only those risks which are relevant to the habitat management works are detailed in Table 8.2. Not all of the risks are therefore included in this table as this table is specific to this habitat management plan.

8.2 Public Relations

- 8.6 The site at Green Gates does not currently have public access to it. An access road provides access to the Tree Nursery, where pre-arranged visits are allowed. There is a public bridleway to the west of the Green Gates site, but this does not currently provide access into the Phase 3 land.
- 8.7 The creation of a Biodiversity Hub building within the site will be used by DCC's Biodiversity Team as an office space. However it will also be used for education purposes, with pre-arranged visits to the Phase 3 site being facilitated by DCC's Biodiversity Team. It is not proposed that open access for the public is provided to the Phase 3 land.
- 8.8 The land at Green Gates to the east of the Phase 3 land is proposed for a new nature reserve which will include permissive footpaths, with sections of boardwalks and dipping platforms providing educational access facilities within this part of the site. It is proposed that the permissive footpath provides a circulate route through the Nature Reserve area, which will link to a cycle route to the north of the nature reserve land, east of Phase 3.
- 8.9 The potential for adverse human interactions with the ponds and other habitats at the Phase 3 land is already discussed in Section 7.3.

⁶ ARG Advice Note 4. Available at: <https://www.arguk.org/downloads-in-pages/resources/advice-notes/324-advice-note-4-amphibian-disease-precautions-a-guide-for-uk-fieldworkers-pdf-2/file>

Activity	Risk with Control Measures	Control Measures	Residual Risk
Risk 1 – Amphibians. Site visit by Ecological Clerk of Works / Internal EPS Compliance Auditor who has visited other sites.	Medium – Low	<ol style="list-style-type: none"> 1. Ensure all Ecological Clerk of Works / Compliance Auditors are aware of bio-security control measures. 2. Disinfect and sterilize all equipment including clothing and footwear before and after each visit, including between sites (if applicable). 3. All debris, plant fragments and mud should first be scrubbed off and rinsed with water. Disinfection should comprise soaking in a bleach solution (1 measure of household bleach to 9 measures water) for 15 minutes; or Virkon solution (1 mg/ml) for 1 minute; or fabrics can be washed on a 40°C cycle (with detergent, ensuring sufficient rinsing). 4. All used disinfectants should be disposed of appropriately. 	Low
Risk 3 – Amphibians. Torch surveying as part of great crested newt monitoring survey.	Medium	<ol style="list-style-type: none"> 1. Based on degree of risk, consider surveying ponds supporting invasive species last or use a team to specifically survey ponds supporting non-native species. 2. Avoid entering ponds whenever possible. 3. Clean equipment, boots/waders and clothes after each survey. 4. Where surveys entail surveys of two or more ponds, consider provision of duplicate equipment including boots / waders. 	Low
Risk 4 – Amphibians. Netting as part of great crested newt monitoring survey.	High	<ol style="list-style-type: none"> 1. Consider using survey techniques that constitute a lower bio-security risk (eg torching). 2. Avoid use of this technique within sites known to support <i>Chytrid</i> or <i>Crassula / Azolla</i>. 3. Nets should be boiled for 10 minutes or if the fabric allows disinfected with spray bleach and rinsed thoroughly. Rinse with clean water and if possible allow to dry before next use. 4. Keep net inside plastic bags during transit and storage to reduce the likelihood of transmitting disease. 5. Consider using nets on a site specific basis. 6. All used disinfectants should be disposed of appropriately. 7. Clean and dry equipment between each site visit. If multiple sites visits are to be undertaken concurrently, consider using more than 1 net. 	Low
Risk 5 – Amphibians. Bottle trapping as part of great crested newt monitoring survey and pond draining works.	Medium	<ol style="list-style-type: none"> 1. Consider using survey techniques that constitute a lower bio-security risk (eg torching). 2. Bottle traps to be used on a site specific basis and cleaned and sterilised before each survey. 3. Boots and other equipment to be sterilised before and after each survey. 4. Avoid trapping within sites known to support <i>Chytrid</i> or <i>Crassula / Azolla</i>. 5. Ensure bottle traps are clean and dry between each survey. 	Low
Risk 6 – Amphibians. Egg surveys as part of great crested newt survey.	Medium	As per Risk 2 – Torch surveys	Low

Table 8.2: Biosecurity Risk Assessment for Habitat Management Works – Green Gates Phase 3 (continues)

Activity	Risk with Control Measures	Control Measures	Residual Risk
Risk 8 - Amphibians. Use of vehicles which may be carrying material from non-native invasive species. Relevant to contractors and Ecological Clerk of Work site visits and Internal EPS Compliance Audit visits.	Medium – Low	<ol style="list-style-type: none"> 1. Wherever possible ensure vehicles should use metalled roads and parking areas. Vehicles should be parked at the Tree Nursery. 2. Sterilize wheels if vehicle has visited ponds / wetlands within previous 10 days. 	Low
Risk 9 - Amphibians. Use of plant, tools and equipment as part of habitat creation works and Biodiversity Hub and access provision installation works.	Medium - Low	<ol style="list-style-type: none"> 1. Ensure all operatives are aware of bio-security control measures. 2. Where possible, avoid using tools, plant and equipment that has been previously used on sites which are known to contain biosecurity risk species. 3. All debris, plant fragments and mud should first be scrubbed off and rinsed with water before leaving site. 	Low
Risk 10 - Amphibians. Habitat creation (planning, seeding etc) / reinstatement activities within habitats including: grassland, hedgerows, ponds, trees.	Medium – Low	<ol style="list-style-type: none"> 1. Ensure all operatives are aware of bio-security control measures. 2. Disinfect and sterilize all equipment including clothing and footwear before and after each visit, including between sites (if applicable). 3. All debris, plant fragments and mud should first be scrubbed off and rinsed with water before leaving site. 4. All used disinfectants should be disposed of appropriately. 5. No non-native species to be introduced as part of planting schemes, seed mixes etc. Use plants of local provenance where possible. 	Low
Risk 11 - Amphibians. Habitat management activities within habitats including: grassland, hedgerows, trees, scrub, willow carr, woodland ponds.	Medium – Low	<ol style="list-style-type: none"> 1. Ensure all operatives are aware of bio-security control measures. 2. Disinfect and sterilize all equipment including clothing and footwear before and after each visit, including between sites (if applicable). 3. All debris, plant fragments and mud should first be scrubbed off and rinsed with water before leaving site. 4. All used disinfectants should be disposed of appropriately. 	Low
Risk 12 – Non Native Invasive Plants. Disposal of INNS plant material identified during habitat management works.	Medium – Low	<ol style="list-style-type: none"> 1. Ensure all operatives are aware of bio-security control measures. 2. Dispose of all plant material in accordance with agreed protocols. Any INNS to be collected into a special container and taken away from the site for disposal at a suitable registered waste facility. 	Low

Table 8.2 (continued): Biosecurity Risk Assessment for Habitat Management Works – Green Gates Phase 3

9. Evidencing Compliance and Site Monitoring

9.1 Evidencing Compliance

9.1 Natural Resources Wales provide a check-box to consider whether the activities proposed in this Habitat Management Plan are considered to be lower or higher risk (see below).

Is/are the activity/activities considered to be of a lower risk? <i>Risk in this case may also include but not necessarily limited to disturbance, injury or killing of species, timing or scale of works, public or political relations, higher profile of a scheme; and/or sensitivity or status of species and habitats.</i>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

- 9.2 Given the known presence of great crested newts within the existing ponds at Green Gates Phase 3, the recorded presence of grass snake, and the importance of the wider landscape for great crested newts, and the recognition that management activities to ponds, hibernacula and potentially trees, woodland, scrub and hedgerow habitats (in the absence of avoidance and mitigation measures) have the potential to result in disturbance, injury or killing of GCN, reptiles, hedgehogs and nesting birds, the activity is not considered to be of lower risk.
- 9.3 Natural Resources Wales recommend that if the answer to the risk assessment above is 'no' then control measures such as Ecological Compliance Audits (ECA) may be required.
- 9.4 A programme of Ecological Compliance Auditing has already been set out in the GCN Method Statement and reiterated in Section 7.2. Should additional Ecological Compliance Audits be required throughout the period of this Habitat Management Plan, this would be agreed with NRW through the GCN EPS licencing process.
- 9.5 Table 9.1 provides details of the persons or bodies responsible for undertaking management and surveillance together with required skills and competencies. The data provided is correct at the time of production of this Habitat Management Plan.
- 9.6 Where changes are made to the organisations set out in Table 9.1, this will be recorded by DCC Biodiversity Team.
- 9.7 It is understood that there are no current or proposed changes to the landownership of the areas included in this Habitat Management Plan at Green Gates and ownership and management responsibilities will be retained by Denbighshire County Council's Countryside Team.

Contact and Organisation	Role	Responsibility and Required Skills / Competencies
Joel Walley, Lead Officer – Ecology & Biodiversity, Denbighshire County Council	Lead officer for Green Gates site in terms of biodiversity. GCN EPS Licence ‘named ecologist’ for Green Gates Phase 3.	Acts as ‘named ecologist’ on GCN EPS licence. Lead ecologists for GCN population monitoring at the site. Experienced GCN ecologist. Licenced to carry out GCN surveys in Wales. Responsible for submitting GCN survey data to Cofnod’s GCN Monitoring Database. Lead officer associated with habitat and biodiversity projects at Green Gates site. Responsible for organising specialist contractors to carry out habitat management works. Denbighshire County Council are owners and managers of Green Gates site.
DCC’s Ecological Compliance Officer	Ecological Compliance Auditing	Responsible for completion of EPS Internal Audits and submission of data to NRW.
DCC’s Biodiversity Team Support Officers	Habitat monitoring and data collection	Responsible for habitat monitoring data collection using ‘Survey-123’ App. Includes automatic submission of records to Cofnod.
Dr Katy Read and Dr Philip Fermor, Directors Biodiversity Advanced Ltd	Habitat restoration / creation advisors. Authors of Habitat Management Plan.	Acts as habitat restoration and creation advisors for the Green Gates site (both the Phase 3 land, and the nature reserve land to the east). Both are experienced GCN ecologists and habitat creation specialists. Dr Read is a Chartered Ecologist, Chartered Environmentalist and full member of CIEEM. She is licenced to carry out GCN surveys in Wales. Dr Fermor is a Chartered Environmentalist and full member of CIEEM. He is an accredited agent on Dr Read’s GCN licence allowing him to carry out GCN surveys in Wales.
Tim Dawe, Associate Systra Ltd	Habitat restoration / creation designer / engineer.	Acts as designer for habitat restoration and creation projects for the Green Gates site (both the Phase 3 land, and the nature reserve land to the east). Experienced engineer with background in drainage and hydrology.

Table 9.1: Organisations Associated with Habitat Works, Management and Monitoring at Green Gates Phase 3

9.2 Monitoring

- 9.8 Denbighshire County Council already use an App-based monitoring tool called ‘Survey-123’ for record keeping across their meadow sites within the county. It is proposed that this tool, which is now widely used within the DCC Biodiversity Team, be used to monitor the habitats within the Green Gates Phase 3 site. The App allows instant digitisation of the data collected, and records are automatically uploaded to COFNOD as part of the record management / data sharing approach adopted by DCC Biodiversity Team.
- 9.9 In line with the approach adopted at DCC’s Wildflower Project, monitoring of the habitats within the Green Gates Phase 3 site will be completed by DCC Biodiversity Team staff and data will be collected / uploaded using the ‘Survey-123’ App. The App allows the surveyor to upload photos of the habitat, list species recorded on the site using the DAFOR scale, and record the presence of any invasive non-native species (INNS). Other factors (which are considered unlikely to be a risk at Green Gates Phase 3 due to the controlled access to the site) such as habitat damage, dog fouling, litter can also be recorded.

9.10 The maps produced using this App automatically link to the Local Nature Recovery Action Plan.

9.11 The habitat monitoring schedule will include:

- ◆ Year 1 post-habitat restoration / creation - monthly visits.
- ◆ Years 2 onwards – three visits / year.

9.12 Monitoring of great crested newt and reptile populations at Green Gates Phase 3 will be completed in accordance with the schedule agreed in the GCN EPS Method Statement (ref: R-BA194-01) and the Ecological Protection Plan (ref: R-BA194-02). The relevant sections from the agreed monitoring schedule are shown in Table 9.2 which provides a detailed monitoring schedule for the period 2025 – 2030. It is anticipated that the monitoring schedule beyond 2030 will be agreed as part of the 5-year review of this Habitat Management Plan.

Activity	2025	2026	2027	2028	2029	2030
Habitats in Phase 3						
Monitoring using 'Survey-123' App. Recording of species-lists (using DAFOR scale), habitat photos, presence of INNS, any other issues (dog fouling, littering, habitat damage etc).	12-visits / year (monthly)	3-visits / year	3-visits / year	3-visits / year	3-visits / year	3-visits / year
Great Crested Newts – Ponds GG1, GG2, GG3, GG4, GG5, GG6, GG7, GG8, GG9, GG10, GG11, GG13						
Habitat Suitability Index (HSI) assessment of ponds.	Apr-May	Apr-May	Apr-May	Apr-May	Apr-May	Apr-May
Great crested newt population monitoring (using bottle trapping, torch surveys and egg searches).	6-visit survey, Mar-May	2-visit survey, Apr-May	2-visit survey, Apr-May	2-visit survey, Apr-May	2-visit survey, Apr-May	6-visit survey, Mar-May
Attendance at St Asaph Business Park Steering Group Meetings (twice a year). Minutes to be circulated to Steering Group members.	May Nov	May Nov	May Nov	May Nov	May Nov	May Nov
Reptiles – All Relevant Habitats in Phase 3						
Reptile population monitoring. Monitoring to include use of artificial survey refugia placed within the Phase 3 site and allowed to 'bed in' for at least 2 weeks prior to the survey visits. Surveys to be completed in suitable weather conditions for reptiles to be using the refugia.	7-visit survey, Apr-Jun or Sep	3-visit survey, Apr-Jun or Sep	3-visit survey, Apr-Jun or Sep	3-visit survey, Apr-Jun or Sep	3-visit survey, Apr-Jun or Sep	7-visit survey, Apr-Jun or Sep

Table 9.2: Proposed Monitoring Schedule – Green Gates Phase 3

References and Bibliography

Ellis, M. (2024). *Pers. Comm.* Senior Species Officer, Natural Resources Wales.

Walley, J. (2024). *Pers. Comm.* Lead Officer – Ecology & Biodiversity, Denbighshire County Council.

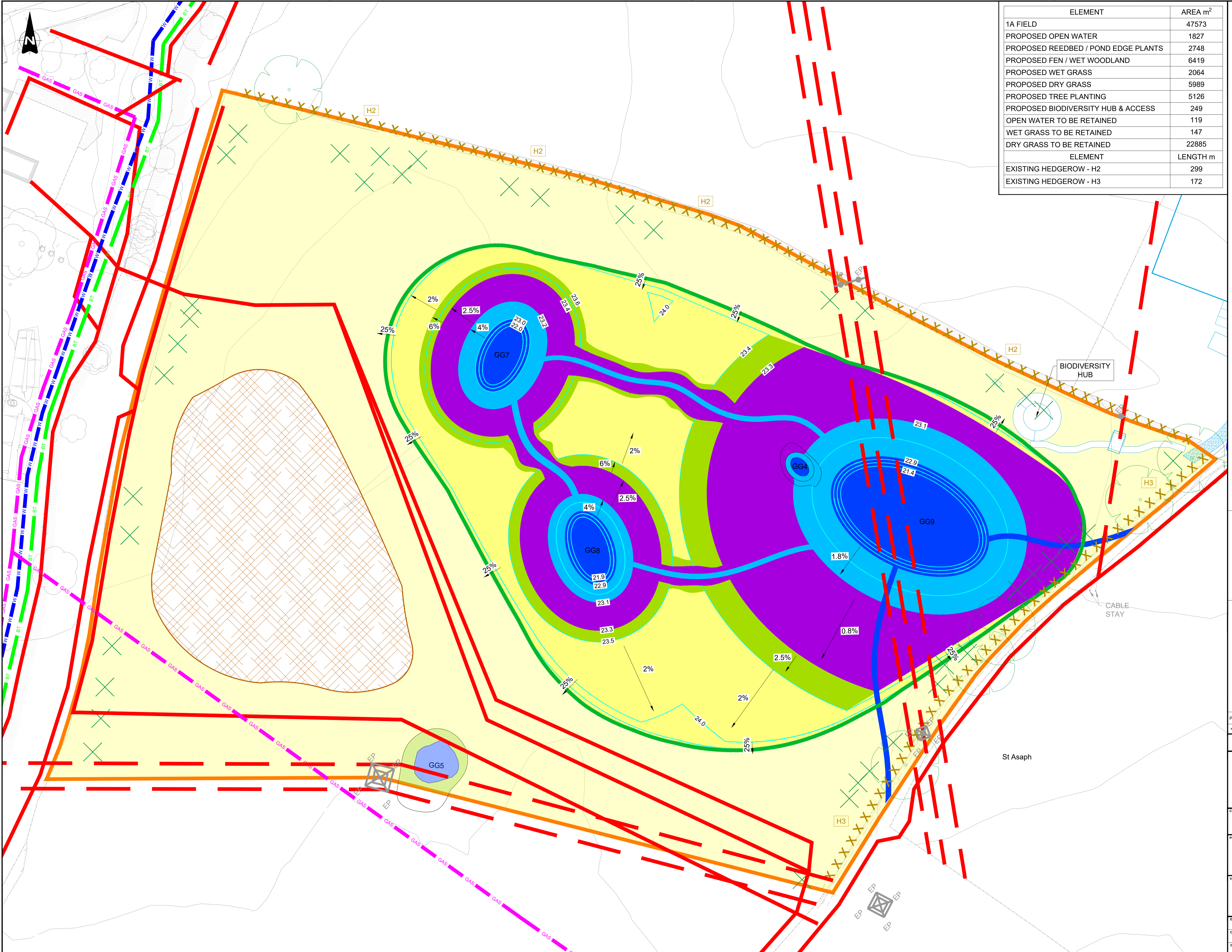
Haysom, K., Driver, D., Cartwright, M., Wilkinson., J and Foster, J. (2018). 'Great Crested Newt in Wales, with specific references to its long-term prospects and within its stronghold in North-East Wales'. **NRW Science Report Series. Report No: 259.** pp 113, Natural Resources Wales, Bangor.

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

Appendix 1

Systra Drawings for Green Gates Phase 3, St Asaph

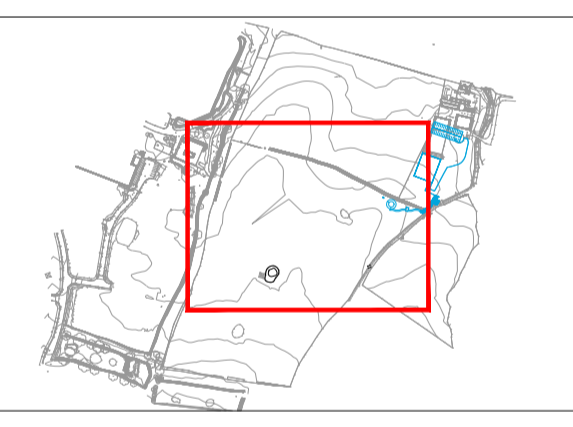
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- ◆ Proposed Layout - Field North. Dwg Ref: 23C33-DWG-13. Revision: P01
- ◆ Proposed Layout - Field 1B. Dwg Ref: 23C33-DWG-14. Revision: P01
- ◆ Proposed Layout - Field 1C. Dwg Ref: 23C33-DWG-15. Revision: P01



ELEMENT	AREA m ²
1A FIELD	47573
PROPOSED OPEN WATER	1827
PROPOSED REEDBED / POND EDGE PLANTS	2748
PROPOSED FEN / WET WOODLAND	6419
PROPOSED WET GRASS	2064
PROPOSED DRY GRASS	5989
PROPOSED TREE PLANTING	5126
PROPOSED BIODIVERSITY HUB & ACCESS	249
OPEN WATER TO BE RETAINED	119
WET GRASS TO BE RETAINED	147
DRY GRASS TO BE RETAINED	22885
ELEMENT	LENGTH m
EXISTING HEDGEROW - H2	299
EXISTING HEDGEROW - H3	172

- Notes
- Do not scale from this drawing.
 - All dimensions are in mm, levels in mOD unless stated otherwise.
 - Utility routes are based upon plans supplied by the service companies; actual alignments of buried services may vary from those shown.
 - The position of the biodiversity hub building and access has been provided by DBC.

- Key
- Survey
 - Tree Nursery and Proposed Biodiversity House with Access
 - Field 1A Boundary
 - Field 1A Earthworks Boundary
 - Major Contour 0.5m
 - Proposed Open Water
 - Proposed Reedbed / Pond Edge Plants
 - Proposed Fen / Wet Woodland
 - Proposed Wet Grass
 - Proposed Dry Grass
 - Proposed Tree Planting Area
 - Open Water To Be Retained
 - Wet Grass To Be Retained
 - Dry Grass To Be Retained
 - Existing Hedgerow
 - Existing Scattered Scrub
 - Existing Scattered Broad-leaved Tree
- Utilities:
- Scottish Power (OH)
 - Scottish Power (UG)
 - BT (UG)
 - Welsh Water
 - Wales & West (Gas)
 - Pylon
 - Support Pole



PO2	28.06.24	Scattered scrub and trees added.	JF	TD	TD
Rev.	Date	Revision Details	Drawn	Checked	Approved

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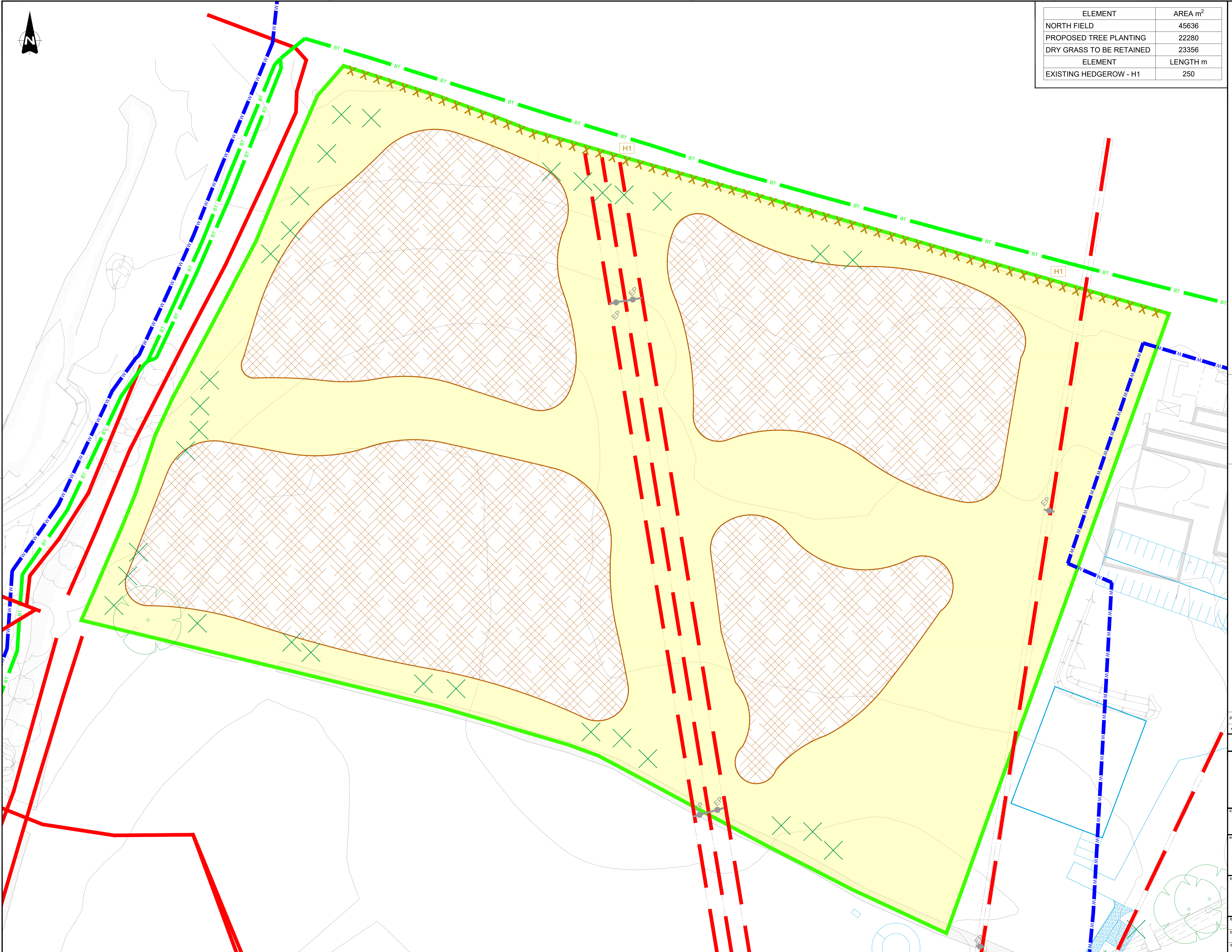
T 0121 230 6010
F 0121 230 6011

Client
Denbighshire County Council

Project
**Green Gates
Phase 3
St Asaph**

Title
**Proposed Layout
Field 1A**

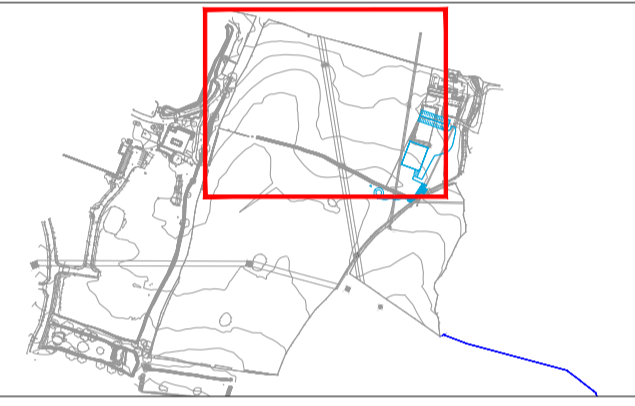
Drawn	JF	Checked	TD	Approved	TD
Original drawing size	A1	Date	25.06.2024	Scale	1:500
Drawing Status	Information	Drawing Number	23C33-DWG-12	Rev.	P02



ELEMENT	AREA m ²
NORTH FIELD	45636
PROPOSED TREE PLANTING	22280
DRY GRASS TO BE RETAINED	23356
ELEMENT	LENGTH m
EXISTING HEDGEROW - H1	250

- Notes
- Do not scale from this drawing.
 - All dimensions are in mm, levels in mOD unless stated otherwise.
 - Utility routes are based upon plans supplied by the service companies; actual alignments of buried services may vary from those shown.
 - The position of the biodiversity hub building and access has been provided by DBC.

- Key
- Survey
 - Tree Nursery and Proposed Biodiversity House with Access
 - North Field Boundary
 - Proposed Tree Planting Area
 - Dry Grass To Be Retained
 - Existing Hedgerow
 - Existing Scattered Scrub
 - Existing Scattered Broad-leaved Tree
- Utilities:
- Scottish Power (OH)
 - Scottish Power (UG)
 - BT (UG)
 - Welsh Water
 - Wales & West (Gas)
 - Pylon
 - Support Pole



Rev.	Date	Revision Details	Drawn	Checked	Approved
P02	28.06.24	Scattered scrub and trees added.	JF	TD	TD

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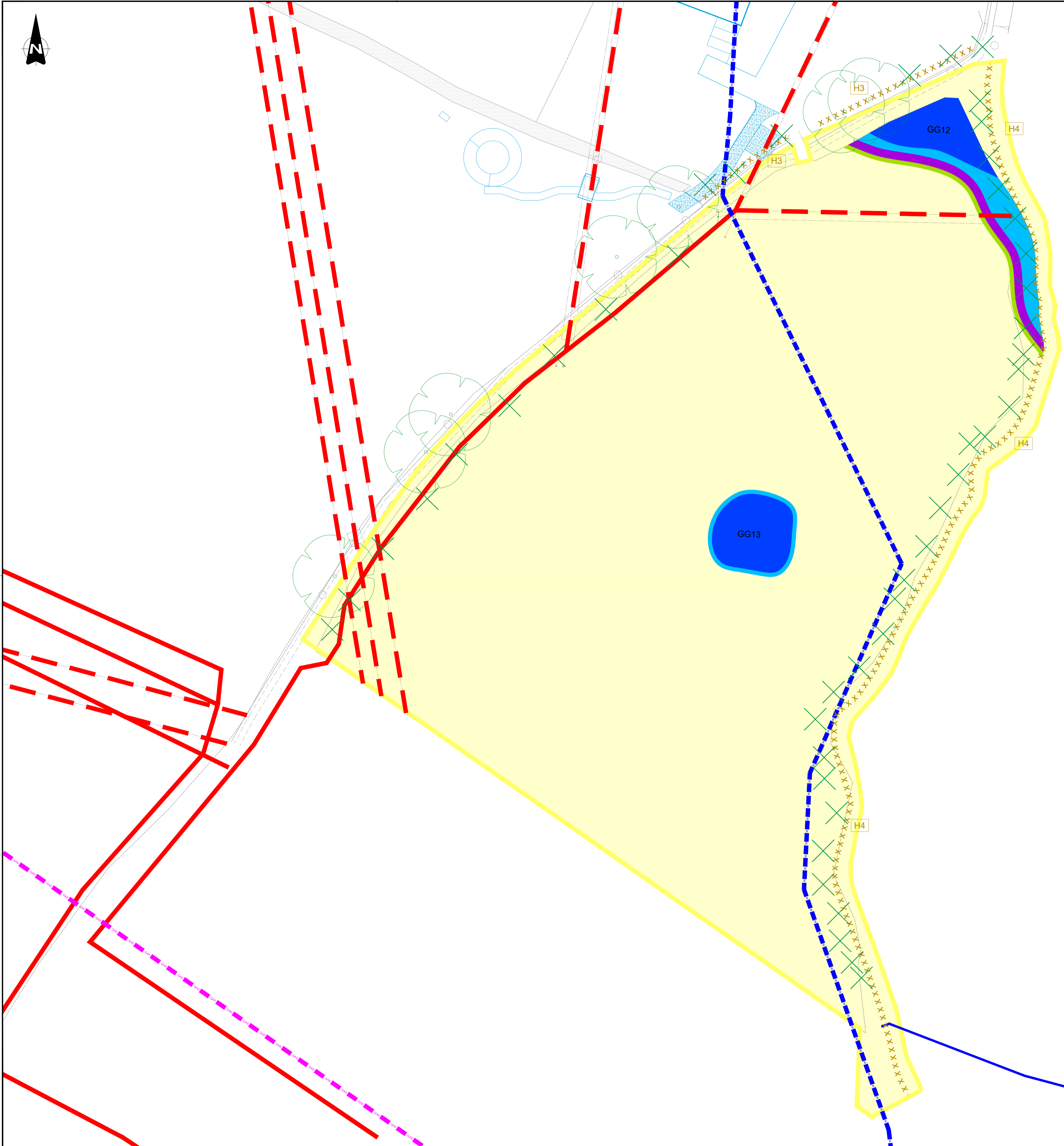
T 0121 230 6010
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Client
Denbighshire County Council

Project
**Green Gates
Phase 3
St Asaph**

Title
**Proposed Layout
Field North**

Drawn	Checked	Approved
JF	TD	TD
Original dwg size	Date	Scale
A1	25.06.2024	1:500
Drawing Status	Drawing Number	Rev.
Information	23C33-DWG-13	P02



ELEMENT	AREA m ²
1B FIELD	21591
PROPOSED OPEN WATER	545
PROPOSED REEDBED / POND EDGE PLANTS	300
PROPOSED FEN / WET WOODLAND	149
PROPOSED WET GRASS	76
DRY GRASS TO BE RETAINED	20521
ELEMENT	LENGTH m
EXISTING HEDGEROW - H3	69
EXISTING HEDGEROW - H4	272

- Notes
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- Key
- Survey
 - Tree Nursery and Proposed Biodiversity House with Access
 - Field 1B Boundary
 - Proposed Open Water
 - Proposed Reedbed / Pond Edge Plants
 - Proposed Fen / Wet Woodland
 - Proposed Wet Grass
 - Dry Grass To Be Retained
 - Existing Hedgerow
 - Existing Scattered Scrub
 - Existing Scattered Broad-leaved Tree
- Utilities:
- Scottish Power (OH)
 - Scottish Power (UG)
 - BT (UG)
 - Welsh Water
 - Wales & West (Gas)
 - Pylon
 - Support Pole



St Asaph

PO2	28.06.24	Scattered scrub and trees added.	JF	TD	TD
Rev.	Date	Revision Details	Drawn	Checked	Approved

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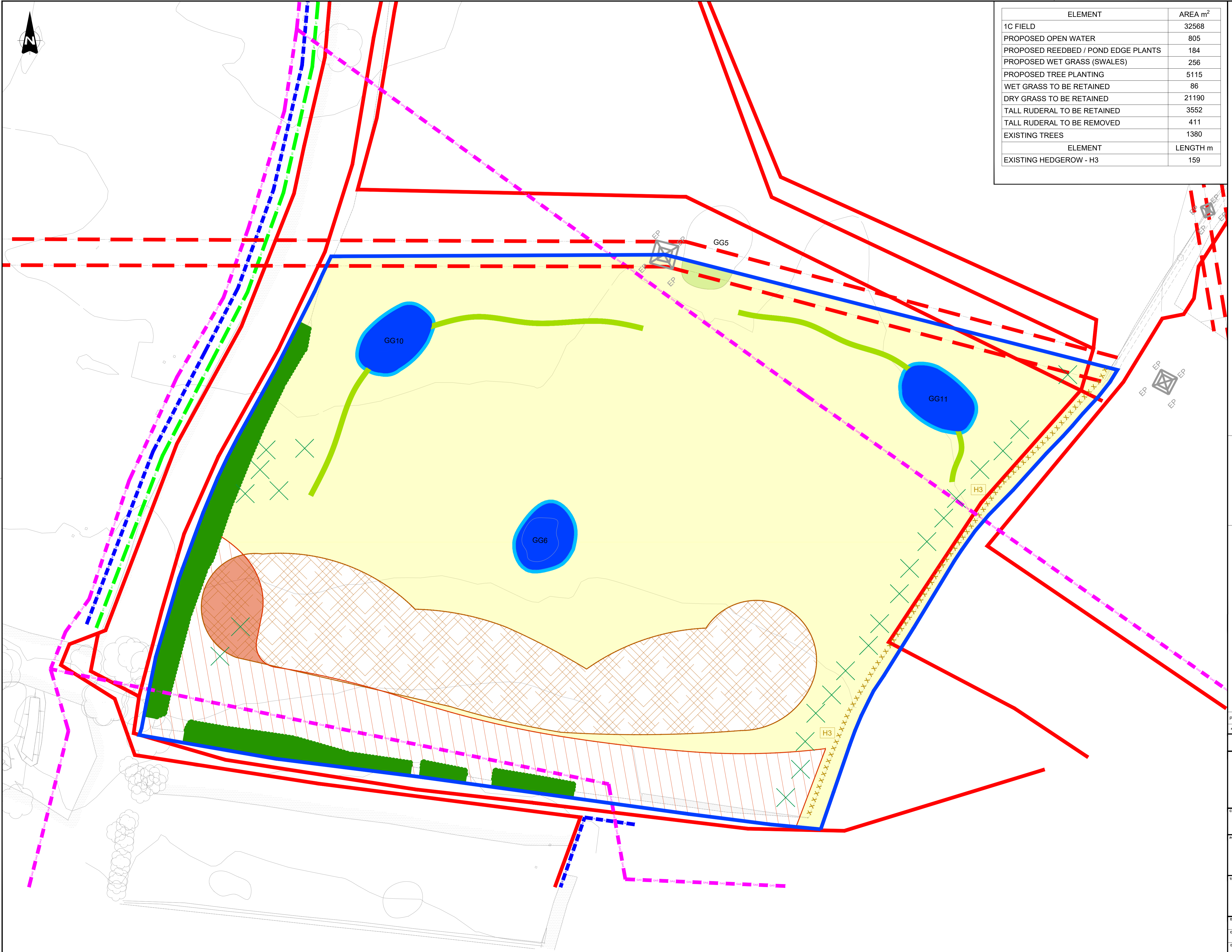
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Client
Denbighshire County Council

Project
**Green Gates
Phase 3
St Asaph**

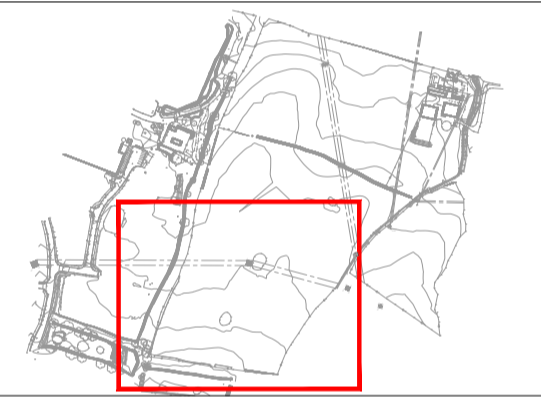
Title
**Proposed Layout
Field 1B**

Drawn	JF	Checked	TD	Approved	TD
Original dwg size	A1	Date	26.06.2024	Scale	1:500
Drawing Status	Information	Drawing Number	23C33-DWG-14	Rev.	P02



ELEMENT	AREA m ²
1C FIELD	32568
PROPOSED OPEN WATER	805
PROPOSED REEDBED / POND EDGE PLANTS	184
PROPOSED WET GRASS (SWALES)	256
PROPOSED TREE PLANTING	5115
WET GRASS TO BE RETAINED	86
DRY GRASS TO BE RETAINED	21190
TALL RUDERAL TO BE RETAINED	3552
TALL RUDERAL TO BE REMOVED	411
EXISTING TREES	1380
ELEMENT	LENGTH m
EXISTING HEDGEROW - H3	159

- Notes**
- Do not scale from this drawing.
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 - Utility routes are based upon plans supplied by the service companies; actual alignments of buried services may vary from those shown.
- Key**
- Survey
 - Field 1C Boundary
 - Proposed Tree Planting Area
 - Proposed Open Water
 - Proposed Reedbed / Pond Edge Plants
 - Proposed Swales (Wet Grass)
 - Open Water To Be Retained
 - Wet Grass To Be Retained
 - Dry Grass To Be Retained
 - Tall Ruderal To Be Retained
 - Tall Ruderal To Be Removed
 - Existing Trees
 - Existing Hedgerow
 - Existing Scattered Scrub
- Utilities:**
- Scottish Power (OH)
 - Scottish Power (UG)
 - BT (UG)
 - Welsh Water
 - Wales & West (Gas)
 - Pylon
 - Support Pole



PO2	28.06.24	Scattered scrub added, pond GG6 amendments.	JF	TD	TD
Rev.	Date	Revision Details	Drawn	Checked	Approved

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Project
**Green Gates
Phase 3
St Asaph**

Title
**Proposed Layout
Field 1C**

Drawn	JF	Checked	TD	Approved	TD
Original dwg size	A1	Date	25.06.2024	Scale	1:500
Drawing Status	Information	Drawing Number	23C33-DWG-15	Rev.	PO2