



GREAT GROVEHURST FARM, SITTINGBOURNE

Great Crested Newt Mitigation Strategy

Client: G H Dean & Co Ltd

Reference: J005845

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1 INTRODUCTION

- 1.1 In October 2015, Ecosulis was commissioned by G H Dean & Co. Ltd to compile a great crested newt mitigation strategy for land at Great Grovehurst Farm, Sittingbourne.
- 1.2 The current proposals for the site include the early construction of a wildlife corridor along part of the western boundary, and along the southern and eastern boundaries. Brickearth extraction works will then be completed within the development area, followed by the construction of residential properties. In addition, archaeological investigations and localised contaminated soil removal will also be undertaken within the development area in advance of great crested newt licence implementation. This mitigation strategy has been compiled to inform the planning application for the proposed development.
- 1.3 This mitigation strategy includes an assessment of potential impacts of the proposals, as well as construction and operational phases of development. The mitigation strategy detailed within this application would then be applied to a Natural England European Protected Species Licence (EPSL) for the site. This licence would be required to allow works to be undertaken on site.

Objectives of Study

- 1.4 The objective of this study is to provide information on the mitigation measures required to protect great crested newts against the development proposals for the site. This includes identifying which works can be carried out prior to obtaining a Natural England EPSL for Great Crested Newts as well as the programme of licence and other works.
- 1.5 Also, this study seeks to address the comments made by Kent County Council Ecological Advice Service in relation to the initial submitted mitigation strategy.

General Description of Site

- 1.6 The site is located on the northern outskirts of Kemsley and is centred on OS grid reference TQ 904 666. It covers an area of 4.8ha and includes the site of a former cottage and farm buildings which have recently been demolished. Other areas on site include hard-standing, scrub, grassland and arable land.
- 1.7 The site is surrounded by large built-up areas, including a main road to the west and the north. A railway is located adjacent to the eastern boundary.

2 BACKGROUND TO THE DEVELOPMENT

Existing Survey Data

- 2.1 A great crested newt Habitat Suitability Index (HSI) assessment of ponds within 250m of the site was undertaken by Lloydbore Landscape and Ecology in 2012, to assess their suitability to support great crested newts. The survey recorded two ponds: one with 'excellent' suitability and the other with 'good' suitability to support great crested newts. These are located immediately north and south of the site.
- 2.2 In addition, a great crested newt presence/absence survey was undertaken in May 2013 by Lloydbore Landscape and Ecology, to determine presence or likely absence of this species within adjacent ponds. The presence/absence survey recorded great crested newt presence within both ponds surveyed within 250m of the site, with a small population recorded. These two ponds are likely to be used in combination by a metapopulation. One pond, located west of the site, was not surveyed in 2013.
- 2.3 Furthermore, a survey and site assessment was carried out by Thompson Ecology in December 2014, together with a measurement of habitats and habitat suitable for great crested newts within 50m and 250m of relevant water bodies. This mitigation strategy is based on their assessments as well as update surveys undertaken by Ecosulis.
- 2.4 The update surveys carried out by Ecosulis in 2016 recorded the same size population as previous surveys (small population present), and the same habitats on the site. The site currently supports approximately 0.69ha of suitable great crested newt habitat, of which 0.12ha will be lost to the development. As such, a minimum of 0.12ha of mitigation habitat will be created.

Development Proposals

- 2.5 The proposals for the site include the construction of up to 110 residential properties. Prior to the housing construction phase, brickearth extraction will be undertaken and will take approximately 10–12 weeks to complete during the summer period.
- 2.6 The housing development will include areas of associated access and landscaping. An area of open space will be provided in the north of the site, including one new wildlife pond on the northern boundary. A public open space area adjoining the proposed wildlife receptor area will also be created within the south-western corner, around the adjacent pond. The wildlife area will then extend along the southern and eastern boundaries.

3 IMPACT ASSESSMENT

3.1 Great crested newts typically use terrestrial habitat up to 500m from breeding ponds. The likelihood of newt presence and therefore density is highest within 50m of a breeding pond; however, terrestrial habitat and connectivity will influence newt distribution.

3.2 The proposed site clearance works are located within 500m of ponds known to support a small population of great crested newts. Suitable great crested newt habitat is present on site in the form of hedgerows, scrub and longer grassland edges. Arable land within the centre of the site has been under agricultural management but provides some suitable foraging and commuting habitat for newts. This area also provides some suitable habitat for reptiles.

3.3 The impacts as a result of the proposals have been assessed in the absence of mitigation.

Brickearth Extraction and House Construction Phase Impacts

3.4 During brickearth extraction and housing construction, there is a risk of direct harm to great crested newts and reptiles from site clearance, moving machinery and brickearth extraction works. In addition, the works will result in direct habitat loss as detailed below.

Habitat Loss

3.5 The proposals for the site will require vegetation clearance of suitable terrestrial habitat for great crested newts. No pond habitat will be affected by the proposals, as these are all located next to the southern site boundary, adjacent to the site. A total of approximately 0.12ha of suitable great crested newt habitat, comprising predominately hedgerows and scrub, will be permanently lost to the development. The specific distribution of great crested newt habitat to be lost is shown in Figure 1.

Fragmentation and Isolation

3.6 The works will result in some loss of habitat located between the two ponds. Unmitigated, the proposals will result in fragmentation of suitable foraging and commuting opportunities for great crested newts travelling between the ponds and between the ponds and the railway embankment.

Operational Phase Impacts

Habitat Loss

3.7 The proposals will result in the permanent loss of existing grassland and arable land on site (3.2ha), of which 0.69ha provides suitable habitat for great crested newts. If managed incorrectly, the hedgerows on site could also be degraded, resulting in refuge habitat loss. The development proposals will include areas of open space and residential gardens, which will provide some suitable terrestrial habitat for great crested newts.

Fragmentation

- 3.8 Based on the great crested newt population monitoring survey, it is considered likely that the small population of great crested newts forms a metapopulation within adjacent waterbodies. As a result, great crested newts may cross the site to use both confirmed breeding ponds and the railway embankment. The proposed development could sever the route between the ponds through the construction of housing and new roads.
- 3.9 There is also a risk of great crested newt mortality on the new roads as great crested newts cross the site to use the network of ponds in the area. Although only minor cul-de-sac roads are proposed with a low speed limit, the road is likely to be used by residents at night, therefore there is a risk of amphibian mortality, especially during spring months.

Disturbance

- 3.10 Currently, the site is managed mainly as agricultural land with previous commercial buildings including pet food manufacture and sales as well as extensive car sales display areas towards the south western corner of the site. Therefore, the change in land use to residential housing is likely to increase disturbance pressures on great crested newts. In addition to increased traffic levels detailed above, the development will also result in increases in noise, lighting, recreational pressures and increased predation by cats. However, some areas of the site will also be enhanced for great crested newts as part of the works.

4 MITIGATION STRATEGY

4.1 The area of great crested newt mitigation habitat provided within the scheme must exceed the area of great crested newt habitat being lost to development, ensuring that suitable habitat for great crested newts is retained on site. The site covers an area of 4.8ha, the majority of which comprises arable land and gravel hard-standing. Calculations showed an area of 0.69ha of suitable great crested newt habitat on site. These habitats include grassland, scrub and hedgerow habitats. The total on-site area of suitable great crested newt habitat to be lost to development is estimated at 0.12ha.

4.2 The tables below show the amount of habitat to be lost as a result of the development, along with the habitats to be created and retained.

Table 1: The Breakdown of Terrestrial Habitat Impacts

Habitat Type	Area lost (ha)
Semi-improved grassland	0.12

Table 2: Core, Intermediate and Distant Terrestrial Habitat Impacts

	Permanent Area Lost (ha)
Core habitat (<50m from pond)	0
Intermediate (50–250m from pond)	0.12
Distant (>250m from pond)	0
Total (ha)	0.12

Table 3: Terrestrial Habitat Measures Post-Construction

	Number/Area (ha)/Length	
	Created	Retained/Restored/Enhanced
Hedgerow planting	-	-
Grassland re-seeding	0.24	-
Grassland management (just for GCN)	0.24	-
Scrub planting		0.05
Woodland planting	-	-
Hibernacula creation	3 (No.)	-

	Number/Area (ha)/Length	
	Created	Retained/Restored/Enhanced
Refuge creation	-	-

Table 4: Habitat Creation on Site

Site Area	Amount of Habitat (ha)
Receptor area	0.3
Green corridor	0.94
Total habitat on site post-construction	1.8

4.3 In comparison, the total area of great crested newt habitat on the post-development site is 1.8ha. This includes a 0.3ha receptor site, which will be created prior to brickearth works, with an additional 0.94ha landscaped green corridor area created once the brickearth works are complete. This will result in a net gain of 2.91ha of great crested newt habitat on the post-development site. The spatial distribution of great crested newt habitat to be lost and gained is shown in Figure 1.

4.4 Whilst the majority of the works on the site will be undertaken under a Natural England EPSL, some initial works to small areas of the site are required in advance. Mitigation measures to cover these activities will be required to ensure that the relevant legislation is not breached. Suitable mitigation measures are detailed below within the stages of works.

Stage 1: Preparation of the Great Crested Newt Receptor Site

Great Crested Newt Receptor Area Location

4.5 The proposed receptor area would be located along part of the western boundary and along the southern and eastern boundaries of the site (see Figure 1). The location of the receptor area will allow great crested newts to utilise the pond immediately south-west of the site, which is a confirmed breeding pond for great crested newts. Any newts, therefore, being relocated to the receptor area will be able to use the adjacent pond for breeding during the 10–12 weeks of brickearth extraction on the site. In addition, the receptor site will be connected to the adjacent pond to the south through suitable terrestrial habitat. This will maintain connectivity east/west for foraging and commuting great crested newts, therefore aiming to maintain the favourable conservation status of the local population.

4.6 Areas of the southern boundary currently support areas of dense scrub, including bramble, unmanaged grassland, native shrubs, deadwood piles and leylandii trees, whilst the eastern boundary supports dense ivy, which covers an existing fence,

and some scrub areas. At present arable land then borders these habitats. A surface mound of tree roots, soil and rubble is present just north of the southern boundary, close to the adjacent pond. This mound has been present on site for a considerable amount of time as there is evidence of native flora growing through it. Appendix I details the vegetation currently on site.

Receptor Area Preparation

- 4.7 An area up to 10m wide will be retained along the majority of the southern boundary, as well as an area up to 3-10m wide along part of the eastern boundary (Appendix II).
- 4.8 Existing scrub and shrub habitats within these areas provide suitable habitats for great crested newts and will be retained. Arable strips on the inner edge of these areas will require improvement works in order to support appropriate habitat for great crested newts. Grassland seeding will be completed within these strips to be undertaken between March and April or in September. Additional native shrubs will be planted to provide high quality habitat for great crested newts. The seeding and planting works will be completed prior to the translocation works taking place to ensure suitable habitat is present on site for great crested newts
- 4.9 Several leylandi trees are present along the boundaries within the site, particularly on that part of the southern boundary north of the pond. These could be felled as part of the receptor site preparation works; however, ground works including stump and root removal would not take place until the EPSL has been obtained. (Felling could be deferred until an EPSL is obtained.) A minimum of 300mm from ground level would be kept, preventing accidental injury or killing of great crested newts. Any further clearance works, including scrub maintenance, grubbing out of leylandi roots; erection of new boundary fencing and fresh landscaping as shown on the plan in Appendix II would be completed under the supervision of an Ecological Clerk of Works, to further prevent any injury or killing of great crested newts.
- 4.10 A total of three great crested newt hibernacula will be created within the receptor site to provide additional refuge habitat for great crested newts. These will be created from a combination of wood, soil, rubble and rock, and will provide additional refuge opportunities for great crested newts. Appendix II includes a specification for the hibernacula and their locations. Each hibernaculum will be at least 2m long, 1m wide, and 1m high.
- 4.11 Once the preparation works to the receptor site have been completed and habitats have become established, the translocation exercise (detailed below) can begin.
- 4.12 The receptor site will also provide suitable opportunities for reptiles that may be translocated from the development site.

Pedestrian and Cycle Link

- 4.13 A pedestrian and cycle link is required across the southern boundary to connect the development site with the current residential area to the south via Godwin Close. This 2m wide link will cross the receptor area. This link will be surfaced with a cellular grass reinforcement system such as ABG SuDS Pave 40 or similar, to be approved by the Local Planning Authority. This surface would maintain connectivity across the receptor area for great crested newts in the long term.
- 4.14 The installation of the newt compatible surface and gates for maintenance access to the ecological corridor either side of the footpath would be installed under an Ecological Clerk of Works towards the end of the house building phase. These supervised works would follow a precautionary approach using hand tools and would take place during the winter when newts are less active.
- 4.15 The connection to Godwin Close would not be open to the public until the housing development is complete. In this way, maximum commuting opportunities for great crested newts would be maintained throughout the brickearth extraction and house building processes.

Stage 2: Great Crested Newt Translocation Exercise

- 4.16 A Natural England EPSL will be required to allow works to proceed on site beginning with brickearth extraction. This will include the mitigation detailed below.
- 4.17 Temporary Amphibian Fencing (TAF) and drift fencing will be installed around areas proposed for clearance under licence and is shown on Figure 2.
- 4.18 Pitfall trapping will be undertaken when night-time temperatures are consistently above 5°C (generally March to October). A minimum of 30 nights of trapping will be undertaken, and pitfall trapping will cease following five consecutive days with no capture at the end of this minimum period. Any amphibians or reptiles captured will be relocated to the proposed receptor site in the south of the site (shown on Figure 2). The receptor site has been selected so that it has connectivity with the pond immediately south of the site and extends along the southern and eastern boundaries.
- 4.19 TAF around the boundaries of the site will be maintained during brickearth extraction and house construction to ensure that amphibians do not re-enter the brickearth extraction/housing construction site. Drift fencing will be removed by/under supervision of an Ecological Clerk of Works prior to brickearth extraction works commencing.
- 4.20 Once the site has been deemed clear of great crested newts, vegetation clearance works will proceed under supervision of an Ecological Clerk of Works. Prior to brickearth works commencing, the Ecological Clerk of Works will undertake hand and destructive searches on the site to check for any amphibians. Any great crested newts or reptiles found will be moved to the receptor site. Methods for vegetation

clearance will follow those set out within English Nature's Great Crested Newt Mitigation Guidelines (English Nature, 2001).

- 4.21 The boundary TAF will be installed prior to brickearth extraction works commencing and will not be removed until all stages of brickearth extraction and housing development are completed to prevent any great crested newts utilising the site between work phases. Once the brickearth extraction, housing development and green corridor have been completed, the TAF can be removed to allow great crested newts to re-enter the area.

Stage 3: Short-Term Mitigation during Brickearth Extraction and Development

- 4.22 Once the translocation has been completed, the brickearth extraction can take place within the boundary TAF fencing. The first step in brickearth extraction will involve a soil strip and creation of a soil bund/noise/dust bund inside the southern boundary (clear of the receptor site). Any further archaeological investigation will be an integral part of soil stripping.
- 4.23 Retained habitats on site, namely scrub, trees and some grassland habitats, as well as the receptor site, will be protected during both brickearth extraction and housebuilding stages. This will include marking out retained habitats with Heras fencing (or similar) and signs for contractors. A toolbox talk will be delivered to contractors and site operatives in advance of works highlighting areas to be protected. The talk will be delivered by an Ecological Clerk of Works, and explain protected species, including great crested newts and reptiles, responsibilities and required work methods.
- 4.24 No brickearth extraction will be undertaken within the receptor site. No construction activities will be undertaken within mitigation areas, and protection fencing will be installed to mark these as 'no-go' areas for construction workers. Storage areas for materials will also be placed outside mitigation areas, and outside areas protected by temporary newt fencing (Figure 2).

Stage 4: Long-Term Mitigation during the Development

- 4.25 Following the completion of housing construction works on site, TAF will be removed from the perimeter of the site. The proposals include the creation of minor roads on site. These roads are likely to be used by low levels of traffic and are unlikely to be subject to high levels of use at night. As such, the risk of amphibian mortality is low. Amphibian-friendly kerbs (dropped, sloping kerbs) and amphibian-friendly gully pots should however be incorporated along the roads. This will allow amphibian movement across the whole site.

Green Corridors

- 4.26 Following the brickearth extraction, and prior to the commencement of the housing development, landscaping will be implemented on the northern and part of the

western boundaries of the site to provide additional habitat for great crested newts. This will reinstate connectivity to ponds to the north of the site, therefore minimising potential fragmentation of the population (brickearth extraction will take 10–12 weeks to complete). These areas will be landscaped to provide additional opportunities for great crested newts.

- 4.27 Open space habitat will be created on the northern boundary of the site, providing opportunities for great crested newts. The western boundary currently consists of suitable habitat and as such will provide opportunities to connect the two areas in the north and south of the site. These areas will be managed appropriately in the long term to enhance opportunities for great crested newts in the local area. Additional planting – scrub and native shrub planting - will also be incorporated into these areas of open space, enhancing terrestrial habitat for amphibians. Some areas, particularly around the northern boundary will be enhanced with scrub and shrubs for amphibians which will be subject to minimal public access and disturbance. These will form the main wildlife corridors for amphibians, and will provide additional foraging opportunities for amphibians commuting across the site.

Other Enhancement Works

Pedestrian and Cycle Link

- 4.28 A pedestrian and cycle link is required across the southern boundary to connect the development site with the current residential area to the south via Godwin Close. This 2m wide link will cross the receptor area. This link will be surfaced with a cellular grass reinforcement system such as ABG SuDS Pave 40 or similar, to be approved by the Local Planning Authority. This surface would maintain connectivity across the receptor area for great crested newts in the long term.
- 4.29 The installation of the newt compatible surface and gates for maintenance access to the ecological corridor either side of the footpath would be installed under an Ecological Clerk of Works towards the end of the house building phase. These supervised works would follow a precautionary approach using hand tools and would take place during the winter when newts are less active.
- 4.30 The connection to Godwin Close would not be open to the public until the housing development is complete. In this way, maximum commuting opportunities for great crested newts would be maintained throughout the brickearth extraction and house building processes.

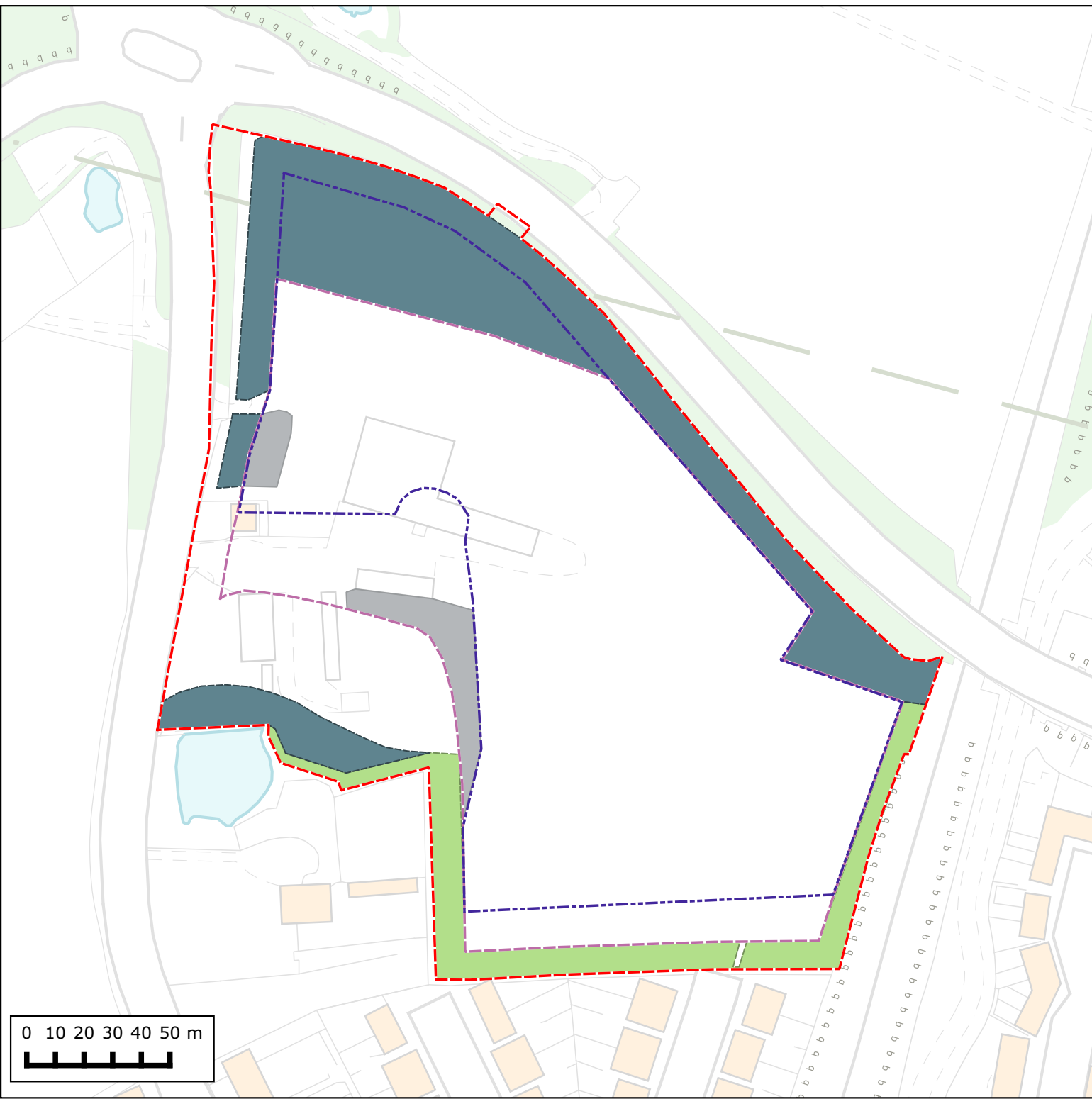
Sustainable Urban Drainage Systems

- 4.31 The use of Sustainable Urban Drainage Systems (SuDS) would be incorporated within the scheme, including a new water body on the northern boundary.
- 4.32 The proposals include the construction of a new surface water drainage/wildlife pond on the northern boundary. The pond will provide additional breeding habitat for great crested newts, and will be connected with the existing known breeding

pond, therefore providing suitable breeding habitat for the local metapopulation. The pond will be designed and created to maximise its ecological potential. Bank profiles will have a shallow edge and will be planted using native marginal plants, particularly water mint.

- 4.33 Open space provision and residential gardens will provide additional opportunities suitable for great crested newts and connectivity between the site and wider ponds.

Figures 1 & 2



Key

- Site Boundary
- Excavation Area
- Development Area
- Enhanced GCN Habitat (0.94 ha)
- GCN Receptor Site (0.3 ha)
- GCN Habitat Loss (0.12 ha)

Site Area	4.8 ha
Pre-development suitable great crested newt habitat	0.69 ha
Habitat to be lost to the development	0.12 ha
Post development suitable great crested newt habitat	1.8 ha
Post development net	2.91 ha



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Project: Great Grovehurst Farm





Title: Great Crested Newt (GCN) Mitigation Strategy

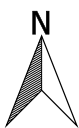
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Figure 1

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- Key**
-  Site Boundary
 -  GCN Receptor Site
 -  Drift Fencing
 -  Semi-permanent GCN Fencing



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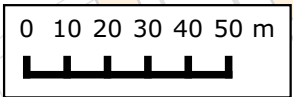
Project: Great Grovehurst Farm

Title: Great Crested Newt Fencing Plan

August 2018

Figure 2

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5 PROGRAMME OF WORKS

5.1 Works with seasonal constraints are summarised in the table below. Natural England requires at least 30 working days to process any licence application.

Table 5: Proposed Programme of Works

Works	2018	2019												2020
	Aug/ Sept	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Enhancement to receptor site (grass seeding and vegetation management under supervision by an Ecological Clerk of Works)														
Licence application														
Toolbox talk														
Installation of TAF fencing (weather permitting)														
Pitfall trapping and clearance														
Clearance works under supervision (following five clear days)														
Brickearth extraction														
Creation of enhancement features prior to the commencement of construction (new pond creation)														
Pedestrian and cycle footpath installation														
Residential Housing Construction														

Table 6: Seasonal Constraints

Works	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Installation/removal of drift fencing												
Pitfall trapping												

6 ON-GOING MANAGEMENT

- 6.1 Habitats within the receptor site will be subject to minimal management to maintain opportunities for wildlife. Most suitable habitat consists of the retention of existing scrub, shrub and grassland. All habitats should be managed in accordance with the site-wide management plan.
- 6.2 The scrub and shrub habitats will be pruned annually to prevent expansion. This should take place outside the nesting bird season and should only include minor trimming. Should additional works be required, advice will be required from a suitably qualified ecologist.
- 6.3 Newly created grassland habitats will require management, including managing the scrub encroachment from the adjacent habitats. Management of the grassland will increase structural diversity within the receptor site. Longer grassland swards will be allowed to establish and be cut annually between August and September. All arisings will be removed from site.
- 6.4 Under the Ecological Management Plan for the wider site, annual monitoring will be undertaken for the Management Land, to identify the need for further actions or reactive management. Monitoring will comprise an annual ecological site walkover by a suitably qualified ecologist, which will record any changes to the habitats on site and any additional management requirements. This will include monitoring of habitat extent, structure, litter and damage.

7 LIMITATIONS OF SURVEY AND REPORT

- 7.1 This report records wildlife found during the survey and anecdotal evidence of sightings. It does not record any plants or animals that may appear at other times of the year and were therefore not evident at the time of visit. Some species that might use the site or be apparent at other times of year, or only in certain years, would not have been detected.
- 7.2 The presence/absence surveys and HSI were undertaken by a separate Ecological Consultancy, Thomson Ecology and Lloydbore Landscape and Ecology. Ecosulis therefore provides no reliance relating to this data.
- 7.3 The behaviour of animals can be unpredictable and may not conform to standard patterns recorded in current scientific literature. This report therefore cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats, or that they will not occur in locations or habitats that appear unsuitable.
- 7.4 The advice contained in this report relates primarily to factual survey results and general guidance only. On all legal matters you are advised to take legal advice.

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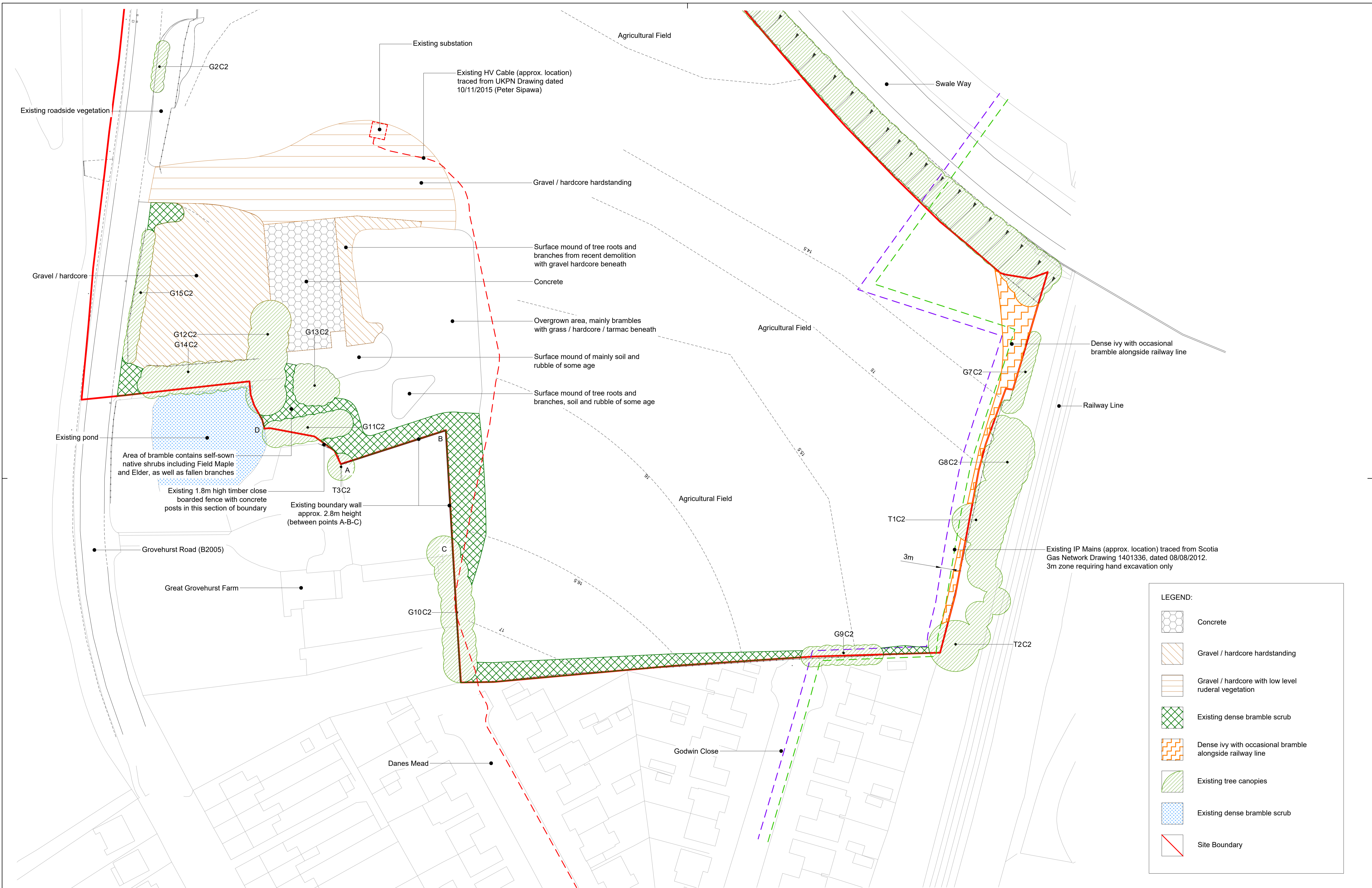
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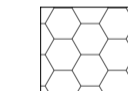
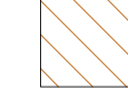






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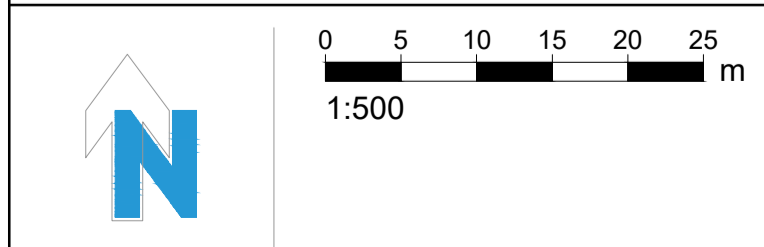
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Appendix I: EXISTING SITE PLAN



LEGEND:

-  Concrete
-  Gravel / hardcore hardstanding
-  Gravel / hardcore with low level ruderal vegetation
-  Existing dense bramble scrub
-  Dense ivy with occasional bramble alongside railway line
-  Existing tree canopies
-  Existing dense bramble scrub
-  Site Boundary



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rev.	rev. date	auth.	rev. note
P01	17.08.2018	PW	Preliminary issue for review / comment.
P02	21.08.2018	PW	Minor amendments to drawing / notes.
P03	01.10.2018	CB	Existing pond hatched.

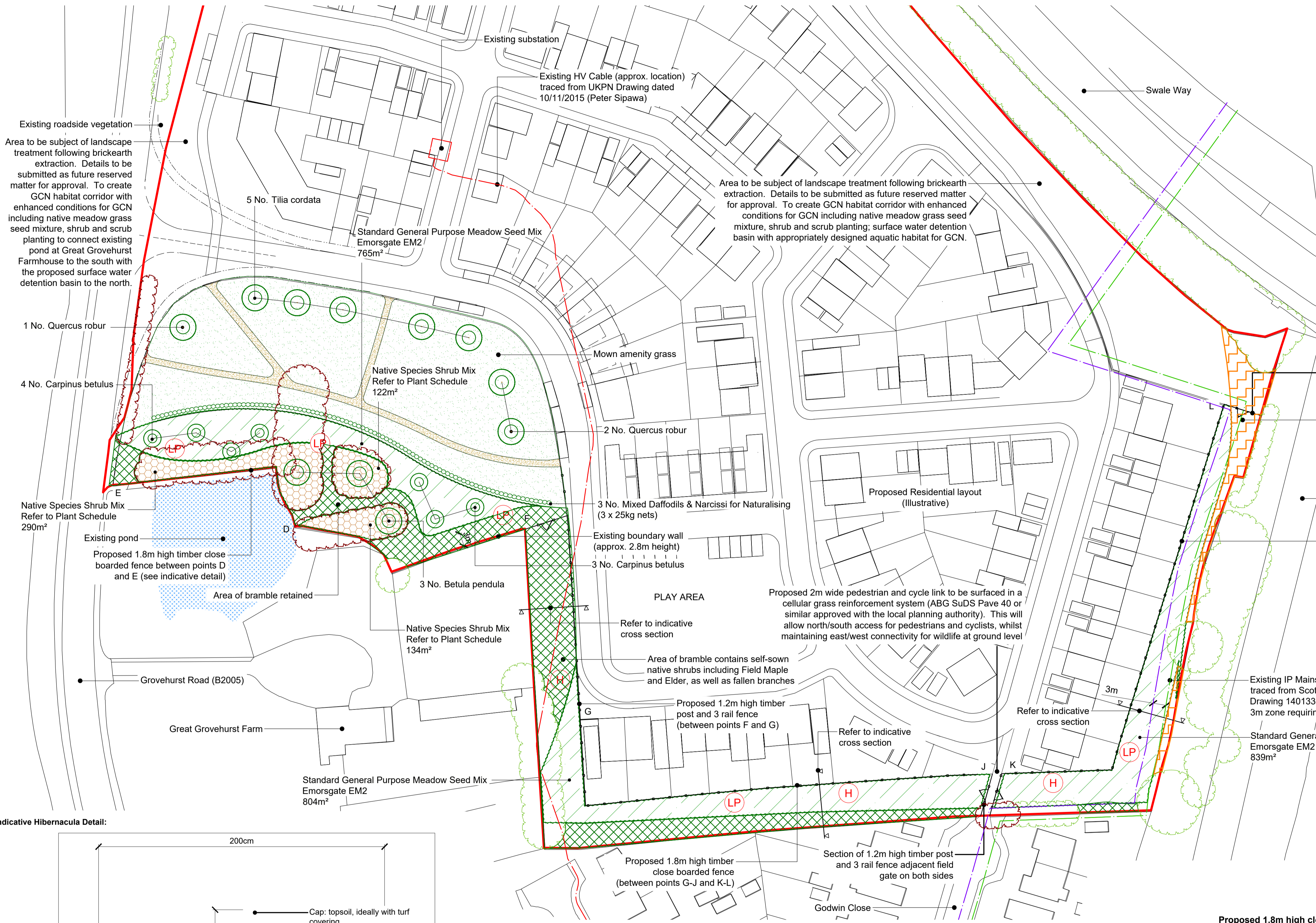
client: **G. H. Dean & Co. Ltd.**
 project: **Great Grovehurst Farm**
Grovehurst Road,
Sittingbourne, Kent

drawing no. **4940-LLB-XX-XX-DR-L-0002** rev **P03**
 project status: **PLANNING** suit **S4**
 drawing title: **GCN Mitigation Strategy:**
Existing Plan

rev date **01.10.2018**
 scale: **1:500**
 sheet: **A1**
 drawn: **DM**
 checked: **PW**

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Appendix II: LANDSCAPE PROPOSALS



Plant Schedule				
Trees				
No.	Species Name	Girth	Height	Specification
3 No.	Betula pendula	16-18cm	4.0-4.5m	100-200L, CG: Extra Heavy Standard, Clear Stem min. 200
7 No.	Carpinus betulus	16-18cm	4.0-4.5m	RB: 3x, Large Feathered
3 No.	Quercus robur	18-20cm	4.0-4.5m	RB: 3x, Extra Heavy Standard, Clear Stem min. 200
5 No.	Tilia cordata	18-20cm	4.0-4.5m	RB: 3x, Extra Heavy Standard, Clear Stem min. 200

Native Species Shrub Mix				
%	No.	Species Name	Height	Pot Size
3%	17 No.	Acer campestre	175-200cm	Feathered 5 brks: 2x: B
8%	44 No.	Cornus sanguinea	60-80cm	1+1: Transplant - seed raised: Branched: 3 brks: B
12%	66 No.	Corylus avellana	60-80cm	1+2: Transplant - seed raised: Branched: 3 brks: B
30%	164 No.	Crataegus monogyna	60-80cm	1+1: Transplant - seed raised: B
5%	27 No.	Ilex aquifolium	40-60cm	3L, Bushy: 3 brks: C
12%	66 No.	Ligustrum vulgare	60-80cm	0/2: Cutting: Branched: 3 brks: B
4%	22 No.	Rosa canina	40-60cm	2L, Branched: 3 brks: C
18%	98 No.	Sambucus nigra	60-80cm	1+1: Transplant - seed raised: Branched: 3 brks: B
8%	44 No.	Viburnum opulus	40-60cm	2L, Branched: 3 brks: C
Total: 100%				

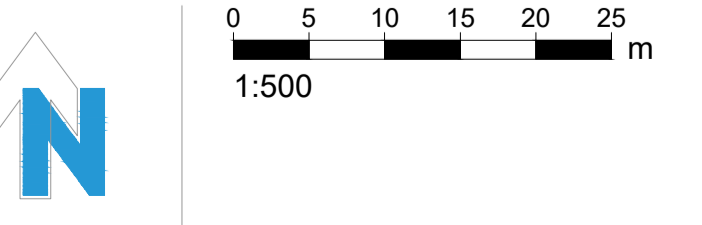
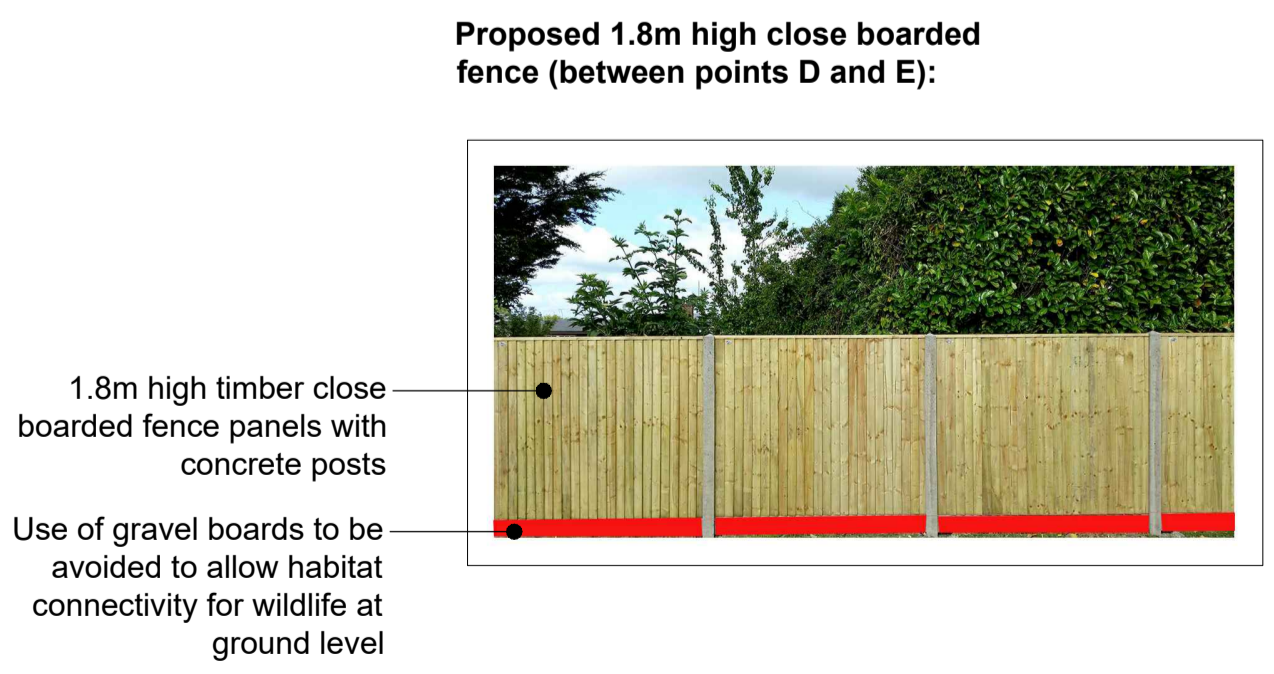
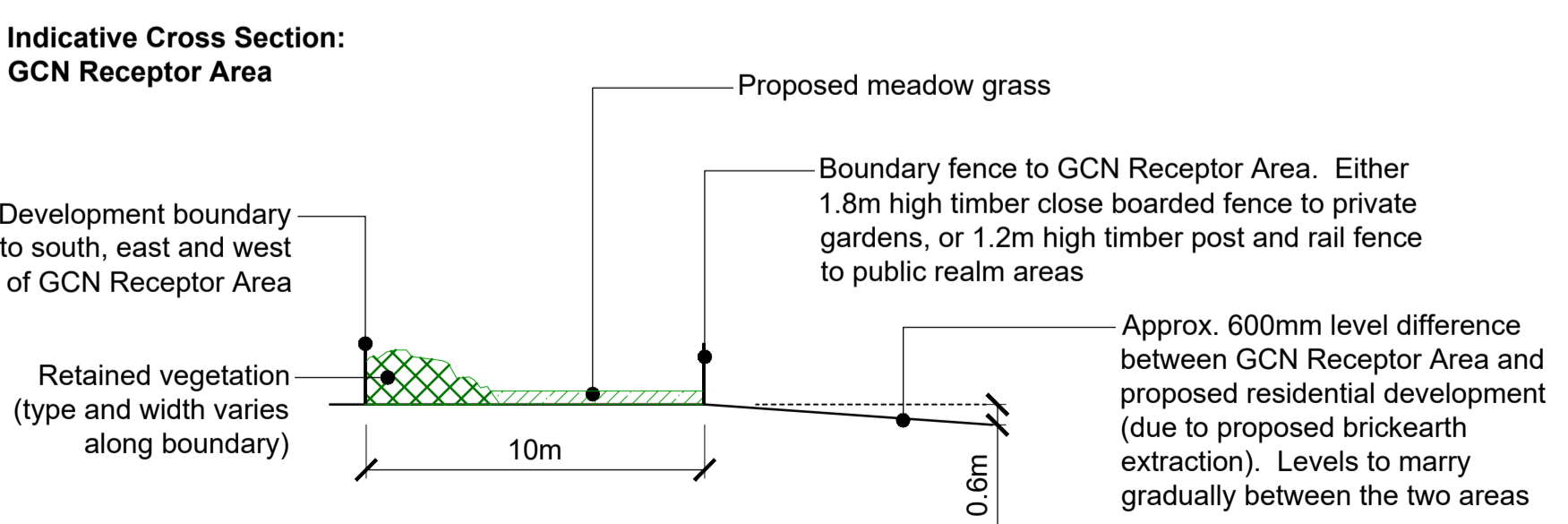
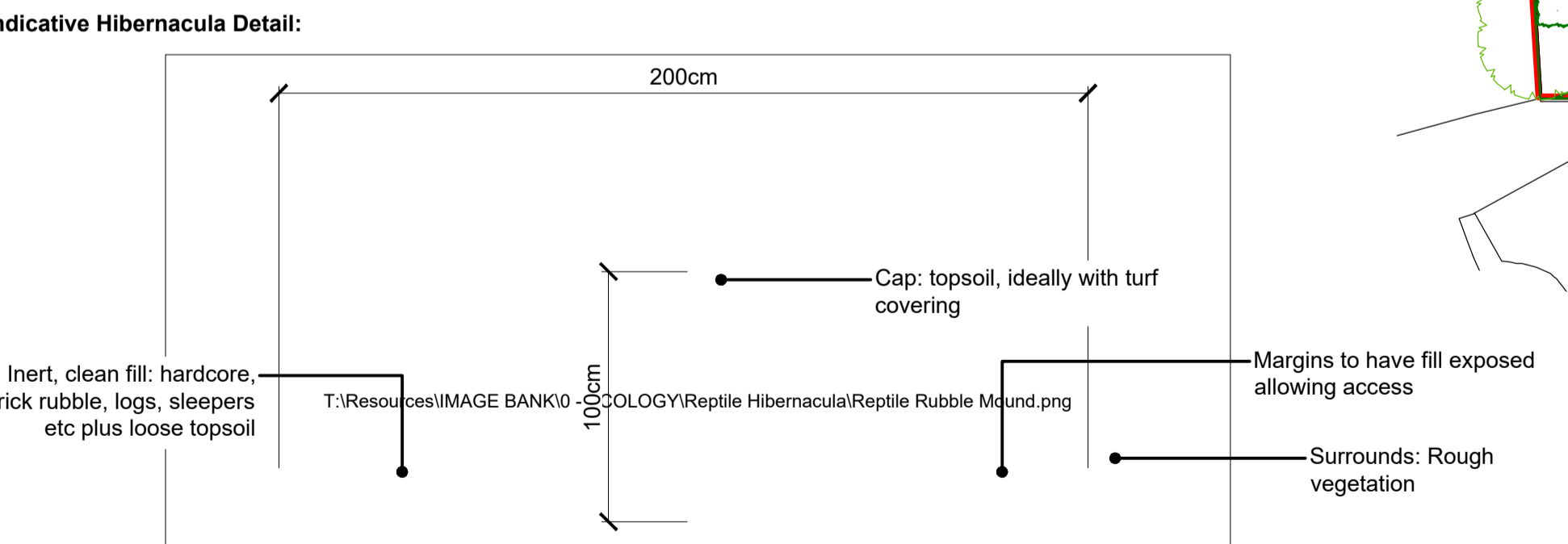
Bulbs		
No.	Species Name	Specification
3 No.	Mixed Daffodils & Narcissi for Naturalising	See Tree Bulbs: 25kg net, Bulb Size 12-14cm

Wildflowers			
No.	%	Species Name	Specification
12 No.	0.5%	Achillea millefolium	Seed: British Native-origin
12 No.	0.5%	Centaurea nigra	Seed: British Native-origin
24 No.	1%	Daucus carota	Seed: British Native-origin
60 No.	2.5%	Callium verum	Seed: British Native-origin
24 No.	1%	Knaulia arvensis	Seed: British Native-origin
48 No.	2%	Leucanthemum vulgare	Seed: British Native-origin
6 No.	0.2%	Lotus corniculatus	Seed: British Native-origin
24 No.	1%	Plantago lanceolata	Seed: British Native-origin
36 No.	1.5%	Primula veris	Seed: British Native-origin
60 No.	2.5%	Prunella vulgaris	Seed: British Native-origin
72 No.	3%	Ranunculus acris	Seed: British Native-origin
48 No.	2%	Ranunculus bulbosus	Seed: British Native-origin
36 No.	1.5%	Rhinanthus minor	Seed: British Native-origin
19 No.	0.8%	Rumex acetosa	Seed: British Native-origin
Total: 20%			

Grasses			
No.	%	Species Name	Specification
192 No.	8%	Agrostis capillaris	Seed: Commercial-origin
963 No.	40%	Cynorus cristatus	Seed: Commercial-origin
874 No.	28%	Festuca rubra juncea	Seed: Commercial-origin
97 No.	4%	Pleium bertolonii	Seed: Commercial-origin
Total: 80%			

LEGEND:

- Existing trees to be retained
- Existing trees to be removed
- Proposed trees
- Mown amenity grass
- Existing pond
- Native meadow/grass seed mixture: Emorsgate EM2
- Proposed native species shrub mix
- Existing dense bramble scrub
- Dense ivy with occasional bramble alongside railway line
- Traditional 2.7m timber 5-bar gate for maintenance access
- Proposed fence (as annotated)
- Bulb planting to amenity area
- Proposed gravel path
- Hibernacula (see construction diagram) to be located within meadow grass areas
- Log / brush piles (from on-site arisings)
- Site boundary



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rev.	date	auth.	rev. note
P01	17.08.2018	PW	Preliminary issue for review / comment.
P02	21.08.2018	PW	Minor amendments to drawing and notes. Cross section and fence detail added.
P03	22.08.2018	PW	Bulbs added to amenity area. Minor amendments to drawing notes.
P04	01.10.2018	CB	Existing pond hatched and notes amended.

client: **G. H. Dean & Co. Ltd.**
 project: **Great Grovehurst Farm**
Grovehurst Road
Sittingbourne, Kent

drawing no. **4940-LLB-XX-XX-DR-L-0001** rev **P04**
 project status: **PLANNING** suit **S4**
 drawing title: **Great Crested Newt Creation Area**
Landscape Proposals

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