



ecosupport

St John's Road to
Dodwell Lane, Link Road

BEMP

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Client:
Foremam Homes

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Report	Biodiversity Enhancement and Mitigation Plan
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1.0 INTRODUCTION

1.1 Brief

A full detailed planning application (F/17/81809) was submitted to Eastleigh Borough Council in December 2017 for the construction of a link road between St Johns Road and Dodwell Lane. As part of the planning permission, the following ecology related condition was provided:

(12) No development shall take place until a scheme for biodiversity mitigation and enhancement has been submitted to and approved in writing by the Local Planning Authority. Prior to first occupation of the road the approved plan shall be implemented in full or in accordance with a timetable that has first been submitted to and approved in writing by the Local Planning Authority.

Reason: To ensure that the development delivers a net gain in biodiversity on the site in accordance with NPPF Paragraph 170 (d)

This document has therefore been produced to enable the above condition to be discharged.

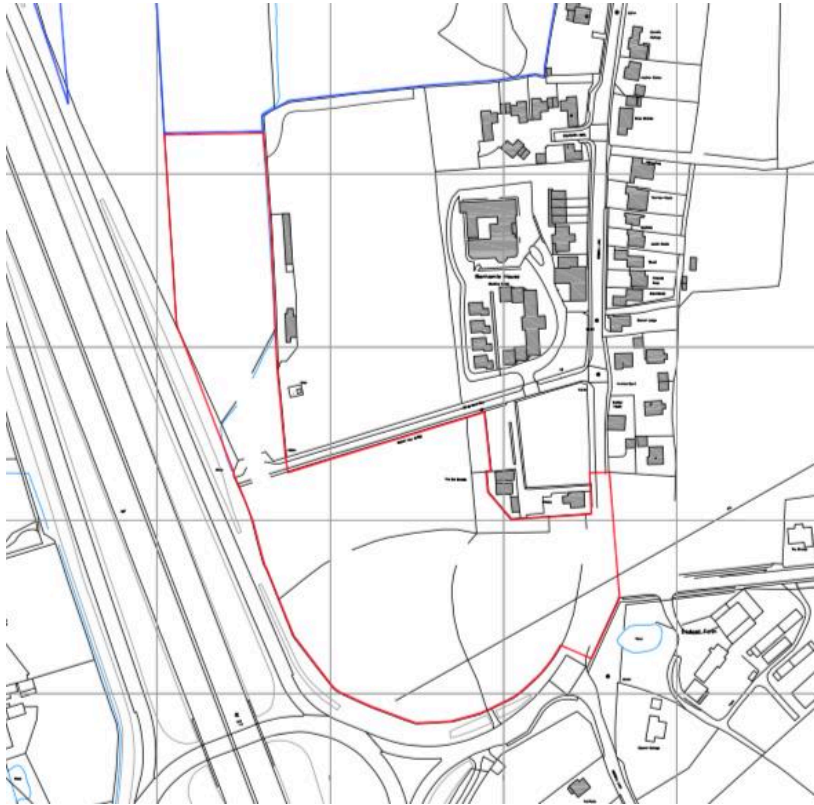
1.2 Aim

The aim of this report is to bring together all relevant sections of the ecological reports associated with the above application to devise a site wide Biodiversity Enhancement and Mitigation Plan (BEMP). This will ensure all features of ecological value and all legally protected species are protected, their presence on site retained in perpetuity and targeted and proportionate recommendations for enhancements made.

1.3 Site Description

The site comprises an area of woodland and horse pasture located to the south of the St Johns Road developments (Phase I which has been built and II which is being determined), SO31 1DP (centred on OS grid reference SU 484 115). The east of the site is bounded by a horse pasture field, the north by the SJR Phase II scheme, the west by a woodland and M27 and the south by Dodwell Lane (with Peewit Hill Close running through the site).

Figure 1. Approximate redline boundary of the site.



2.0 RELEVANT LEGISLATION & POLICY

2.1 Legislation

2.1.1 *The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations (2019)*

This instrument makes changes to the three existing instruments which transpose the Habitats and Wild Birds Directives so that they continue to work (are operable) upon the UK's exit from the European Union (EU). These include The Conservation of Habitats and Species Regulations 2017 and The Conservation of Offshore Marine Habitats and Species Regulations 2017. This instrument also amends section 27 of the Wildlife and Countryside Act 1981 to ensure existing protections continue. The intention is to ensure habitat and species protection and standards as set out under the Nature Directives are implemented in the same way or an equivalent way when the UK exits the EU.

This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into UK domestic law. It provides protection for sites and species deemed to be of conservation importance across Europe. It is an offence to deliberately capture, kill or injure species listed in Schedule 2 or to damage or destroy their breeding sites or shelter. It is also illegal to deliberately disturb these species in such a way that is likely to significantly impact on the local distribution or abundance or affect their ability to survive, breed and rear or nurture their young.

In order for activities that would be likely to result in a breach of species protection under the regulations to legally take place, a European Protected Species (EPS) licence must first be obtained from Natural England.

2.1.2 *The Wildlife and Countryside Act (1981) (as amended)*

This is the primary piece of legislation by which biodiversity is protected within the UK. Protected fauna and flora are listed under Schedules 1, 5 and 8 of the Act. They include all species of bats, making it an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost. Similarly, this Act makes it an offence to kill or injure any species of British reptiles and also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built).

The Wildlife & Countryside Act (1981) states that it is an offence to 'plant or otherwise cause to grow in the wild' any plant listed in Schedule 9 part II of the Act. This list over 30 plants including Japanese Knotweed (*Fallopia japonica*), Giant Hogweed (*Heracleum mantegazzianum*) and Parrot's Feather (*Myriophyllum aquaticum*).

2.1.3 *The Countryside and Rights of Way Act (2000)*

This Act strengthens the Wildlife & Countryside Act by the addition of "reckless" offences in certain circumstances, such as where there is the likelihood of protected species being present. The Act places a duty on Government Ministers and Departments to conserve biological diversity and provides police with stronger powers relating to wildlife crimes.

2.1.4 Natural Environment and Rural Communities Act (2006)

The Natural Environment and Rural Communities (NERC) Act 2006 requires that public bodies have due regard to the conservation of biodiversity. This means that Planning authorities must consider biodiversity when planning or undertaking activities. Section 41 of the Act lists species found in England which were identified as requiring action under the UK Biodiversity Action Plan and which continue to be regarded as conservation priorities under the *UK Post – 2010 Biodiversity Framework*.

2.1.5 Protection of Badgers Act

The Protection of Badgers Act (1992) relates to the welfare of Badgers (*Meles meles*) as opposed to nature conservation considerations. The Act prevents:

- The wilful killing, injury, ill treatment or taking of Badgers and / or
- Interference with a Badger sett
- Damaging or destroying all or part of a sett
- Causing a dog to enter a set and
- Disturbing a Badger while it is occupying a sett

Provisions are included within the Act to allow for the lawful licensing of certain activities that would otherwise constitute an offence under the Act.

2.2 Policy

2.2.1 National

Section 15 of the National Planning Policy Framework (NPPF, 2021) 'Conserving and enhancing the natural environment' states that planning policies and decisions should contribute to and enhance the natural environment. They should do this by protecting and enhancing sites of biodiversity and minimising impacts on and providing net gains for biodiversity, including establishing coherent ecological networks.

The plan states to protect and enhance biodiversity plans should identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks. This includes the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them. Plans should identify the protection and recovery of priority species and opportunities for securing measurable net gains for biodiversity.

When determining planning applications, local planning authorities should apply the following principles:

- if significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the

benefits of the development in the location proposed clearly outweigh both its likely impact;

- development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

2.2.2 Local – Eastleigh Borough Council

The Eastleigh Borough Local Plan 2016 – 2036 has a number of policies relating to ecology with the relevant ones listed below;

'General Approach

1. The Council will work with statutory and voluntary agencies and developers, and will determine planning applications, to:

a. protect, conserve and enhance all:

i. international, national and local nature conservation designations;

and

ii. networks of natural habitats and features, including the Local Ecological Network, Priority Biodiversity Areas and Priority Biodiversity Links, watercourses, wetland complexes, woodland trees, and trees and hedgerows important to biodiversity and local character; and facilitate their adaptation to climate change wherever possible;

b. assist in achieving national, county and local biodiversity targets as set out in Biodiversity Action Plans (BAPs);

c. seek a net gain of biodiversity on all development sites (including sites for redevelopment) through the protection, enhancement and connection of existing and provision of new habitats and features of nature conservation interest compatible with the native biodiversity characteristics of the Borough, having regard to local geodiversity and soils; and

d. contribute to major elements of the PfSH Green Infrastructure Strategy and other strategies for the provision and enhancement of multifunctional green infrastructure including green routes, ecological networks and biodiversity enhancements (see strategic policy S9).

International Designations

2. Development which is likely (either individually or in combination with other developments) to adversely affect the integrity of an international or European nature conservation site will not be permitted subject only to imperative reasons of overriding public interest and securing any necessary compensatory measures in the absence of alternative solutions. A 'project level' Habitat Regulations Assessment will be required where there are likely significant effects or uncertainty. Any mitigation measures required to ensure no adverse impact must be implemented at the appropriate time.

3. The Council will work with PfSH, Natural England, the Environment Agency and other wildlife organisations to develop and implement with developers a strategic approach to the protection and enhancement of international and European sites from the direct and indirect effects of development. Within Eastleigh Borough this will include:

a. implementing:

i. the Solent Recreation Mitigation Strategy (requiring contributions from residential developments within 5.6 kilometres of the Solent Special Protection Area to the Strategy); and

ii. the interim and any future New Forest Recreation Mitigation Strategy if required; or alternative agreed site specific measures to address recreational disturbance;

b. preserving the water quality and flows within the Itchen and Hamble, Southampton Water and Solent;

c. protecting the River Itchen SAC, in particular the maintenance and where appropriate restoration of habitats and qualifying species to favourable conservation status (as defined by article 1 of the Habitats Directive); and

d. seek contributions towards measures set out in the Southern Damselfly Conservation Strategy (or other strategy) specifically to deliver biodiversity net gain.

National and Local Designations

4. Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on a Site of Special Scientific Interest (SSSI), Site of Importance for Nature Conservation (SINC) or Local Nature Reserve (LNR) as shown on the policies map (or on a more recent plan provided by the Hampshire Biodiversity Information Centre) unless it can be demonstrated that:

a. there are no alternative solutions;

b. the adverse effects are unavoidable;

c. measures are taken to mitigate or, as a last resort, compensate for the adverse effects;

d. there is an overall biodiversity net gain; and

e. if there are any residual adverse effects which cannot be avoided, mitigated or compensated, the benefits of the development must clearly outweigh the adverse effects on the nature conservation value of the site and any broader impacts on national and local designations.

Priority habitats, protected and priority species and the local ecological network

5. Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on priority

habitats, protected or priority species, or on the local ecological network unless it

can be demonstrated that:

a. there are no alternative solutions;

b. the adverse effects are unavoidable;

c. measures are taken to mitigate or, as a last resort, compensate for the adverse effects;

d. there is an overall biodiversity net gain; and

e. if there are any residual adverse effects, the benefits of the development clearly outweigh the adverse effects on priority habitats, priority and protected species, and the local ecological network.

Irreplaceable habitats

6. Development will not be permitted if it results in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees), unless there are wholly exceptional reasons and a suitable compensation strategy exists.

Buffers

7. Buffers free from development will be provided to designated sites to avoid/mitigate impacts, including recreational impact and impacts on edge habitats, and to maintain dark skies.

Surveys

8. Development will not be permitted unless it can be demonstrated that:

a. there have been thorough habitat and species surveys;

b. the great crested newt strategic survey and strategy have been considered in all developments within 500m of a great crested newt pond; and

c. the strategic bat trapping survey has been considered in all developments within the locality of a woodland or connected habitat networks.'

3.0 BASELINE DATA

A series of reports / surveys were carried out for the outline application by Ecosupport Ltd (with the results of these summarized in the below sections):

- Data request submitted to Hampshire Biodiversity Information Centre (HBIC) to ascertain any records held of nature conservation designations and protected species within 2 km of the boundary of the site
- Extended Phase I Habitat Survey (October 2017)
- Reptile Survey and Outline Mitigation (October 2017)
- Bat Activity Surveys (October 2017)
- Updated walkover conducted by Adam Jessop (principal ecologist with Ecosupport) on the 14/9/2022

3.1 Habitats

The Extended Phase I Habitat Survey was carried out by Ecosupport Ltd on 19th July 2017 (Ecosupport, 2017a). The habitat types identified are detailed below (with their corresponding UK Habs habitat type as per the appended habitat map) :

- Poor semi-improved grassland (g4 modified grassland, secondary code 61 horse grazed) of short sward height comprised the southern-most field as well as the eastern boundary of the woodland and was the dominant habitat type on site (**Fig 2**).
- *Juncus* spp pasture (Purple Moor Grass & rush pastures (f2b with secondary habitat code 119, seasonally wet) along the western boundary of the site where the where *Salix* spp dominated woodland was previously present (but has been cut down) (**Fig 3**). Some of this woodland is still present however within the western part of the site which was considered to be w1d (wet woodland).
- A hedgerow (h2a, hedgerow priority habitat) was located along Peewit Hill Close and was comprised of several native species including Bramble (*Rubus fruticosus*), Hawthorn (*Crataegus monogyna*) and Field Maple (*Acer campastre*).
- Tall ruderal habitat (secondary code 17) was present along the edge of the woodland and within the hedgerow located along Peewit Hill Close.
- A small watercourse runs through the *Juncus* spp pasture area. Its banks were largely devoid of vegetation and it did not support running water at the time of the initial survey in July 2017 (although it was observed to support running water during later visits in October 2017 although again, none in September 2022).

Figure 2. Horse pasture (g4) grazed to a short sward height dominating the southern part of the site (taken September, 2022).



Figure 3. Area dominated by *Juncus* spp (f2b) (with occasional areas of Himalayan Balsam) where the *Salix* spp woodland was previously located (taken September, 2022).



3.2 Bats

3.2.1 Data Search

The HBIC data request returned records for Noctule (*Nyctalus noctula*) (2 records), *Pipistrellus* spp. (8 records), Common Pipistrelle (*Pipistrellus pipistrellus*) (12 records), Soprano Pipistrelle (*Pipistrellus pygmaeus*) (4 records), *Plecotus* spp. (2 records), Serotine (*Eptesicus serotinus*) (2 records) and Brown Long Eared (*Plecotus auritus*) (12 records).

3.2.2 Preliminary Roost Assessment (PRA)

The trees located within the development site were assessed for any potential to support roosting and resting bats by searching for Potential Roost Features (PRFs). The methods outlined within *Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition* (Collins (ed) 2016) were followed and the assessment was conducted by Adam Jessop of Ecosupport (NE class level 2 bat licence number 2015-13366-CLS-CLS). A small number of Oak (*Quercus* spp.) trees along the eastern boundary were considered to be of **low potential** for roosting bats. These trees are expected to be retained.

3.2.3 Activity Surveys

Following the initial assessment, the site was considered to be of moderate potential for foraging and commuting bats (Ecosupport, 2017a). Therefore, in line with current BCT guidelines (Collins (ed) 2016), walked transects and static detector deployments were undertaken from June – October 2017.

Bat activity was found to be moderate with the number of calls and species diversity being greatest within the woodland area on site. A summary from the Bat Activity Surveys (Ecosupport, 2017b) is outlined below:

“Reasonable numbers of Pipistrellus spp were recorded foraging on site along with Myotis spp, Plecotus spp, Noctule and Serotine (with these species considered common and rarer in England (Wray et al 2010)). Commuting activity was largely restricted to single low numbers of bats.”

Therefore, using the guidance on valuation provided by Wray *et al.* (2010), the site was considered to be of **Local value** for commuting bats and **Regional value** for foraging bats.

3.3 Badgers

3.3.1 Data Search

HBIC hold 9 records of Badger from within 2 km of the site with the nearest of these 0.6 km to the south-west of the site.

3.3.2 Site Assessment

No evidence of Badger activity was noted on site during the initial walkover survey and subsequent visits to the site (for additional surveys). The woodland habitat on site does however provide potentially suitable foraging and commuting habitat for Badgers (EcoSupport, 2017a).

3.4 Reptiles

3.4.1 Data Search

HBIC hold records for Slow Worm (*Anguis fragilis*) (6 records as well as Slow Worms being present on both sites to the north)), Grass Snake (*Natrix natrix*) (3 records), Common Lizard (1 record) and Adder (*Vipera berus*) (including presence on both sites to the north).

3.4.2 Reptile Surveys

Following the initial assessment, the site was considered to be of moderate potential for reptiles (Ecosupport, 2017a). Therefore, a suite of reptile surveys was carried out during September 2017 which identified a maximum count of 7 Slow Worms. Based on the numbers observed, the Reptile Survey and Outline Mitigation report (Ecosupport, 2017c) made the following evaluation:

*“The numbers noted (maximum count of 7 Slow Worms) would indicate that there is a **Good** population of Slow Worms (although 6 is only just within this population group) according to the population assessment criteria as per Froglife (1999).”*

3.5 Nesting and Notable Birds

Given that hedgerow provide suitable nesting habitat for a range of bird species, the site can be considered to be of **high potential** for breeding/nesting birds.

3.6 Designated Sites

The following statutory designated sites were identified within 2km of the site:

- Manor Farm Local Nature Reserve (LNR) – 0.4km east
- Netley Common LNR – 0.4km west
- Upper Hamble Estuary and Woods Site of Special Scientific Interest (SSSI) – 0.6km east
- Solent & Southampton Water Special Protection Area (SPA) & Ramsar – 1.1km east
- Solent Maritime Special Area of Conservation (SAC) – 1.1km east
- Hackett’s Marsh LNR – 1.9km south

In addition, there are 26 non-statutory Sites of Importance for Nature Conservation (SINC) within 2km; however, it was not considered the development will have a significant impact on these (Ecosupport, 2017a).

In the Phase I assessment (Ecosupport, 2017a), it was considered that any polluted surface water entering the water course within the site could potentially have indirect effects during the construction phase on nearby designated sites. In particular, the Upper Hamble Estuary and Woods SSSI, the Solent & Southampton Water SPA/Ramsar and the Solent Maritime SAC are of greater concern due to their status.

4.0 MITIGATION & ENHANCEMENTS

This section details the measures that will be implemented to mitigate against the impacts to the species identified on site and provide targeted and proportionate ecological enhancements (further details of the enhancements recommended can be found in **Plan 1** appended).

4.1 Bats

4.1.1 Sensitive Lighting

The development is expected to result in an increase in artificial lighting on site. To avoid adverse impacts on bats, sensitive lighting should be used.

A document (Guidance Note 08/18 Bats and Artificial Lighting in the UK) has been produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the latest recommendations to minimise the impacts of increased artificial lighting on bats. The key recommendations within this document have been outlined below and will be implemented as far as is practicable (***NB it will be important to ensure lighting levels are kept at or below 0.5 LUX on the woodland on the western boundary of the site***).

'Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires:

- *All lighting should avoid areas frequently used by bats.*
- *All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used. LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.*
- *A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.*
- *Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).*
- *Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.*
- *The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be as directed by the lighting professional.*
- *Column heights should be carefully considered to minimise light spill.*
- *Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light.*
- *Luminaires should always be mounted on the horizontal, ie no upward tilt.*

- Any external security lighting should be set on motion-sensors and short (1min) timers.

As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed' (**Fig 4**).

Figure 4. (a) Shield 'barn doors' (b) cowl hood; (c) shield and; (d) external louvre Images from ILP (2018).



4.1.3 Bat Boxes

To act as an ecological enhancement, the below bat boxes **will be** erected within the retained trees around the link road (**NB the models recommended have been changed due to the intermittent availability of Schwegler bat boxes**):

- 6 No NHBS General Purpose Bat Box
- 8 No Vivara Pro Harlech WoodStone Bat Box
- 2 No Vivara Pro Large Multi Chamber WoodStone Bat Box
- 4 No Vivara Pro Miramare Bat Box

These boxes will be placed at a minimum height of 3 m off ground level and will be done so by, or under the supervision of, an ecologist to ensure they are erected in an appropriate location (see **Plan 1** for locations).

4.1.4 Tree / Shrub Planting

Planting a mixture of flowering plants, trees (including fruit trees) and shrubs encourages a diversity of insects to sustain bats. It is beneficial that the flowers vary in colour (although pale

flowers are more easily seen in poor light and so attract insects at dusk), fragrance, shape, amount of nectar and time of flowering (it is important to provide native flowering plants, shrubs and trees throughout spring, summer and autumn). Flowers with 'landing platforms' for insects increase opportunities for insects and in turn foraging bats and these will be included within marginal habitats where appropriate. Consequently, the landscape proposals for the site prepared by Deacon Design (2023) make a number of recommendations for native planting (please refer to the landscape document for full details and planting specifications).

4.1.5 Wildflower Areas

Wildflower areas will be throughout the site with the locations of these shown within the accompanying landscape plans (Deacon Design, 2023) and shown in appended plan). These will be created through seeding using Emorsgate EM2 basic general-purpose meadow mixture (or similar approved) as well as Emorsgate EH1 woodland edge mixture (or similar approved). The creation of these features will be beneficial to a wide range of insects and will increase the food resources available to bats on site (these areas will also be managed as meadows (i.e. allowed to support a longer sward height).

4.2 Badgers

4.2.1 Protection During Construction

During the construction phase, any open excavations left overnight should either be covered to prevent commuting mammals from falling in or escape ladders should be used to prevent them from becoming trapped. Any open pipework should be checked and then capped nightly.

4.2.2 Updated Walkover

In addition to this, within 1 week of the grounds works on the new road commencing, an updated walkover surveyed will be undertaken by a suitably qualified ecologist to ensure there are no mammal holes within the works area. If any mammal holes are present that are suspect to be Badger, these will need to be monitored in line with UK Gov guidance (i.e. monitor sett for a minimum period of 4 weeks). Pending the results of any monitoring work, a sett closure under licence may be required.

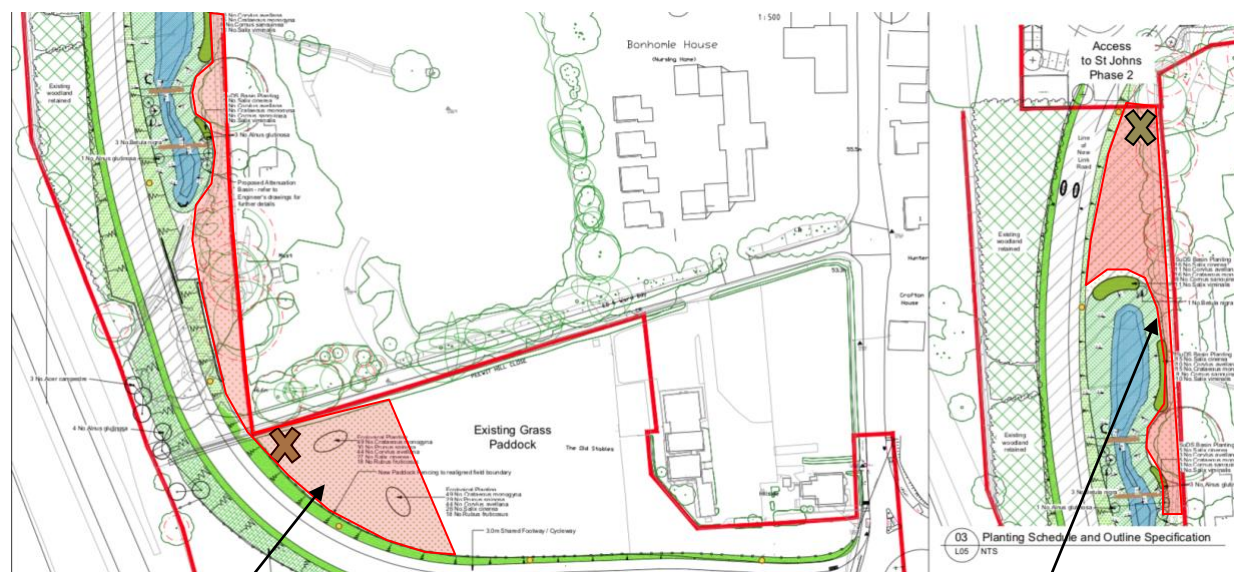
4.3 Reptiles

Prior to construction, reptile mitigation will be carried out to ensure the Slow Worms present are protected during construction works (***NB the strategy outlined below is a change to the mitigation outlined in the Reptile Survey and Outline Mitigation Report (Ecosupport Ltd, 2017c, this has been discussed with the EBC ecologist but may be subject to change through a variation of condition should issues with additional land purchase arise)***).

4.3.1 Receptor

In a change from the previous strategy, the proposed receptor will include part of the retained f2b rush pasture habitat to the east of the new link road and a parcel of the g4 modified grassland (as per **Fig 5** below).

Figure 5. The new reptile receptor (red shading) proposed which will comprise of retained f2b habitats to the east of the road and an area of the g4 grassland which will be enhanced to the south of the retained hedgerow. 2 No wood-based hibernacula will also be installed marked by the X's and the boundary of this habitat will also be fenced off with semi-permanent reptile exclusion fencing.

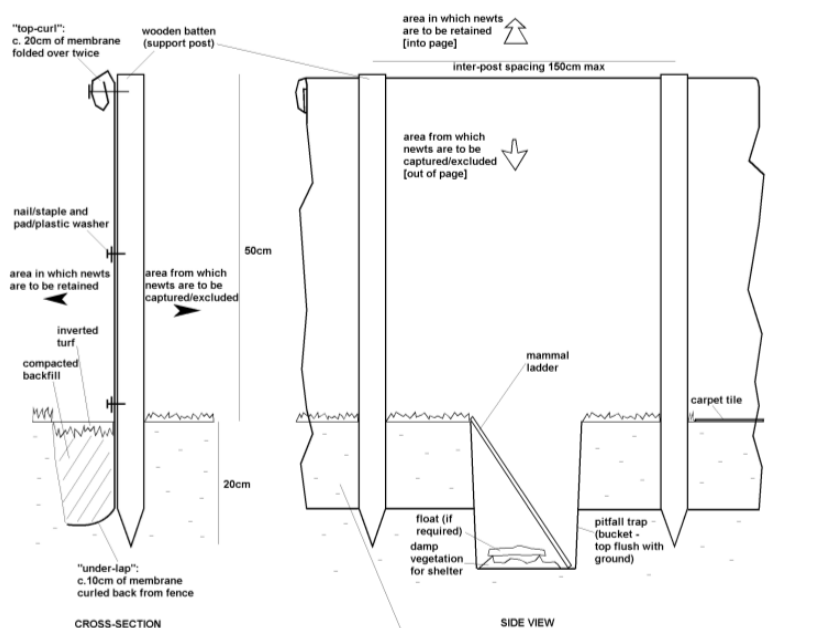


Managed g4 grassland in horse pasture field will need to be left uncut for at least 3 months during the growing season to develop a longer more varied structure to become suitable for reptiles **PRIOR** to any relocation works taking place. The two ovals shown indicate scrub scallops (for habitat diversity and shade) and the grassland managed rotationally (i.e. half cut in year 1, the next half in year two with the process then repeated).

f2b rush pasture habitat retained will subject to a more favourable management regime (outlined more in section 4.3.8.2)

4.3.2 Exclusion Fencing

Prior to any reptile capturing taking place, the perimeter of the suitable habitat areas and boundary of the receptor will be set up with exclusion fencing (where practicable). The reptile exclusion fencing will be of standard design and specification (as described in the *Great Crested Newt Mitigation Guidelines*, English Nature, 2001, **Fig 6**). This fence will remain *in situ* until completion of construction works. The purpose of this is to prevent reptiles moving onto site during the capture operation and subsequent construction.

Figure 6. Fence design and specification as provided in English Nature, (2001).

Artificial bitumen roofing felt and corrugated tin capture refugia will be distributed within all areas of suitable reptile habitat within the exclusion fence boundary to facilitate the capturing process. These will be placed at a minimum density of 100 / ha.

4.3.3 Capture and Transport

Reptiles will be captured by hand by a Suitably Qualified Ecologist (SQE) from beneath artificial refugia, or wherever they are encountered on site and placed into a suitable container and immediately transported into the receptor area.

NB should any Grass Snake be present in the wetter parts of the site (accounting for the age of the survey data), these will be placed into the retained f2b Rush pasture habitat east of the new road.

4.3.4 Capture Effort

The HGBI guidelines (1998) suggest that for a '**Low**' population of Slow Worms (the corresponding population size in the HGBI guidelines), a minimum of 60 capture effort days are expended however the capture effort will be reviewed on an *ad hoc* basis during the translocation (i.e. it may be that significantly less than 60 days is required to provide the 5 negative capture days).

4.3.5 Habitat Manipulation

Once the capture operation is underway, habitat within the site may be manipulated in order to increase the capture rates. Typically, this would involve the strimming of areas of suitable habitat to reduce cover for reptiles and increase their reliance on artificial refugia for cover. It will also concentrate any remaining reptiles into parts of the site where the density of artificial refugia can be increased. Any habitat manipulation works will be carried out by a contractor under the supervision of an SQE to ensure works are carried out without harming individual reptiles.

4.3.6 Timing

All works which entail the capture of reptiles will take place between March and September (depending on weather conditions). This timing avoids the hibernation period when reptiles would be particularly vulnerable to disturbance. Reptiles will not be translocated after the end of September in order to allow them sufficient time to find suitable hibernation sites at the release area.

4.3.6 Destructive Search

Following the conclusion of the reptile translocation, a destructive search of the site may be necessary. As a minimum, the destructive search would entail the sensitive removal of any remaining natural reptile refugia, such as brash piles, within areas of the site where particularly high densities of reptiles were captured. Dependent on the number of reptiles captured during the translocation exercise, the destructive search may need to be extended beyond the described targeted search of localised areas.

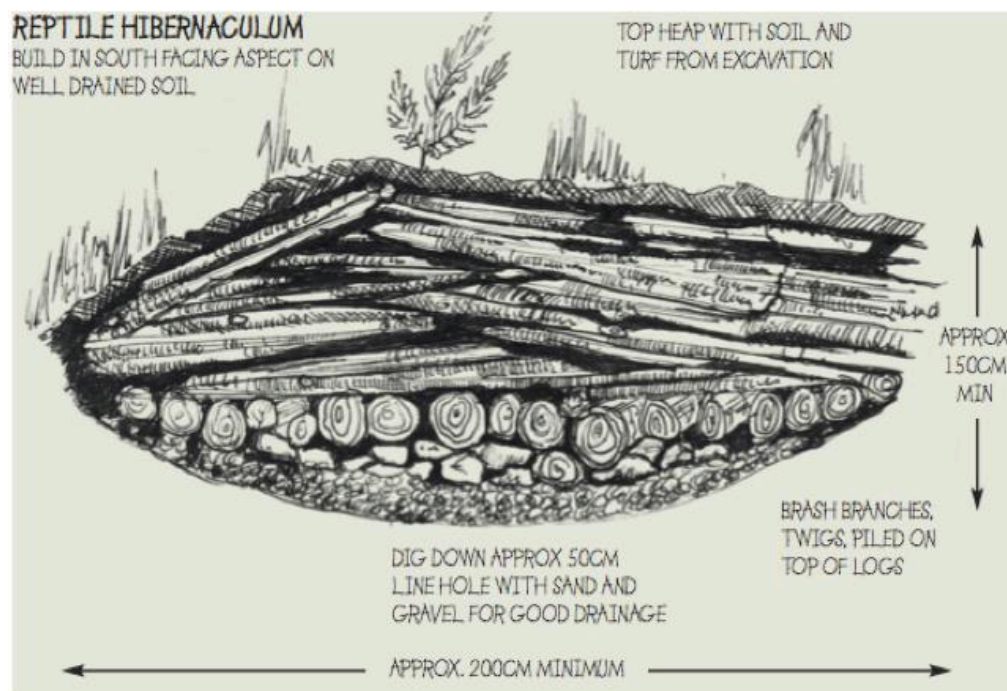
Works should be undertaken during the active reptile period (April – September) when temperatures are above 12°C with sunshine, however if works take place during winter months (September – March) all associated works should avoid impacts to natural refugia (including felling, tracking heavy machinery etc). UK reptile species enter periods of hibernation or extended torpor and take shelter within hibernation sites. These features include (but are not limited to) burrows dug by other species such as rabbits, or by the reptiles themselves, rotted tree stumps and root holes, large grass tussocks, ant-hills, old walls and building foundations, piles of rubble and other debris and under large logs and fallen trees.

4.3.7 Enhancements

Based on the nature of the existing habitats within the receptor (i.e. modified grassland in the horse field in the south and rush pasture grassland on bank with bordering scrub) the following enhancements will be required:

- The creation of 2 No wood-based hibernacula (see **Fig 5w** for location) to provide reptiles with a suitable area to hibernate within. This will be created following the specification outlined within *Reptile Habitat Management: Guidelines for Landowners* (HART, 2009) (**Fig 7**).
- 2 No scrub 'scallop' created in the enhanced g4 grassland area (see **Plan 1**) to provide 'ecotone' for reptiles and areas of shade. Will be planted in a semicircular arrangement with species planted at 3 – 5 plants / m². Species that can be used include; *Crataegus monogyna*, *Prunus spinosa*, *Corylus avellana*, *Salix cinerea* and *Rubus fruticosus* agg.
- Leaving grassland currently grazed in horse pasture field ungrazed / uncut for at least 3 months (during growing season of April – September) to develop a suitable sward length / structure for reptiles. It may also be these areas floral diversity is enhanced through the provision of native wildflower plug plants at a density of 1 -3 / m² to increase invertebrate biomass.

Figure 7. Reptile hibernaculum design as provided in HART (2009).



4.3.8 Upon Site Completion

4.3.8.1 Protection

To ensure its protection following site completion, the receptor area will be listed within the S106 (or similar such as a restrictive covenant) as protected reptile habitat. Additionally, an interpretation board and a wooden knee rail will be installed along the boundary of the receptor area. Population monitoring will also be undertaken on the receptor in years 1 (so 2023 and 3 (so 2025) post relocation works.

4.3.8.2 Management / Longer Term Enhancement

f2b (rush pasture)

As per the Butterfly Conservations *Managing Rush Pasture with Nature Conservation Interest*¹, the following management recommendations will be implemented (see **Plan 1**):

- On sites with high plant and invertebrate interest, a small-scale approach is needed. Do not cut all the rush at once, as this could wipe out both the rush itself and the wildlife you are trying to increase.
- Use a brush-cutter with a blade, and cut just above ground level, to avoid scalping or breaking up the layer of mosses, sedges and other small plants. Cut the patches of a size that will allow the cut rushes to be removed easily.

¹ <https://butterfly-conservation.org/sites/default/files/rush-pasture-factsheet.pdf>
6/2/2023)

(accessed

- Don't cut until after the end of August and before March so that no young birds are present.
- Rake off and remove the cut material to allow small plants to recover and to avoid new rush growth from seed. In the second year, cut patches next to the ones already cut in the previous year, so that the cuts spread outwards and across the rushy area.
- Aim to cover all the rush-dominated areas over a period of four or five years before returning to the areas first cut.

g4 modified grassland

As per the HARTs (2009) *Reptile Habitat Management: Handbook for Owners*, the following management recommendations will be implemented (see **Plan 1**):

- Leave areas of long grass and varied heights of vegetation as cover and protection from predators when they emerge in a torpid state from hibernation. This will practically entail 50% of the grassland being cut in year one (late Sept ideal) and the other 50% in year two with this process then repeated to ensure varying sward heights and structures. The grassland will be cut by hand (i.e. strimmer) and to a height no lower than 20 cm.
- Cutting of thick Bramble, and saplings should be undertaken during the winter and preferably by hand rather than by heavy machinery.
- Avoid the use of herbicides or pesticides on known reptile areas and by water bodies.

Information on the remaining areas on-site has been provided by Deacon Design. Based on the prescriptions for the specific seed mix provided by Emorsgate

Service Margin (EM2 seed mix)

Most of the sown meadow species are perennial and are slow to establish. Soon after sowing there will be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out.

Avoid cutting the annual weeds until mid to late summer. Then cut, remove and compost (around early August).

Once Established

In the second and subsequent years EM2 sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland.

Traditional meadow management based around a main summer hay cut in combination with autumn and possibly spring mowing or grazing.

Meadow grassland is not cut or grazed from spring through to late July/August to give the sown species an opportunity to flower.

After flowering in July or August take a 'hay cut': cut back with a scythe, petrol trimmer or tractor mower to c 50mm. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site.

Mow or graze the re-growth through to late autumn/winter to c 50mm and again in spring if needed.

Woodland Edge (EH1 seed mix)

Most of the sown meadow species are perennial and are slow to establish. Soon after sowing there will be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out.

Avoid cutting the annual weeds until mid to late summer. Then cut, remove and compost (around early August).

Once Established

The management requirements of established hedgerow mixtures can be tailored to light levels and to fit in with adjacent vegetation types.

Zoned management of hedgerow margins frequently produces the best diversity of habitat structure: areas closest to the hedge or woodland boundary and those which are more shaded are left uncut in most years.

Areas that are further from the margin and more open can be managed as grassland habitat. Hedgerow vegetation that is not mown or grazed each year will become rough and "tussocky" in character. It can form useful refuge habitat on corners and margins of a site.

To control scrub and bramble development these tussocky areas may need cutting every 2-3 years between October and February. For wildlife this cutting is best done on a rotational basis so that no more than half the area is cut in any one year leaving part as a undisturbed refuge. Hedgerows and margins that are cut regularly can be managed as grassland.

Attenuation Basin Banks (EM8 seed mix)

Most of the perennials are slow to establish, and soon after sowing there will be a flush of annual weeds arising from the seed bank, these offer protection to the sown seedlings and habitats for insects, with the weeds dying before the end of the first year.

Resist cutting the annual weeds, especially if sown with Yellow Rattle, or a nurse of cornfield annuals. This can be cut, removed, and composted in early August, to reveal the young meadow underneath, this should be kept short through grazing or mowing until the end of March the following year.

Following mowing or grazing ensure that any residual perennial weeds such as docks have been removed.

Once Established

The best management of the EM8 mix in the second and subsequent years, is by introducing a traditional meadow management method. This is based around a summer hay cut combined with autumn mowing and the option of spring mowing or grazing.

Meadow grassland should not be cut or grazed from end of March to late July/ early August to give sown species the opportunity to flower. Following flowering, a hay cut should be done in August using a scythe, petrol strimmer or tractor mower to around 50mm/ This 'hay cut' should be left on site to dry and shed seeds for 1-7 days before being removed and composted off site.

The regrowth should be mown or grazed through late autumn/ winter to a minimum height of 50mm and again in the early spring if needed.

Wildflower Mix to Basin Bottom (EP1 seed mix)

NB as it is unlikely the basin will support high levels of standing water throughout the summer, it is not considered there will be issues with the viability of this seed mix

In the first year, annual weed growth may be cut back to encourage the development of a good perennial ground cover. Establishment on sites prone to flooding may be patchy and may take several years to fully colonise.

The best management of the EP1 mix in the second and subsequent years, is by cutting back and removing short sections of vegetation every 2-3 years in rotation.

Remove vegetation as a wedge, dense stands of single species (eg yellow iris) may benefit from selective thinning. Vegetation removal causes the least disruption to wildlife when carried out between September and November.

Wet grassland which only occasionally or seasonally floods can be managed as meadow or grassland. In marginal wetland zones the water levels in the soil are never more than 50cm below the surface, but only occasionally submerge the plants growing there.

Proposed Shrub Planting (Inc bat Mitigation Planting on Road Banks)

Management operations will include thinning / coppicing of shrubs to remove any deadwood and promote growth and regular pruning to maintain a healthy and attractive form. Thinning promotes new dense growth thus encouraging a strong, more robust planting in the mid to long term, and increases air flow within the planting to maintain its good health.

Any thinning works are to be carried out outside of the nesting season (March to Mid-September) to avoid disturbance to birdlife.

Operations are to be carried out by hand and waste is to be recycled as compost wherever possible or appropriate.

The density of planting will require that all weeding is carried out by hand (unless agreed with otherwise), using the appropriate tools. All resultant material should be removed from site.

Coppicing must be maintained on rotation and it is important to avoid a situation where all the shrubs are coppiced on the same cycle. The reason for this is to ensure some height and coverage is maintained in each of the coppice areas at all times. Prior to any winter clearance, inspection must be carried out to avoid disturbance of hibernating mammals. Cuts should be above ground level and arisings should not be dragged through the stand

NB a small area of the proposed road has been subject to a two stage strim and push exercise after which it was fenced off with 1mm HDPE exclusion fencing. The approximate location of this section is shown in Fig 8 below and a destructive search of the area under ECoW supervision will also be required. Any Slow Worms encountered during this process (to be completed before the end of October 22) will be moved the proposed receptor. The purpose of this was to allow for a small section of the road to be constructed to ensure the application is implemented and therefore kept live.

Figure 8. The small section of the road that has already been fenced off after a push and strim exercise (redline the approximate extent of the exclusion fencing).



4.4 Nesting & Notable Birds

4.4.1 Mitigation

In order to avoid disturbance of nesting birds or damage to their nests, clearance of any vegetation will be undertaken outside of the bird nesting season (typically March – September dependent on weather). If this is not possible, sections to be cleared should be thoroughly checked by an SQE immediately prior to clearance. If any active nests are found they should be left undisturbed with a suitable buffer of vegetation (5m) until the nestlings have fledged.

4.4.2 Enhancements

To act as biodiversity enhancement, the following nest boxes **will be** erected within the retained trees on site (with locations indicated within **Plan 1**):

- 2 No Schwegler 1B Nest Box (32mm hole) (**Fig 9**)
- 2 No Schwegler 2H Robin Box
- 2 No Schwegler 2M Nest Box (26mm hole)

Using nest boxes of varying designs maximises the species complement attracted to the site. The 1B Nest Box is attractive to species such as Great Tits, Nuthatch, Collared and Pied Flycatcher while the 2M nest box is attractive to smaller species such as Blue Tits and Coal Tits. The 2H Robin Box is attractive to Robins as well as other small species such as Black Redstart, Spotter Flycatcher and Wren.

Figure 9. Schwegler 1B Nest Box (NHBS, 2022).



4.5 Invertebrates

4.5.1 Insect Lodge

To provide areas for invertebrates to shelter within and provide an addition ecological enhancement, 1 No Corsica insects lodges² (**Fig 10**) **will be** installed adjacent to the SUDS pond (see **Plan 1** for indicative location).

² <https://gardenature.co.uk/products/product-corsica-insect-lodge>

Figure 10. Corsica insect lodge, 1 No of which will be installed adjacent to the proposed SUDs pond.



4.5.2 SUDs Feature

As per the Deacon Design approved landscape plan (DD130L05), the new SUDs pond that is being created along the eastern part of the road (see **Plan 1** for location) is targeted to be planted up with the Emorsgate EM8 wetland seed mix around the margins. This mixture contains a number of wildflowers that will be beneficial to invertebrates as this feature matures including³ :

- Common Knapweed (*Centaurea nigra*)
- Wild Carrot (*Daucus carota*)
- Meadowsweet (*Filipendula ularia*)
- Oxeye Daisy (*Leucanthemum vulgare*)
- Ragged Robin (*Silene flos-cuculi*) and
- Devil's Bit Scabius (*Succisa pratensis*)

³ <https://wildseed.co.uk/product/mixtures/complete-mixtures/meadow-mixtures-for-specific-soils/meadow-mixture-for-wetlands/> (accessed 6/2/2023)

In addition to this, the base of the pond is proposed to be planted with the EP1 pond mixture which supports a flowering species that cab tolerate occasional inundation.

4.6 Hedgehogs

Although there are no garden fences proposed for this scheme (and as such, no need to provide gaps in fencing for permeability), in order to provide Hedgehogs with suitable locations to shelter, 2 No Hogitat⁴ Hedgehog Homes (**Fig 11**) **will be** provided within the retained woodland areas to the west of the link road (see **Plan 1** for indicative locations).

Figure 11. Hogitat Hedgehog home, 2 No of which will be provided on-site.



⁴ <https://www.selections.com/brushwood-hogitat-hedgehog-house-shelter>

7.0 REFERENCES

Bat Conservation Trust / Institute of Lighting Professionals (2018) *Guidance Note 08/18 Bats and Artificial Lighting in the UK*

Collins (ed) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* 3rd Edition. The Bat Conservation Trust

Deacon Design (2018) *Landscape Proposals Plan*, St Johns Phase 3, New Link Road, Foreman Homes Group (ref DD13L05)

Eastleigh Borough Council (2022) *Eastleigh Borough Local Plan (2016-2036)*. Available online at: <https://www.eastleigh.gov.uk/planning-and-building/planning-policy-and-implementation/local-plan/local-plan-adoption>

Ecosupport (2017a) *St Johns Road to Dodwell Lane Link Road Hedge End Extended Phase I Habitat Survey*

Ecosupport (2017b) *St Johns Road to Dodwell Lane Link Road Hedge End Bat Activity Surveys*

Ecosupport (2017c) *St Johns Road to Dodwell Lane Link Road Hedge End Reptile Survey and Outline Mitigation*

Froglife (1999) *Froglife Advice Sheet 10, Reptile Survey. An Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation.*

Griffiths, R., & Inns, H., (1998) *Surveying* (in Gent, T., & Gibson, S., (eds) (1998) *Herpetofauna Workers Manual*. JNCC, Peterborough.

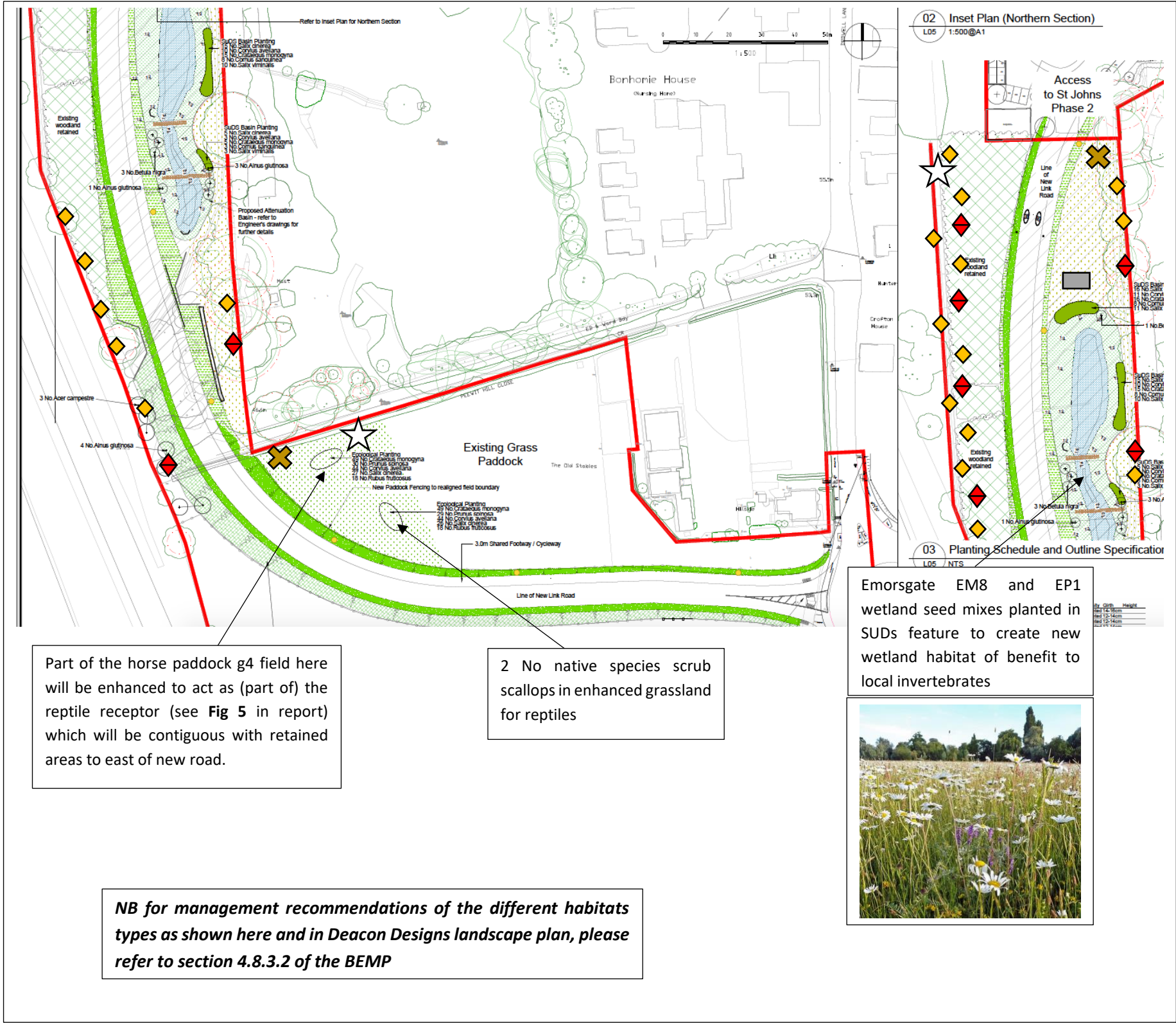
HART (2009) *Herefordshire Amphibian & Reptile Team. Reptile Habitat Management: Guidelines for Landowners*

Herpetofauna Groups of Britain & Ireland. (1998). *Evaluating local mitigation/translocation programmes: maintaining best practice and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGs)*. HGBI c/o Froglife, Halesworth, Suffolk.

HMSO. (1981). *The Wildlife & Countryside Act 1981*. HMSO, London

HMSO. (2010). *The Conservation of Habitats and Species Regulations 2010*. HMSO. Statutory Instrument 2010 No. 490. HMSO, London.

(IEEM) Wray, S., Wells, D., Long, E., & Mitchell-Jones, T., (2010) *Valuing Bats in Ecological Impact Assessment*, IEEM in Practice.



Plan 1 Legend - Wood based hibernacula (2 No) - Woodcrete bat boxes erected on trees (20 No) - Bird boxes erected on retained trees / woodland (8 No) - Corsica insect lodges (1 no) - Hogitat Hedgehog homes (2 No)	
	
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