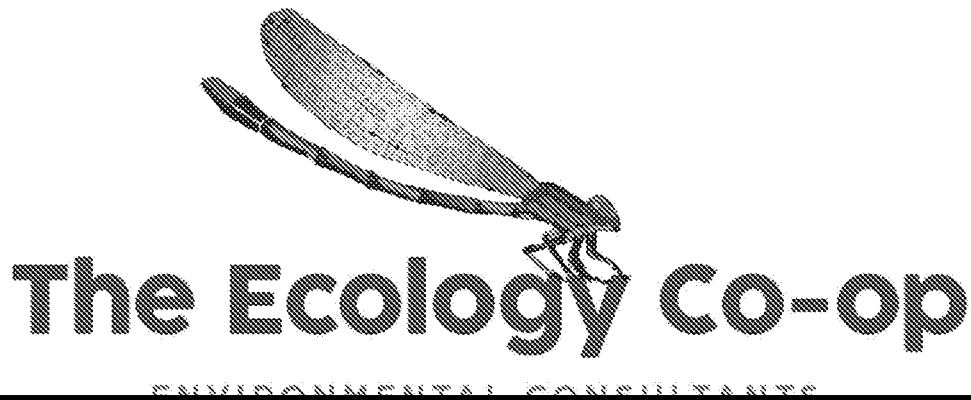




Reptile Mitigation Statement

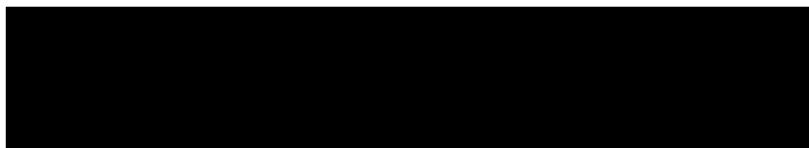
**Land at Upper Bognor Road, Bognor Regis,
West Sussex**

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Report Summary

1. The Ecology Co-op has been commissioned by The University of Chichester to outline necessary mitigation for a proposed development on land at Upper Bognor Road, Bognor Regis, where there is suitable habitat for reptiles, and it is likely that there is a good population of reptiles present on the site.
2. Pre-construction work includes the creation of new habitats of value for reptiles such as hibernacula and wildflower meadow forming an in-situ 'receptor site'. Once established, the area will be fenced to allow the trapping and translocation of common reptiles to the proposed receptor site.
3. Enhancement measures are also proposed for wider wildlife benefits including the wildflower meadow habitat and native hedgerow planting which will be beneficial for a variety of wildlife as well as reptiles.
4. Site staff must be briefed prior to the commencement of construction on the importance of protecting the reptile fencing and contacting an ecologist in the event that any reptiles or other wildlife are identified within the construction zone.
5. Post construction management is detailed in Section 4 of this report.

This report has been prepared by The Ecology Co-operation Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client. This report only becomes the property of the client once payment for it has been received in full.

We disclaim responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.



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1 INTRODUCTION

1.1 Purpose of the Report

This document has been produced to demonstrate how the proposed residential development upon land at Upper Bognor Road in Bognor Regis, West Sussex will minimise its impact upon and enhance the site for common reptiles. The report outlines all mitigation and compensation measures that are designed to ensure that valuable habitats are either protected, replaced or enhanced further to a proposal to construct two new residential dwellings with hard and soft landscaping.

All of the prescribed mitigation measures described within this document will be issued to relevant works contractors to ensure that they are carried out in full. Implementation of this will be overseen by a suitably qualified and experienced ecologist.

1.2 Background

The Ecology Co-op has been commissioned to outline reptile mitigation for land at Upper Bognor Road, Bognor Regis, West Sussex. The Ecology Co-op undertook an Ecological Assessment¹ at the site on the 5th November 2019 which identified the need for a reptile presence/absence survey. For the purpose of writing this report, it has been assumed that there is a good population of reptiles on the site given the suitable habitat that is present, and this Mitigation Statement has been produced to outline how reptiles will be protected throughout the development process. A presence/absence survey will be conducted next year prior to any construction to confirm this assumption and should the council be minded to approve this application, this survey could be a condition to development.

The site is located in an urban area within the Bognor Regis Campus of the University of Chichester on Upper Bognor Road, Bognor Regis, West Sussex. The central grid reference for the site is SZ943 995 (Figure 1).

This is a small site approximately 0.09 hectares comprising predominantly dense bramble and nettle scrub habitat, ruderal vegetation, scattered trees, saplings, amenity grassland, hard-standing and piles of rubbish, bricks and rubble scattered throughout the site.

The proposed development includes the construction of two new residential dwellings and associated hard and soft landscaping (Figure 2).

¹ Burkitt, J. (2019) Ecological Assessment, Land at Upper Bognor Road, Bognor Regis, West Sussex. The Ecology Co-op 19th November 2019. Doc Ref P3457.



Figure 1. An aerial image showing the location of the site. The site is outlined by a red arrow. Images produced courtesy of Bing maps (Map data ©2019 Bing).



Figure 2. The proposed layout outlined in light blue within the land at Upper Bognor Road, Bognor Regis.



1.3 Reptiles

The site comprises habitat of value for reptiles, including ruderal habitat, dense bramble and nettle scrub, and dense vegetation (see Figure 3 and Figure 4). There are numerous piles of bricks, rubble and rubbish within the site providing suitable hibernacula for reptiles. Therefore, a reptile presence/absence survey was recommended.

As a result of the high suitability of the habitat within the site for reptiles, it has been assumed that a good population of reptiles is likely to be present and therefore, for any development to proceed, it is important that mitigation and compensation measures for reptiles are implemented to protect both individual reptiles and the longevity of the population.

The site is enclosed by a flint and stone wall along the north, south and east boundary with amenity grassland and hard standing along the western boundary. There is a small gap in the wall that allows connectivity to the newly created SuDs pond and rough grassland habitat to the east of the site (Figure 6). Given the small size of the construction zone, 0.09 Ha, it is proposed that this area of land adjacent to the site is used as an in-situ reptile receptor area (Figure 5).

Mitigation will include the installation of semi-permanent reptile fencing around the development site, using the flint wall and concrete slabs within the site as barriers to movement (Figure 8). The reptile fencing will need to be installed wherever there are gaps in the brick wall to ensure that the entire proposed construction zone is encompassed. All reptiles will be 'trapped out' and all captured reptiles will be translocated to the reptile receptor area. The process is outlined in detail in section 2.1 and 2.2.



Figure 3. The dense scrub, ruderal habitat and numerous rubble/brick piles within the site.



Figure 4. One of the numerous piles of rubble and bricks within the site.



Figure 5. The proposed in-situ reptile receptor area adjacent to the development site.



Figure 6. The gap in the wall along the eastern boundary of the site which is connected to the proposed reptile receptor site.

1.4 Legislation

Reptiles

Slow worms, adder *Vipera berus*, grass snakes *Natrix helvetica* and common lizards are protected against intentional killing or injuring and trade under part of subsection 9 (1) and all of subsection 9 (5) of the Wildlife and Countryside Act 1981. Destruction of known habitats whilst reptiles are present may therefore lead to an offence.

2 PRE-CONSTRUCTION MITIGATION MEASURES

2.1 Reptile Fencing Installation

Semi-permanent reptile proof fencing will be installed within the site along the western boundary and across the gap in the northeast corner, making sure that the fencing is tied off at the existing brick wall (see Figure 8).

A semi-permanent polypropelene material that is tough and stabilised against ultraviolet light should be installed to a depth of not less than 20cm below ground and supported by stakes every 2 metres fixed with clout nails and washers. The fencing should be backfilled with earth and tightly compacted to make sure that it acts as an impassable barrier. The advantage of the semi-permanent fence is that it is less susceptible to damage by dogs, deer, foxes and other animals as well as any accidental damage by construction staff and is suitable for developments where fencing may need to remain in-situ over a long period of time.



Figure 7. An example of the semi-permanent fencing material that will be used within the site.

The fencing will be required to separate the construction site from all suitable adjacent green habitats, where reptiles might migrate onto the site and would need to remain in-situ until all construction work deemed a risk to reptiles has been completed (i.e. earthworks and associated landscaping). This will prevent any reptiles from the surrounding areas migrating onto the site during works.

Figure 8 shows the proposed route for the fence around the construction zone on land at Upper Bognor Road, Bognor Regis. The proposed fence line is highlighted in blue. The exact route of the reptile fence within the development site may need to be modified during construction due to areas of hard-standing and rubble present within the site.

The installation of the fencing would need to be overseen by a suitably qualified ecologist, with a hand search conducted of the fencing construction line ahead of a trencher or small excavator digging the trench for the installation of the fence. The fence will be installed outside of the reptile hibernation period (generally October to late-February dependent of weather conditions) to minimise the risk of killing or injuring reptiles during the fence installation.

Construction Method:

1. At least 24 hours prior to the construction, the fence route will be hand searched by a suitably qualified ecologist and strimmed (using brush-cutters where necessary) of vegetation to a height of no more than 5cm and a two-metre width, with all cuttings raked off and removed. This will ensure that reptiles are discouraged from the fencing construction zone. The strimming process will be completed in two passes, with the grass cut to a height of 10-15cm on the first pass, to reduce the risk of harming amphibians or reptiles during the strimming process. In the unlikely event that any nesting birds are found along the fencing route, then



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- strimming will have to wait until the nesting birds and chicks have fledged and moved on.
2. The construction zone will not be allowed to grow taller than 5cm prior to construction of the fence and materials will not be stored along the fencing route, which could otherwise attract reptiles to them as refugia.
 3. The entire length of the fence must first be established by excavating a 20cm wide 20cm deep trench, overseen under watching brief by a suitably qualified ecologist. Excavated earth will be piled on the outside edge of the trench so that it is easily backfilled once the fence has been installed.
 4. Excavation work for the fencing trench will be carried out by an excavator or trencher not larger than 1.5 tons in weight to minimise ground disturbance.
 5. Fence stakes will be positioned every 2 metres and will be sunk into the ground to a depth of at least 30cm to ensure they are secure.
 6. The fencing material (which is supplied in 100kg rolls) will be rolled out along the outside edges of the trench and will be lifted into place when each full roll has been unravelled or cut into manageable sections.
 7. The fencing sheet will be attached to the stakes using 2 clout nails and plastic washers at the top and 15cm from the bottom of each stake.
 8. Once fixed the excavated earth will be backfilled along the trench and trodden in to ensure that it is lightly compacted to prevent animals from digging into it.
 9. After establishment, fence checks will be undertaken every week to look for any signs of damage. Once construction has commenced, the fence checks and maintenance will become the responsibility of the works contractor.
 10. All site staff must be briefed prior to the commencement of construction on the importance of protecting the reptile fencing and contacting an ecologist in the event that any reptiles or other wildlife is identified within the construction zone.

In order to prevent any amphibians and reptiles from migrating around the entrances to the site, the fence will have 'cut backs' on each of its ends (see Figure 9). This is where the fence loops back on itself, so that any animals travelling along the edge of the fence are guided away from the site entrance. In addition to this the vegetation around the edge of the fencing will be monitored regularly to ensure that it is kept short and unsuitable for reptiles to deter them away naturally where necessary.



Figure 8. The indicative fencing alignment within the development site; the blue lines show the reptile fencing along the western and eastern boundaries. The site boundary is outlined in red. The actual fencing alignment may differ from that shown in this figure as terrain will be taken into consideration.



Figure 9. 'Cut backs' used to guide animals away from the site entrance.

2.2 Reptile Translocation Strategy

In line with current guidelines outlined by the Amphibian and Reptile Group UK (ARGUK), a target total of 60 translocation visits will be made between mid-March and October, with 'refugia' (which can be bitumen and or corrugated metal sheets) placed at a density of not less than 100 sheets per hectare of suitable habitat in line with ARGUK guidelines. Translocation visits will be undertaken every working

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day where possible as long as the air temperature is between 9°C and 18°C degrees in the morning or mid-afternoon in the absence of wet or very windy weather. All captured reptiles will be placed into a large smooth-sided bucket with some grass/vegetation at the bottom and released immediately into the receptor site, adjacent to the site which will remain undeveloped. All translocation details would be recorded into a table (see Table 1 below) and submitted to the council upon request as evidence of the work undertaken.

Although the target number of trapping checks is 60 visits, this should be used as a guide, with the total number of visits cut shorter if there is an early drop in captured numbers and at least 10 visits in suitable weather conditions are made without identifying any reptile presence within the construction zone. Although the construction zone will be declared free of reptiles following 5 clear visits after the target of 60 trapping visits has been achieved.

Table 1. Example table in the format used to document the translocation process.

Date	Start Time/finish of Survey	Air & refugia temperature °C	Weather Notes	Species Total	Notes
31/05/2017	10:15/11:15	15/25	100% high and light cloud cover, 5-10 mph wind	2M 3F 1 Juv Slow Worm 1M Common Lizard	N/A

2.2.1 In-situ Reptile Receptor Site

The area of land to the east of the construction zone, which is in the same site ownership will remain undeveloped, with a management plan put in place to ensure that it is maintained as suitable habitat for reptiles in perpetuity. This area includes a SuDs pond and grassland. The management plan will establish longer vegetation, as well as ruderal habitat, which will provide cover from predators for foraging and basking sites. This area will be enhanced for common reptile species using the recommendations outlined in Section 3 below.

2.2.2 Staged Vegetation Management and ‘Destructive Search’

Due to the dense nature of the vegetation within the site, habitat manipulation will be used to help focus the reptile trapping effort. It is recommended that the vegetation is topped before the commencement of the reptile translocation to facilitate the set-up of reptile refugia and allow safe access to all areas of the site.

By slowly cutting scrub habitat using a hand-held strimmer, on a day when the temperature is above 9°C and reptiles are active, selected areas of suitable reptile habitat will be removed in two passes. The first pass will be a height of approximately 10-15cm, which removes the bulk of material without any risk of harm to reptiles and encourages them to move out of the area. A second pass is then made aimed to take the vegetation height down to below 5cm to remove the remaining suitable habitat. It is very important that the arisings are collected and removed from the site to render the area unsuitable



for reptiles. This technique is designed to concentrate the remaining reptiles into progressively smaller areas of suitable habitat to maximise the probability of capture and therefore will be carried out throughout the translocation process.

Finally, a destructive search of all remaining features with the potential to support reptiles will be undertaken. All remaining rubble piles, debris, brick piles, rubbish piles or other features with suitable refuges will be carefully and methodically removed and destroyed using an excavator with a toothed bucket, with a suitably qualified and experienced ecologist on standby to catch and rescue any exposed animals.

3 ENHANCEMENTS

3.1 Hibernacula Creation

The in-situ receptor site will be enhanced to increase the carrying capacity for common reptile species. This will include the creation of at least three new reptile hibernacula within this area (see Figure 10). These can be built using logs and branches, piled on top of each other, with grass cuttings, earth and turf laid over the top to provide insulation (see Figure 10). These hibernacula can also provide benefits for other species including amphibians, solitary bees, wasps and other insects. The proposed locations for these are indicated in Figure 11.

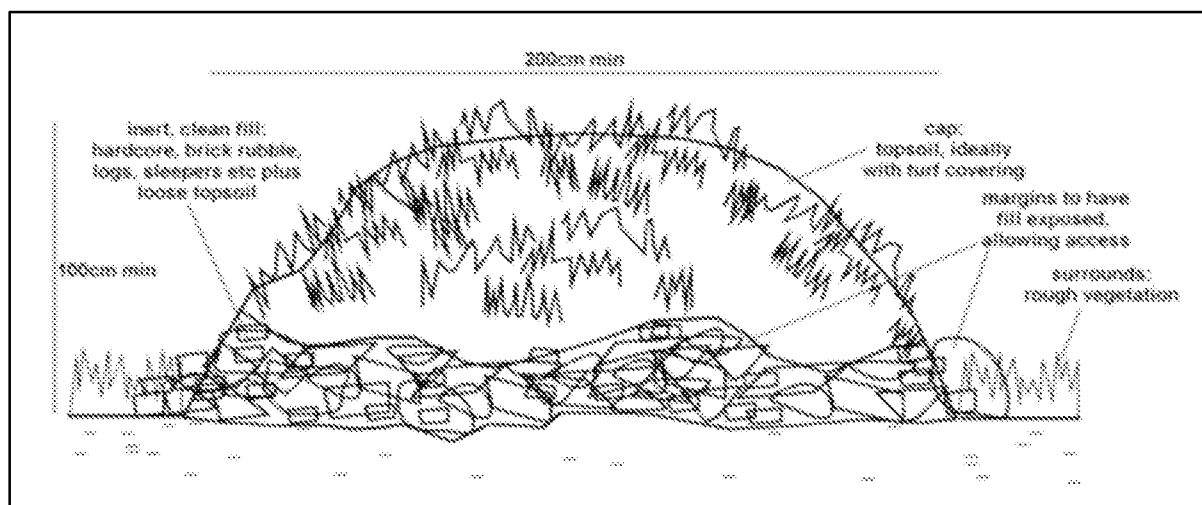


Figure 10. An example of a suitable design for an artificial hibernaculum.²

3.2 Native Hedgerow Planting

To increase the value and connectivity of the site for reptiles further, a new native hedgerow will be created along the southern and western boundary of the in-situ receptor site. The hedgerows will be no less than 20 metres long and planted at a density of five trees per linear metre. The hedge will comprise hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, blackthorn *Prunus spinosa*, pedunculate oak *Quercus robur*, dogwood *Cornus sanguinea*, guelder rose *Viburnum opulus*, and field maple *Acer campestre*. The hedgerow must only be cut in February each year and to a height of 2 metres as this

² English Nature (2001) Great Crested Newt Guidelines. English Nature, Peterborough.



will ensure the fruiting bodies upon the hedge will remain available for wintering birds. The recommended locations for this scrub are shown in Figure 11 below.



Figure 11. Recommended locations for native hedgerow planting and hibernacula within the receptor site which is outlined in green. The orange triangles represent the approximate locations of the three hibernacula within the in-situ receptor area and the yellow line indicates the new native hedgerow planting. The SuDS pond is outlined in blue.

3.3 Wildflower Meadow Creation

A wildflower meadow will be established in the in-situ receptor site. This will increase the value of this area as foraging habitat for bats, birds, reptiles and amphibians as well as pollinating insects. To establish this as a wildflower area, a process of light rotavating and seeding should be employed with good ground preparation essential to the success of the wildflower meadow. The sowing process is best undertaken between late August and the end of September during mild and wet weather best suited to seedling establishment or during mid-March to mid-May when the ground has sufficient moisture and there is very little risk of frosts. The rotavating process is to create an area of largely bare ground to allow the wildflower seed mix to establish. Immediately following rotavating, a suitable seed mixture containing not less than 20 wildflower and grass species should be sown across the ground at a density of four grams per square metre. Cutting the grass sward very short prior to rotavating the ground will also help to prepare a more suitable growing base. The species included must all be of native British origin. A recommended seed mixture is EM5 - Meadow mixture for loamy soils, which is



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available from Emorsgate seeds (www.wildseed.co.uk). Table 2 below details the composition of this mixture.

To ensure that reptiles are not harmed during the rotavating process, habitat manipulation techniques must be used as detailed within Section 2.2.2 prior to this process.

Table 2. EM5 meadow mixture for loamy soils from Emorsgate Seeds.

Wildflowers		
%	Latin name	Common name
0.5	<i>Achillea millefolium</i>	Yarrow
3	<i>Centaurea nigra</i>	Common Knapweed
1	<i>Daucus carota</i>	Wild Carrot
2.5	<i>Galium verum</i>	Lady's Bedstraw
0.3	<i>Geranium pratense</i>	Meadow Cranesbill
1.2	<i>Knautia arvensis</i>	Field Scabious
0.5	<i>Lathyrus pratensis</i>	Meadow Vetchling
0.4	<i>Leontodon hispidus</i>	Rough Hawkbit
0.5	<i>Leucanthemum vulgare</i>	Oxeye Daisy
0.5	<i>Lotus corniculatus</i>	Birdsfoot Trefoil
1	<i>Malva moschata</i>	Musk Mallow
0.5	<i>Plantago lanceolata</i>	Ribwort Plantain
0.5	<i>Plantago media</i>	Hoary Plantain
1	<i>Primula veris</i>	Cowslip
1	<i>Prunella vulgaris</i>	Selfheal
2	<i>Ranunculus acris</i>	Meadow Buttercup
1	<i>Ranunculus bulbosus</i>	Bulbous Buttercup
1.5	<i>Rhinanthus minor</i>	Yellow Rattle
1	<i>Rumex acetosa</i>	Common Sorrel
0.1	<i>Trifolium pratense</i>	Wild Red Clover
Grasses		
8	<i>Agrostis capillaris</i>	Common Bent
3	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass (w)
3	<i>Briza media</i>	Quaking Grass (w)
32	<i>Cynosurus cristatus</i>	Crested Dogstail
10	<i>Festuca ovina</i>	Sheep's Fescue
20	<i>Festuca rubra</i>	Slender-creeping Red-fescue
3	<i>Phleum bertolonii</i>	Smaller Cat's-tail
1	<i>Trisetum flavescens</i>	Yellow Oat-grass (w)



4 POST CONSTRUCTION MANAGEMENT

4.1 Management Plan Operations

It is important that all of the above prescribed mitigation and enhancement measures are maintained in perpetuity. It is recommended that mowing or grazing management is not undertaken within the reptile receptor area to encourage a tussocky sward and suitable vegetation growth.

4.2 Wildflower Meadow Management and Native Hedgerow Management

As part of on-going management, the sward will receive low-intensity management, that allows some wildflowers to thrive, but also ensures reptiles are not at risk. Under this management it is recommended that one half of the grassland area is cut to a height of no less than 5cm between mid-August and late September with all cuttings collected and composted, with the other half of the grassland cut and gathered in the spring (mid-March to late-April). This management will ensure that some taller grassland cover is always available for reptiles.

The hedge should be trimmed during late winter so that fruit and nut bearing trees continue to provide birds and mammals through the winter. The ideal time for this is late January/early February just before the start of the nesting bird season.

Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op.
