



Elite Ecology

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**Clewlows Bank,
Bagnall**



Reptile and Terrestrial Amphibian Report

August 2020

 01782 308418

 enquiries@eliteecology.co.uk

www.eliteecology.co.uk
www.facebook.com/eliteecology
www.twitter.com/eliteecology



Wellesley House, Wellesley St,
Stoke-on-Trent, ST1 4NF



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Organisation	Elite Ecology
Prepared For	Mr. Ian Hunter (Hunter Architects)
Author	Mr. Matthew Hodgson
Approved (1st Checker)	Mr. Marek Fraczek
Approved (2nd Checker)	Mr. Richard Millington
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0. Executive Summary

This report has been prepared at the request of Mr. Ian Hunter (Hunter Architects). It is in relation to the identification of reptiles and terrestrial amphibians at the land adjacent to Clewlow Bank, Bagnall, Stoke-on-Trent, Staffordshire, ST9 9LP (Central OS Grid Reference: SJ 92712 51514). To fulfill this brief Elite Ecology undertook both a desktop study and a field survey.

The current proposals are for the development of four semi-detached cottages (two units) on site.

During the field surveys, a low population of grass snake (*Natrix helvetica*) and common lizards (*Zootoca vivipara*) have been identified using the survey site. In addition to this, a low population of common shrew (*Sorex araneus*) was also identified.

The impacts on the local reptilian populations have been deemed to be **moderate**, with the local amphibians likely to be impacted **negligibly**. The impacts on the common shrew population has been deemed to be **low**.

Due to this, further mitigation measures are necessary for the site. These are shown within **Section 6** of this report. This should follow a three-phase approach:

1. Supervised vegetation clearance
2. Habitat restoration, creation and enhancement
3. Post-monitoring of the site

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1. Introduction

1.1 Report rationale

This report has been prepared at the request of Mr. Ian Hunter (Hunter Architects). It is in relation to the identification of reptiles and terrestrial amphibians at the land adjacent to Clewlow Bank, Bagnall, Stoke-on-Trent, Staffordshire, ST9 9LP (Central OS Grid Reference: SJ 92712 51514). To fulfill this brief Elite Ecology undertook both a desktop study and a field survey.

The purpose of the survey effort was to identify if any reptiles and/or terrestrial amphibians are using the site and the likely impacts the proposed scheme of works will have on any specimens found. As part of the field survey, several site visits were undertaken in July and August 2020 by the following surveyors:

Mr. Matthew Cotterill: BSc (Hons), Ecologist.

Mr. Adam Levesley: MRes, Ecologist.

Mrs. Joanna Greig: BSc (Hons), Ecologist.

Mr. Matthew Priddey: Ecologist.

1.2 Site description and works

The site is situated in a semi-rural area 298m north of the village of Bagnall and 2.4km east of Badderley Green.

The site contains numerous habitat types. These come in the form of hedgerows, log piles, scattered trees, scrub and tall ruderal herbs. Some of these habitats could be utilised by protected species. Photographs of the site are found within **Appendix C**.

Within the wider landscape, further habitats are present. These come in the form of agricultural land, hedgerows, lakes, residential properties (and their associated gardens), rivers and woodland. The habitats that surround the site also have the potential to be utilised by a variety of protected species.

The current proposals are for the development of four semi-detached cottages (two units) on site. This will result in the permanent loss of some of the habitats located on the proposed re-development site.

Figure 1: An aerial map showing the location of the land proposed for development of Clewlow's Bank (yellow star) in relation to some of the local landscape.



Figure 2: An OS map obtained from Bing showing the location of Clewlow's Bank, Bagnall (yellow star).



2. Survey Methodology

2.1 Desktop Survey

A variety of resources were independently consulted to assess the known local records within the nearby area and the importance of the site within the local landscape from an ecological perspective. The resources used were the Local Records Centre, www.naturalengland.org.uk, www.ordnancesurvey.co.uk, Google Maps, Google Earth and Bing Maps. A search of other relevant nature conservation information was made through the use of the Multi-Agency Geographic Information for the Countryside (MAGIC) database.

The local records centre was contacted to provide data on all herptiles within 2km of the proposed development site. Staffordshire Ecological Record (SER) were the relevant local record centre for this project.

2.2 Field Survey

2.2.1 Reptile and Terrestrial Amphibian Methodology

The survey methodologies used were undertaken in accordance with those detailed in the Herpetofauna Workers' Manual (JNCC 2003) and the Froglife Advice Sheet 10 (Reptile Survey), which include:

- Placing down artificial refugia within suitable areas across the proposed development site. These are to be left for two weeks to 'bed in.' The artificial refugia comprised a mixture of carpet tiles, roofing felt and tins that are approximately 1m².
- A site survey to visually identify any herptiles (walkover survey)
- Reptile Surveys must be undertaken between March to late June or late August to late September. The optimal survey months are April to May and September.
- Reptile Surveys must be carried out in the morning (between 08:30 to 11:00) or in the late afternoon/evening (between 16:00 to 18:30).
- Weather conditions for surveys are required to be dry and warm (between 9°C and 20°C) with little or no wind.
- Inspecting the previously laid artificial refugia and any natural refugia to locate any herptiles. These features must be approached from a downwind direction and the surveyors must avoid casting a shadow onto the refugia. The surveyor will lift the refugia to inspect for animals underneath. The refugia are then carefully replaced onto the ground to avoid potential harm to any animals underneath.
- This process is repeated for seven survey visits to ascertain presence. Further surveys are required if more information is required with regards to the population size (up to thirteen additional visits).
- From the information gathered, the population will be assessed:

Species	Low Population	Good Population	Exceptional Population
Adder	< 5	5-10	> 10
Common lizard	< 5	5-20	> 20
Grass snake	< 5	5-10	> 10
Slow-worm	< 5	5-20	> 20

2.2.2 Great Crested Newt eDNA Methodology

An eDNA survey takes 20 water samples from the perimeter of the surveyed water features. This is done in order to obtain a representative sample of the waterbody and collect as much GCN DNA as possible. These samples are taken within close proximity to potentially utilizable GCN features (such as emergent vegetation) as well as in open water, to maximise the chances of obtaining GCN DNA, if present.

Samples collected with a ladel are then placed into a free-standing Whirl-Pak bag where they are shaken up to mix all samples and all potential DNA to create a representative sample from the water feature. 15ml of water from the Whirl-Pak bag was then extracted with a pipette and placed into a conical tube which was already two thirds full of a base liquid. This process was repeated a further five times to produce six conical tubes in total. The tubes shaken once again (to mix the base liquid with the water samples). They are then sent off to the laboratory for analysis.

3. Desktop Survey Results

3.1 Reptile Records

Within the ecological data search provided by SER, some reptile species were detected within the 2km radius of the site. The nearest species recorded were the slow worm (*Anguis fragilis*) and several grass snakes (*Natrix natrix*) approximately 170m to the south-west of the site.

3.2 Amphibian Records

Within the ecological data search provided by SER, records of common toad (*Bufo bufo*) and great crested newt (*Triturus cristatus*) have been revealed by the search. The nearest records to the site were of common toad, with the closest sighting being 170m to the south-west of the proposed re-development site.

4. Field Survey

4.1 Environmental Variables:

The environmental variables for the field survey site visits can be found in the table below:

Survey Number	Date	Morning (AM) or Evening (PM)	Weather Conditions				
			Temp	Cloud	Wind	Precipitation	Sunny
1	15/07/20	AM	11°C	100%	Low	None	No
2	20/07/20	PM	16°C	40%	Low	None	Yes
3	23/07/20	AM	15°C	100%	Low	None	No
4	28/07/20	PM	16°C	0%	Low	None	Yes
5	01/08/20	AM	16°C	100%	Low	None	No
6	04/08/20	PM	16°C	100%	Low	None	No
7	07/08/20	AM	16°C	100%	Low	None	No

4.2 Walkover Survey:

Due to the identified habitats on site and their position within the local landscape suggests that the proposed development site does contain the potential to support herptile populations. The habitats identified on the site were:

- Dense scrub
- Hedge with trees
- Log piles
- Scattered trees
- Tall ruderal
- Unimproved grassland

Some of these habitats provide suitable conditions to support any local herptile populations. Visual inspections during the site walkover surveys produced the following results:

Survey 1: None

Survey 2: None

Survey 3: None

Survey 4: None

Survey 5: None

Survey 6: None

Survey 7: None

4.3 Refugia Survey:

Visual inspections of both artificial and natural refugia located around the proposed development site were undertaken by the surveyors. The survey results are as follows:

Survey 1: 1 x grass snake (*Natrix helvetica*)

Survey 2: None

Survey 3: 1 x common lizard (*Zootoca vivipara*)

Survey 4: None

Survey 5: None

Survey 6: 1 x grass snake (*Natrix helvetica*)

Survey 7: None

4.4 Great Crested Newt eDNA Results:

The results of the samples came out with a 'negative' outcome having 0 positive replicates. This means that the ponds do not contain traces of DNA within the samples collected. Based on all the evidence obtained, it is considered that great crested newts are absent from the pond due to the location and connectivity to other known ponds.

4.5 Summary of the Results

The following table is a summary of the results obtained from the field survey efforts

Species	Latin Name	Survey Visit (No. of individuals)							Population Class
		1	2	3	4	5	6	7	
Adder	<i>Vipera berus</i>	0	0	0	0	0	0	0	N/A
Common lizard	<i>Zootoca vivipara</i>	0	0	1	0	0	0	0	N/A
Grass snake	<i>Natrix helvetica</i>	1	0	0	0	1	0	0	Low
Slow-worm	<i>Anguis fragilis</i>	0	0	0	0	0	0	0	N/A
Smooth snake	<i>Coronella austriaca</i>	0	0	0	0	0	0	0	N/A
Common frog	<i>Rana temporaria</i>	0	0	0	0	0	0	0	N/A
Common toad	<i>Bufo bufo</i>	0	0	0	0	0	0	0	N/A
Great crested newt	<i>Triturus cristatus</i>	0	0	0	0	0	0	0	N/A
Palmate newt	<i>Lissotriton helveticus</i>	0	0	0	0	0	0	0	N/A
Smooth newt	<i>Lissotriton vulgaris</i>	0	0	0	0	0	0	0	N/A
Non-Natives		0	0	0	0	0	0	0	N/A

Written Summary

A low population of grass snake (*Natrix helvetica*) and common lizards (*Zootoca vivipara*) have been identified using the survey site. In addition to this, a low population of common shrew (*Sorex araneus*) was also identified.

5. Impact Assessment

A low population of grass snake (*Natrix helvetica*) and common lizards (*Zootoca vivipara*) have been identified using the survey site. This impact assessment has been made based on a lack of compensation and mitigation incorporated into the scheme. Following Natural England Guidelines within their Technical Information Note (TIN102), the impact of the proposed scheme of works has been deemed as **moderate**.

The reason for this is that the proposed scheme of works has the potential to kill the population of grass snake (*Natrix helvetica*) and common lizard (*Zootoca vivipara*) on the site as the works will involve the destruction of the habitats they are using. The works will see a loss of the broad habitat that they are using at the site, as the scheme of works involves the loss of the majority of habitats on the survey site. Grass snakes are more mobile than other reptile species with them often using multiple sites for hibernation, feeding and egg-laying. As long as the works are conducted with an ecologically friendly method, and suitable enhancements are added to the site, the works should not have an adverse effect on the local population. Due to this, a mitigation strategy is required (please see **Section 6**).

The proposed planning application for the site of Clewlow Bank, Bagnall will have a **negligible** impact upon the remaining species of reptiles within the UK. No other species were identified using the site itself during the numerous survey visits.

With regards to amphibians, there were no specimens identified terrestrially, including the protected great crested newt (*Triturus cristatus*). This, in combination with the negative eDNA results, means the proposed scheme of works will be of a **negligible** impact upon the local amphibian species.

6. Recommendations

Due to the presence of a low population of grass snake (*Natrix helvetica*) and common lizard (*Zootoca vivipara*), further mitigation and compensation is required for the site at Clewlow Bank, Bagnall. The strategy for the site is to undertake a supervised vegetation clearance followed by adding ecological enhancements. No development licence is required for this species. Failure to comply with the below recommendations may result in a wildlife crime being committed.

Stage 1 – Supervised vegetation clearance:

Prior to the commencement of any works on site, a toolbox talk will be undertaken with contractors and a document left in the site office for contractors to read. Elite Ecology contact details will be located on this document if any workers encounter any reptiles.

Within the current scheme of works, the dense scrub and Grassland will need to be cleared. Any vegetation clearance will need to be carried out with an ecologically friendly method and supervised by a suitably-qualified ecologist. The ecologist will carry out a fingertip search prior to any clearance and safely remove any reptiles that are found. These will be moved to the fields on the Western boundary of the site, which is not being affected by the works.

Any vegetation that is of a height of over one metre will first need to be cut down to a height of 15cm before being fully cleared. This will allow the vegetation to be fully searched by the supervising ecologist.

The vegetation clearance will start from the east and move to the west. This will encourage any reptiles on site to move out on their own and will prevent any reptiles being isolated in fragmented sections of vegetation or pushed towards Clewlow bank which is a main road.

Once this has been done, the site can be declared vacant of reptiles and the works can commence without creating a negative impact. Clearing the vegetation in this way will ensure that the site becomes unsuitable to the local reptile populations and discourages their return to the site for the scheme of works.

Stage 2 – Habitat restoration, creation and enhancement:

Restore, create and enhance the habitats on the site post-development for the target species. This will need to be maintained under a management plan that will be required to be contractually agreed between the client and the suitably qualified ecologist.

Grass snakes (*Natrix helvetica*) and common lizards (*Zootoca vivipara*) were the only reptiles found on the proposed development site. Grass snakes are often associated with wetlands, but can also be found in many other habitats such as heathland, types of grassland (including some quite dry areas of chalk grassland), open woodlands, coastal habitats, farmland, gardens (especially large gardens with ponds), allotments, brownfield sites including disused quarries and along roads, railways and canal corridors.

Both grass snakes and common lizards require adequate cover and with structurally diverse vegetation (e.g. variation in the height of vegetation cover), but as grass snakes are more mobile than the other reptiles, they are often not reliant on a single site providing the necessary habitat for hibernation, feeding and egg-laying. Sunny areas are usually preferred by both species, but during hot weather it is not uncommon to encounter grass snakes in woodland and other shaded habitats. Warm, humid, decomposing organic material is required for grass snakes' egg-laying.

The northern or eastern sections of the site would be an ideal place to add enhancements for both grass snakes and common lizards. This should be illustrated within the plans. Sections of the site should be allowed to turn into rough grassland with bramble scrub and sections to remain as it is at present. The inclusion of egg-laying heaps for grass snakes is one of the most productive management techniques for this species. Grass snakes usually nest in heaps of decaying organic material of various kinds, where the heat of decomposition incubates the eggs. It is recommended that two compost heaps are maintained in the northern area of the site.

No perimeter fencing should be used on the site boundaries, as this feature will fragment the populations and cause the two species to decline within the area. It is important that the hedgerows on site are unaffected, as these are important wildlife corridors that help to offset the impact of the development. Along the hedgerow a semi-improved grassland buffer strip should be incorporated to increase structural diversity at its base. Grass tussocks should be allowed to form to provide micro-climates important for many invertebrate species.

Vegetation cutting should be undertaken in the winter months when reptiles are dormant. This will ensure that no reptiles will be harmed by the site management and maintain the species at favourable conservation status at the site. Mowing of the grassland should be undertaken every twelve months in November and February of every year. Half of the scrubland habitat (and any natural regeneration of trees) should be cut back between mid-September and February once every two years, with the remaining half of this habitat being cut back the intersecting two years (cutting should continue on a rotational basis between these sections). If any reptiles are found during this management process, then Elite Ecology should be contacted immediately to deal with the impacts. It is imperative that the cutting regime is adhered to, as any deviation from the months may result in the direct killing or decline of reptiles on the site.

This management is necessary to prevent natural succession of the vegetation reducing the quality of habitat for grass snakes and common lizards at the site, whilst maintaining the transitional zones required. This will create a range of microhabitats and microclimates that are favoured by this species.

Stage 3 – Post-monitoring of the site:

Post-monitoring is required for the site. Following the guidelines, a small population with a medium-to-high development impact will require a presence/absence survey after year one, along with a habitat suitability assessment. The results from this assessment will need to be reported to the relevant local planning authority.

Incorporating the above recommendations, the site will remain suitable to support the local grass snake (*Natrix helvetica*) and common lizard (*Zootoca vivipara*) populations, with the species anticipated to remain at favourable conservation status at the proposed development site.

7. References

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

FROGLIFE (1999) Reptile Survey: an introduction to planning, conducting and interpreting surveys for Snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth

Joint Nature Conservation Committee (2003) Herpetofauna Workers' Manual.

Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001), Great Crested Newt Conservation Handbook, Froglife, Halesworth

The European Conservation (Natural Habitats, &c.) Regulations 1994. HMSO.

Wildlife and Countryside Act (1981).

Countryside Rights of Way Act (2000).

8. Appendices

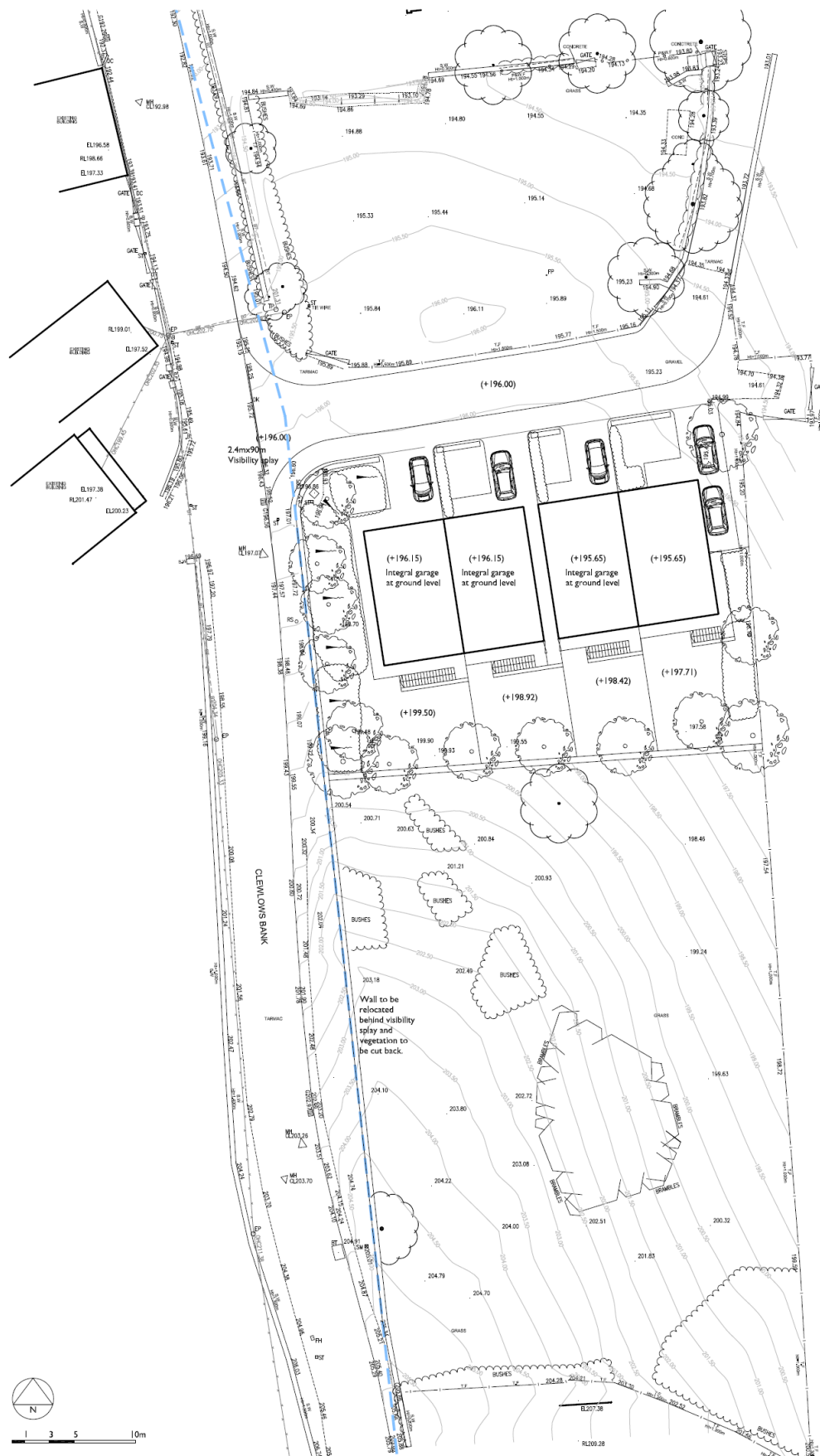
Appendix A: Site Plans

Appendix B: Desktop Study Map

Appendix C: Additional Photographic Records

Appendix D: Legislation

Appendix E: Details of Species Found

Appendix A: Site Plans**FOR INFORMATION:**

The drawings have been prepared from a measured survey of the property and Clewlovs Bank, and the relevant drawings are presented accordingly. The relevant survey drawings only should be relied on and referred to. Site dimensions should be taken from the drawings to ensure accuracy and reliability. Existing wall materials / finishes / soundings etc. should be noted.

All internal dimensions shown indicated for illustrative purposes. Plans to be used for construction or any other purpose.

CDM 2015: This is a domestic project under the CDM 2015 regulations and a Principal Designer and Principal Contractor must be appointed by the client for the Construction phase. Pre-Construction information should be provided to the Principal Designer and Principal Contractor. Additional information on the drawings including Construction Phase Plans prior to the start of construction.

Additional approvals, information and actions may be required prior to construction including (but not limited to) a valid Planning Permission, Building Regulations, Construction Act, Insurance, Building Control, Discharge of Planning Conditions, Protected Species and Trees etc. The drawings to be used solely for the purpose of seeking planning approval and do not contain all of the detail or information necessary for other purposes, approvals or construction.



0161 926 9039
<http://www.hunterarchitects.co.uk>
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Proposed Development
 Land off Clewlovs Bank,
 Bagnall,
 Stockton Brook

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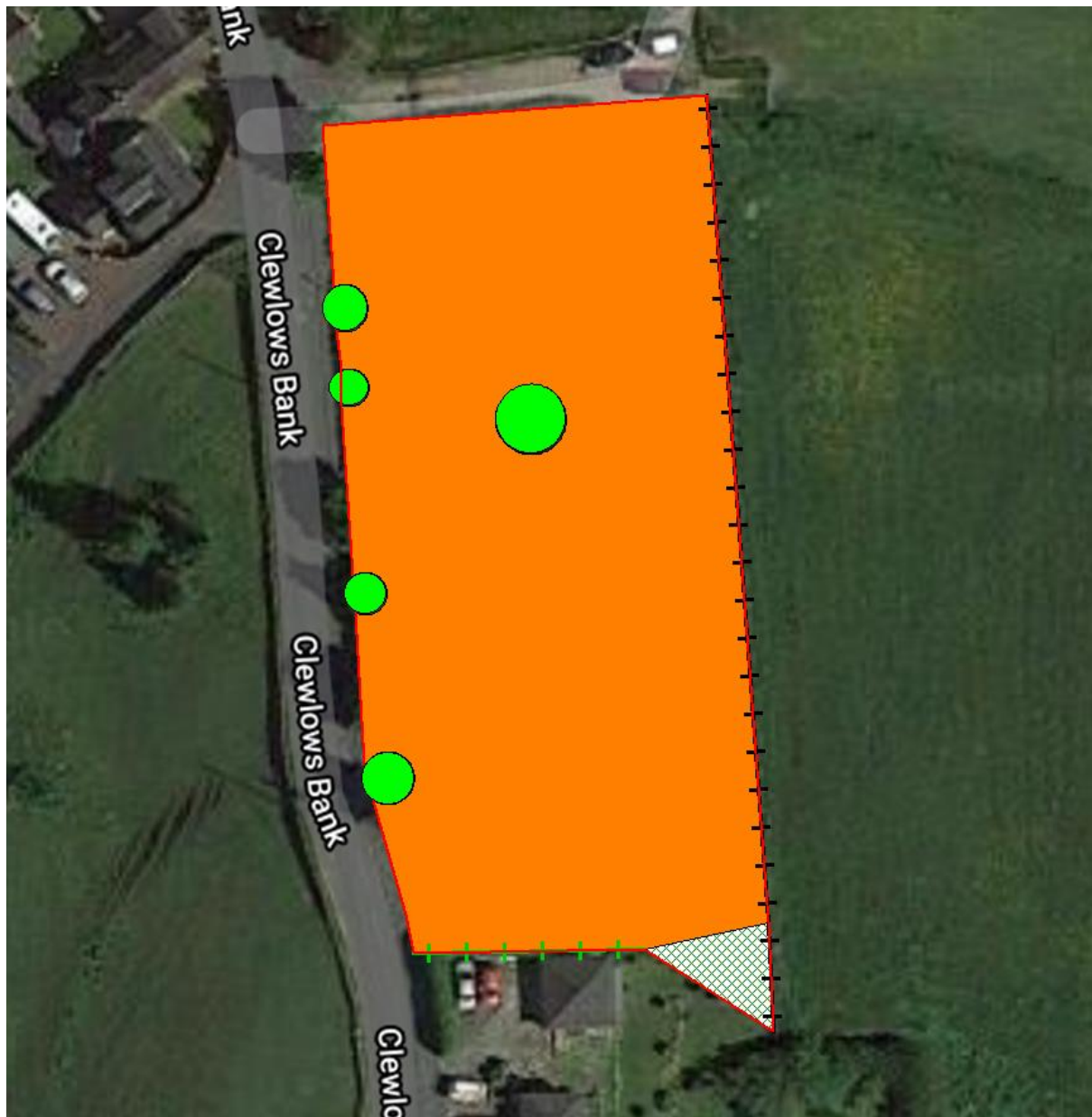
HAPC Ltd did not hold liability for any use of drawings and documents for any purpose other than for what they were prepared for. Where any discrepancy is found in order to refer to the drawings and/or documents it should be reported to the company immediately.

Work to fixed dimensions only this drawing is not to be scaled from. All dimensions to be checked on the plan to the maximum of any work for the maximum of scale all dimensions are measured to wall face and not the centre unless otherwise stated.

Proposed Site Plan

1:200 @ A2 Oct 19
 Drawn By: GPH

STATUS: Preliminary
1924_P03C

Appendix B: Phase 1 Habitat Map

Appendix C: Site Photographs

Plate 1: An image of the scattered trees and improved grassland on the western boundary of the site.



Plate 2: View across eastern section of the site, showing large area of semi-improved grassland that used to be bare ground.



Plate 3: Rough grassland in the north of the survey site.



Plate 4: Area of rough grassland and dense scrub in the south-east of the survey site.



Appendix D: Legislation and Policy

Reptiles:

All six native reptiles within the United Kingdom are legally protected, with some species afforded additional protected depending on their rarity and conservation importance.

Sand Lizard: This species is afforded full protection under the Wildlife and Countryside Act 1981 (as amended). In addition to this, the sand lizard also receives protection under the Conservation (Natural Habitats &c.) Regulations 1994 (also referred to as the Habitats Directive).

Smooth Snake: This species is afforded full protection under the Wildlife and Countryside Act 1981 (as amended). In addition to this, the sand lizard also receives protection under the Conservation (Natural Habitats &c.) Regulations 1994 (also referred to as the Habitats Directive).

This means that both the aforementioned species are protected from deliberate disturbance, killing, injury or capture. The legislation also protects the habitats in which they live, to prevent them from being damaged or destroyed. Any activity involving disturbance or damage to habitats utilised by sand lizards and/or smooth Snakes is in need of a development licence issued by the Department of the Environment, Food and Rural Affairs (DEFRA) following consultation with the statutory nature conservation organisation (Natural England).

Adder: This species is partially protected under the Wildlife and Countryside Act 1981 (as amended).

Common Lizard: This species is partially protected under the Wildlife and Countryside Act 1981 (as amended).

Grass Snake: This species is partially protected under the Wildlife and Countryside Act 1981 (as amended).

Slow-worm: This species is partially protected under the Wildlife and Countryside Act 1981 (as amended).

This means that these species are protected from intentional killing, injuring and sale, but their habitat is not protected. The presence of these species in planning terms is viewed as a material consideration, with any reptile interest on a proposed development site needing to be safeguarded. If a proposed development is likely to have an impact on these reptiles, then this must be notified to the relevant statutory nature conservation body (especially if capture and translocation is being proposed).

In certain areas of the UK, sites that support common reptile species such as common lizards and slow-worms can qualify as County Wildlife Sites. Sites of this designation may receive protection in planning policy.

Amphibians:

All amphibians are listed under schedule 5 of The Wildlife and Countryside Act 1981 (as amended), with some species afforded additional protected depending on their rarity and conservation importance.

Great Crested Newt: This species is afforded full protection under the Wildlife and Countryside Act 1981 (as amended). Please see below for this species' additional legislation.

Pool Frog: This species is afforded full protection under the Wildlife and Countryside Act 1981 (as amended). They are also protected by the Conservation of Habitats and Species Regulations 2017.

Natterjack Toad: This species is afforded full protection under the Wildlife and Countryside Act 1981 (as amended). They are also protected under the Conservation (Natural Habitats &c) Regulations 1994, whilst also being listed on the Habitats Directive (annex IV) and the UK Biodiversity Action Plan (UKBAP).

This means that the aforementioned species are protected from deliberate disturbance, killing, injury or capture. The legislation also protects the habitats in which they live, to prevent them from being damaged or destroyed. Any activity involving disturbance or damage to habitats utilised by these species is in need of a development licence from Natural England.

Common Frog: This species is partially protected section 9 (5) of the Wildlife and Countryside Act 1981 (as amended).

Common Toad: This species is partially protected section 9 (5) of the Wildlife and Countryside Act 1981 (as amended).

Palmate Newt: This species is partially protected section 9 (5) of the Wildlife and Countryside Act 1981 (as amended).

Smooth Newt: This species is partially protected section 9 (5) of the Wildlife and Countryside Act 1981 (as amended).

This means that these species are protected from sale only, but should be considered as a material consideration if the proposed development works on a site could negatively impact upon these populations.

Great Crested Newt:

The great crested newt (*Triturus cristatus*) is fully protected under a variety of legislation and conventions. These include:

- Bern Convention (Appendix II)
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)
- Conservation of Habitats and Species Regulations 2010
- EU Habitats Directive (Annex II and IV)
- Nature Conservation (Scotland) Act 2004
- NERC Act 2006 (Section 41 England; Section 42 Wales)
- Wildlife and Countryside Act 1981 (as amended)

In addition to this, the great crested newt has been listed as a priority species on the UK Biodiversity Action Plan (UKBAP).

This legislation covers all aspects of newt life stages (eggs, efts and adult newts) and makes it illegal to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a great crested newt while it is occupying a structure or place which it uses for that purpose.

Licenses can be obtained from Natural England (DEFRA) under the Conservation (Natural Habitats etc.) Regulations 1994, to permit activities for the purposes of:

- Regulation 44(2)(e): Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment, or

- Regulation 44(2)(f): Preventing the spread of disease
- Regulation 44(2)(g): Preventing serious damage to any form of property or fisheries

Or

- If there is no satisfactory alternative.

The above regulations allow people to carry out activities which would otherwise be illegal.

Planning Policy:

The National Planning Policy Framework (NPPF) forms the basis of planning decisions in relation to conserving and enhancing the natural environment. Chapter 11 sets out how the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and, where possible, provide net gains. Opportunities to incorporate biodiversity gains into a development should be encouraged.

Appendix E: Details of Species Found

Grass Snake (*Natrix natrix*)

Distribution

The Grass Snake is a lowland species, found widely across England and Wales, though distribution is very patchy in northern areas. Historical records exist for southern Scotland and recent sightings have been made, but current status there is largely unknown.

Habitats

This species is often associated with wetlands, but can also be found in many other habitats such as heathland, many types of Grassland (including some quite dry areas of chalk Grassland), open woodlands, some coastal habitats, farmland, gardens (especially large gardens with ponds), allotments, brownfield sites including disused quarries and along road, railway and canal corridors.

Habitat Requirements

The Grass Snake requires some cover and a degree of structural diversity but, as it is more mobile than the other reptiles, it is often not reliant on a single site providing the necessary habitat for hibernation, feeding and egg-laying. Sunny areas are usually preferred, but during hot weather it is not uncommon to encounter Grass Snakes in woodland and other shaded habitats. Warm, humid, decomposing organic material is required for egg-laying.

Diet

Grass Snakes feed primarily on amphibians, but fish, small mammals and fledgling birds are also taken.

Activity

Grass Snakes hibernate from October to March. After their spring emergence they usually disperse rapidly. They are active foragers and may be seen in and around water bodies during the summer. However, they are also wary and quick to flee, so they can easily be overlooked on a site. Grass Snakes are largely diurnal although they are known to be active at night during warm periods, especially in and around ponds. Though mostly found at ground level, Grass Snakes are occasionally seen in the lower branches of trees and scrub.

Movement

The Grass Snake is the most mobile of our reptiles. Individuals disperse from hibernation sites relatively rapidly and may move over several kilometres during the course of the active season. Sometimes concentrations of Snakes allow identification of specific population centres. This is most common for egg-laying sites, which tend to be communal and traditional, meaning that many females habitually use the same precise location year after year. However, Snakes may migrate through relatively poor-quality habitat to reach favoured egg-laying, foraging or hibernation areas.

Reproduction

During the breeding season (April to June), several male Grass Snakes may simultaneously court a single female, in exceptional cases in large numbers, forming a 'mating ball'. This species is the only British Snake that lays eggs, typically 15-40 per female. These are deposited in decomposing organic material, such as heaps of vegetation, manure or woodchips in June or July. Females may congregate at egg-laying sites. The young hatch out from late August to September.

Conservation Status

Lack of systematic monitoring and high mobility make it difficult to determine the conservation status of this species. It is still relatively abundant in some parts of Britain but there have been severe declines in other areas, notably where egg-laying and foraging sites have disappeared.

9. Notice to Readers: Conditions of this Report

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No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.