



**New Mount Elim Church
Pontardawe**

Reptile Survey

June 2020

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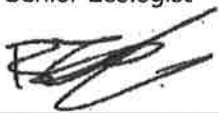
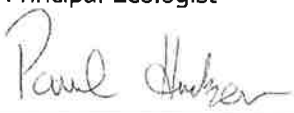
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DOCUMENT CONTROL

New Mount Elim Church, Pontardawe Reptile Survey				
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Executive Summary

Site Location	The report presents the findings of a reptile survey of land at New Mount Elim Church, Brecon Road, Pontardawe, SA8 4PD, within the boundary of Neath Port Talbot County Borough Council (Ordnance Survey Grid Reference centred at: SN 7274 0469).
Survey Methods	The survey consisted of two different techniques: the use of artificial refugia and direct observation. Artificial refuges were placed throughout the site on 5th May 2020, in areas considered to be suitable for reptiles. The refuges were then left for two weeks prior to commencing the survey to allow reptiles to grow familiar with, and then utilise, them. The survey consisted of seven separate visits. During each visit the terrestrial habitat was checked for reptiles, as well as each refugia. The artificial cover objects or refuges were first checked from a distance for basking reptiles, before being checked below for sheltering individuals.
Survey Results	The maximum number of adult reptiles recorded across the site was nine slow-worm, which falls into the 'small/good population' category. No other species of reptile were recorded.
Predicted Impacts of Development on Reptiles	<u>Potential Direct Impacts</u> The development has the potential to result in the following direct impacts: • Habitat loss through permanent land-take and the removal of reptile habitat; and • Direct mortality of individual reptiles harmed during the works. <u>Potential Indirect Impacts</u> The development has the potential to result in the following indirect impacts: • Disturbance • Persecution and collection by humans; and • Disturbance to neighbouring populations of reptiles with the increased human presence and noise and vibrations from the works
Proposed Mitigation	Two distinct method statements are provided below. The first method statement will be adhered to during the site investigation work that is proposed. The second method statement will be implemented as part of the main development works. Full details are provided in Section 6.
Required Actions	Detailed recommendations are given in Section 6.

1. Introduction

1.1. Brief

Acer Ecology Ltd were commissioned by Alan Thomas to carry out a reptile survey of land at New Mount Elim Church, Brecon Road, Pontardawe, SA8 4PD, within the boundary of Neath Port Talbot County Borough Council (Ordnance Survey Grid Reference centred at: SN 7267 0459). The location of the site is shown on Plan 1.

1.2. Site Description

The site proposed for development measures approximately 0.11ha in area and comprises an area of scrub and individual trees on the corner of a street, adjacent to a nursing home. It is situated at the eastern boundary of Pontardawe, and the landscape to the west and south-west comprises high density housing and roads. To the north and east of the site are areas of woodland, and approximately 0.2km to the east is the River Tawe. The site's northern boundary lies approximately 60m above sea level and slopes gently downwards to 50m at its southern boundary.

Photo 1: View of scrub looking south-east from the centre of the survey area

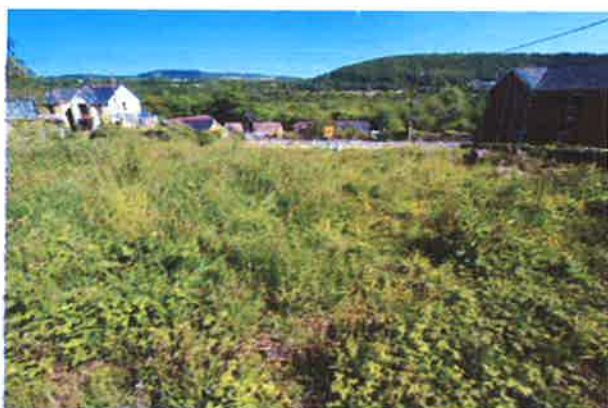


Photo 2: View looking to the west; Ephemeral/short perennial habitat levelling off before transitioning to scrub



Photo 3: Wood chipping piles within the central area of scrub



Photo 4: Decaying logs to the south-west



1.3. Proposed Works

Precise development proposals are unavailable at the time of writing, as architectural plans are yet to be finalised. However, the proposed development works comprise near complete clearance of the site to facilitate the construction of a church with meeting facilities and a car park. Habitat along the north-west boundary is to be retained. (see Plan 2: Development Proposals).

Site investigation work is also proposed, to include a number of trial holes and window sampling pits. This work will require localised vegetation clearance, and the use of a small digger with drill-bit. Most of the work will be undertaken using hand tools.

The window sampling rig requires a working footprint of approximately 3m X 6m, and a 4m wide access track.

1.4. Legislation

There are four widespread species of British reptile comprising grass snake (*Natrix helvetica*), slow-worm (*Anguis fragilis*), adder (*Vipera berus*) and common lizard (*Zootoca vivipara*). These species are protected under the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000. They are given so called 'partial protection', which prohibits the intentional or reckless killing or injuring of individuals of any of the above species. Notes on the habitat preferences of the four common reptile species are contained within Appendix 1.

In addition, these species of reptiles are also listed in Part 1 Section 7 of the Environment (Wales) Act 2016 which is a list of the living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in Wales.

1.5. Survey Scope

The survey comprised a presence/likely absence reptile survey utilising a combination of artificial refugia and direct observation whilst walking across the site.

1.6. Review of Historic Site Data

The site has previously been subject to a preliminary ecological appraisal (Acer Ecology, 2020) which identified the site as being potentially suitable to support reptiles.

1.7. Reporting

The aims of the report are to:

- Outline the methodology used during the survey;
- Determine the presence or likely absence of reptiles at the site;
- Determine the population size class of reptiles if confirmed to be present;

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- Provide an interpretation of the findings, in relation to the potential impacts of the development;
- Specify the legal and policy constraints relevant to reptile populations and individual reptiles which may affect the development; and
- Provide an indication of mitigation, compensation and enhancement measures that may be required.

2. Methods

2.1. Field Study

Surveys were undertaken to establish the presence or likely absence of reptiles on the site. Surveys were undertaken in accordance with the guidance outlined in the Herpetofauna Workers' Manual (Gent and Gibson 2003), Advice Sheet 10 – Reptile Survey¹ (Froglife, 1999), the Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring (Hill et al., 2005), Reptiles: surveys and mitigation for development projects (Natural England and DEFRA 2015), the Reptile Mitigation Guidelines (Natural England 2011) and Survey Protocols for the British Herpetofauna (Sewell et al., 2013). This involved seven return visits in suitable weather conditions on non-consecutive days during the month of May.

The surveys were undertaken by Melissa Northam² who has several years' experience of undertaking reptile surveys.

Froglife's Advice Sheet 10: Reptile Survey (1999) recommends that around 10 artificial cover objects or refugia per hectare are used during reptile surveys³. The site is 0.11ha in size. A total of 40 were placed across the site which equates to 363 refugia per hectare. This considerably exceeds the density of refugia recommended by Froglife. The refugia (comprising sections of bituminised roofing felt only, due to easy access by members of the public to the site) measuring at least 0.5m by 0.5m in size (in accordance with guidance within the Design Manual for Roads and Bridges, 2005), were installed on the site on the 5th May 2020 in areas considered to have habitat suitable for supporting reptiles (i.e. south-facing positions, preferably concealed in or adjacent to vegetation cover). Wood chip piles, logs and areas of bare ground which could potentially act as natural refugia for reptiles were also present throughout the site. These were checked on each survey visit.

Where possible, refugia were laid in south-facing positions, in areas which were deemed least likely to be tampered or interfered with. The whole site was surveyed and the location of the refugia is shown on Plan 3. The refuges were then left undisturbed on the site for two weeks prior to commencement of the survey, to allow the reptiles on the site sufficient time to find and start utilising them. Each refuge was then first checked for basking individuals from a distance before being slowly approached and searched for sheltering reptiles. Terrestrial habitat between artificial refugia was also searched for reptile species on each visit. The location of each reptile sighting was then recorded to allow for analysis of population distributions across the site (see plan 3).

The timing of survey visits were undertaken in accordance with the guidelines (Natural England, 2011); in late spring conditions, between 09:00 and 11:00 and 16:00 and 18:00. In summer conditions, between

¹ The Froglife Guidance is aimed conservation volunteers and not professional survey work.

² Melissa is considered a competent reptile surveyor. She has undertaken training in surveying techniques and handling as part of her degree alongside undertaking numerous surveys for several years in a voluntary capacity.

³ This guidance is primarily aimed at monitoring schemes rather than presence/likely absence surveys.

07:00am and to 09:00am and between 18:00pm and 20:00 and in the absence of very hot weather, and when the air temperature is between 9°C and 18°C⁴, which is considered the optimal time to survey for reptiles (Froglife, 1999). Strong rain and wind are deemed unsuitable conditions for reptile surveys (Froglife, 1999). As reptile activity is heavily dependent on weather conditions the following parameters were recorded during each survey visit: air temperature⁵, wind levels, rain levels, and the cloud cover. As recommended in the guidance (Froglife, 1999) surveys were not undertaken on consecutive days.

Species and life stage and were also recorded, where animals were present, as well as environmental data. Non-target species, such as amphibians and small mammals, utilizing the refugia were also recorded during the surveys.

2.2 Constraints

2.1.1. Field Study

There were no significant constraints to the field study.

Due to a period of high winds, the final visit took place on 1st June, which falls outside of the optimal survey months of April, May and September. However, reptiles were recorded during six of the other survey visits and the visit in June was undertaken in suitable weather conditions, and so this is not considered to pose a significant constraint.

All other survey visits were undertaken in suitable weather conditions (9 – 18°C and in the absence of high wind and heavy rain), during May at a time when reptiles are active.

The final week of May experienced summer conditions and as such, summer timings for survey visits were followed in order to ensure survey visits took place during suitable temperatures.

2.1.2. Interference with Refugia

During the survey there was no evidence of interference with the refugia.

⁴ Natural England's Reptile Mitigation Guidelines recommend that the temperature is between 10-20°C.

⁵ Minimum and maximum temperature in the shade was measured during the survey using an ETI digital thermometer.

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3. Results

3.1. Field study

3.1.1. Site Context

The site is situated at the eastern boundary of Pontardawe, and the landscape to the west and south-west comprises high density housing and roads. To the north and east of the site are areas of woodland, and approximately 0.2km to the east is the River Tawe and Swansea Canal.

3.1.2. Site Description

The site proposed for development measures approximately 0.11ha in area and comprises an area of scrub and individual trees on the corner of a street, adjacent to a nursing home. The site's northern boundary lies approximately 60m above sea level and slopes gently downwards to 50m at its southern boundary.

3.1.3. Survey Results

The survey results and weather conditions of each survey are summarised below:

Table 1: Survey Weather Conditions

Survey	Date	Start Time	Air Temperature (°C)	Rain	Wind Speed (Beaufort)	Cloud Cover (Oktas)
1	19/05/2020	16:00	14	None	2	4/8
2	21/05/2020	09:00	13	None	0	6/8
3	24/05/2020	17:30	13	None	3	0/8
4	26/05/2020	19:30	17	None	0	1/8
5	28/05/2020	07:00	15	None	1	0/8
6	30/05/2020	08:45	15	None	2	0/8
7	01/06/2020	07:45	14	None	1	0/8

Table 2: Survey Results

Survey	Date	Records			Additional Notes
		Species	Adults	Juveniles	
1	19/05/2020	Slow-worm	9	5	4 female, 5 male
2	21/05/2020	Slow-worm	3	2	1 female, 2 male
3	24/05/2020	Slow-worm	5	2	3 female, 2 male
4	26/05/2020	Slow-worm	3	2	3 male
5	28/05/2020	Slow-worm	4	3	2 female, 2 male
6	30/05/2020	Slow-worm	4	4	4 female
7	01/06/2020	Slow-worm	5	3	3 female, 2 male

Plan 3 shows the areas of the site where reptiles were recorded. The slow-worms were recorded throughout the majority of the site, concentrated in the central area and away from the site boundaries.

4. Interpretation of Survey Results

Reptile populations can be classified into three classes, based on the maximum number of adult reptiles seen on any one survey visit, as shown in the table below (Froglife 1999 and Natural England (TN102)). It should be noted that Froglife's guidance (1999) recommends that around 20 visits⁶ may be required to assess population size.

Table 3: Reptile Population Size Classes

Reptile Species	Natural England Guidance (TN102)			Froglife Guidance (1999)		
	Small population	Medium population	Large population	Low population	Good population	Exceptional population
Adder	<5	5-10	>10	<5	5-10	>10
Grass snake/Barred snake	<5	5-10	>10	<5	5-10	>10
Common lizard	<5	5-20	>20	<5	5-20	>20
Slow-worm	<10	10-40	>40	<5	5-20	>20

Table 4: Reptile Population Size Classes Recorded During Survey

Survey	Date	Records			
		Species	Total Number	Population Class (NE Guidance)	Population Class (Froglife Guidance)
1	19/05/2020	Slow-worm	9	Small (Upper end)	Good
2	21/05/2020	Slow-worm	3	Small	Low
3	24/05/2020	Slow-worm	5	Small	Good
4	26/05/2020	Slow-worm	3	Small	Low
5	28/05/2020	Slow-worm	4	Small	Low
6	30/05/2020	Slow-worm	4	small	Low
7	01/06/2020	Slow-worm	5	small	Good

The results of the surveys indicate that the site supports a small (Natural England guidance) population of slow-worm. However, it should be noted that the number of refugia used greatly exceeds the number recommended per hectare by Froglife's guidance (5-10 per hectare) for surveying reptiles. Therefore, the results from the current reptile survey cannot be directly compared to Froglife's population estimates.

Based on the assumption that this represented 10 percent of the total population on site, this would indicate an expected population of around 90 slow-worms.

⁶ It should be noted that the requirement to undertake 20 surveys on the HGBI guidance to provide a population class is aimed at conservation volunteers and not professional survey work.

5. Assessment of Potential Impacts on Reptiles

The potential impacts on reptiles are based on the development proposals at the time of writing. This impact assessment may need to be reviewed and amended as necessary in light of any alterations to the development proposals.

5.1. Development Proposals

The majority of the site will be cleared to facilitate the construction of a church with meeting facilities and a car park. Habitat along the north-west boundary is to be retained.

5.2. Potential Impacts of the Development on Reptiles

5.2.1. Potential Direct Impacts

The development has the potential to result in the following direct impacts:

- Habitat loss through permanent land-take and the removal of reptile habitat;
- Population isolation through habitat fragmentation; and
- Direct mortality of individual reptiles harmed during the works.

5.2.2. Potential Indirect Impacts

The development has the potential to result in the following indirect impacts:

- Disturbance;
- Persecution and collection by humans; and
- Disturbance to neighbouring populations of reptiles with the increased human presence and noise and vibrations from the works

5.3. Planning Requirements

The presence of reptiles on a site does not typically preclude development provided adequate measures can be taken to avoid an offence being committed.

In this instance it is considered that adverse impacts to reptiles can be acceptably mitigated, provided that the strict method statement detailed in Section 6 is adhered to. If this cannot be achieved then the proposed site investigation works are anticipated to likely result in an offence.

5.4. Mitigating the Impacts

The maximum number of adult reptiles recorded across the site on any one survey visit was nine slow-worm, five juveniles were also recorded on this site visit making 14 in total, which falls into the 'small/good population' category. No other species of reptile were recorded within the site.

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As a good population of slow-worm were recorded at the site, there is a high risk of encountering reptiles in relation to the proposed works. Due to the site's isolated nature, species deterrence measures (i.e. encouraging the reptiles to move away from the development area voluntarily) are not possible. Therefore, mitigation to prevent harm to slow worms from construction and clearance works through a full capture and translocation exercise is considered an appropriate action (see Section 6.0). However, it is considered that reptile fencing will not be required to prevent reptiles from re-entering the site due to the poor connectivity surrounding the site (the site is surrounded by roads and hard standing).

Due to the small size of the site it is not considered to be a viable option to retain a large enough area of habitat on site that would ensure that a viable population size of slow-worm could be maintained, and achieve a viable development. A receptor site must therefore be identified to move the slow worms to. The receptor site will ideally be as close to the proposed development site as possible. It will be identified prior to the commencement of any translocation exercise, as set out in Section 6.0.

Ideally, reptiles shouldn't be moved into areas where they are already present, or where a population is present in the immediate vicinity. If reptiles are already present in the receptor site, management work should be undertaken to increase the carrying capacity of reptiles in the receptor site, prior to translocation.

There is considered to be no requirement to undertake monitoring of reptiles after construction work has been completed.

6. Recommendations/Method Statement

Two distinct method statements are provided below. The first method statement will be adhered to during the site investigation work that is proposed. The second method statement will be implemented as part of the main development works.

6.1. Method Statement 1 – Site Investigation Works

6.1.1. Timing of Works for Vegetation Clearance

A staged approach to vegetation clearance will be employed to ensure that the areas proposed for vegetation clearance and earthworks are unsuitable for reptiles at the time of clearance. The following measures will be taken.

- Considering the distribution of reptiles on site and the large footprint and plant required to undertake trial pitting, window sampling alone will be used across the site. This will ensure that direct and inadvertent site disturbance is minimised as far as is practically possible during investigation works;
- The vegetation within the proposed works areas and areas where the plant will be tracking will be cleared during of the active reptile season (i.e. between March to October inclusive).
- Rank vegetation will first be 'destructively searched' prior to the vegetation clearance (i.e an ecological consultant on site manually searching for any reptiles immediately prior to the first stage of clearance taking place);
- Once the destructive search has been completed, the vegetation will initially be strimmed, or brush cut to a minimum height of a 30cm, so as to reduce its attractiveness for reptiles. This will be undertaken 24 hours in advance of the final clearance work (and the subsequent site investigation works). The vegetation will be cleared in a piecemeal fashion, commencing at the eastern end of the site and progressing towards the western end, therefore giving any reptiles the opportunity to migrate voluntarily into the retained adjacent habitats of the site;
- The area to be cleared will then be inspected by the site contractor. Following this search, the remaining vegetation should be strimmed a second time, cutting the vegetation as low as possible with the cut vegetation being raked away;
- Raked or cut vegetation will either be removed entirely from the site or piled in areas which will not be affected, as the piles may otherwise act as a focus for refuge by displaced fauna; and
- The topsoil layer to a depth of about 250mm will be removed in strips or sections, working sequentially across the site, using a digger with a toothed bucket, and under the supervision of a reptile handler, who is able to check for the presence of any reptiles remaining in the soil. Where

such individuals are found, the handler will stop the works, rescue the animal and release it to an appropriate location outside of the anticipated zone of influence.

6.2. Method Statement 2 – Main Development

6.2.1. Site Induction/ Toolbox Talk

Clearance and construction personnel will be briefed by the suitably qualified ecologist about the confirmed presence of reptiles remaining on the site and the necessary course of action if any reptile is encountered.

6.2.2. Receptor Site

Prior to the commencement of any translocation, a suitable receptor site will be identified and confirmed with the local county ecologist. The receptor site will be located as close to the development site as a possible. If this site is deemed to already be in a suitable condition to support reptiles, survey may be required to determine the size of the population already present within it, thus ensuring that the carrying capacity of the site is not exceeded by the translocation reptiles, ensuring the long-term viability of the translocated population.

Preferably, a site that is currently unsuitable for occupation by reptiles will be selected. The site will then be subject to habitat enhancement measures, therefore enabling a long-term viable population to establish.

Two artificial bank or 'hibernacula' will be created at the interface of the optimal reptile habitat (i.e. grassland) and scrub/ woodland edge. They will ideally measure approximately 5m in length, 0.5m in width and 0.4m in height. They will be comprised of bricks, stone and/ or timber. The banks will be orientated so that they run from east to west. The southern side of the banks will be finished with topsoil and seeded with a neutral wild-flower mix. Alternatively, the features could be left to re-seed naturally. The northern sides will be left with the rubble exposed to allow reptiles to enter cavities within the bank. This enhancement measure will be implemented within receptor site prior to the commencement of the translocation exercise.

Appendix 3 provides a visual representation of these artificial hibernacula.

6.2.3. Refugia

10 additional artificial refugia will be added to those 40 already installed on the site from the initial reptile surveys, to increase the trapping density.

6.2.4. Collection & Removal of Reptiles

The site will be visited at regularly (i.e. daily) by the suitably qualified ecologist, and any reptiles which are present will be collected and removed to the receptor site.

The capture/ transfer will involve a minimum of 20 visits⁷ (dependant on numbers/ capture rates and suitable weather conditions) (see Appendix 2) to check the refuges and remove any reptiles. Daily visits will continue until at least 5 such consecutive visits have occurred, during suitable weather conditions⁸, with no reptiles having been encountered. Alternatively, the capture exercise can be stopped if a 'reasonable capture effort' is agreed with the local authority.

When reptile numbers are detected to be declining, a final cut can be made to achieve very short, close-cropped vegetation of about 50-100mm height. This staged removal of the vegetation is likely to drive reptiles to make greater and greater use of the refugia. This process will remove alternative sheltering places and rendering the rest of the site unattractive to reptiles. Once the five-day threshold has been reached, earthmoving operations may commence in the trapped-out area without further constraint.

6.2.5. Holding and Transfer of Reptiles

Collected reptiles will be removed using suitable containers (e.g. steep sided buckets with lids) with the different species being kept separate.

Slow worms will initially be collected using gloved hands and will be placed in a cloth bag secured with a plastic clip before being transferred to a suitable container.

All reptiles will be transferred to the receptor site immediately or within 1 hour of collection, where they will be released under suitable cover in an undisturbed area. Reptiles in temporary holding containers will be placed in a safe location under shade, and will be monitored to ensure that they do not become either too hot or too cold.

6.2.6. Site Clearance After Completion of Trapping Exercise

Once the site has been cleared of reptiles, the site will be immediately stripped of all vegetation and the topsoil removed, leaving bare subsoil. The final stripping may be done with machinery (ideally using a toothed bucket).

If the number of reptiles caught is very high (e.g. over 100 individual reptiles) the site will be 'destructively searched' prior to development. This means that the topsoil layer to a depth of about 250mm is removed from the site in strips or sections, working sequentially across the site, using a digger with a toothed bucket, under the supervision of a reptile handler who is able to check for the presence of any reptiles remaining in the soil. Where such reptiles are found, the reptile handler will stop the works, rescue the animal and release it to the receptor site.

⁷ Froglife (1999) specifies a capture effort of between 60-120 days depending on the species, size of population to be translocated and capture rates, however this level of trapping is rarely required.

⁸ During dry, still conditions with air temperatures in excess of 10°C.

6.2.7. Species Deterrence

Upon completion of the trapping exercise the site will remain in a sterile (reptile-free) condition by regular ploughing or intensive mowing to prevent the area from becoming suitable for re-colonisation of reptiles.

6.2.8. Record Keeping

After the completion of the works a report will be sent to the Local Authority by the suitably qualified ecologist to confirm that works have been undertaken in accordance with the method statement. The report will include details of animals found (including species, sex, status, details of any injuries etc.).

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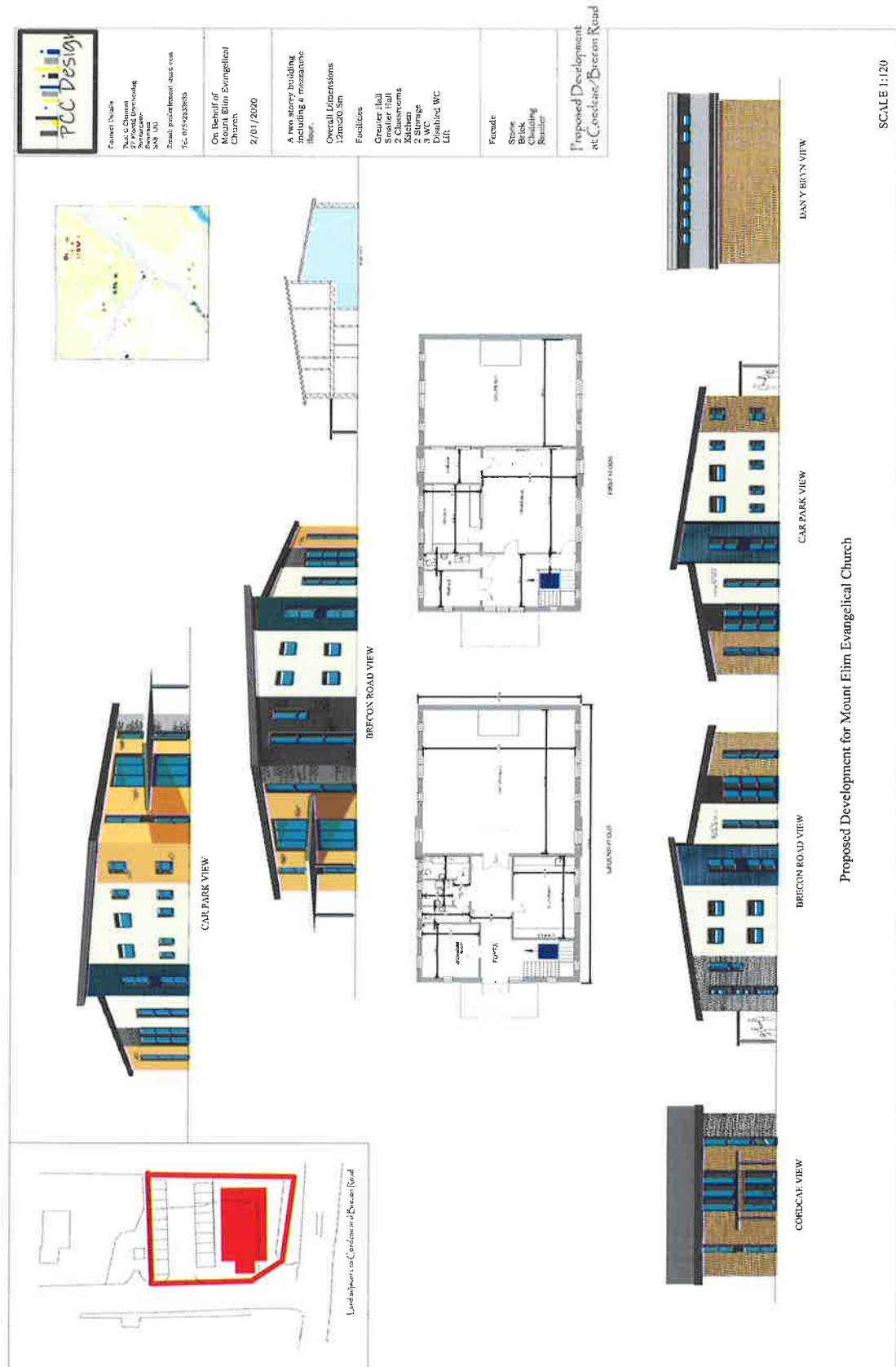
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Plan 1: Location Plan

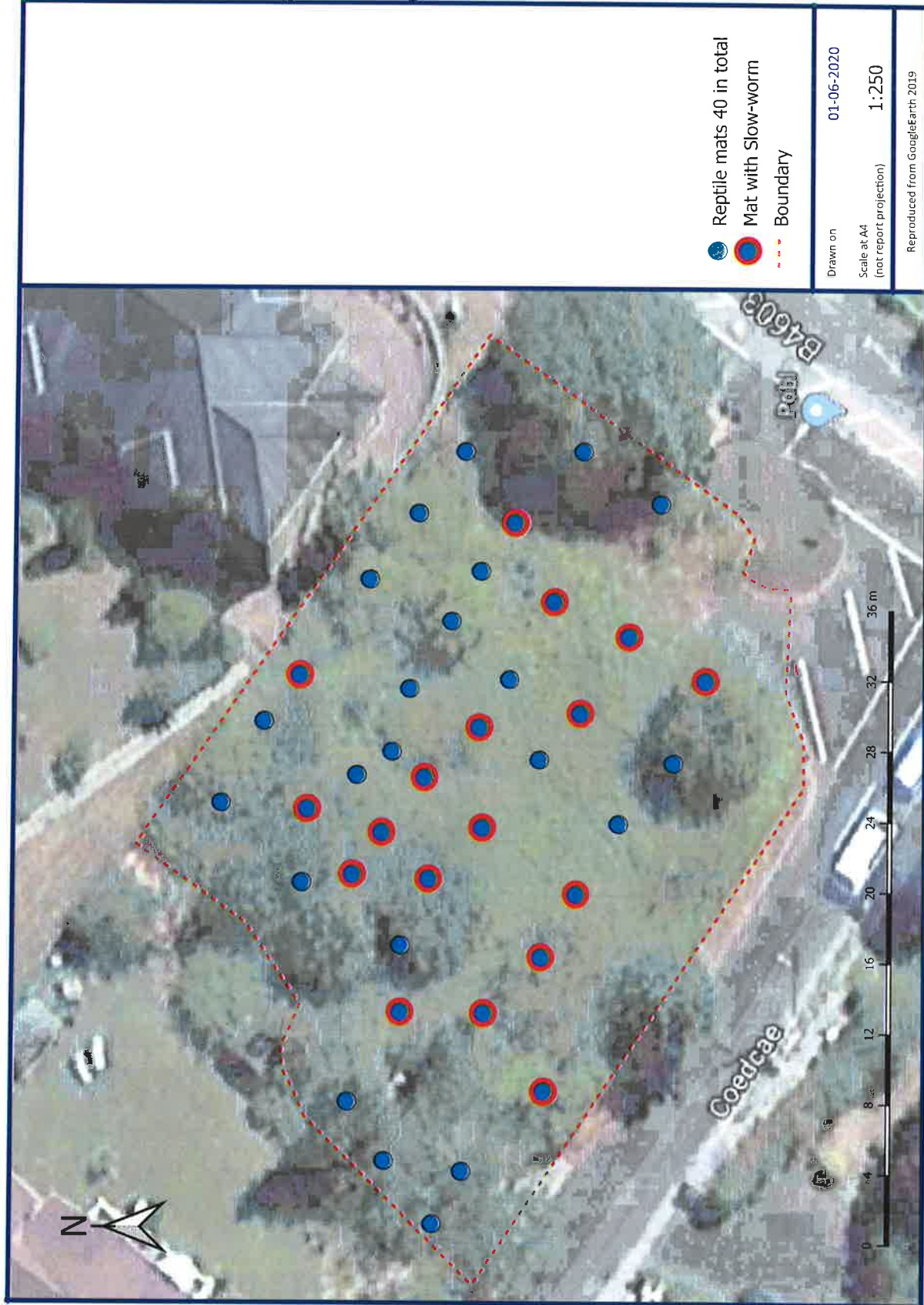


Plan 2: Development Proposals



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Plan 3: Location of Reptile Refugia and Results



Appendix 1: Species Requirements of the Common Reptile Species

Notes on the habitat requirements of the four common reptile species is given below:

Slow-worms are widespread throughout England and Wales and occur in a variety of habitats including rough grassland, hedgerows, heathland, woodland edges, downs and moorland. They also occur in a wide variety of man-made habitats including railway and road embankments, gardens, churchyards, parks and allotments. Marshy and very arid habitats are usually avoided. Dense vegetation cover combined with sunny areas allowing thermoregulation is ideal. Habitats which allow the animals to burrow such as compost heaps or loose soils encourage their presence and they are often associated with piles of stones, rubble or pieces of tin or plastic (Beebee and Griffiths 2000). They are often found associated with anthills and these structures may also provide a convenient network of underground tunnels.

Common lizards occur in a wide range of habitats including roadside verges, uncultivated field edges, forest rides and glades, cliff edges and scree slopes, artificial embankments along railways and rivers, upland moors, heathlands and coastal sand dunes. Suitable habitat consists of undisturbed ground that is topographically diverse with fairly dense but short vegetation less than 0.5m high, open to the sun and with a few exposed areas that can be used for basking. The soil should be well drained and have adequate refugia for use in both summer and winter. South-facing slopes are preferred and humid sites often have the highest population densities.

Grass snakes are highly aquatic and are usually associated with ponds, lakes, marshes, streams or ditches. They feed almost entirely on amphibians. They also occur in open woodlands, hedgerows and rough grassland. Drier habitats including heaths and moorlands are sometimes used. They require terrestrial habitat with an abundance of hiding places and access to sunshine. Open patches close to thick cover are frequently used for basking.

Adders occur in a variety of habitats including heathlands, moors, chalk downlands, woodland rides, coastal dunes, rough commons, overgrown quarries, along field edges and railway embankments. The main requirement is undisturbed sunny glades or slopes, usually in the vicinity of some thick cover. South-facing slopes are preferred in upland areas.

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Appendix 2: Recommended Minimum Number of Capture Days Under ideal Conditions

Table 12 Recommended minimum number of capture days under ideal conditions

	Species score	Site size	Population size class/ Habitat Suitability Assessment
Slow-worm	15	<0.1ha = 0.1	Small/ Poor = 0.2
Common lizard	20	0.1-0.5ha = 0.3	Medium/ Good = 0.5
Sand lizard	30	0.5-2ha = 0.5	Large/ Exceptional = 0.8
Grass snake	25	2-10ha = 0.7	
Adder	25	>10ha = 0.8	
Smooth snake	30		

The process for using table 12

Select the species you plan to capture in the left hand column. For a site with several species, choose the one with the highest "Species score" in the table.

Working across the table from left to right, the minimum capture effort in days is calculated as:

Species score x (Site size + Population size class/ Habitat Suitability Assessment)

A worked example is given below.

Notes on using Table 12

The figures in the table are the recommended minimum number of capture days under ideal conditions as follows:

- good weather conditions throughout the capture programme.
- starting at the optimal time of year, typically April.
- deploying skilled fieldworkers expending high effort per day.
- where appropriate, a high density (1000/ha) of refuges in place for at least 2 weeks of good conditions prior to the main capture period. Note that capture may start during the initial 2 week period, but any effort expended will be in addition to the minimum effort calculated here.

Capture should continue until there has been substantial depletion of the population, ideally so that all animals have been removed (your attitude toward risk may affect this judgement).

The actual capture period may be substantially longer than the recommended minimum period recommended here, as capturing reptiles can require huge effort and local circumstances can make the task more difficult.

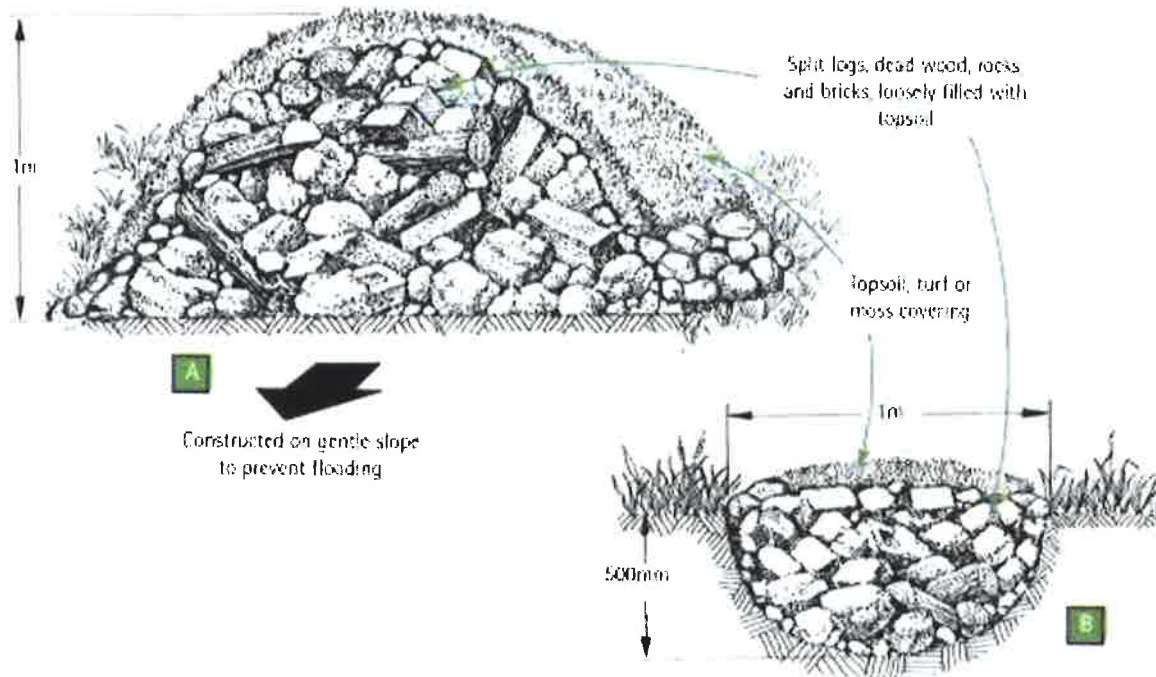
To complete a thorough capture period, such that one can have reasonable confidence in having substantially depleted the population, the minimum number of days derived here should be followed by 5 days with no reptile captures or observations, under good conditions. "Good conditions" here means that the species concerned would be expected to be active, given the weather conditions and season. This will vary according to local conditions.

Where there are factors that will predictably result in reduced catchability, additional capture effort should be added to the minimum derived from the calculation here. For example, capture programmes that start at a sub-optimal time (for example, July); highly complex vegetation; substantial underground refuge habitat.

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Appendix 3: Artificial Hibernacula

Note: A – Impermeable Soils.



B – Free Draining

Note: Portions of southern face could be left bare to create bee banks (See Section 5.3.11 and Appendix 17)

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