

Reptile Mitigation Strategy

**Land at Thames Way,
Northfleet, Kent DA11 8HN**

Report to:
Speedgreen (Thames Way) Limited

27th February 2026
Revision 1 (11th March 2026)



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Calumma Ecological Services

info@calumma.co.uk
www.calumma.co.uk

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1. Summary

Background

- 1.1 Land at Thames Way has been proposed for a new development project that involves installation of a battery energy storage system and associated infrastructure.
- 1.2 A preliminary ecological assessment of the site previously determined that available habitat appeared suitable for reptiles.
- 1.3 Calumma Ecological Services was commissioned to undertake a reptile survey of the site and subsequently advise on reptile mitigation.

Reptiles Survey

- 1.4 Survey work undertaken within the site in 2025 confirmed the presence of a low population of breeding viviparous lizard.

Impacts of Proposed Development and Recommendations

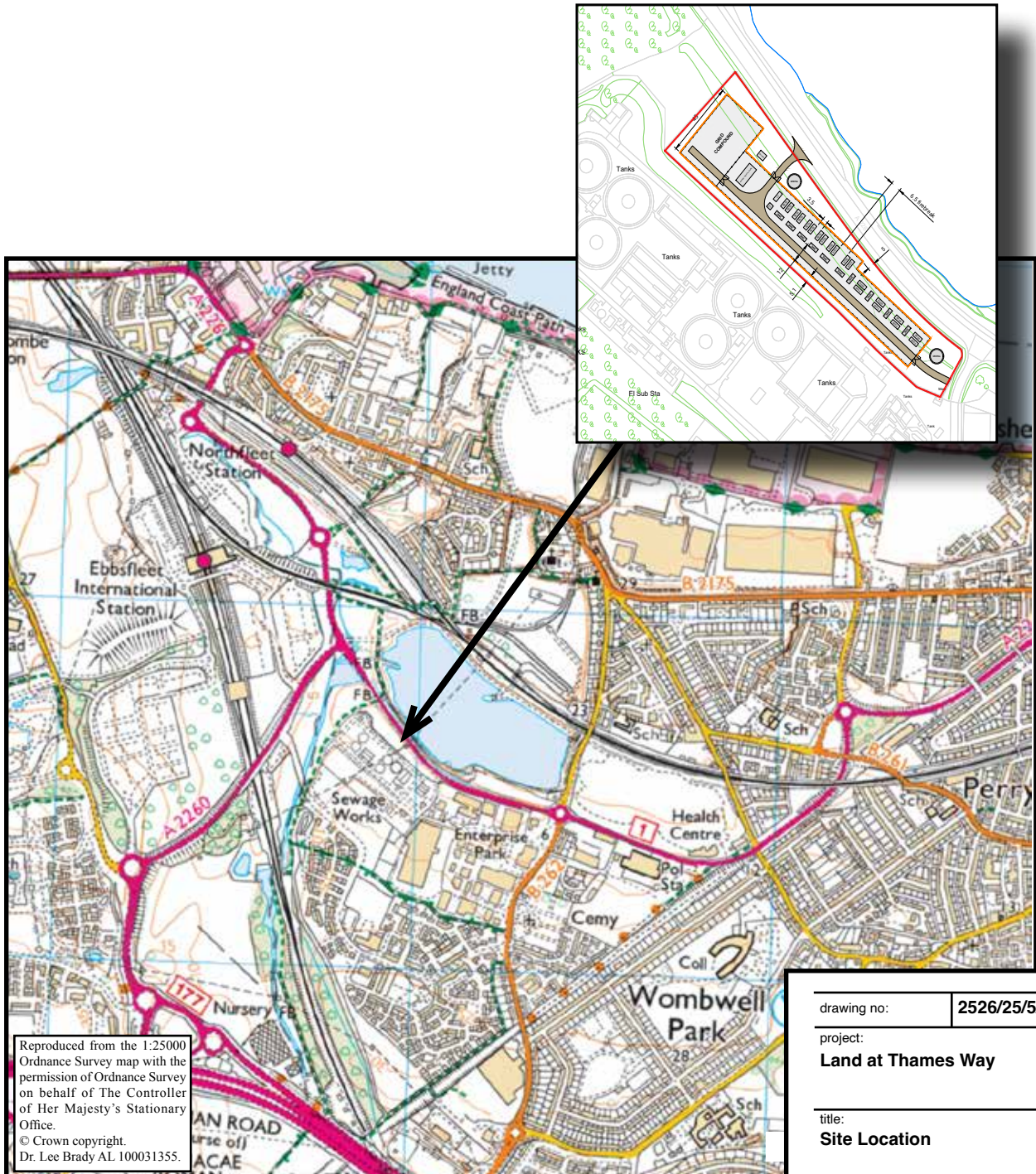
- 1.5 The proposed development will result in the loss and/or modification of approximately 0.2033 ha of habitat suitable for reptiles.
- 1.6 Actions that could result in death or injury to reptiles will require appropriate mitigation in advance of any activities associated with the proposed development.
- 1.7 Constraints imposed by other protected species mitigation means that an off-site translocation exercise will be required.
- 1.8 The location of the off-site receptor site has not yet been confirmed.
- 1.9 Areas zoned for development will be isolated using standard exclusion fencing.
- 1.10 Once the offsite receptor location is confirmed and appropriate habitat enhancement work undertaken, reptiles will be captured and relocated and subject to a habitat management and monitoring plan.

2. Site Location and Assessment

Site Name:	Land at Thames Way; Fig. 2.1 For the purposes of this report, the term <i>site</i> refers to the planning application boundary (red line) associated with the proposed development.
Grid Reference:	TQ 619 736
County:	Kent
Planning Authority:	Gravesham Borough Council
Planning Refs:	20250730
National Character Area:	North Kent Plain
Client:	Speedgreen (Thames Way) Limited
Proposed Disturbance:	Installation of Battery Energy Storage System
Red Line Application Area:	0.9908 ha
Development Size:	Small
Ecological Zone of Influence:	1 km
Request:	Draft Reptile Mitigation Strategy
Surveyor:	Lee Brady PhD, BSc (Hons), MCIEEM Great Crested Newt Class Licence: 2015-19076-CLS-CLS Accredited Under Level 2 Bat Licence: 2023-11064-CL18-BAT
Reliance:	Information, including any survey data, contained within this report must only be relied upon for a maximum period of 18 months from the date of the report. If there is any alteration to site conditions within this period, the assessment should be updated.

Fig. 2.1 Land at Thames Way, Northfleet, Kent DA11 8HN (TQ 619 736)

Location of study site.



13 Woodside Cottages,
Dunkirk,
Kent ME13 9NY
info@calumma.co.uk
www.calumma.co.uk

3. Relevant Legal Protection

The protection of animals and plants in the United Kingdom is governed by several different regulations and conventions. Principally, these include:

- The Wildlife & Countryside Act 1981 (as amended);
- The Conservation of Habitats and Species Regulations 2017 (as amended);
- The Natural Environment and Rural Communities (NERC) Act 2006;
- The Hedgerow Regulations 1997;
- The National Planning Policy Framework (as amended);
- Biodiversity Net Gain.

Species and habitats receive legal protection that may prohibit sale, disturbance and/or killing/injury.

3.1 The Mitigation Hierarchy

The mitigation hierarchy is a widely accepted framework used in UK planning policy and environmental regulation to manage the impacts of development on biodiversity. It is structured as a sequence of steps that must be considered in order of priority:

Avoid – Prevent impacts on biodiversity wherever possible, through careful site selection and design.

Minimise – Reduce the extent of any unavoidable impacts through design and management changes.

Mitigate – Implement measures to reduce the severity or duration of impacts on habitats and species.

Compensate (or Offset) – Where impacts remain after avoidance and mitigation, provide biodiversity gains elsewhere to ensure no net loss, or ideally, a net gain.

This framework is embedded in national planning policy and biodiversity legislation, including the National Planning Policy Framework and the Environment Act 2021. It provides a structure for ensuring that development decisions are consistent with legal obligations to protect biodiversity and deliver Biodiversity Net Gain.

3.2 Reptiles

All native reptiles are listed on Schedule 5 of the Wildlife and Countryside Act. It is an offence for anyone to intentionally kill or injure a so-called ‘widespread’ reptile species (viviparous lizard, slow-worm, grass snake or adder), or sell or offer for sale without a licence.

The sand lizard and smooth snake, their breeding sites or resting places (any structure that may offer refuge) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations. It is an offence for anyone intentionally to kill, injure or handle either of

these two species, to possess an animal (whether live or dead), deliberately disturb a sheltering animal, or sell or offer an animal for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by sand lizards and smooth snakes for shelter.

4. Proposed Development and Summary Site Description

4.1 Site Location

The proposed development site is situated adjacent to a sewage treatment works within the North Kent Plain National Character Area. The site is accessed from Thames Way.

4.2 Proposed Development

The proposed development is the installation of electricity infrastructure including a battery energy storage system, substation and ancillary electrical infrastructure.

The site area is 0.9908 ha.

The design of the proposed development as shown in the planning application drawings is preliminary. Due to the complexity of designing the layout of electricity infrastructure sites the final detailed design will be confirmed subsequent to a decision being made on the choice of technology and further input from both the National Energy System Operator (NESO), the distribution network operator (DNO) and the relevant fire authority in this case Kent Fire and Rescue Service. These inputs will have a direct bearing on the site layout. Nonetheless, a preliminary review of recent technological developments in battery energy storage indicates that the footprint of the proposed development can be reduced to 0.7288 ha.

A reduction in the footprint of the proposed development will minimise the ecological impacts of the proposed development. This is illustrated in Fig. 4.1.

4.3 Available Habitat

Habitat within the site was assessed during the reptile survey period.

4.3.1 Aquatic Habitat

Ponds located within the local area have been identified using the following sources:

- Ordnance Survey (<https://www.bing.com/maps>)
- MAGIC (<http://magic.defra.gov.uk>)
- Google Earth

No ponds are located within the site. Five waterbodies are located within 500 m.

4.3.2 Terrestrial Habitat

The site comprises previously disturbed land adjacent to Thames Way, Northfleet. Vegetation is dominated by extensive bramble (*Rubus fruticosus* agg.) scrub with scattered shrubs and young self-seeded trees (including blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna* and cherry *Prunus avium*). Areas of tall ruderal vegetation and unmanaged neutral grassland with coarse grasses such as false oat-grass (*Arrhenatherum elatius*) and a limited forb component occur in more open patches. A native hedgerow is present along the south-western boundary. Two earth bunds provide additional topographic variation.

A baseline habitat condition assessment concluded that although the site has a history of disturbance and retains some areas of tall ruderal vegetation and neutral grassland, it no longer displays the structural diversity typical of open mosaic habitat on previously developed land. The vegetation is now dominated (~79%) by dense bramble and mixed scrub with self-seeded trees, with very limited bare ground or early-successional communities, meaning key criteria for open mosaic habitat are not met.

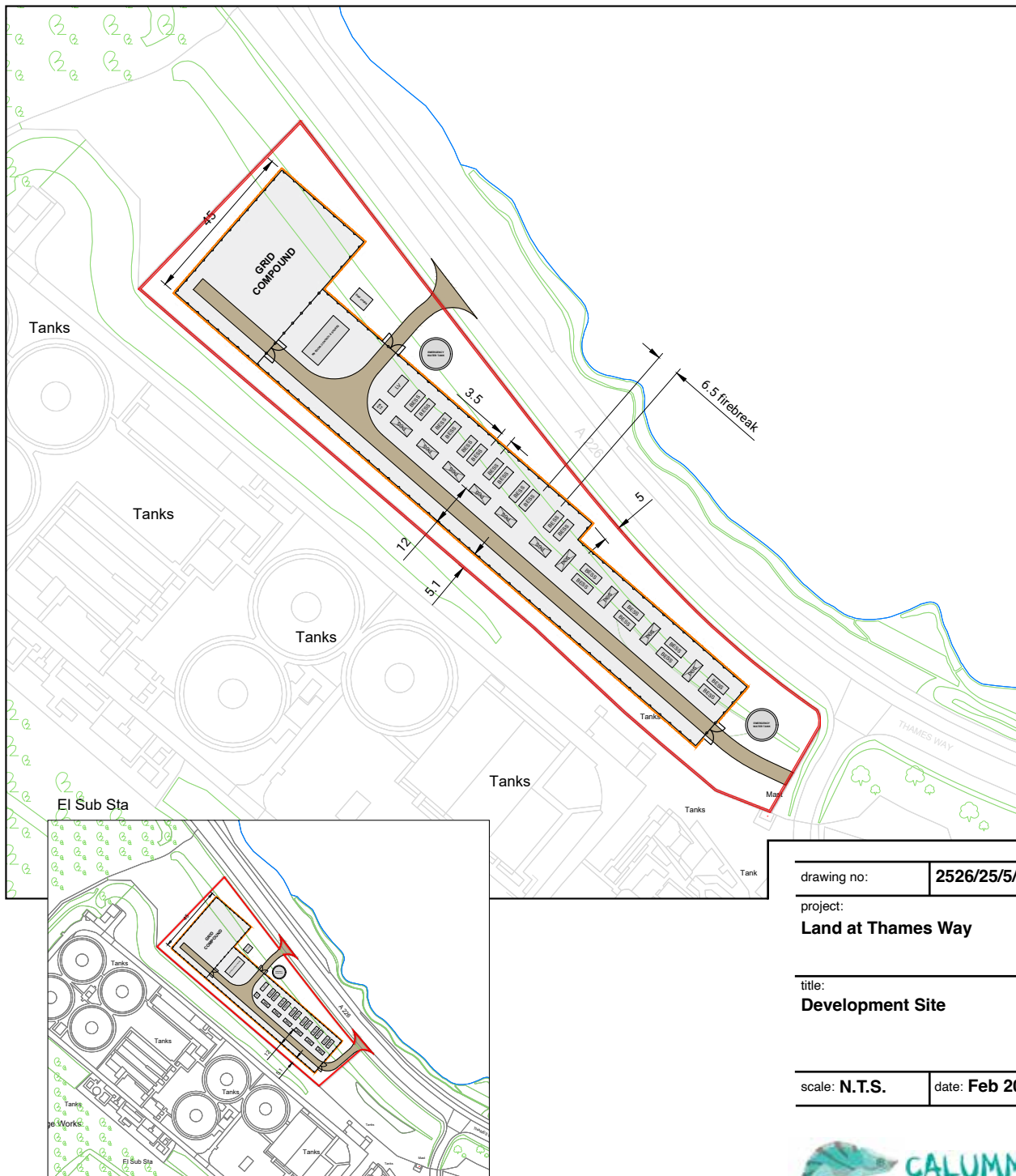
4.4 Buildings

No buildings are located within the site.

Fig. 4.1 Proposed Development Site

Proposed development area: 0.9908 ha.

Indicative site layout achievable (inset): 0.7288 ha



drawing no: 2526/25/5/1/4.1

project:
Land at Thames Way

title:
Development Site

scale: N.T.S.

date: Feb 2026



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Kent ME13 9NY
info@calumma.co.uk
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5. Development Site Survey Results

Survey work undertaken in 2025 confirmed the presence of viviparous lizard within the site (Calumma E.S. 2025). No other reptile species were recorded during the survey period.

5.1 Reptile Survey Results

Viviparous lizard: A total of 17 viviparous lizards were observed during the survey period with a maximum adult count of 2 lizards during a single survey occasion. Neonate (hatchling) lizards were observed. This is considered indicative of a low breeding population within the context of the limited area of suitable habitat present.

Slow-worm: Not recorded within the site during the survey period.

Grass snake: Not recorded within the site during the survey period.

Adder: Not recorded within the proposed site during the survey period.

5.2 Reptile Habitat Assessment

Available habitat within the site was considered to be limited in area but favourable for reptiles, with some vegetation displaying a structurally complex sward supporting invertebrates (including molluscs and orthoptera). Approximately 0.2033 ha of habitat is considered suitable for reptiles (approx. 28% of available area).

Available habitat is detailed in Appendix I.

6. Impact Assessment

6.1 Pre- and Mid-activity Impacts

Reptile survey work undertaken in 2025 confirmed the presence of a low breeding population of viviparous lizard within the site.

The site comprises predominantly bramble scrub, mixed scrub and unmanaged neutral grassland. Within the site, approximately 0.2033 ha represents habitat suitable for basking, foraging and sheltering. Current proposals indicate clearance or disturbance of the majority of reptile habitat.

Without mitigation, vegetation clearance, bund regrading, soil stripping, installation of hardstanding and associated construction activities for the proposed development would present a risk of:

- Killing or injury of individual reptiles during vegetation removal or groundworks;
- Disturbance during the active season; and
- Destruction of refugia and potential hibernation features.

Given confirmed presence and the extent of habitat affected, pre- and mid-construction impacts are considered potentially significant at the site level in the absence of mitigation.

6.2 Long-term Impacts

The development will result in the permanent loss of the majority of suitable reptile habitat within the site. Although the existing population is classified as low, the site currently provides structurally diverse habitat with bund features and scrub - grassland interfaces suitable for breeding and shelter.

In the absence of habitat retention or compensation, the scheme would result in:

- Permanent reduction in habitat extent;
- Fragmentation of the existing vegetation mosaic; and
- Removal of potential overwintering habitat.

Given the small size of the site and the low population size recorded, the site is unlikely to represent a key stronghold within the wider landscape. However, development related habitat loss would result in a localised adverse effect on the site population.

Provided a suitably designed off-site receptor area is identified that can be supported by a habitat management and monitoring plan, the effect on the local conservation status of viviparous lizard is assessed as low at the local level.

6.3 Post-activity Interference Impacts

The operational development will comprise hardstanding, electricity infrastructure and perimeter security fencing. Opportunities for recolonisation of the developed footprint will therefore be low, as no suitable reptile habitat will remain within the operational compound.

Where boundary fencing remains permeable, there is potential for reptiles to enter retained margins; however, the post-development layout does not include significant areas of suitable habitat within the operational compound.

Indirect post-development impacts are limited and primarily relate to:

- Habitat severance between adjacent habitat parcels;
- Increased shading and microclimatic change at retained edges; and
- Ongoing management preventing establishment of structurally complex swards within operational areas.

These effects are not considered significant in a wider landscape context.

6.4 Other Impacts

No significant impacts on other reptile species are predicted. Slow-worm, grass snake and adder were not recorded during the 2025 survey period. There is no evidence that the site functions as a regionally important reptile assemblage.

6.5 Summary of Impacts at the Site Level

The proposed development will result in the permanent loss of approximately 0.2033 ha of habitat suitable for reptiles, which currently supports a low population of viviparous lizard.

In the absence of mitigation, construction activities would pose a risk of killing or injury and would result in habitat loss of local significance.

A proportionate mitigation strategy incorporating phased vegetation clearance, supervised capture and translocation to a suitable receptor site would reduce these impacts to an acceptable level.

6.6 Summary of Impacts in a Wider Cumulative Context

Viviparous lizard is widely distributed within the North Kent Plain and surrounding Thames corridor. The population recorded at Thames Way is small and not considered to be of strategic importance in isolation.

The scale of habitat loss associated with this scheme is therefore low in the context of the wider landscape; however, cumulative loss of small brownfield parcels within the Thames corridor may incrementally reduce habitat connectivity for early successional species.

Subject to appropriate off-site mitigation and long-term habitat management and monitoring, the development is not considered likely to result in a significant adverse effect on the favourable conservation status of viviparous lizard at a local or wider scale.

7. Mitigation and Compensation

Calumma Ecological Services previously advised that mitigation for reptiles associated with the proposed development may require capture and translocation of viviparous lizard to a suitable off-site receptor site.

Although the proposed development site extends to 0.7288 ha, only approximately 0.2033 ha comprises habitat assessed as suitable for reptiles, principally grassland and scrub - grassland interfaces.

However, the site also supports hazel dormouse (*Muscardinus avellanarius*). Mitigation for dormouse requires retention, enhancement and long-term management of scrub and hedgerow structure within and adjacent to the site.

Enhancement for dormouse (increasing scrub density, connectivity and canopy development) is ecologically incompatible with maintaining optimal reptile habitat, which depends on open, sun-exposed mosaic structure. Therefore, in order to ensure effective mitigation strategies for both reptiles and dormouse, an off-site reptile receptor location is considered the most robust and proportionate approach, allowing:

- Delivery of dormouse mitigation within and adjacent to the site; and
- Translocation of a low reptile population to a site specifically managed for reptiles.

7.1 Summary of Mitigation Strategy

Land proposed for disturbance within the proposed development site will be isolated (where required) using reptile exclusion fencing, and reptiles will be captured using artificial cover objects (ACOs) and hand searching (Figure 7.1). Captured animals will be translocated to a suitably prepared off-site receptor area. The location of the receptor site will be confirmed and secured prior to commencement of works affecting reptile habitat.

Reptile exclusion fencing will be maintained for the duration of site preparation and construction works to prevent animals that may occupy adjacent areas from entering the development site.

If more than 18 months elapse between completion of the reptile surveys and implementation of the mitigation strategy, an updated reptile survey should be undertaken and the strategy reviewed and updated as necessary.

7.2 Receptor Site

7.2.1 Rationale for Off-site Receptor

The decision not to pursue on-site reptile mitigation is based on:

- Limited extent of suitable reptile habitat (0.2033 ha).
- Low population size (maximum adult count = 2).
- Requirement to enhance scrub on-site for dormouse.
- Operational constraints of the BESS infrastructure prevent delivery of a viable on-site receptor area.

7.2.2 Receptor Site Requirements

A suitable receptor site for reptiles should be in accordance with the following criteria:

- Located within the same broad ecological landscape.
- Of sufficient size to accommodate the translocated reptiles.
- Not support a significant existing viviparous lizard population.
- Secured from future development.
- Subject to long-term reptile-focused management.

Viviparous lizard habitat requirements are illustrated in Appendix II.

A suitable receptor site will be identified and secured by the applicant that meets the above criteria.

7.2.3 Habitat Preparation

Prior to translocation, the receptor site will be enhanced to provide:

- Structurally diverse grassland (e.g. tussocky sward).
- South - facing basking opportunities.
- Scrub - grassland interface.
- Minimum five log/brush refugia per ha.
- Potential hibernation features (depending on site characteristics).

Habitat preparation and establishment will be completed prior to release.

7.3 Development Site: Capture, Exclusion and Translocation

No works affecting land identified as supporting reptiles will take place without prior consultation with a suitably experienced ecologist.

7.3.1 Exclusion Fencing

Prior to commencement of activities associated with the proposed development, exclusion fencing will be installed to prevent reptiles occupying adjacent areas from entering the capture area. As fencing installation will take place within suitable reptile habitat, works will be undertaken under ecological supervision.

Fencing will:

- Be buried to prevent ingress/egress.
- Be inspected regularly.
- Remain in place until vegetation clearance is complete.

7.3.2 Capture Effort

Following establishment of the receptor site, reptile capture will be undertaken within the development site using artificial cover objects deployed at a minimum density of 100 ACOs per hectare, supplemented by hand searching of suitable in-situ refuges. Capture will be undertaken over an estimated period of approximately 40 suitable survey days (with a minimum of 30 days), during appropriate weather conditions.

Capture will continue until five consecutive suitable survey days with no reptile observations have been achieved. Where appropriate, capture efficiency will be maximised through phased habitat manipulation, with vegetation cut using hand tools only (subject to nesting bird and dormouse constraints). A final destructive search will be undertaken if required to ensure reasonable confidence that reptiles have been removed from the development site.

All captured reptiles will be released into suitable terrestrial habitat within the receptor site.

7.4 Post-development Arrangements

7.4.1 Receptor Site Safeguard

The receptor site will be secured by the applicant and will adhere to the following principles:

- Long term retention of reptile habitat.
- Habitat management.
- Monitoring for a five year period.

7.4.2 Receptor Site Habitat Management and Monitoring

Habitat management and monitoring within the receptor area will be supervised by a suitably experienced ecologist.

Monitoring work for reptiles will be undertaken for five years and will aim to achieve the following objectives:

1. Review habitat management works and recommend remedial actions as appropriate (years 1 - 5).
2. Determine whether reptile species remain present (years 1, 3 & 5).
3. Determine whether reptiles display breeding activity. This objective will be assessed by identification of recently born reptiles (neonates) within the survey period (years 1, 3 & 5).

7.4.3 Proposed Timetable of Works (subject to planning approval etc)

Capture works will only cease following five consecutive suitable capture days with zero reptile captures. Periods of prolonged unsuitable weather or delays to the commencement of development may require adjustment to the programme.

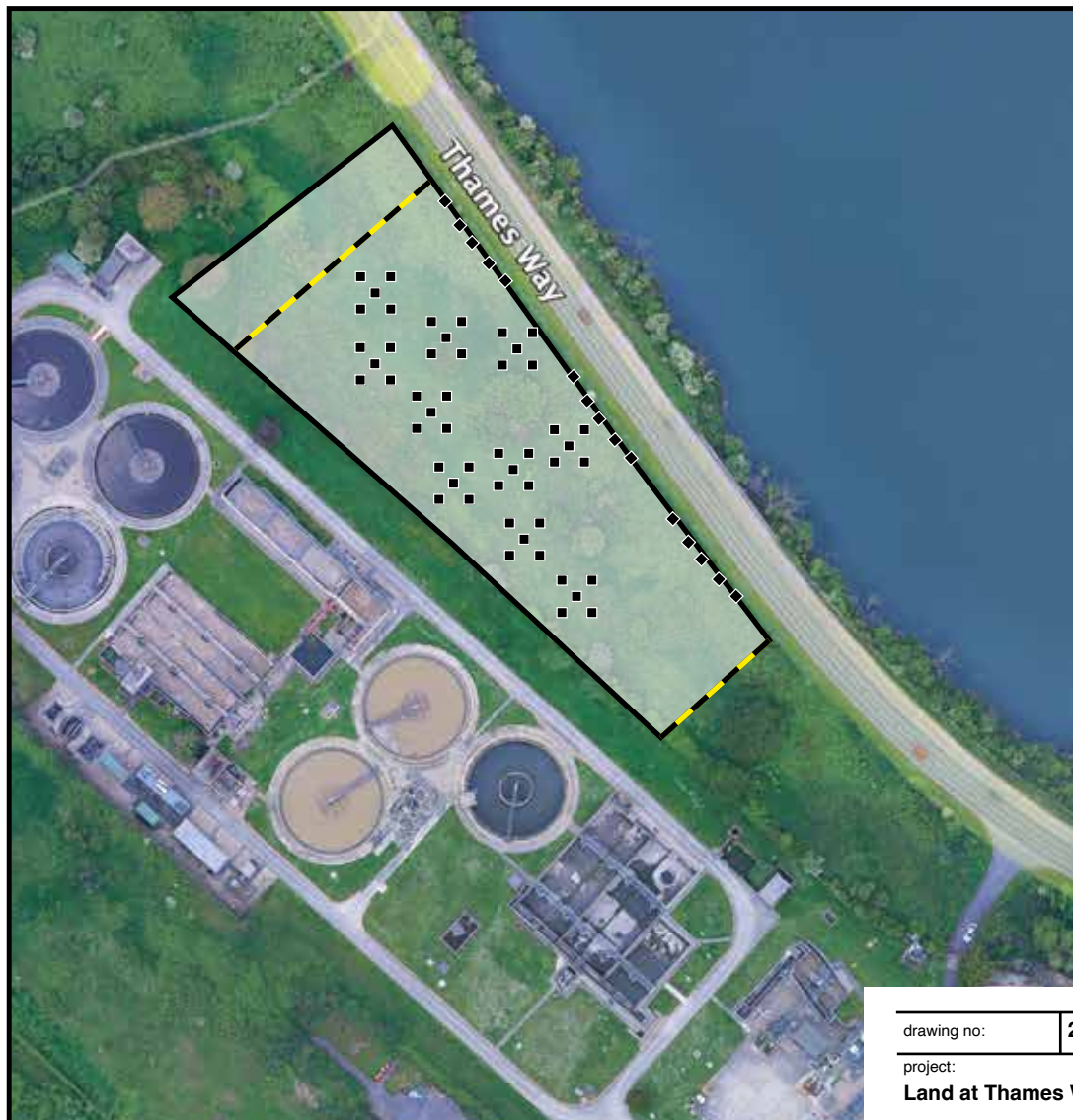
Indicative timing of activities is set out below; actual dates will be dependent on planning approval, identification and preparation of suitable receptor site and ecological constraints.

Proposed Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Release Area												
log/brush pile construction												
receptor site vegetation management												
reptile & habitat monitoring	five seasons											
Development Site												
installation of reptile exclusion fencing												
reptile capture work				Optimal Capture Period								
Vegetation Clearance												
Destructive Search (if required)												

Fig. 7.1 Artificial Cover Objects

Reptiles will be captured from habitat proposed for disturbance within the development site using artificial cover objects (ACO). Standard reptile exclusion fence will be installed where required to prevent animals from reoccupying cleared land.

All reptiles will be translocated offsite to the agreed receptor site.



drawing no:	2526/25/5/1/7.1
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project:	Land at Thames Way
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title:	ACO
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scale: N.T.S.	date: Feb 2026
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Key to Symbols



exclusion fence
(indicative)



ACO
(indicative)



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Kent ME13 9NY
info@calumma.co.uk
www.calumma.co.uk

8. References and Further Reading

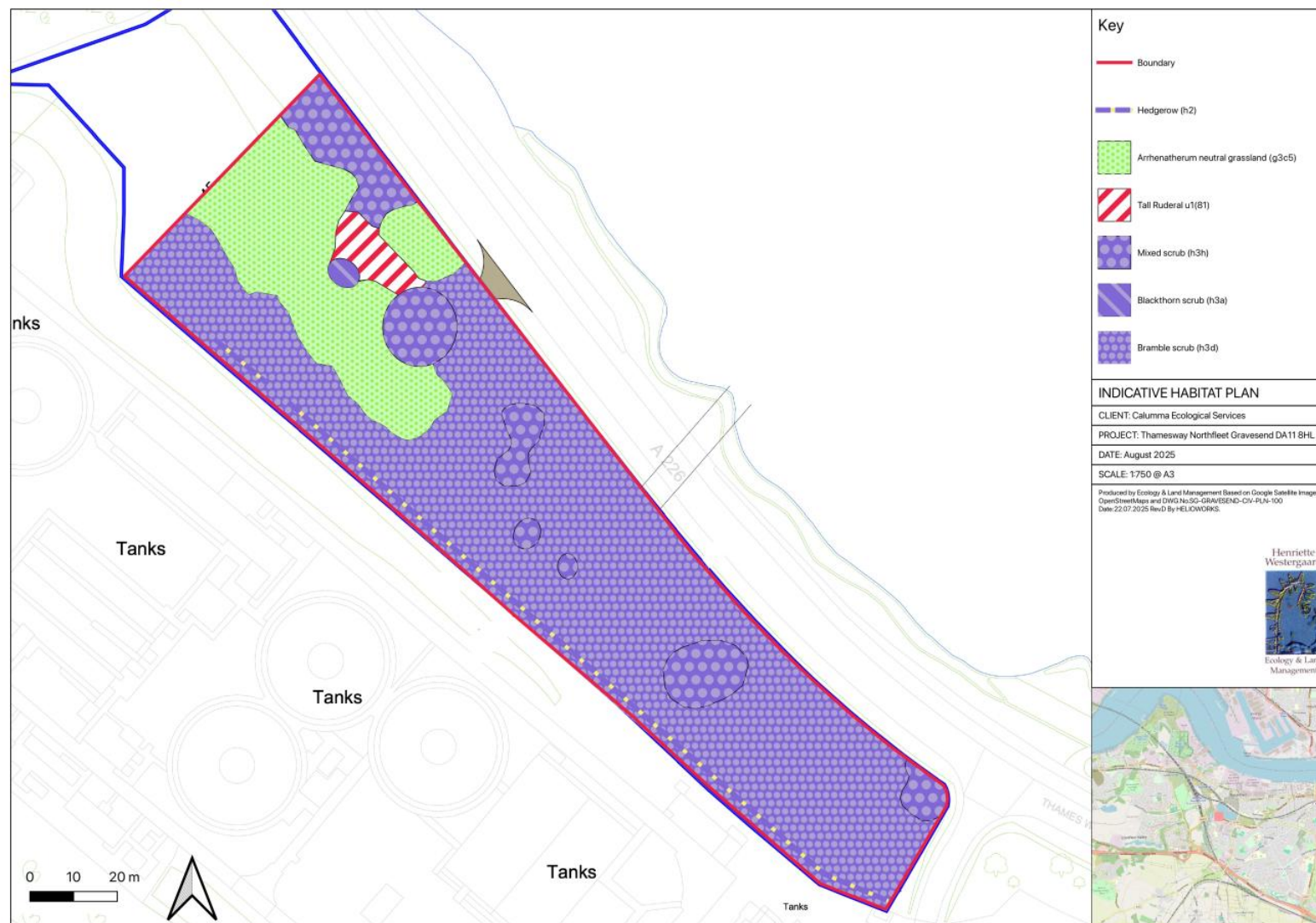
- Calumma Ecological Services (2025) Preliminary Ecological Appraisal, Land at Thames Way, Northfleet, Kent DA11 8HN.
- Calumma Ecological Services (2025) Reptile Survey, Land at Thames Way, Northfleet, Kent DA11 8HN.
- Ecology and Land Management (2025) Biodiversity Net Gain Baseline Assessment, Land at Thamesway, Northfleet, Kent DA11 8HN.
- Froglife (1999) Reptile survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.
- Gent, T. and Howarth, W. (1998) Amphibians and reptiles and the law. In: Herpetofauna Workers' Manual. Gent, A. H. & Gibson, S. D. (eds.), Joint Nature Conservation Committee, Peterborough, pp. 75 - 93.
- Griffiths, R. A. and Inns, H. (1998) Surveying. In: Herpetofauna Workers' Manual. Gent, A. H. & Gibson, S. D. (eds.), Joint Nature Conservation Committee, Peterborough, pp. 1 - 6.
- Herpetofauna Groups of Britain and 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.

Appendix I: Habitat Plan

Source:

Ecology and Land Management

APPENDIX I – INDICATIVE BASELINE HABITAT PLAN



Appendix II: Viviparous Lizard Habitat

Source:

Calumma Ecological Services

Viviparous lizards require:

- well vegetated areas for cover (e.g. tussocky grass)
- areas with a sunny aspect to provide a warm environment for activity
- features that are exposed to the sun for basking (e.g. log piles)
- in urban and suburban areas protection from predators such as cats
- invertebrates for food
- sheltering places (e.g. rocks, logs and ruderal vegetation)
- well drained, south-facing banked areas for hibernation



Lizard basking on log



Brown-field habitat supporting large lizard population



Fence post for basking



Tree stump for shelter

Description

The viviparous lizard is variable in colouration. Typically they have a brown, grey or greenish background colour with a pattern of darker spots and stripes. Males have a bright orange belly that is flecked with black spots. Females have a plain yellowish belly. Adult lizards grow to around 12 cm long. The long slender tail can be shed by the lizard so as to confuse predators. Young lizards are entirely black or brown in colouration and at birth average around 4 cm.

Legal Protection

Viviparous lizards are protected against killing, injuring and sale.

Life History

Viviparous lizards live in open, sunny habitats such as hedgerows, heathland, downland, moorland and areas of rank grassland. They have a widespread distribution across Britain, but have declined in recent years. In their preferred habitats, lizards can be found basking in open and exposed locations, such as logs, walls and similar structures. Lizards feed on invertebrates such as spiders and beetles. Mating occurs in April and May with 4 - 10 young born live from July through to early September. Lizards generally hibernate from November through to March.

App. II Viviparous Lizard Habitat
(Zootoca vivipara)

Description, life history and critical factors required by viviparous lizard (after Foster, 1996).

Main plate illustrates typical lizard habitat comprising grassland with scattered scrub. Insets detail features utilised by lizards for basking and shelter. These include fence posts, tree stumps and fly-tipped refugia in an urban ‘brown-field’ site.

drawing no:	2526/25/5/1/App II
project:	Land at Thames Way
title:	Viviparous Lizard Habitat
scale: N.T.S.	date: Feb 2026



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Dunkirk,
Kent ME13 9NY
info@calumma.co.uk
www.calumma.co.uk



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For more details please contact:
Dr. Lee Brady, *Calumma Ecological Services*,

info@calumma.co.uk

www.calumma.co.uk