



LIZARD

Landscape Design and Ecology

Landscape and Ecological Management Plan

The Grange, Westergate Street, Westergate

Planning Issue

Prepared by	LB
Checked by	CO
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Contents

	Page No.
1.0 Introduction	01
2.0 Site Context	01
3.0 Baseline Ecological Conditions	02
4.0 Aims and Objectives	03
5.0 Management Prescriptions	07
6.0 Implementation Schedule	12



1.0 INTRODUCTION

- 1.1 Lizard Landscape Design and Ecology has been commissioned to provide a Landscape and Ecological Management Plan (LEMP) for the proposed development of The Grange, Westergate Street, Westergate, West Sussex.
- 1.2 This LEMP has been prepared based upon the following information:
- *Landscape Plan (Smith Simmons and Partners, 1251 - Figure 3, May 2022).*
 - *Preliminary Ecological Appraisal (Lizard Landscape Design-LLD2126, September 2020).*
 - *Reptile Survey Report (Lizard Landscape Design-LLD2126, May 2021).*
- 1.3 This report is based on data from these previous protected species surveys and reports. This report has been undertaken and prepared by Louise Barker (*Project Ecologist, Lizard Landscape Design & Ecology*).

2.0 SITE CONTEXT

Site Description

- 2.1 The site covers an area of c. 0.2ha and consists of an irregular shaped plot. An access track at the south of site connects the site to Lidsey Road to the west. The site contains areas of hardstanding used for car parking and access, as well as buildings associated with the current occupant, used for vehicle maintenance and storage. The north of the site is bounded by a dry ditch and a narrow strip of woodland, directly south lies an area of ephemeral / short perennial vegetation, towards the east of this area tall ruderals proliferate. To the north of sites lies an unmanaged field where rank grasses, scrub and ruderal vegetation proliferate. To the east and west of site lies existing properties with associated gardens. The site lies within a Tree Preservation Order area, TPO Reference: TPO/AL/2/16. No other Landscape or Ecological designations for this site exist, and the site is not in a Conservation Area.

Surrounding Landscape

- 2.2 The site is located on the eastern edge of Woodgate. The surrounding landscape is comprised of the built mass of Woodgate which lies to the west and south, whereas agricultural fields and associated hedgerows lie to the east and north. A tributary of the River Arun lies c. 320m to the east. A railway line extends east-west c. 10m south of the site. Barnham train station lies c. 1.8km to the east.

Development Proposals

- 2.3 The development proposals include the demolition of the existing structures on the site, followed by the construction of 2no. new residential dwellings with associated garage and soft landscaping scheme.

3.0 BASELINE ECOLOGICAL CONDITIONS

- 3.1 The site is mostly comprised of existing buildings and areas of hardstanding of negligible ecological value. Towards the north of site areas of ephemeral / short perennial vegetation are present, alongside tall ruderal vegetation and a narrow woodland strip which bounds the north of site. Existing properties bound the site to the east and west, and a rough grassland field lies to the north.
- 3.2 The site covers an area of c. 0.2ha and consists of an irregular shaped plot. An access track at the south of site connects the site to Lidsey Road to the west. The site contains areas of hardstanding used for car parking and access, as well as buildings associated with the current occupant, used for vehicle maintenance and storage.
- 3.3 The north of the site is bounded by a dry ditch and a narrow strip of woodland, directly south lies an area of ephemeral / short perennial vegetation, towards the east of this area tall ruderals proliferate. To the north of sites lies an unmanaged field where rank grasses, scrub and ruderal vegetation proliferate.
- 3.4 To the east and west of site lies existing properties with associated gardens. The site lies within a Tree Preservation Order area, TPO Reference: TPO/AL/2/16. No other Landscape or Ecological designations for this site exist, and the site is not in a Conservation Area.

THE GRANGE, WESTERGATE STREET, WESTERGATE
LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN
LLD2594-ECO-REP-001-00-LEMP

4.0 AIMS AND OBJECTIVES

4.1 The aim of the LEMP has been to;

- *To maximise biodiversity on site;*
- *To enable discharge of Condition 15 of planning permission in relation to this site.*

4.2 Condition 15 states:

‘Prior to the commencement of construction works a Landscape and Ecological Management Plan (LEMP) shall be submitted to the LPA for approval in writing and will be based on the recommendations within the submitted Preliminary Ecological Appraisal and the further Reptile Survey and Mitigation Strategy. All the approved details shall then be implemented in full and in accordance with the agreed timings and details. The LEMP shall include but not be restricted to:

- *provision of bat boxes and bird nesting boxes.*
- *provision of log piles and insect boxes.*
- *provision of a reptile hibernacula in the north-eastern corner of the site.*
- *use of flowering plants to attract invertebrates.*
- *the creation of a pond for wildlife.’*

4.3 Objectives of the Proposals

- 4.3.1 The main aims and objectives of the proposed landscape scheme are detailed below:

Amenity Lawn with Flower Lawn Mix on borders

- 4.3.2 The aim is to establish permanent areas of low maintenance grassland which provide family amenity space. The majority of the sward shall be of even grade, uniformly coloured and contain a maximum of 10% herb species and no scrub. With borders consisting of Emorsgate Flowering Lawn Mixture EL1, this mix contains slow growing grasses with a selection of wildflowers that respond well to regular short mowing and will also encourage invertebrates. Emorsgate Flowering Lawn Mixture EL1 Seed mix includes:

- *Betonica officinalis* Betony
- *Centaurea nigra* Common Knapweed
- *Galium verum* Lady's Bedstraw
- *Leontodon hispidus* Rough Hawkbit
- *Lotus corniculatus* Birdsfoot Trefoil
- *Plantago lanceolata* Ribwort Plantain
- *Primula veris* Cowslip
- *Ranunculus acris* Meadow Buttercup
- *Silene acaulis* Pepper Saxifrage
- *Vicia cracca* Tufted Vetch.

- 4.3.3 Maintenance of amenity grass areas should take into account bulb establishment and maintenance. Grass cutting should avoid bulb foliage until it has died back.

Ornamental Hedgerow

- 4.3.4 Hedgerow are to be trimmed and shaped to a constant height and width appropriate for future growth, and which maximise foraging and breeding resources for birds, bats and invertebrates. Species as described in the Landscape Plan (*Smiths & Simmons, 2022*) include:

- *Genista hispanica*.
- *Hebe x franciscana* blue gem.

- *Hebe speciosa*.
- *Lavandula angustifolia* Hidcote.
- *Viburnum tinus*.

Native Trees

- 4.3.5 The aim is to establish individual trees appropriate to their location. Individual feature trees should be maintained to ensure regular form and formal appearance and to enhance key features such as leaf colour, flowers or fruits. Varieties include in the Landscape Plan (*Smiths & Simmons, 2022*):

- 2no. *Crataegus* sp.
- 2no. *Sorbus aucuparia*.
- 2no. *Betula Pendula*.

- 4.3.6 Individual trees should be monitored to ensure growth does not impede adjacent trees whilst encouraging canopies to thicken and help provide screening, shelter and habitat for the foraging and breeding of birds, bats and invertebrates.

Log Piles

- 4.3.7 Log piles will provide a source of decaying material to provide an important foraging and breeding resource for invertebrates such as stag beetles. These areas will also provide hibernation opportunities for reptiles and amphibians.

Compost Piles

- 4.3.8 Decaying material on site will provide good breeding opportunity for reptiles such as grass snake and slow worm.

Reptile Hibernacula

- 4.3.9 An area of the site will be retained for the benefit of reptiles, located towards the north east corner of the site as this area can be left undisturbed and fenced off using post and rail fencing to discourage disturbance and anthropic intrusion into this area, and any new occupants should be made aware of the presence of this area and the need to leave it in situ.

Wildlife Pond

- 4.3.10 The water body will provide opportunity for wildlife. The pond layout is of differing depths, allowing maximum assortment in planting including a filtration area, marginal shelf and deep-water aquatics comprised predominantly of native species.

Bat Boxes

- 4.3.11 1no. Improved Crevice Bat Box or, 1no. Improved Cavity Bat Box (www.wildcare.co.uk) will be installed to a mature tree to the northeast corner of the site. Boxes will be situated facing south / south-west, positioned 3.0-5.0m above ground and out of reach of cats. These areas will provide additional roosting opportunity for bat species and will be kept well-maintained and securely affixed.

Bird Boxes

- 4.3.12 The provision of nesting boxes with a 32mm hole will attract a large range of species including blue tits, coal tits, marsh tits, house sparrows, great tits, nuthatches and pied flycatchers. To be placed in suitable locations. Follow positioning guidance provided by the supplier, below are some examples which could be used:
- CJ Wildlife, Vivara Pro Barcelona WoodStone Open Nest box.
 - Schwegler 1B Nest box with Predator-Proof Front Panel.
 - Eco Small Bird Box with 32mm hole, nhbs.com.

Bug Boxes

- 4.3.13 National Trust Hexagon Insect House or another model with similar specification. For best results place in a sunny, sheltered location near vegetation, preferably no higher than 2.0m.

Hedgehog Highway

- 4.3.14 A square gap of 13cmx13cm from the base of fence to allow movement for hedgehogs across the site.

5.0 MANAGEMENT PRESCRIPTIONS

- 5.1 In order to ensure the long-term viability of the ecological mitigation and enhancement measures outlined above, detailed prescriptions for initial maintenance requirements and long-term management are provided within this section.

5.2 Amenity Lawn

Sowing

- 5.2.1 Areas of bare earth are to be sown with a suitable grass mix or laid with appropriate turf.

Cutting

- 5.2.2 All debris, litter and large stones over 25mm diameter to be removed prior to cutting. Grass shall be cut during the growing season (generally April-October) using a suitable mower to a height of 25mm-50mm. Grass will be cut at intervals of not more than 10-14 days depending on growing conditions. Arisings shall be collected and removed from the area.

Weed Removal

- 5.2.3 The sward shall be maintained weed free by an annual application of a suitable herbicide.

Strimming

- 5.2.4 Grassed edges to planted areas to be trimmed to maintain a clear smooth edge to planted beds; trim edges elsewhere but not against trees; spike annually in October.

Rectification of Defects

- 5.2.5 Should bare patches of grass develop, area is to be cultivated to 150mm and then seeded with amenity grass seed. To be cross-sown in two directions at right angles to each other, (half the seed being used in each direction) at the rate of 35 gm per square meter and the ground lightly raked over on a still dry day when the top 25mm of soil is dry.

5.3 Native Trees, Shrubs and Hedges

Planting

- 5.3.1 Planting pits shall be excavated to a depth and size that contains the plant's root system and allows the collar of the plant (*the mark on the tree where it has been growing above ground*) to be level with the top of the soil. The soil shall be carefully backfilled in layers, ensuring the plant is held upright.

Watering

- 5.3.2 All plants shall be watered as may be required to maintain healthy growth following planting, during the maintenance period and subsequently in cases of extreme drought (Trees – 5Ltr's per tree, Shrubs 1Ltr each, Grass 5Ltr's/m2). Watering to commence following 10 consecutive days of no rainfall, during the months of June to August.

Pruning / Trimming – Ongoing

- 5.3.3 Pruning and trimming of trees, shrubs and hedgerows should be carried out outside of the bird breeding season (*nesting season: March – August inclusive*). Trees and shrubs should be checked bi-annually for shape, form and size, and pruned accordingly whilst they are still in leaf. Hedges should be cut in alternate years if possible, to allow species such as guelder rose and hawthorn to flower and fruit on the previous year's growth. Pruning of hedgerows should be carried out in such a way to achieve a dense hedgerow.

Weeding

- 5.3.4 Areas around the new plants should be kept clear of weeds to allow the plants to establish by weeding twice a year in the Spring and Autumn. Any litter or debris should be removed as soon as it is found.

5.4 Bird and Bat Boxes

Specification – Bird Box

- 5.4.1 2no. Bird nesting boxes (with 32mm entrance) can be freely suspended from tree branches and therefore are less susceptible to predators such as cats. These boxes are suitable for a variety of bird species.

Specification – Bat Box

- 5.4.2 An Improved crevice bat box shall be installed to the mature tree located in the north-east corner of the site. Follow manufacturers installation instructions.

Siting – Bird Boxes

- 5.4.3 Bird boxes should be installed at a minimum height of 2.5m on either the north, east or western aspects of mature tree or fence line with vegetation cover close by.

Siting – Bat Boxes

- 5.4.4 Bat boxes should be installed at a height of between 3.0 – 6.0m. They should be installed with a south or south-eastern aspect to ensure maximum solar gain. The boxes should be situated on an area of the tree which allows clear flight lines in / out of the boxes.

Maintenance – Long Term

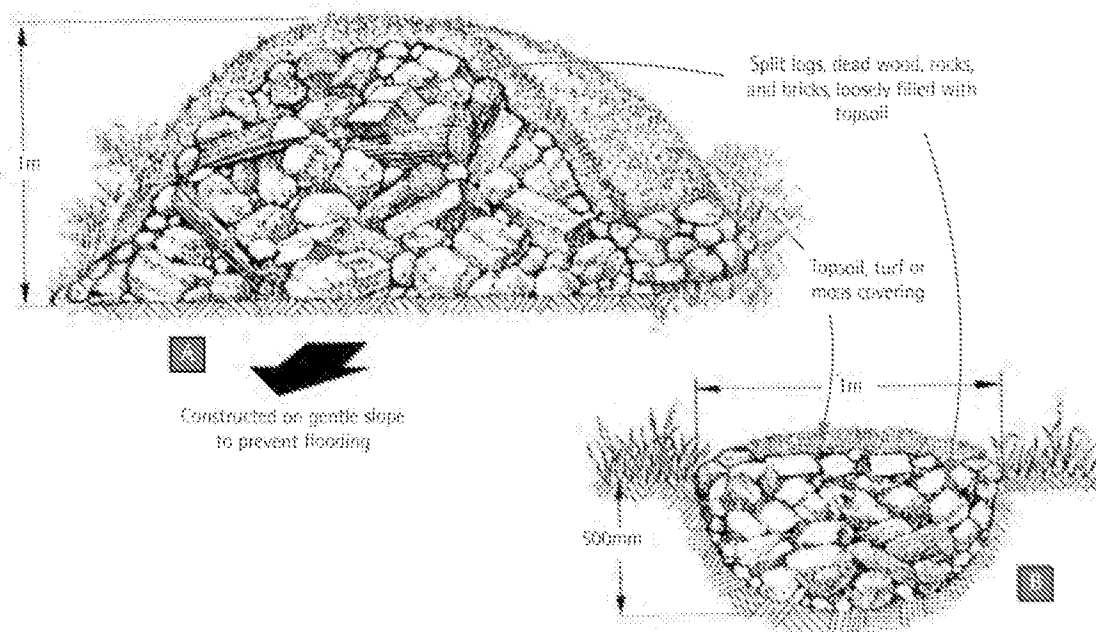
- 5.4.5 The bat and bird boxes specified above do not require any cleaning. A visual inspection should be carried out annually to ensure the boxes are secure. If required, bird boxes can be cleared of old nesting material at the end of the nesting season (*September – October*) and any parasites removed using boiling water; the use of any detergents etc should be avoided.

5.5 Compost Heaps and Log Piles*Creation and Maintenance*

- 5.5.1 A log pile can be of any size and constructed from piling logs up horizontally. Log piles can be created using any type of wood, although it would be advantageous to utilise any pruning matter on an ongoing basis. Compost heaps can also be of any size and constructed from organic matter including grass cuttings. Once established, these can be maintained using cuttings from grassland areas.

5.6 Reptile Hibernacula

- 5.6.1 The area will consist of retained ephemeral, ruderal and scrub vegetation. A small hibernaculum will be provided to act as mitigation for the loss of reptile habitat, and potentially increase the carrying capacity of the site. This will entail a small dug hole, backfilled with rocks and logs, protruding slightly above ground level and covered with a layer of topsoil. This could be completed at the same time as topsoil removal, utilising the cleared materials. A 1m² surface area hole will be excavated to a depth of 0.5m and lined with sand and gravel to improve drainage. Then hole will be loosely back filled with stone, rock and logs and branches, with brash over the top of the pile. Finally, soil and turf will be replaced over the top of the pile to form an insulating layer. An illustration taken from the *Great Crested Newt Conservation Handbook* (Langton *et al*, 2001) is provided below for reference:



5.7 Pond

Creation of Pond

- 5.7.1 The pond should have gently sloping sides with varying depths present from shallow to over 1.0 m. An overflow system should be installed to divert any excess water into the surrounding ditches.

Planting

- 5.7.2 Once the pond has filled with water, planting will be undertaken as specified by individually chosen planting specifications.

Long Term Ongoing Maintenance

- 5.7.3 Any maintenance work should be carried out during the autumn and winter to avoid disrupting the pond. Any vegetation that is growing too abundantly can be pulled out and divided when needed to maintain open water areas. Any vegetation that is removed should be banked for a few days to allow any trapped wildlife to return to the pond. A certain amount of dead organic matter is useful within a pond; however, it will lead to silting which will require removal approximately every five years. Any overhanging trees / shrubs should be pruned as necessary to prevent excessive overshadowing of the waterbodies.

Fish / Wild Fowl

- 5.7.4 The ponds are not to be stocked with fish or fowl; these species are detrimental to the success of amphibian breeding.

5.8 Hedgehog Tunnels*Proposal*

- 5.8.1 It is recommended that Hedgehog tunnels are used to maintain connectivity through any new secure fencing proposed in the scheme.

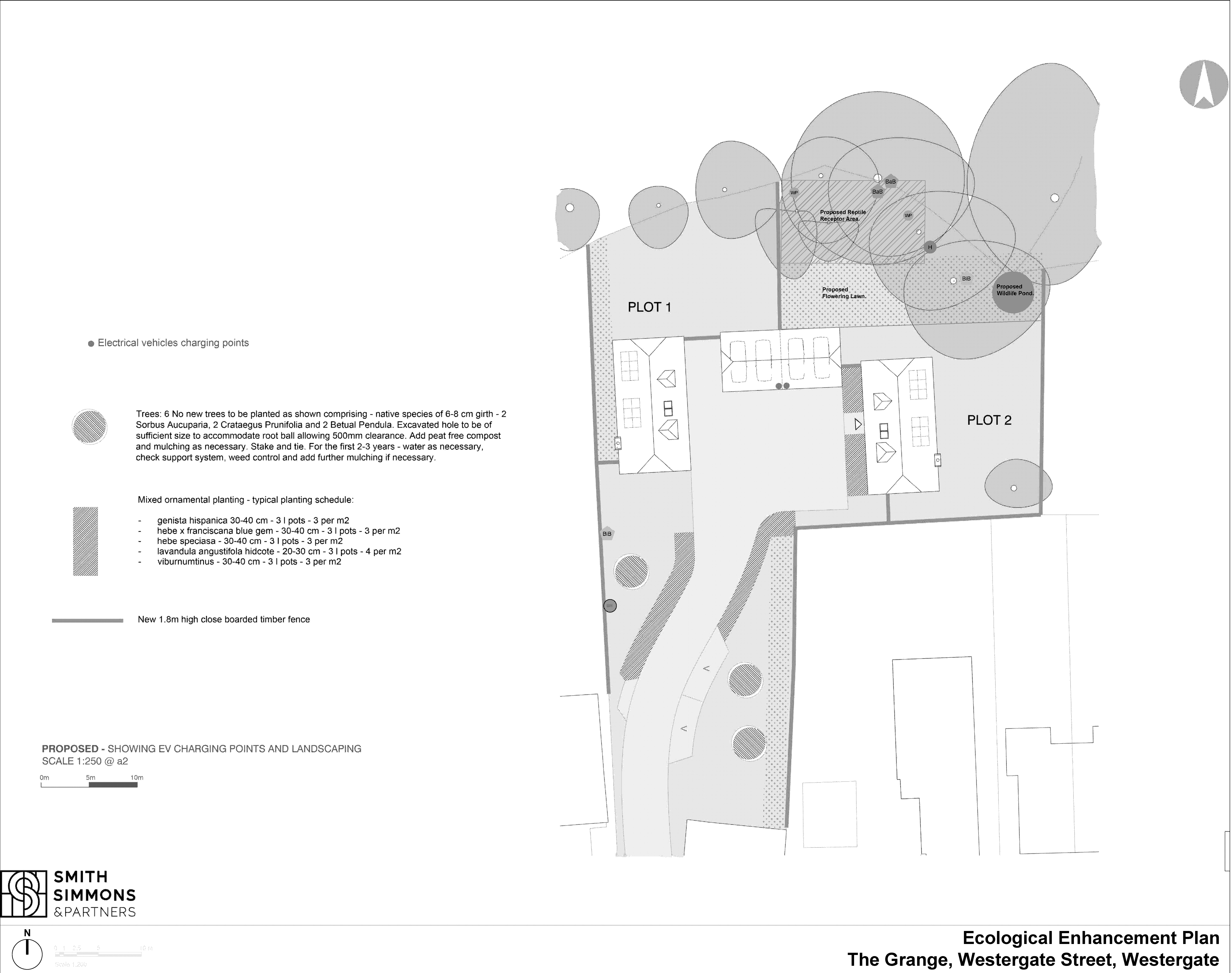
Creation and Maintenance

- 5.8.2 Holes are to be cut at the base of fences to provide connectivity throughout the site. These should be 13 x 13 cm and can be marked using a 'Hedgehog Highway' sign (*available from www.hedgehog street.org*) to ensure residents are aware of them. These hedgehog tunnels should be kept open and free from vegetation. Alternatively, ready-made hedgehog-friendly gravel boards are available from numerous suppliers.

6.0 IMPLEMENTATION SCHEDULE

Table No. 01 – Maintenance Summary

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
AMENITY GRASS												
Mowing				X	X	X	X	X	X	X		
Strimming												
Weed Control					X					X		
Top Dressing				X								
Spiking										X		
ORNAMENTAL SHRUBS												
Watering (as required)				X	X	X	X	X	X	X		
Top Dressing					X							
Replace Losses											X	
Mulching										X		
Pruning			X							X		
NATIVE TREES, SHRUBS & HEDGING												
Watering (as required)				X	X	X	X	X	X	X		
Pruning			X									
Check Ties / Stakes (1st yr.)				X						X		
Replace Losses											X	
Maintain 500mm dia. clear base				X		X		X				
Weeding					X				X			
BIRD AND BAT BOXES												
Cleaning (bird boxes)									X			
Check condition											X	
LOG PILES												
Check Integrity			X							X		
Re-stock if needed			X							X		
COMPOST												
Check Integrity			X							X		



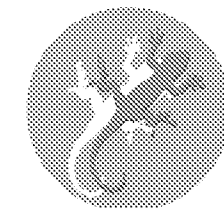
Legend

- Proposed - Reptile Receptor Area.**
- Proposed - Hibernaculum**
Made from various grade of wood material and rubble, covered with topsoil and seeded.
- Proposed - Log Pile**
Made from thick branch sections and logs driven vertically to the ground.
- Proposed - Bird Box**
Products: Vivara Pro Barcelona WoodStone Open Nest box. Or similar specification if unavailable.
- Proposed - Bat Box**
Products: Improved Cavity / Improved Crevise Bat Box. www.wildcare.co.uk or similar specification if unavailable.
- Proposed - Bug Hotel**
Products: National Trust Hexagon Insect House or similar specification.
- Proposed - Flowering Lawn mix**
Products: Emorsgate Mixture EL1 contains slow growing grasses with a selection of wild flowers that respond well to regular short mowing.
- Proposed - Wildlife Pond.**

- Notes:
- Drawing to be read in colour.
 - For further details refer to:
LLD2126-ECCO-REP-002 - Reptile Survey and Mitigation Strategy Report.

Planning Issue

Rev	Description	Date	Initials
00	Planning Issue	23.05.22	CO

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Client HD Developments <i>Project Title and Location</i> The Grange Westergate Street, Westergate			
Drawing Title Ecological Enhancement Plan Figure No. 01			
Scale 1:200@A1	Drawn LB	Approved CO	Date 23.05.21
Drawing No LLD2126-ECO-FIG-002			Revision 00