

**NORTH LITTLEHAMPTON (PHASE 4), TODDINGTON
LANE, WEST SUSSEX**

**ECOLOGICAL MITIGATION AND MANAGEMENT
PLAN**

Final Document (Revision 1)

June 2021

Preliminary Ecological Appraisals • Protected Species Surveys and Licensing • NVC • EclA • HRA • Management Plans
Habitats • Badger • Bats • Hazel Dormouse • Birds • Reptiles • Amphibians • Invertebrates • Riparian and Aquatic Species

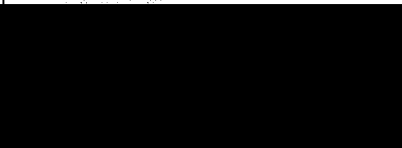
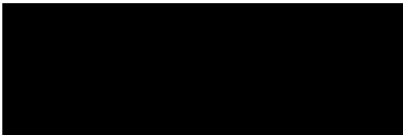
ECOSA, Ten Hogs House, Manor Farm Offices, Flexford Road, North Baddesley, Hampshire, SO52 9DF
[REDACTED]

Registered Office: 3-4 Eastwood Court, Romsey, Hampshire, SO51 8JJ Registered in England No: 6129868
Ecological Survey & Assessment Limited is a Trinity Consultants Company



ECOSA Quality Assurance Record

This report has been produced in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Report Writing 2018¹.

Description:	Ecological Mitigation and Management Plan
Produced For:	Persimmon Homes Limited
Issue:	Final (Rev.1)
Report Reference:	5185.F1
Date of Issue:	10 th June 2021
Author:	 Jo Richmond BSc (Hons) ACIEEM Ecologist
Checked by:	 Simon Boswell MSc CEcol MCIEEM Principal Ecologist
Reviewed by:	 Richard Chilcott MSc MCIEEM Principal Ecologist

DISCLAIMER

This is a technical report which does not represent legal advice. You may wish to seek legal advice if this is required.

COPYRIGHT

© This report is the copyright of ECOSA Ltd. Any unauthorised reproduction or usage by any person is prohibited.

¹ Chartered Institute of Ecology and Environmental Management (2018). *Guidelines for Ecological Report Writing*. Technical Guidance Series. <http://www.cieem.net/publications/23/ecological-report-writing>

**NORTH LITTLEHAMPTON (PHASE 4), TODDINGTON
LANE, WEST SUSSEX**

ECOLOGICAL MITIGATION AND MANAGEMENT PLAN

Table of Contents

1.0	INTRODUCTION	1
1.1	Background.....	1
1.2	The Site	2
1.3	Aims and Scope of Report.....	2
1.4	Site Proposals.....	3
2.0	MITIGATION AND MANAGEMENT PLAN OBJECTIVES	4
2.1	Introduction	4
2.2	Overview of Mitigation and Management Plan Objectives	4
2.3	Structure of the Mitigation and Management Plan	4
3.0	GENERAL MANAGEMENT PRESCRIPTIONS	5
3.1	Introduction	5
3.2	Review	5
3.3	Responsibilities.....	5
3.4	Contractors	5
4.0	SPECIES-SPECIFIC MITIGATION AND MANAGEMENT	6
4.1	Introduction	6
4.2	Bats.....	6
4.3	Birds.....	7
5.0	HABITAT-SPECIFIC MANAGEMENT	8
5.1	Introduction	8
5.2	Native Trees and Hedgerow	8
5.2.1	<i>Objectives for Native Trees and Shrubs.....</i>	<i>8</i>
5.2.2	<i>Mitigation and Enhancement</i>	<i>8</i>
5.2.3	<i>Management Prescriptions.....</i>	<i>8</i>
5.3	Grassland	9
5.3.1	<i>Objectives for Grassland</i>	<i>9</i>
5.3.2	<i>Mitigation and Enhancement</i>	<i>9</i>
5.3.3	<i>Management Prescriptions.....</i>	<i>9</i>
6.0	MONITORING AND REVIEW	10
7.0	TIMETABLE OF MANAGEMENT AND MONITORING WORKS	11
Map 1	Site Location Plan	
Map 2	Indicative Locations of Enhancement Measures	
Appendix 1	Landscaping Plan	
Appendix 2	Buildings Assessed for Bat Roost Potential (WYG)	
Appendix 3	Relevant Legislation	

1.0 INTRODUCTION

1.1 Background

Ecological Survey & Assessment Limited (ECOSA) have been appointed by Persimmon Homes Limited to prepare an Ecological Mitigation and Management Plan for North Littlehampton (Phase 4), Toddington Lane, West Sussex.

Phase 4 is located within the wider North Littlehampton development which comprises the construction of up to 1,260 dwellings, associated facilities, employment areas and open space (Arun District Council planning reference LU/47/11).

Within this document where reference is made to 'the site' this refers to Phase 4 and reference to the 'wider site' relates to the wider North Littlehampton development. The location of the site in relation to the wider site is shown in **Map 1**.

This Ecological Mitigation and Management Plan has been written to support a Reserved Matters application to Arun District Council for the site. Under planning reference LU/47/11 there are three conditions relating to ecology (**Table 1**).

Table 1: Ecological conditions

Condition	Details
17	Prior to the submission of any reserved matters applications, a scheme shall be submitted for the creation of the proposed central wetland area and the restoration of habitat onsite. The scheme shall be submitted to and approved in writing by the Local Planning Authority. Thereafter the development shall be constructed as set out in the approved scheme and any subsequent amendments shall be agreed in writing with the Local Planning Authority.
19	Development shall not begin until further ecological surveys have been carried out and submitted to the Local Planning Authority. These surveys shall relate to water voles, bats, birds, invertebrates and reptiles.
20	Prior to the commencement of development on any phases of development east of the new road than spans the railway line (running north – south), details of appropriate mitigation, and a programme of implementation, in relation to water voles, bats, birds, invertebrates and reptiles shall be submitted to an approved in writing by the LPA.
21	No development within any phase or sub phase shall commence until details of an ecological management plan for the construction phase of that element of the development has been submitted to and approved in writing by the Local Planning Authority. The management plan shall be implemented in accordance with the approved plans.

The Ecological Mitigation and Management Plan is based on the results of ecological surveys and assessments carried out by ECOSA and White Young and Green (WYG) between 2008 and 2018 (**Table 2**). Further details of the species surveys and results are provided in Section 4.0.

Table 2: Summary of ecological surveys

Species Group/Species	2008	2009	2014	2017	2018
Ecological scoping Phase One habitat survey ²	✓	-	-	-	-
Ecological constraints appraisal ³	-	-	✓	-	-
Updating walkover survey ⁴	-	-	-	✓	-
Bat transect surveys		✓	✓	✓	
Reptile survey ⁵	-	✓	✓	-	-
Water vole survey ⁶	-	-	✓	✓	✓
Breeding Bird Survey ⁷	✓	-	✓	-	-

The results of the surveys have been used to provide mitigation and enhancement proposals within the central wetland. Surveys for birds, have not been updated since 2014 as the site provides limited habitat for this species group.

1.2 The Site

The site is located in Littlehampton, West Sussex, centred on National Grid Reference (NGR) TQ 0365 0399 (**Map 1**).

The site is located in the centre of the wider development site and covers an area of 1.4 hectares. Prior to demolition and clearance works taking place on site between 2016 and early 2017 the site contained greenhouses, scrub, hardstanding and a number of overgrown ditches. During 2017 the site was cleared of all existing buildings and grassland habitats.

The wider landscape comprises the agricultural land associated with the floodplain of the Black Ditch (a river) to the north, residential dwellings to the west and south, and an industrial estate to the south-east of the site. The main south coast railway line and its associated bankside vegetation is located close to the site's southern boundary. Littlehampton town centre is located approximately 1.3 kilometres south.

1.3 Aims and Scope of Report

The aim of this document is to outline the proposed ecological mitigation and management required at the site. The mitigation and management plan sets out the mitigation and management prescriptions for the site in order to retain the long-term

² White Young and Green (2009) Proposed Lyminster Bypass (South) North Littlehampton - Ecological Scoping / Phase 1 Habitat Survey. White Young and Green, Droxford, Hampshire

³ White Young and Green (2014) Toddington Lane, North Littlehampton - Ecological Constraints Appraisal. White Young and Green, Droxford, Hampshire

⁴ An ecological walkover survey was undertaken by ECOSA on 13th January 2017

⁵ White Young and Green (2014) Proposed Lyminster Bypass (South) North Littlehampton - Reptile Presence / Absence Survey Report. White Young and Green, Droxford, Hampshire

⁶ White Young and Green (2014) Toddington Lane, North Littlehampton - Water Vole Presence / Likely Absence Survey Report. White Young and Green, Droxford, Hampshire

⁷ White Young and Green (2014) Toddington Lane, North Littlehampton – Breeding Bird Report. White Young and Green, Droxford, Hampshire

ecological value. This plan covers a period of 10 years following the commencement of the development.

1.4 Site Proposals

The proposals for the site are for the construction of 45 new residential units with associated landscaping and car parking. Site access will come from existing Persimmon sites to the west, with the central access linked to the proposed road to run through the Central Wetlands Area.

The report is based on the North Littlehampton: Phase 4 Landscape Layout by WYG (Drawing no. LA400-403 [Q]), dated 11th May 2021, with Proposed Planting specifications in Drawing Numbers LA400 - LA403 (**Appendix 1**).

2.0 MITIGATION AND MANAGEMENT PLAN OBJECTIVES

2.1 Introduction

This section provides an overview of the objectives of the Ecological Mitigation and Management Plan for the site. Specific objectives for each individual habitat type are detailed within the management prescriptions.

2.2 Overview of Mitigation and Management Plan Objectives

The overarching objective of the Ecological Mitigation and Management Plan is to enhance the long-term ecological value of the site. These will be achieved through the following measures:

- Creation of new, native species-rich and wildlife friendly habitats to enhance biodiversity at the site; and
- Establishment of long-term management prescriptions for new and retained habitats to ensure the habitat diversity and suitability for wildlife is maintained.

2.3 Structure of the Mitigation and Management Plan

The general overarching management prescriptions for the site are provided within Section 3.0, with species specific management and mitigation measures detailed in Section 4.0.

The main habitat types which are the focus of this management plan are grassland and native trees and scrub. Management prescriptions for each of these habitat types are detailed individually within Section 0.

3.0 GENERAL MANAGEMENT PRESCRIPTIONS

3.1 Introduction

This section provides an overview of the general management prescriptions for the site.

3.2 Review

As part of on-going monitoring and review process, the management plan will be periodically reviewed in order to ensure that the objectives are being met. Details of this review process are provided within Section 6.0.

3.3 Responsibilities

The implementation of the management plan will be the responsibility of the landowner, who will likely transfer the ownership of the land to a third party following the completion of the development. This third party will be responsible for implementing the management plan. For the purposes of this management plan the “management site” is the area of the site which will be retained by the third party and outside of residential ownership.

3.4 Contractors

The proposed management works will be undertaken by specialist contractors with suitable experience in the management measures proposed. Monitoring and review will be undertaken in conjunction with suitably qualified ecologists with other specialists, employed/consulted as necessary.

4.0 SPECIES-SPECIFIC MITIGATION AND MANAGEMENT

4.1 Introduction

This section provides an overview of the species-specific mitigation measures and management prescriptions for the site.

4.2 Bats

Pre-demolition the site contained large greenhouses and a smaller warehouse building. All buildings were assessed to have negligible bat roosting potential by WYG Ecology^{Error! Bookmark not defined.} and were consequently demolished in summer 2016 (**Appendix 2**). In addition, trees on site were surveyed by ECOSA in January 2017^{Error! Bookmark not defined.} for potential bat roosting features such as cracks, splits or holes, but none were identified as containing bat roosting features.

Prior to clearance works, the site provided limited bat foraging and commuting opportunities in the form of hedgerows, scattered trees and scrub. Bat transect surveys undertaken by WYG Ecology^{Error! Bookmark not defined.} had recorded a small range of common and widespread species across the wider site. Bat transect surveys undertaken in 2017 by ECOSA to the east of the wider site, and adjacent to Phase 4, recorded the presence of common and widespread species including common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, long-eared *Plecotus*⁸ bat species, and noctule *Nyctalus noctula*.

The new lighting scheme has been sensitively designed to take into account foraging and commuting bats which may be using the boundary hedgerows. Lighting will comprise hooded luminaires directed away from vegetation, particularly the boundary trees and hedgerows. Ideally the bulbs will be LED and at the warmer end of the spectrum (e.g. avoiding blue or white light). LED lights emit much lower levels of UV and therefore have a lower impact on wildlife⁹. The new lighting will be task related, associated with specific entrance/exit points of the development. The lux level will be as low as possible to allow the task to be carried out safely and effectively. Guidance on task related lighting levels and mitigation options as described within the Bats and Artificial Lighting in the UK report will be followed (Institution of Lighting Professionals, Bat Conservation Trust, 2018).

Additional enhancement features for roosting bats will be provided through the provision of four Schwegler 1FR bat tubes, or similar, incorporated into the design of

⁸ There are two species of long-eared bat, the brown long-eared bat *Plecotus auritus* and the grey long-eared bat *Plecotus austriacus*. These species can only be separated by examination of physical characteristics and Phylogenetic Analysis Identification of bat droppings. Unless confirmation of identification has been made by visual identification the two species shall be referred to in this report as long-eared bat. The brown long-eared bat is the commonest of the two species typically being found roosting within large roof voids although small voids and trees are also utilised. The grey long-eared bat is rare and confined to southern England and like the brown long-eared typically roosts in roof voids.

⁹ *Wildlife and Artificial Lighting Seminar*, 21st – 22nd March 2014, Arup London, Bat Conservation Trust.

the newly constructed buildings on site. Four Schwegler 1FR bat tubes will be integrated onto newly constructed buildings on site. Indicative locations of these bat tubes are shown on **Map 2**.

In England, bats and their habitat are fully protected under the Wildlife and Countryside Act 1981 through inclusion in Schedule 5. In addition, all bat species are protected under the Conservation of Habitats and Species Regulations 2017. Refer to **Appendix 3** for details.

4.3 Birds

During the Phase 1 Habitat survey undertaken by WYG during 2008, the site was considered to provide suitable habitat for nesting birds particularly within boundary hedgerows and treelines. Breeding bird surveys were carried out by WYG Ecology in 2008^{Error! Bookmark not defined.} covering the floodplain grazing land to the north of the wider development site. Updating surveys carried out by WYG Ecology in 2014^{Error! Bookmark not defined.} covered the whole site, these surveys recorded eight red listed and seven amber listed Birds of Conservation Concern¹⁰.

Where possible, vegetation removal will be undertaken outside of the main bird nesting season which extends from March to August, inclusive. If this is not possible then the vegetation to be removed should be inspected by a suitably qualified ecologist immediately prior to works commencing. Active nests will be left with an undisturbed 5-10 metre buffer until nesting ends naturally. If nests are identified, then there is the potential for the programme of the works to be affected.

The inclusion of new native tree, shrub and hedgerow planting (**Paragraph 5.2**) will enhance the site for breeding birds. As an additional enhancement measure, four bird boxes will be erected within newly constructed buildings on site, comprising two Schwegler 1SP house sparrow *Passer domesticus* nest boxes, or boxes of similar design and two integral swift boxes. The location of these boxes are shown on **Map 2**.

All birds, their nests, eggs and young are legally protected, with certain exceptions, under the Wildlife and Countryside Act 1981 (as amended). Refer to **Appendix 3** for details.

¹⁰ The UK's birds are split in to three categories of conservation importance - red, amber and green. Red is the highest conservation priority, with species needing urgent action. Red List criteria include species which are: globally threatened; have been subject to historical population decline in UK during 1800–1995; are in severe (at least 50%) decline in UK breeding population over last 25 years, or longer-term period, or; subject to severe (at least 50%) contraction of UK breeding range over last 25 years, or longer-term period.

5.0 HABITAT-SPECIFIC MANAGEMENT

5.1 Introduction

This section provides an overview of the habitat-specific management objectives and prescriptions for the site.

5.2 Native Trees and Hedgerow

Native trees and hedgerows are present around the boundaries of the site, some of which are to be retained. Native tree and shrub planting is also to be undertaken across the site.

5.2.1 Objectives for Native Trees and Shrubs

The specific objectives for native trees and hedgerow habitats are to:

- Establish and maintain new tree/shrub planting and hedgerow.

5.2.2 Mitigation and Enhancement

A number of trees will be included within the development, these will comprise native species. Following previous comments from the Local Planning Authority it is recommended that a proportion of these specimens comprise whitebeam *Sorbus aria* as this is a characteristic native species associated with the area. Native species hedgerows will be planted along the eastern site boundary at irregular intervals (see Error! Reference source not found.). Species will consist of:

- Field maple *Acer campestre*;
- Hawthorn *Crataegus monogyna*;
- Holly *Ilex aquifolium*;
- Rowan *Sorbus aucuparia*; and
- Small-leaved lime *Tilia cordata*.

5.2.3 Management Prescriptions

All landscape is to be maintained in accordance with BS 7370 Part 3:1991 and Part 4:1993, including weed control. Management works should be undertaken over winter (October to February) in order to avoid the nesting bird period.

Any plants dying within the first year will be replaced with matching species. Light, regular, trimming of the trees and shrubs in the first five years will encourage dense, bushy growth and is recommended. After five years, cutting will occur on a biennial basis (every two years) to provide a bushy habitat with suitability for a range of species including common breeding birds.

5.3 Grassland

Beside residential gardens, grassland planting will occur predominantly along the eastern boundary of the site.

5.3.1 Objectives for Grassland

The specific objectives for the grassland habitat are to:

- Increase ecological value of grassland habitats on site through creation of native species rich areas of planting; and
- Introduce a suitable management regime for grassland, in order to encourage herbaceous diversity and provide suitable habitat for a range of species.

5.3.2 Mitigation and Enhancement

New areas of grassland planting will have a minimum depth of soil of 300mm and planting associated with the eastern boundary will comprise a native wildflower lawn turf such as Wildflower Turf Species Rich Lawn, or cultivated land will be seeded with Emorsgate EM2 Standard General Purpose Meadow Mixture, or similar. Those areas of grassland in proximity to the proposed housing will be seeded with an appropriate mix specified by the landscaping contractor and detailed in the landscaping strategy (**Appendix 1**).

5.3.3 Management Prescriptions

The eastern boundary, sown with Emorsgate EM2 or similar, will be cut on a rotational basis, once during the spring (April to May) and once during the autumn (August to September). Arisings will be removed to reduce the nutrient loading (over a long period of time).

6.0 MONITORING AND REVIEW

A review of the mitigation and enhancement measures implemented will be undertaken by a suitably qualified ecologist following the completion of the development. Following the implementation of the proposed mitigation and enhancement measures, any necessary revisions to the Ecological Mitigation and Management Plan will be made.

It is proposed that the party responsible for implementation of this mitigation and management plan carry out regular *ad hoc* monitoring at the site to establish any obvious deviations or faults. Where any issues are highlighted, a suitably qualified ecologist will be consulted for advice where necessary.

An integral part of the mitigation and management plan process will be a system of monitoring and a formal progress review. There will be a review meeting at the end of five years, post-completion, attended by the landowner and management contractor, to discuss the progress of the activities undertaken. This will enable issues to be identified and resolved where required. The meeting will take place to judge the effectiveness of the plan's aims, objectives and prescriptions.

The monitoring and review process will comprise a review report to include the following elements:

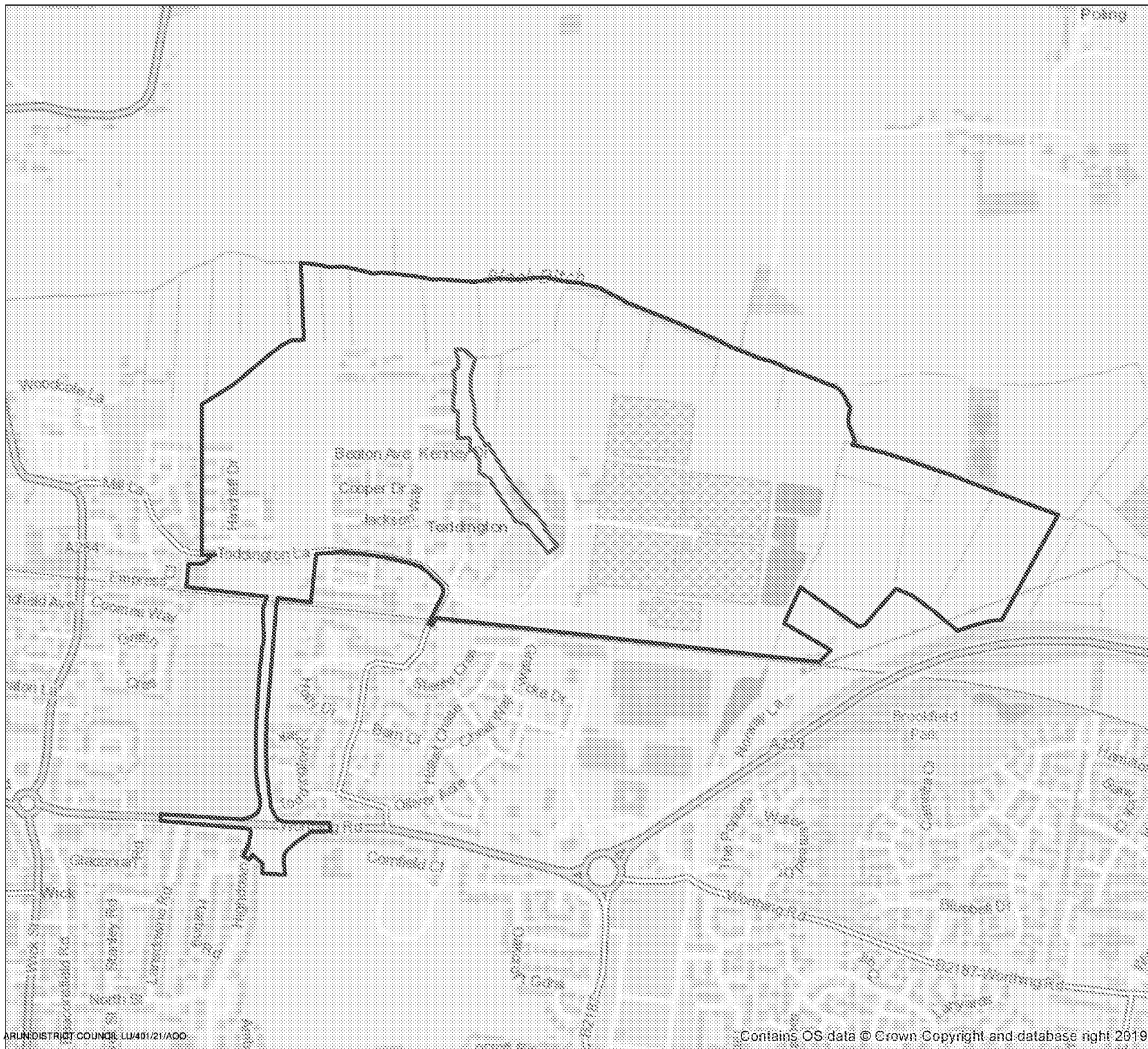
- Details of extent, timing and outcome of all works undertaken in the previous five years;
- Managing agent's assessment of effectiveness of works undertaken and the Ecological Mitigation and Management Plan as a whole; and
- Recommendations for next five year's management requirements.

7.0 TIMETABLE OF MANAGEMENT AND MONITORING WORKS

Management Prescription		Section Reference	Year ¹¹										
			0	1	2	3	4	5	6	7	8	9	10
Construction Phase Mitigation and Enhancement	Protection of retained trees in accordance with BS 2012:5387	5.2.2	+										
	Vegetation clearance necessary to be undertaken outside of nesting bird season (March to August)	4.3	+										
	Erection of new bat and bird boxes within the site	4.2, 4.3	+										
	New landscaping implemented at the site including new grassland seeding and tree and hedgerow planting	5.2.2, 0	+										
Habitat Management	Meadow Management (spring/early summer and late summer), arisings removed	0	+	+	+	+	+	+	+	+	+	+	+
	Management of tree and hedgerow habitat to be undertaken outside of nesting bird season (March to August)	5.2.3	+	+	+	+	+	+	+	+	+	+	+
Monitoring and Progress Review	<i>Ad hoc</i> monitoring by management contractors	6.0		+	+	+	+	+	+	+	+	+	+
	Five-year management review	6.0						+					+

¹¹ The exact timescales for the construction of the development are unknown. For the purposes of this mitigation and management plan, construction works are referred to as “Year 0” with the mitigation and management plan covering subsequent years “Year 1 – 10”.

Map 1 Site Location Plan



NORTH LITTLEHAMPTON (PHASE 4), TODDINGTON LANE, WEST SUSSEX

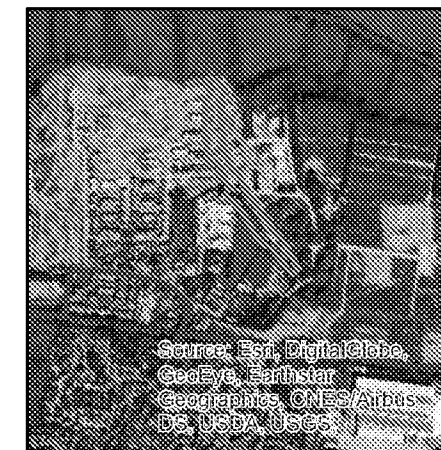
ECOLOGICAL MITIGATION AND MANAGEMENT PLAN

Map 1 - Site Location Plan

Client:	Persimmon Homes
Date:	January 2020
Status:	Final

KEY

-  Site Boundary
-  Wider Site Boundary

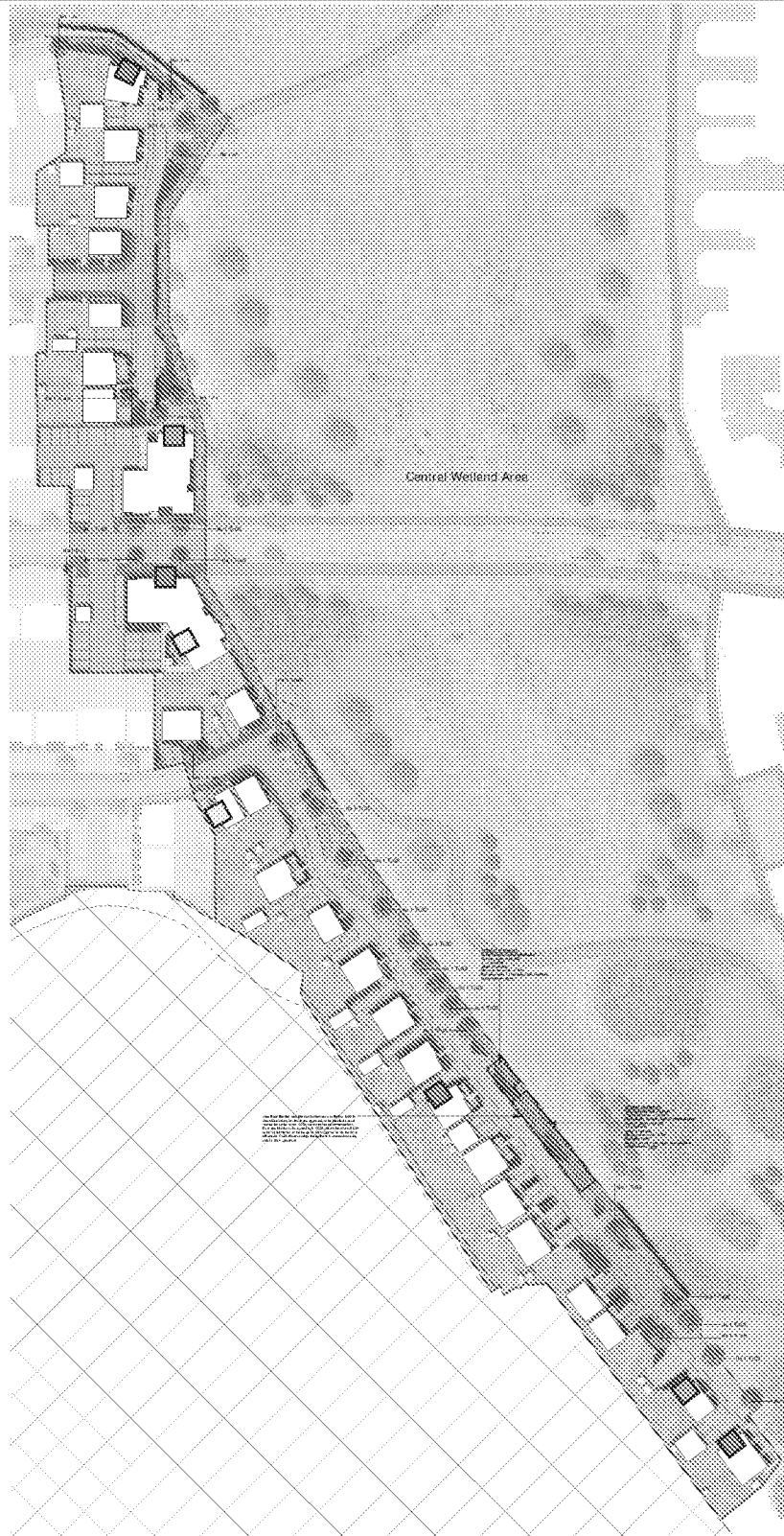


Scale at A4: 1:10,000
0 100 200 400 Metres

ECOSA
Ecological Survey & Assessment
a Trinity Consultants Company

ECOSA Ltd., Ten Hogs House, Manor Farm Offices,
Fixford Road, North Baddesley, Hampshire SO62 8GF
Telephone: 02380 261065 Email: info@ecosa.co.uk
Web: www.ecosa.co.uk

© This map is the copyright of Ecological Survey & Assessment Ltd.
Any unauthorised reproduction or usage by any person is prohibited.



KEY

-  Site Boundary
-  Schwegler 1FR Bat Tube (x4)
-  Schwegler 1SP Sparrow Terrace (x2)
-  Integral Swift Box (x2)

NORTH LITTLEHAMPTON (PHASE 4), TODDINGTON LANE, WEST SUSSEX

ECOLOGICAL MITIGATION AND MANAGEMENT PLAN

Map 2 - Indicative Locations of Enhancement Measures

Client: Persimmon Homes

Date: January 2020

Status: Draft

N.B. Enhancements are not to scale and are indicative of location only. Basemap reproduced from WYG Environment Planning Transport Ltd. 'Landscape Layout', Drawing No. LA400 Revision A, dated 23rd December 2019. Based on Ordnance Survey digital map data. © Crown copyright. All rights reserved. Licence number AR 100017603.



ECOSA
Ecological Survey & Assessment
A Trinity Consultants Company

ECOSA Ltd., Ten Hogs House, Manor Farm Offices,
Flextord Road, North Baddesley, Hampshire SO52 8DF
Telephone: 02380 251065 Email: info@ecos4.co.uk
Web: www.ecos4.co.uk

© This map is the copyright of Ecological Survey & Assessment Ltd.
Any unauthorised reproduction or usage by any person is prohibited.

Appendix 1 Landscaping Plan

Landscape Layout **LA400**

 **Tree planting:** refer to details and tree and hedge plant schedule. Note: where trees are positioned within narrow planting areas, an underground cellular / structure will be necessary to achieve minimum 6 cubic metres of soil (per tree).

 Shrub planting: refer to drawing LA403 for plant schedule

 **Hedge planting** refer to drawing LA403 for details and the plant schedule.

 Climbing plants: refer to LA403 for plant schedule

Species rich turf: refer to LA402 for specification.

Amenity grass: refer to LA402 for specification

Hard landscape proposals

 **Parking bays:** Tarmac or block paving (Bracken colour)

 **Private paths:** Marshalls slab paving (Buff colour)

Shared / private driveways: Marshalls block paving (Bracken colour)

Raised junction: Marshalls block paving (Brindle colour)

 **Perimeter footpath Area:** Self binding compacted gravel, Buff colour

 Perimeter footpath adjacent to Central Wetland Area: Tarmac



11 May 2021

5th Floor, Longcross Court, 47 Newport Road, Cardiff CF24 0AD
Tel: +44 (0) 29 2082 9200 Fax: +44 (0) 29 2045 5321
www.tetrateteurope.com

Based upon Ordnance Survey data with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. Tetra Tech Limited © 2021.

© Tetra Tech Limited 2021. Registered in England 1859204

Persimmon Homes

North Littlehampton: Phase 2B

Proposed planting LA401

Key

Site boundary

Soft landscape proposals

Tree planting: refer to details and tree and hedge plant schedule. Note: where trees are positioned within narrow planting areas, an underground cellular / structure will be necessary to achieve minimum 6 cubic metres of soil (per tree).

Tree Root Barrier: Suitable root barrier to be installed as per ICOSA meter services recommendations. Refer to Mayor Brown drainage drawings PH/LITTLE/P4-20-1 to 3 for details

Shrub planting: refer to drawing LA403 for plant schedule

Native hedge planting: provided within amenity areas and along the edge of the development; *Laurus nobilis* hedges provided adjacent to properties. Refer to drawing LA403 for details and the plant schedule.

Climbing plants: refer to LA403 for plant schedule

Species rich turf: refer to LA402 for specification

Amenity grass: refer to LA402 for specification

Hard landscape proposals

Parking bays: Tarmac or block paving (Broken colour)

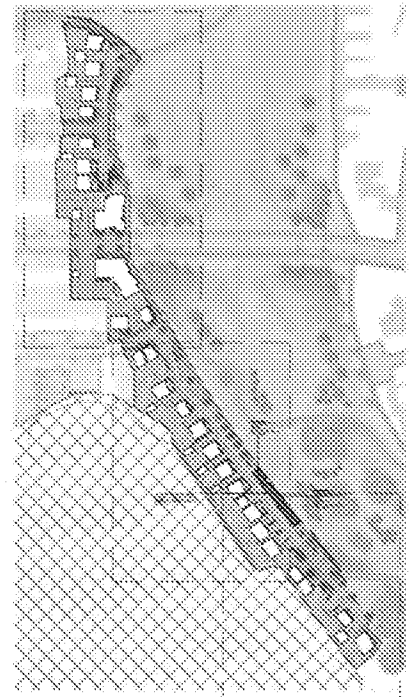
Private paths: Marshalls slab paving (Buff colour)

Shared / private driveways: Marshalls block paving (Broken colour)

Raised junctions: Marshalls block paving (Brindle colour)

Perimeter footpath Area: Self binding compacted gravel, Buff colour

Perimeter footpath adjacent to Central Wetland Area: Tarmac



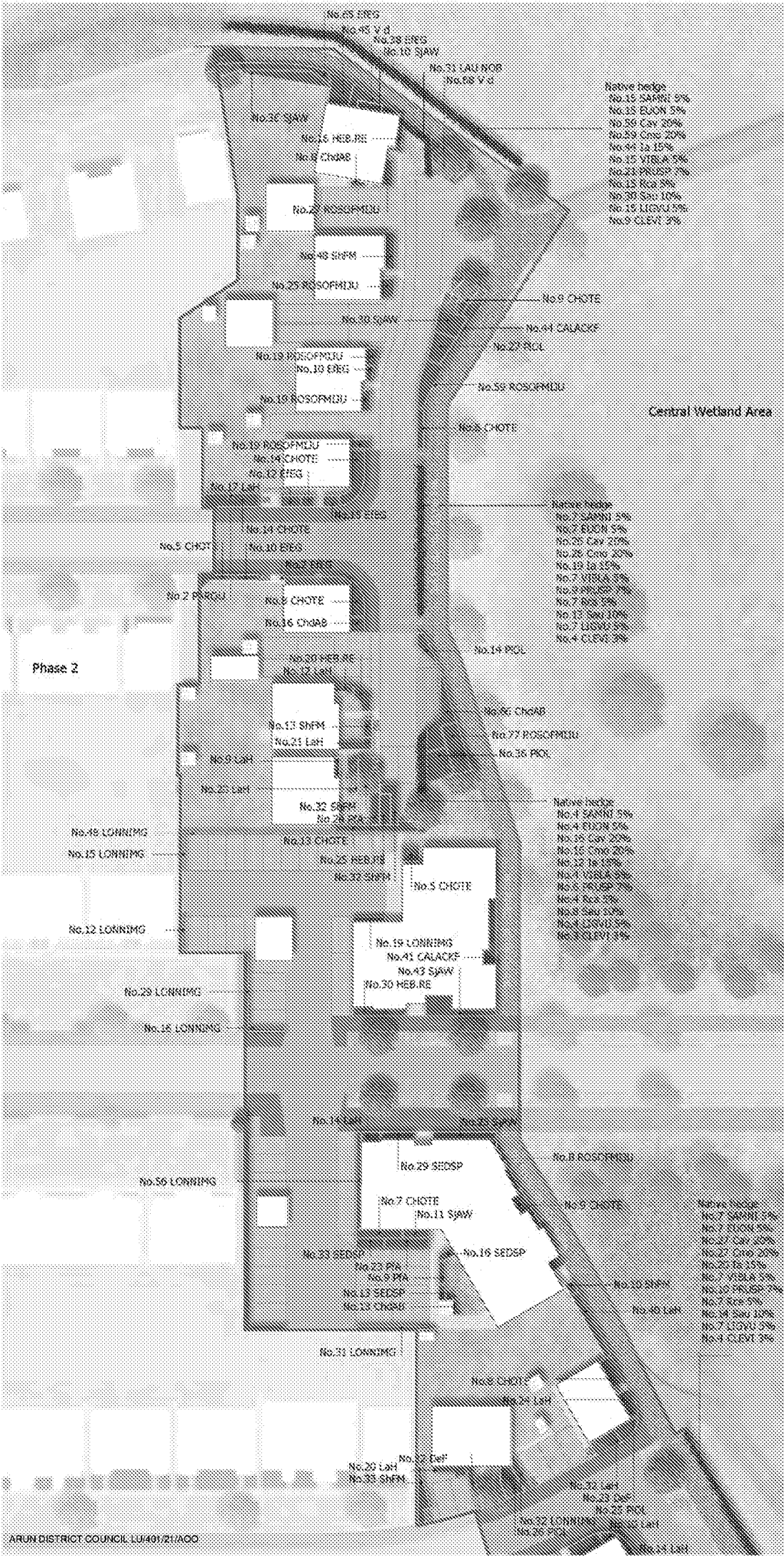
Scale 1:250 @ A1

A08B461 LA400-403(Q)dwg

11 May 2021

5th Floor, Longcross Court, 47 Newport Road, Cardiff CF24 0ND
Tel: +44 (0) 29 2082 9260 Fax: +44 (0) 29 2643 5321
www.tetatech.co.uk

Based upon Ordnance Survey data with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. Tetra Tech Limited 2021.
© Crown copyright and database rights 2021 Ordnance Survey 0100011673
© Tetra Tech Limited 2021. Registered in England 050704



Proposed planting LA403

 Site boundary

 **Tree planting:** refer to details and tree and hedge plant schedule. *Notes:* where trees are positioned within narrow planting areas, an underground cellular / structure will be necessary to achieve minimum 8 cubic metres of soil (per tree).

 **Free Root Barrier:** Suitable root barrier to be installed as per ICOM water services recommendations. Refer to Mayer Brown drainage drawings P1637TILE-P4-20-1 to 3 for details.

 **Shrub planting:** refer to drawing LA403 for plant schedule.

 **Native Hedge planting** provided within amenity areas and along the edge of the development; *Laurex nobilis* hedges provided adjacent to properties. Refer to drawing LA403 for details and the plant schedule.

 **Climbing plants:** refer to LA403 for plant schedule.

 **Species rich turf:** refer to LA402 for specifications.

 **Amenity grass:** refer to LA402 for specifications.

	Parking bays: Tarsine or black paving (Blackstone colour)
	Private paths: Marshalls slab paving (Buff colour)
	Shared / private driveways: Marshalls black paving (Blackstone colour)
	Raised junctions: Marshalls block paving (Blackstone colour)
	Perimeter footpath Area: Self-binding compacted gravel, Buff colour
	Perimeter footpath adjacent to Central Wetland Area: Tarsine

Figure 1: Schematic representation of the experimental design. The figure consists of five panels labeled (a) through (e). Panel (a) shows a 2x2 grid of stimuli. Panel (b) shows a 2x2 grid of stimuli with a central fixation point. Panel (c) shows a 2x2 grid of stimuli with a central fixation point and a central arrow. Panel (d) shows a 2x2 grid of stimuli with a central fixation point and a central arrow. Panel (e) shows a 2x2 grid of stimuli with a central fixation point and a central arrow.

Grass

Bark mulch, 75mm depth

Irrigation pipe

Tree

Tree pit back filled with topsoil

150 x 25mm timber frame (900mm square overall)

6-10mm 7 strand galvanised wire, wrapped around and stapled to "Deadmen"

Extent of tree pit

250 x 125 x 1700mm long timber "Deadmen"

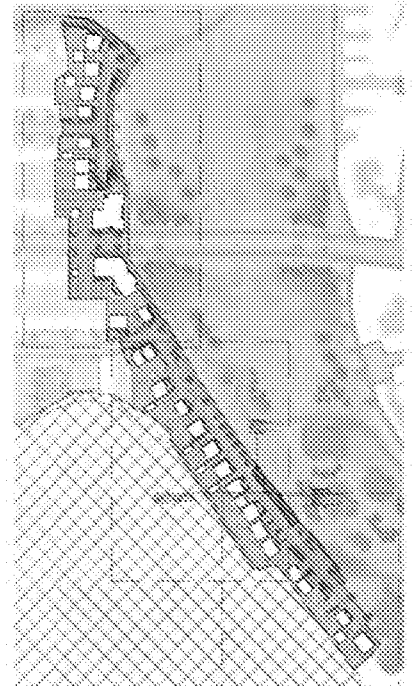
Subsoil dome

Broken up sub base

ARUN DISTRICT COUNCIL LU/401/27/00



Tilia cordata 'Green Spire'
Ref: Miller



11 Nov 2021

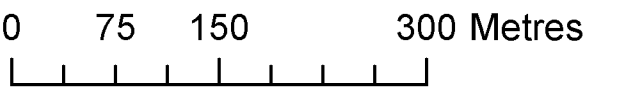
Based upon Ordnance Survey data with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office, Tatra Tech Limited 2002.
© Crown copyright and database right 2002 Ordnance Survey 0000011673
© Tatra Tech Limited 2002. Generated in England 2002/04

Appendix 2 Buildings Assessed for Bat Roost Potential (WYG)



Legend

- Site boundary
- Buildings assessed for bat potential
- Building surveyed for bats
- Trees assessed for bat potential
- Tree surveyed for bats



The Pavillion, 1st Floor
Botleigh Grange Office Campus
Hedge End
Southampton
Hants
SO30 2AF

Tel: 02382 022800
email: ecology@wyg.cor

WYG Planning & Environment

creative minds safe hands

Toddington Lane, North Littlehampton

Buildings and trees surveyed for bats

Drawn by: Date:		Checked By: Date:		Approved By: Date:	
EH 07/10/14		VC 07/10/14		TC 14/10/14	
Project No:	Office	Type	Drawing No.	Revision	
A086068	45	94	Figure 1		

Base map provided by Persimmon Homes

Appendix 3 Relevant Legislation

Bats

All UK bat species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations. These make it an offence to:

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb any such animal, including in particular any disturbance which is likely:
- To impair its ability to survive, breed, or rear or nurture their young;
- To impair its ability to hibernate or migrate;
- To affect significantly the local distribution or abundance of that species;
- Damage or destroy a breeding site or resting place of any such animal;
- Intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- Greater horseshoe bat *Rhinolophus ferrumequinum*;
- Lesser horseshoe bat *Rhinolophus hipposideros*;
- Bechstein's bat *Myotis bechsteinii*;
- Barbastelle *Barbastella barbastellus*; and
- Greater mouse-eared bat *Myotis myotis*.

In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favourable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

Water Vole

The water vole is listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded limited protection under Section 9 of this Act. This makes it an offence to:

- Intentionally kill, injure, or take (handle) a water vole;
- Intentionally or recklessly damage or destroy or obstruct access to any structure or place which water voles use for shelter or protection; or
- Intentionally or recklessly disturb water voles while they are using such a place.

Breeding Birds

With certain exceptions, all wild birds, their nests and eggs are protected by Section 1 of the Wildlife and Countryside Act 1981 (as amended). Therefore, it is an offence, to:

- Intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- Intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 subject to various controls. Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- Intentionally or recklessly disturb the dependent young of any such bird.