



Barry Holdsworth Ltd
Horticultural Consultancy

Biodiversity Enhancement Layout
in reference to Planning Condition 6

Planning Application: DC/25/0642

at

Bowood, Bashurst Copse, Itchingfield, West Sussex, RH13 0NZ

Written by
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1.0 Introduction

1.1 I have been instructed to provide details as regards the Planning Condition 6 of Planning Application DC/25/0642 to supply a Biodiversity Enhancement Layout for biodiversity enhancements listed in the Preliminary Ecological Appraisal (Arun Ecology, September 2024).

1.2 My name is Barry Holdsworth and I am the author of this report. I have over 30 years of experience in horticulture including tree and landscape management in both the public and private sectors. I am a qualified horticulturist, professional tree inspector and a member of the Arboricultural Association and the Chartered Institute of Horticulture.

1.3. Please refer to the Biodiversity Enhancement Layout Plan by Barry Holdsworth Ltd when reading this document, see Appendix 1.

2.0 Planning Conditions 6 Planning Application DC/25/0642

6. Pre-Commencement (Slab Level) Condition: No development above ground floor slab level of any part of the development hereby permitted shall take place until a Biodiversity Enhancement Layout for biodiversity enhancements listed in the Preliminary Ecological Appraisal (Arun Ecology, September 2024) has been submitted to and approved in writing by the local planning authority. The content of the Biodiversity Enhancement Layout shall include the following:

*a) detailed designs or product descriptions for biodiversity enhancements; and
b) locations, orientations and heights for biodiversity enhancements on appropriate drawings.*

The enhancement measures shall be implemented in accordance with the approved details prior to occupation and all features shall be retained in that manner thereafter.

Reason: To enhance protected and Priority species & habitats and allow the Local Planning Authority to discharge its duties under paragraph 187d of the National Planning Policy Framework (2024) and s40 of the NERC Act 2006 (as amended)

2.1. Ecological Enhancements

2.1.1 The biodiversity enhancements listed in the Preliminary Ecological Appraisal (Arun Ecology, September 2024) are shown below:

Enhancement of the 15 m ancient woodland buffer and woodland open space, to include:

- Enhancement of the other neutral grassland on the edge of the lowland mixed deciduous (ancient) woodland through appropriate management to include 5m of grassland with a taller sward height and thicker structure for the benefit of amphibians, reptiles and invertebrates.*
- Creation of refugia and deadwood log piles within the lowland mixed deciduous woodland for the benefit of amphibians, reptiles and invertebrates;*
- Creation of any habitat with local and appropriate native species in the ancient woodland buffer zone.*



- *Planting of native trees and mixed scrub as part of the development for the benefit of invertebrates, foraging birds and mammals; and*
- *Two integrated bird boxes to be built into the design of the new dwelling. Alternatively, two wall mounted bird boxes to be installed on the new dwelling.*

2.1.2. Enhancement of the other neutral grassland

The area shown with green shading in the Appendix 1. Biodiversity Enhancement Layout Plan, will be sown with a Emorsgate EM10 Tussock Meadow Mixture, see composition below.

Composition

Wild Flowers 20%

- 0.80% Achillea millefolium – Yarrow
- 0.60% Agrimonia eupatoria – Agrimony
- 0.20% Arctium minus – Lesser Burdock
- 2.00% Centaurea nigra – Common Knapweed
- 1.00% Centaurea scabiosa – Greater Knapweed
- 2.00% Daucus carota – Wild Carrot
- 1.60% Dipsacus fullonum – Wild Teasel
- 0.60% Filipendula ulmaria – Meadowsweet
- 1.80% Galium album – Hedge Bedstraw
- 0.40% Geranium pratense – Meadow Crane's-bill
- 0.80% Knautia arvensis – Field Scabious
- 0.40% Lathyrus pratensis – Meadow Vetchling
- 1.60% Leucanthemum vulgare – Oxeye Daisy
- 0.40% Malva moschata – Musk Mallow
- 1.80% Plantago lanceolata – Ribwort Plantain
- 0.80% Poterium sanguisorba – Salad Burnet
- 1.20% Silene dioica – Red Campion
- 0.40% Vicia Cracca – Tufted Vetch
- 1.60% Silene vulgaris – Bladder Campion

Grasses 80%

- 4.00% Agrostis capillaris – Common Bent
- 8.00% Alopecurus pratensis – Meadow Foxtail (w)
- 4.00% Carex divulsa ssp divulsa – Grey Sedge (w)
- 24.00% Cynosurus cristatus – Crested Dogstail
- 4.00% Dactylis glomerata – Cocksfoot (w)
- 4.00% Festuca ovina – Sheep's-fescue
- 16.00% Festuca rubra ssp rubra – Slender-creeping Red Fescue
- 8.00% Phleum bertolonii – Smaller Cat's-tail (w)
- 8.00% Schedonorus arundinaceus (Festuca arundinacea) – Tall Fescue (w)

The tussock forming grasses are combined with wild flowers like knapweeds and vetches which can cope with competition from taller vegetation. This mixture has been devised to create areas of tussocky grassland that, once established, require little or no maintenance. This grassland type can form a good habitat for insects, small mammals, birds, amphibians and reptiles, providing nesting sites during spring, food during summer and autumn, and shelter during winter.



Enhancement Grassland Management Plan

Ground Preparation - To prepare a seed bed first remove weeds using repeated cultivation. Then dig to bury the surface vegetation and rake to produce a medium tilth, and roll, or tread, to produce a firm surface.

Sowing

Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed, but firm in with a roll, or by treading, to give good soil/seed contact.

First Year Management

Most of the sown meadow species are perennial and are slow to establish. Soon after sowing there will be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out. So resist cutting the annual weeds until mid to late summer, especially if the mixture contains Yellow Rattle, or has been sown with a nurse of cornfield annuals. Then cut, remove and compost. Early August is a good time. This will reveal the young meadow, which can then be kept short by mowing through to the end of March of the following year. Carefully dig out any residual perennial weeds such as docks.

Management Once Established

Once established tussocky grassland requires minimal maintenance. Unwanted perennial weeds (docks, thistles) may need control by selective scything before seeding. To control scrub and bramble development, tussocky areas may need cutting every 2-3 years between October and February. For wildlife this cutting is best done on a rotational basis so that no more than half the area is cut in any one year leaving part as an undisturbed refuge.

2.1.3. Creation of refugia and deadwood log piles

Creation of refugia and deadwood log piles within the lowland mixed deciduous woodland for the benefit of amphibians, reptiles and invertebrates. The locations of 10 new refugia will be located in the area marked in an orange hatch. Details of how to create this type of refugia are shown below:

Creating Ecological Log Pile by the RSPB

Ecological woodpiles are a valuable habitat for mosses, lichens and fungi, as well as many insects. The following offer advice as to how to construct a woodpile.

- Leave woody cuttings from trees, shrubs and herbaceous plants in piles within a shrub bed.
- It is best to not cut the wood into small pieces. Leave it in direct contact with the ground, in dappled shade and in compact piles to maintain humidity.



- Larger diameter pieces are of most value, but even small twigs and branches should not be discounted, and neither should the cut stems of herbaceous plants.
- Full sun will dry and heat the wood and it will support little life. Dense shade is good for fungi, but may be too cold for most insects.
- Logs at least 100mm thick with the bark still attached provide the best wood. Hard wood trees such as ash, oak and beech are particularly good. Birch logs can look particularly attractive. Be careful of freshly cut willow and poplar logs, as these can easily re-sprout if left lying on the ground.
- Allowing a climber to ramble over woodpiles, logs and stumps can cover them and help retain moisture. However, the shade may make it too cold for some insects.
- Lay a stack of logs laid on their side. To prevent them rolling, drive a stake into the ground either side of the pile.
- You can create standing dead wood by partially burying logs vertically in the ground to an approximate depth of 450 to 500mm. Use logs of different diameters and length and bury them side-by-side to form a pyramid. If space is a limitation, a single log either buried in the soil or on top is still of value.

2.1.4. Creation of any habitat with local and appropriate native species in the ancient woodland buffer zone. The natural diversity of the vegetation and topography will lend itself to habitation, feeding and foraging by local insects birds and mammals. With the intervention as given in this document wildlife will flourish in this natural environment.

2.1.5. Planting of native trees and mixed scrub as part of the development for the benefit of invertebrates, foraging birds and mammals.

The existing trees within the site are Birch, Hornbeam, Holly, Oak and Willow which are all suited to the clay soil found within the site. In order to increase the species list and diversity of the woody material it is advocated to plant the native Hawthorn tree (*Crataegus monogyna*). The Hawthorn tree provides significant benefits for wildlife, supporting over 150 species of insects, birds, and mammals by offering food, shelter, and nesting sites.

In addition to the Hawthorn trees Blackthorn bushes (*Prunus spinosa*) and Elder bushes (*Sambucus nigra*) will provide the scrub material that is required to be introduced. Early flowering, blackthorn provides a valuable source of nectar and pollen for bees in spring. Its foliage is a food plant for the caterpillars of many moths, including the Lackey, Magpie, Swallow Tailed and Yellow Tailed. It is also used by the black and brown hairstreak butterflies. Birds nest among the dense, thorn thickets, eat caterpillars and other insects from the leaves, and feast on the sloes in autumn.

Elder bushes are to be planted whose flowers provide nectar for a variety of insects and the berries are eaten by birds and mammals. Small mammals, such as dormice and bank voles, eat both the berries and the flowers. Many moth caterpillars feed on elder foliage, including the White-Spotted Pug, Swallowtail, Dot Moth and Buff Ermine.



The trees will be planted with a tree pit as shown in Appendix 2. Tree Pit Design, with maintenance as detailed in 2.3. Maintenance below.

Planting Schedule

Quantity	Plant	Size
<u>Tree Planting</u>		
8	Crataegus monogyna	10/12cm
<u>Scrub Planting</u>		
20	Prunus Spinosa	90/120cm
20	Sambucus nigra	90/120cm

2.1.6. Two integrated bird boxes to be built into the design of the new are dwelling. Two (2) x Schwegler No. 16S Swift Box are to be installed as detailed below.

SITING: On external façades or under the roofs of all kinds of buildings, for example, houses, industrial buildings, churches, road structures, walls, or even cliffs and rock faces. For outdoor installation in very sunny locations. Alternatively, the boxes can also be bricked in or installed in the thermal insulation.

Can be installed within an external wall to a maximum depth of 17 cm in order to prevent the underneath entrance hole from being blocked. It can also be attached to the surface of an external wall (or within a layer of rendering or external insulation). No.16S can be fully inserted into the walls up to 16 cm deep.

2.2. Standards

Workmanship shall comply with the recommendations set out in the following codes:-

- a) General landscape operations - to BS 4428:1989.
- b) Trees in relation to construction - to BS 5837:2005 and BS 6549:1990.
- c) Workmanship shall also comply with British Standard 8000 and any other current relevant British Standard Code of Practice where such exists. Workmanship shall in any case be in accordance with good horticultural practice.

BRITISH STANDARDS

All workmanship and materials shall conform to the following codes: -
General Landscape Operations (excluding hard surfaces) BS 4428:1989
Trees in Relation to Construction – BS 5837: 2005 and BS 6549:1990. BS 3998: 2010 (recommended for tree works) unless otherwise specified. Arboricultural Association –
Standard Conditions of Contract and Specifications of Tree Works 1996.



Nursery Stock in accordance with latest horticultural trade association nursery stock specification entitled 'National Plant Specification 2001'
BS 598987 Asphalt for roads and other paved areas – Specification for the transport, laying, compaction and product type testing protocols

Plants shall conform to:

BS 3969- 1: 1992 Nursery Stock – Specification for Trees and Shrubs

BS 3969- 2: 1990 Nursery Stock – Specification for roses + AMD 6628

BS 3969- 5: 1985 Nursery Stock – Specification for poplars and willows.

BS 3936- 9: 1998 Nursery Stock – Specification for bulbs, corms and tubers.

BS 3936- 10: 1990 Nursery Stock – Specification for ground cover shrubs.

CPSE - Committee for Plant Establishment, Handling and establishing landscape plants 1996, Part 3, paragraphs 6.2 to 6.6.

Glossary for Landscape Works BS 3975 Pt 4: 1966

Turf – BS 3969:1998- recommendations for turf for general purposes.

Topsoil- BS 3882: 2007

Pesticides: Control of Pesticides Regulations 1997; The Health and Safety at Work Act

1974; the COSHH Regulation 2003, the product COSHH sheet water Supply (Water Quality) Regulations amended 1991; Control of Pollution Act 1974; Hedgerow Act 1997;

Wildlife and Countryside Act 1981.

BS 8545:2014 Trees: from nursery to independence in the landscape Recommendations.

BS 1722-7:2006 Fences –Part 7: Specification for wooden post and rail fences

2.3. Maintenance

The following Maintenance Schedule will ensure that the trees and the boundary hedge become fully established. The following detail shown in italics is from British Standard BS 8545:2014 Trees: from nursery to independence in the landscape - Recommendations as should be used as a reference for the maintenance schedule.

Irrigation

Prime importance is irrigation as 'it can take up to 4 to 5 months for enough roots to grow beyond the soil ball to take advantage of the water available in the surrounding soil following transplanting. During this period the tree is almost entirely dependent on the water contained in the soil ball.'

'Trees probably need to be watered about twice each week with 20 L of water adequate to keep an 800 mm diameter rootball well irrigated and that 40 L of water or less thoroughly moistens a soil ball of 500 mm to 600 mm.' Twice weekly irrigation is to be undertaken.

Formative pruning

Formative pruning will be carried out in accordance with BS 3998 'as required throughout the early years of a tree's life in the landscape. Some of the nursery-prepared branching structure is temporary, and formative pruning should continue



until a permanent structurally sound scaffold system of branches typical of the species and appropriate to the site circumstances is produced.'

Routine assessment and ongoing maintenance

Routine assessment and ongoing maintenance shall be undertaken as detailed below:

'A formal assessment of young tree health and development should be carried out annually. This assessment should include foliar appearance (i.e., lack of leaf chlorosis and/or necrosis), leaf size and leaf canopy density, extension growth and incremental girth development. Continual assessment on an ad hoc basis should be carried out throughout the year, to inform maintenance requirements.'

Staking

All stakes and ties should be checked at least annually to ensure that the root system remains stable and firm in the ground, and that ties are still effective and not causing any damage to the tree. Any stakes and ties that are found to be not fit for purpose should be adjusted, replaced or removed. All stakes and ties should be removed as soon as the developing root system is strong enough to support the tree.

NOTE. Two full growing seasons are usually long enough for this to occur.

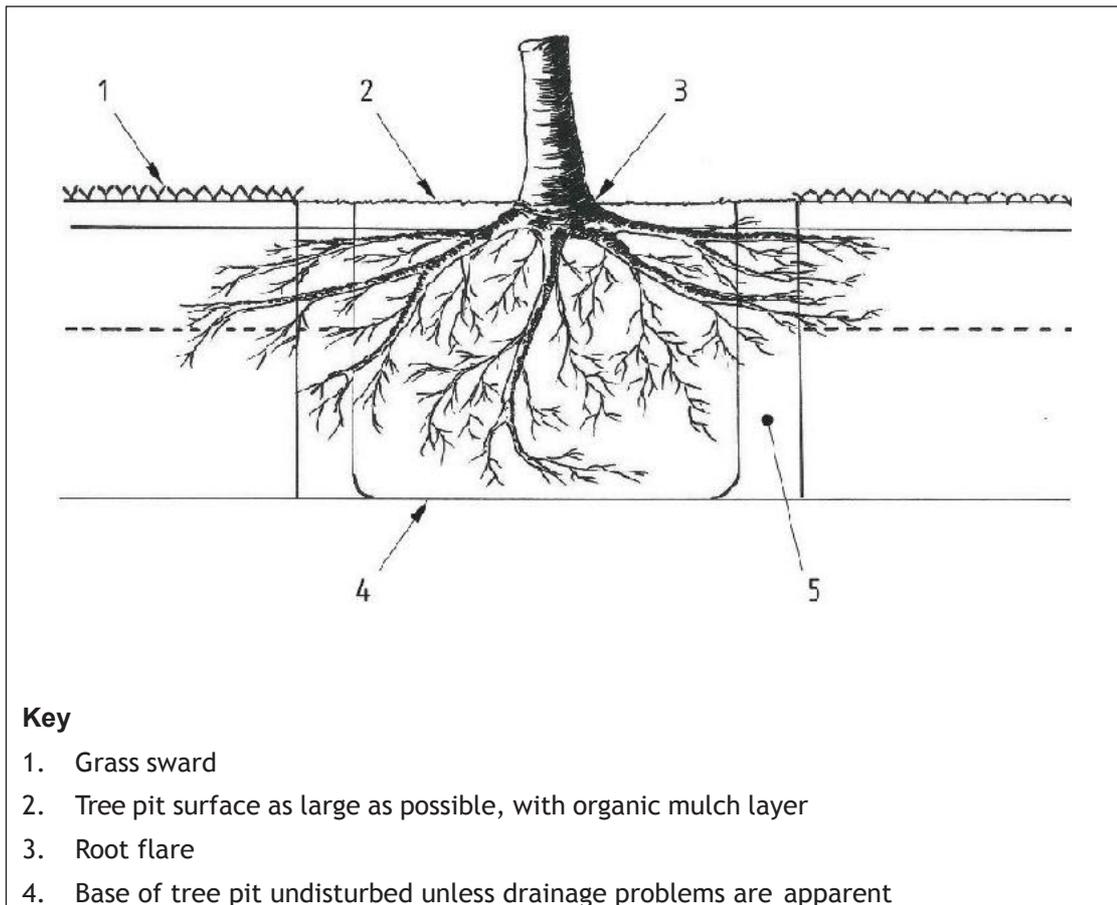
Wires or straps used in underground guying systems that could cause damage to the growing stem or structural roots should be cut as soon as the tree is self-supporting.

The area around the base of the tree should be free from competing vegetation.

NOTE. Selection of an appropriate herbicide, when used to control competing vegetation, is essential to avoid environmental contamination and damage to the tree.



Appendix 2. Tree Pit Design: Planting in grass





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