MODEL FARM

Biodiversity Management Strategy

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A
25 October 2019

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Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
A	DRAFT to Client	Kate Davies	Tim Oliver	Tim Oliver	25/10/19
B	Final draft	Kate Davies	Tim Oliver	Tim Oliver	30/10/19

Approval for issue

Tim Oliver 25 October 2019

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1 INTRODUCTION

1.1 Overview

1.1.1 RPS were commissioned by Legal and General Strategic Land Ltd (the client) to prepare a biodiversity management strategy for the proposed 45ha business park on land at Port Road, Rhoose.

1.1.2 An outline planning application has prepared by RPS for a proposed 45ha Business Park on land at Port Road, Rhoose on behalf of Legal & General (Strategic Land) Ltd, application proposes approximately 1.7 million sq ft Class B1, B2 and B8 floorspace, car parking, landscaping, drainage infrastructure and biodiversity enhancement and is located adjacent to Cardiff Airport.

1.2 Site Description

1.2.1 The site is located within the Vale of Glamorgan, north of Porthkerry and south of the A4226 and Port Road. The client's total land ownership extends to 109 ha, although the application site boundary extends to approximately 45 ha. The application site (henceforth referred to as the 'site') is predominately comprised of pasture and arable fields intersected by hedgerows and areas of broadleaf woodland. The farmhouse and a complex of mainly large agricultural buildings used for livestock and the storage of machinery is located in the northern part of the site. The land ownership boundary includes three Sites Important to Nature Conservation (SINC) designated for supporting ancient semi-natural broadleaved woodland. The application site incorporates the northern half of one of these sites, however the site will be protected during development. The greater area of land ownership also includes two small watercourses; Whitelands Brook and Bullhouse Brook.

1.2.2 The site lies to the west of Porthkerry Country Park, with the woodland block in the south east of the site connected the woodland within the wider park which is intersected by a railway viaduct.

1.2.3 The wider landscape supports further arable and pasture farmland with patches of broadleaf woodland, as well as Cardiff Airport to the west and Barry to the east.

1.3 Scope of Work

1.3.1 This is an outline management strategy that defines the approach that will be adopted to deliver biodiversity benefits as part of the proposals and over the operational lifetime of the developments.

1.3.2 The focus of the strategy is on features of ecological value that will form the green infrastructure including proposed greenspaces and covers both habitats and the protected and priority species that could utilise them.

1.3.3 The biodiversity strategy has been prepared alongside the Green Infrastructure (GI) plan with reference to the results of the Preliminary Ecological Appraisal including the desk study and the findings of the Phase 2 species surveys undertaken to inform the baseline conditions at the site.

1.3.4 The management strategy details the habitats to be retained/enhanced and those habitats that will be created on agriculturally improved fields adjoining the development areas.

1.3.5 The strategy sets out the nature conservation objectives and indicative management actions for both habitats and species which will be incorporated in the detailed landscape design and final management plans.

1.3.6 The proposed development has a southern strip of green infrastructure with a series of basins/swales being created as part of the sustainable drainage system (SuDS)as well as a central strip supporting a green space buffer and further drainage as detailed on the concept masterplan D0064-010.

1.3.7 The northern half of a block of semi-natural ancient woodland falls within the application site with a further block bounding the site boundary. The wider ownership boundary encompasses a further

block of semi natural ancient woodland. These woodland blocks are all designated as SINCs. The eastern boundary also supports the headwaters of Whitelands Brook which is bordered by further semi-natural broadleaf woodland.

1.3.8 The scheme and layout have been devised to retain and extend habitat of potential value such as these for protected and priority species and enhance the wildlife corridors adjoining the site.

2 BIODIVERSITY STRATEGY

2.1 Overall Approach

2.1.1 The approach to landscape and nature conservation within the development area has been to retain and enhance key features as far as possible.

2.1.2 The green infrastructure and green space within the application boundary is largely made up of a series of SuDS lagoons located beyond the southern development boundary as well as a number of north – south drainage corridors alongside retained hedgerows with green space buffers either side. The most significant of these is a central area of new planting which will connect the most westerly block of ancient semi-natural woodland with the northern boundary hedgerow.

2.1.3 In addition to those within the application boundary, further areas of new habitat will be created to the south of the application site within the ownership boundary. New planting of native species will create additional blocks of broadleaf woodland and scrub and new areas of meadow and rough grassland will be created on areas of very low value. These new habitats will specifically enhance the connectivity between the retained SINC woodland blocks and the brook corridors.

2.1.4 The extent to which the objectives are being achieved through management will be subject to monitoring and review. The outcomes of management will be assessed annually and reviewed against the nature conservation objectives. Importantly monitoring will inform future management practices and where modifications to practices are needed subject to agreement with the LPA ecologist.

2.1.5 The full implementation of environmentally sensitive management has a high likelihood of delivering biodiversity enhancement over the lifetime of the development.

2.2 Scheme Design

2.2.1 The application site comprises a series of agriculturally improved pasture and arable fields bounded by hedgerows as well as the northern section of a SINC woodland and the current farm house and building complex. The existing habitats within the application site and ownership boundary have been mapped within the Phase 1 Preliminary Ecological Appraisal Plan (PEA)[1]. The overall development plan can be found on the concept masterplan D0064-010.

2.2.2 The layout has been developed with reference to the baseline information on habitats and the potential use of the site by protected and priority species. A network of green space forms a framework of green infrastructure with the retention and protection of the high value habitats within the ownership boundary. The additional woodland, scrub and rough grassland planting enhances connectivity from east to west along the southern boundary of the scheme, as well as enhancing the connectivity of the woodland blocks to the wider areas of woodland adjacent to the south of the ownership boundary. The central corridor from the north of the westerly woodland block will facilitate movement from north – south through the site, along with the protected eastern boundary.

2.2.3 The following biodiversity measures have been built into the green infrastructure within the scheme and the features are illustrated on the concept masterplan.

- Protection of both site boundary and ownership boundary SINC designated sites and establishment of protective buffers of eastern boundary and retained hedgerows.
- Maintaining a green context for the SINC woodland blocks through additional planting and landscaping of those within and directly adjacent to the application boundary and providing a

[1] RPS (2018) Model Farm; Preliminary Ecological Appraisal (PEA)

15 m buffer between SINCs and the development to be planted up with native and locally sourced shrubs and trees.

- Establishment of a 10 m buffer along the eastern woodland strip and Whitelands brook, again planted with native and locally sourced shrubs and trees.
- Establishment of a green infrastructure and greenspace corridor from north to south through the site connecting the westerly SINC woodland to the northern road boundary. This will be approximately 85 m in width at its most southernly point and 30 m its most northernly extent.
- Creation of further woodland and scrub habitats to the south to enhance connectivity of the retained woodland blocks.
- Creating areas of rough grassland around the SUDs attenuation areas and bordering the retained and additional woodland areas.
- Protect corridors and habitat described above from indirect impacts from the development by keeping them dark through the use of directional lighting.

2.2.4 The potential presence of protected and priority species within the existing site has been considered in the scheme layout to maintain existing features and the assemblage of species which they could support. Many of the biodiversity measures listed above will benefit species to maintain the habitats on which they rely and corridors along which can facilitate safe dispersal.

3 MANAGEMENT AIMS AND OBJECTIVES

3.1.1 The overarching aims of the habitat management strategy are:

- Long term provision and maintenance of biodiversity value of local importance; and
- Provision of habitats of value for local populations of legally protected species and Species of Principal Importance.

3.1.2 The objectives and suggested management actions that will support achieving the objectives for each habitat types are set out in Table 1.

3.1.3 The key elements are the successful creation of new habitats to the south of the site and the north – south corridor through the centre of the development, as well as the protection of the eastern boundary.

Table 1 Habitat management objectives and suggested management actions

Habitat	Objective	Management Approach
Semi-natural ancient woodland	Protect mature trees and minimise the removal of deadwood features that will have high value for invertebrates Retain cavity features in mature trees of potential value for nesting birds and roosting bats. Allow the ecological value of trees to continue to increase over time through appropriate arboricultural management to maintain deadwood (wherever safe) and maximise longevity. Maintain extent and ground flora diversity Protect RPAs around trees and shrubs from disturbance	Low intervention management of SINC woodlands Allow trees to mature and develop deadwood features Implement protective buffer around SINCs to protect from indirect impacts such as artificial lighting Annual check any veteran trees for health and stability. Leave fallen dead limbs on ground to become deadwood habitat for micro-organisms and invertebrates. Any remedial tree works must be completed in accordance with BS:3998 Only undertaken pest or disease control if there is a severe infestation occurs and using approved pesticides or fungicides.
Retained managed hedgerows	Ensure range of hedgerows with some maintained as short dense features (min 3m) with other allowed to grow into taller, untrimmed features Protect mature trees and minimise the removal of deadwood features Protect RPAs around trees and shrubs from disturbance Maintain autumn fruit for birds and mammals	Utilise the following cutting approach as well as retaining some hedgerows as taller features with infrequent cutting; - After the first growing season cut back hard in winter (between November to February) to encourage bushy growth down to ground level. Raise the cutting height a little each time the hedge is cut to gradually reach a dense structured new section of hedgerow. Always remove litter, rubbish and other debris prior to cutting

Bullhouse Brook	Protect channel and banks Maintain water quality (during construction and in the completed/operational scheme)	Monitor any potential impacts from drainage scheme associated with development
Whitelands Brook	Protect channel and banks Maintain water quality (during construction and in the completed/operational scheme)	Monitor any potential impacts from drainage scheme associated with development
New native and locally sourced scrub planting	Maintain stands of fruiting hazel through rotational coppicing Establish and maintain dense structured scrub in areas identified within masterplan Maintain autumn fruit for birds and mammals	Hazel: Rotationally coppice new hazel resource Cut back any damaged, dead or diseased branches to a healthy node or any growth obstructing adjacent areas of hard standing. Thorn: Implement cutting regime to encourage dense growth [Any dead, dying and damaged growth would be removed outside of bird breeding season (March to August inclusive)].
Meadow grassland	Create meadow grassland on the sloping sides of the attenuation basins/swales Control invasive ruderal species (docks, thistles) and prevent scrub encroachment	Implement periodic regime of cutting (no more than twice annually in early spring and autumn - with no cuts during the main flowering season mid-May to end of July.
New rough grassland (woodland edge/ hedge base)	Create rough structured grassland in areas identified within concept masterplan Allow areas of short grazed pasture to become rank maintaining good ground cover with long sward Prevent scrub encroachment	Cut the established rough grassland on rotation to leave some areas undisturbed and help create a mosaic. Areas should be cut to ~15cm once every three years in September (leaving some patches undisturbed until following years). Utilise some of the cuttings to create piles at the edges of the grassland to provide refuge for any reptiles that may use the area. Allow the remaining to dry for a few days before raking and removing from site.
New native woodland (locally sourced plant stock)	Promote natural canopy shape and spread Maintain tree health for maximum longevity.	Review establishment of new planting after 5 years, replacing any failed trees. Revisit every 5 years to review any tending or thinning of trees

	Maintain autumn fruit for birds and mammals	
Japanese Knotweed	Eradicate presence of stands within ownership boundary	Implement control/management plan to eradicate presence Install suitable control measures to reduce spread during construction

Species

3.1.4 For species the overall aim of the management plan is for the existing range of species to be retained within the site and for the potential value of features for faunal species to be enhanced alongside the development. In addition, it seeks to improve habitat extent and quality to increase the range of species it supports for example hazel dormouse.

3.1.5 Habitat features that will have significant value for a range of species include:

- Woodland, scrub and grassland habitats in good condition;
- connected hedgerow network;
- maturing trees and in the longer-term deadwood and cavity features; and
- the number and abundance of flowering species and the resources they provide to invertebrates.

3.1.6 The assemblage of species should confer nature conservation value to the development with a focus on those that are conservation priorities (see Table 2). Key elements of the scheme for species will be the successful creation of new habitat links between the SINC woodland blocks and provision of new habitats such as woodland, scrub and rough grassland.

Table 2 Habitat management objectives for species

Species	Status	Objectives
Bats	Foraging habitats and flight lines within the application site, ownership boundary and wider area Soprano and common pipistrelle were the most abundantly recorded with noctule, brown long-eared bat, serotine and Leisler's, lesser horseshoe, Nathusius pipistrelle and *Myotis* bats also recorded.	Maintain linked woodland, scrub and hedgerows ensuring they are retained as dark corridors Maintain bat flight line on the eastern boundary and north – south flight line from north of most westerly woodland block Maintain strong connections to woodland blocks and stream corridors Retain and protect maturing trees and their root protection areas and retain their potential to develop cavity features Maintain new areas of habitat to the south of the development which will support both commuting and foraging areas for bat species
Dormice	Local population in wider area. Woodland habitat management to increase likelihood of future	Enhance and maintain the value of the SINC woodlands, hedgerows and new woodland and scrub planting for dormice

	colonisation of dormice with increased connections to wider woodland blocks.	Maintain strong connectivity between potential dormouse habitat Increase the availability of food resources within the natural green space through native planting
Otter	No evidence of otter identified during 2019 survey and no records identified within 2km during desk study. Suitable habitat exists within the site in woodlands and stream corridors	Protect Bullhouse and Whitelands brook and SINC woodlands from any impacts during construction and operation Maintain dark buffer zones around woodland and stream corridors
Breeding birds	Assemblage of breeding birds identified within the application site and ownership boundary during 2019 survey including both red/amber list farmland specialist	Create new areas of scrub, fallow and wildflower grasslands (with locally sourced plants and seed mix) and range of hedgerow types to supply greater food resource throughout year Create larger field margins on retained agricultural fields within south of ownership boundary Provision of nest boxes
Amphibians	No evidence of GCN recorded during 2019 eDNA survey. Breeding pond within 2km of site. Records of common frog and toad, palmate and smooth newt from local area.	Maintain SuDS attenuation basins in ecologically favourable manner Create and maintain additional hibernation potential and other places of shelters
Invertebrates	In combination the existing habitats (excluding the pasture and arable) would be expected to support a relatively varied assemblage of species	Provide varied sources of nectar over the majority of the year (native, trees, shrubs and populations of wildflower species) Maximise the niches available for use by invertebrates (maturing trees, woodland, scrub, hedgerows, SUDs attenuation ponds) Retain deadwood habitat

4 MONITORING

4.1.1 This strategy will inform a detailed habitat/landscape management plan defining the specifications and programme of the ecological management measures which will be designed to deliver biodiversity value over the lifetime of the development. The mechanism through which plan will be delivered and the responsibility for the long-term funding of the management and monitoring will be fully defined in the detailed habitat management plan.

4.1.2 The extent to which the implemented management is achieving the objectives will be informed by site inspections to assess initial establishment and the subsequent development of each of the created habitats and the status of existing high value habitats.

4.1.3 Each review will consider trends in habitat change, drawing upon the results of previous monitoring and against the original pre-development habitat condition.

4.1.4 The extent to which the nature conservation objectives are being achieved will be subject to review through annual monitoring and review.

4.1.5 The monitoring will highlight positive and negative outcomes for nature conservation, habitats and species. Any shortfalls in the aim of promoting value for wildlife in the natural green space will be identified and the ecologist will inform how management prescriptions need to be adapted to address these a change in approach or where necessary remedial measures. The review will also highlight actions that no longer have continued relevance which should be omitted in future years.