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ECOLOGICAL DESIGN STRATEGY

Mill Moor Road, Meltham, Holmfirth

Report Reference: BG19.172

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Project site:

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Contents

1 Introduction

1.1 Brindle & Green Ecological Consultants Ltd were commissioned by Vogue Homes Ltd to compile an Ecological Design Strategy (EDS) to discharge Condition 21 detailing mitigation and enhancement measures to be submitted to and approved by the Local Planning Authority. This is to support the full planning application 2015/91640 and 2017/92220.

1.2 Condition 21 states that an "Ecological Design Strategy EDS, detailing mitigation and enhancement measures, should be submitted to the Local Planning Authority." This report outlines the purpose and conservation objectives for the proposed ecological works to discharge Condition 21.

1.3 A accompanying planting schedule and planting plan has been provided (BG19.172.1, August 2019) showing the inclusion of native species rich hedgerows around the boundaries of the site, with integrated native trees. Specimen shrubs have been selected due to their flowering, and suitability to support pollinating species.

1.4 Details of the lighting layout have been provided for the site, sufficient to demonstrate that the habitats adjacent to the Meltham Dike will remain unlit to preserve its function as bat foraging habitat. The EDS shall be implemented in accordance with the approved details and all features and habitats shall be retained in that manner thereafter.

1.5 This is report should be read in conjunction with the Preliminary Ecological Assessment (BG17.235) and the Breeding Bird Survey report (BG18.157.1) which outlines the ecological value of the site for protected species.

1.6 This report will provide design objectives and management strategies to be implemented from Year 2 onwards to support the long-term biodiversity of the site.

1.7 Amendments from the design plans detailed within Appendix 1 may result in slight changes to the enhancement plans at a later stage. If construction has not commenced within one year of the date of this report, the document may require reviewing and/or updating.

2 Baseline Ecological Conditions

2.1 The site was the subject of a Preliminary Ecological Appraisal (report reference BG17.235, 08/2017) incorporating an extended phase one habitat survey, a reptile survey (BG17.235, 09/2017) and a breeding bird survey (BG18.157.1, 05/2018) undertaken by Brindle and Green Ltd. These surveys assessed the suitability of the site for protected species, confirming likely absence of reptiles and the presence of 31 bird species within the zone of influence including 10 species notable for their BAP or BoCC status (including lapwing, curlew, starling, house sparrow, willow warbler, song thrush, mistle thrush, meadow pipit, mallard and grey wagtail) and 2 proven breeding bird species (blue tit and wren). While both curlew and lapwing were recorded passing over the site, no ground nesting birds were recorded within the study area during any of the counts.

2.2 The project area is approximately 0.6 ha in extent and incorporates a single field divided into two distinct sections by a post and rail fence. (Figure 1). The site is located to the west of the village of Meltham. Grazing pasture borders the southern boundary of the site, with Meltham Dike running close to the northern boundary. Residential development is encroaching toward the site from the village to the east and a range of terrace properties sit close to the site on the main Mill Moor Road to the south.

2.3 The site lies within 750m of South Pennine Moors Special Area of Conservation (SAC), Peak District Moors (South Pennine Moors -Phase 1) Special Protection Area (SPA), and Dark Peak Site of Special Scientific Interest (SSSI). The South Pennine Moors is designated for the internationally important populations of birds it supports and, as such, any land that is used for foraging by birds breeding within the SPA should be considered functionally linked to the SPA.

2.4 Key management targets have been identified to enhance the value of the retained area of habitat along the northern edge of the site in the long term.

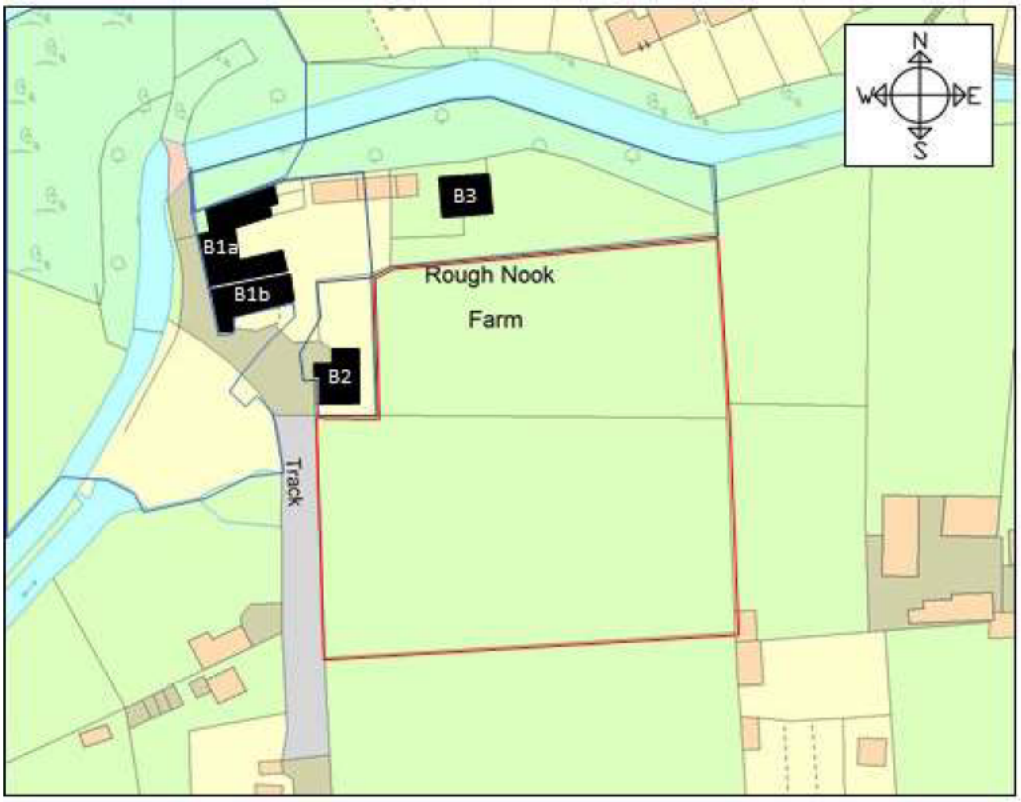

Figure 1. OS map of the project site and surrounding area.

Red line boundary depicts application site, blue line boundary indicates the study area.

3 Development Proposals

3.1 The development will require the removal of approximately 0.6ha of poor semi-improved grazing pasture to facilitate the development of 19 residential properties with associated hard and soft landscaping.

3.2 The planting proposals for the scheme aim to incorporate native, species rich hedgerows along boundary features, with specimen trees within the site. Ornamental planting within formal plots will focus on providing year-round structural diversity. A planting schedule and planting plan has been provided in BG19.172.1 Soft Landscape Scheme.

3.3 Details of the lighting layout have been provided for the site, sufficient to demonstrate that the habitats adjacent to the Meltham Dike will remain unlit to preserve its function as bat foraging habitat. The EDS shall be implemented in accordance with the approved details and all features and habitats shall be retained in that manner thereafter.

4 Ecological Constraints

4.1 The two pastoral fields offer sub-optimal habitat for ground nesting birds such as golden plover, lapwing and curlew. As these species have been recorded in the wider zone of influence, ground nesting birds are considered to be an unlikely negative (not significant) constraint to the development and appropriate mitigation should be implemented to safeguard these protected bird species.

4.2 The network of adjacent linear features such as hedgerows and woodland edge could influence the dispersal of local bat populations commuting to higher quality habitat offered by Meltham Dike. The site itself however is considered to offer low value foraging opportunities which can be enhanced with post construction planting.

4.3 Recommendations are set out to ensure the inclusion of ecological enhancements and consideration for the following species, which are discussed further within Table 1.

Table 1: Ecological constraints associated with the redevelopment of Mill Moor Road Meltham

Target	Impact	Timing of likely impact	Proposed Mitigation	Timing of Mitigation
Nesting Birds [all species]	i) Potential disturbance, loss or harm to nesting birds, their nests, eggs and young ii) Loss of foraging resources iii) Loss of nesting habitat within open grassland, scrub and bramble	March - Sept [inclusive]	i) Ensure that open spaces provide suitable foraging habitat for locally dominant bird species ii) Provide nesting provisions (see Table 2 Habitat Creation) iii) Where vegetation is to be cleared between March and September it should be supervised by an ecologist iv) Should bird nesting activity occur on the application site during any works then the activity in the area will cease until the birds have vacated the site. Such measures should be adhered to, to prevent disturbance to breeding birds or their young.	Vegetation clearance to be undertaken outside of breeding bird season.
Habitats	i) Loss of poor semi-improved grassland	Year round	i) Landscaping with native species to provide a positive effect on biodiversity.	Approved and secured during planning.

Target	Impact	Timing of likely impact	Proposed Mitigation	Timing of Mitigation
Bats	i) Disturbance from lighting	Year round	i) Sensitive lighting scheme to be implemented	During Construction Secured as a planning condition
Hedgehog	i) Loss of suitable habitat for refuge, foraging and commuting purposes. ii) Possible injury or harm during scrub clearance	Year round	i) Site clearance within the application boundary undertaken following Reasonable Avoidance Measure (RAM's) ii) Provision of artificial refugia within boundary scrub and hedgerow habitats	Ground Clearance to be undertaken during species activity period, October favourable

5 Purpose and conservation objectives of proposed ecological works

5.1 The scheme will seek to secure and achieve the following management objectives;

i) Maintain, protect and enhance the existing nature conservation value of the retained features on site

ii) Installation of bird boxes integral to new buildings and on the trees along the northern boundary.

iii) Conservation management of the marshy grassland

iv) Design boundaries to not obstruct the movement of hedgehogs.

v) Installation of a lighting layout to preserve the adjacent Meltham Dike as good foraging habitat.

5.2 Management objectives and prescriptions are outlined in Table 2. Enhancement and management prescriptions are influenced by the previous ecological survey reports, and subsequent recommendations for the site are focused towards improving the biological diversity on site in relation to the baseline conditions.

Table 2: Management Prescriptions to achieve objectives for ecological enhancement

Management Objective	Target Species	Proposed Management and Enhancement
Objective 1: Maintain and protect existing conservation value of retained features		
Retained trees Trees are to be retained along the northern edge of the site.	Bats, Birds, Invertebrates	Trees will be protected by standard root protection measures, with protective fencing installed prior to the commencement of construction. Safety checks to be undertaken on retained trees on a 4-yearly basis. Sensitive lighting scheme to be introduced to prevent light overspill and disturbance to protected species.
Retained neutral grassland along the northern edge of the site	Ground Nesting Birds, Hedgehog, Bats, Invertebrates, Reptiles,	Neutral grassland along the northern edge of the site to be retained and managed to improve the biodiversity value of the site for a variety of species and provide potential habitat for ground nesting birds (See Section 6)
Objective 2: Installation of bird boxes integral to new buildings and on trees.		
Placement of artificial refuges to enhance breeding habitat for protected species.	Nesting birds	The scheme shall provide artificial refuge in the form of bird boxes for bird species within the area of woodland and within the development zone. Nest boxes from should be purchased from NHBS.com Boxes should be fixed two to four metres up a tree or a wall. Boxes should face between north and east, thus avoiding strong sunlight and the wettest winds Birds must have a clear flight path to the nest with no branches of any other clutter directly in front of the entrance The box should be tilted forward slightly so that any driving rain will hit the roof and bounce clear.

Management Objective	Target Species	Proposed Management and Enhancement
Objective 3: Conservation management of the marshy grassland		
Neutral marshy grassland along the northern edge of the site to be retained and managed to improve the biodiversity value of the site for a variety of species and provide potential habitat for ground nesting birds	Ground Nesting Birds, Hedgehog, Bats, Invertebrates, Reptiles.	The grassland should be left unmanaged, allowing the formation of tussocks to create shelter for ground nesting birds. The existing vegetation should be subjected to one cut during late summer and a biennial basis. The arisings should be left for a week to enable to seeds to fall naturally, and then removed from site to prevent enrichment of the soil. The area should be subjected to a check for nesting birds prior to cutting to ensure that nests or fledglings are not disturbed.
Objective 4: Habitat creation and boundary design to encourage hedgehogs		
Design boundaries to encourage hedgehogs and not obstruct their movement across the site.	Hedgehogs	Vegetation on site will be cleared sensitively, by hand, to prevent any death or injury to hedgehogs that might be on site. 2 hedgehog hibernaculum should be created using logs from trees felled on site. To be positioned in the woodland along the northern boundary of the site. The logs should be piled and covered with a small earth bank topped with a wildflower mix to create a small bund no more than 0.75m high. Make 13cm x 13cm holes in or under garden fences for hedgehogs to pass through on commuting routes. Where brick walls restrict access across the site, clay pips should be installed to act as an alternate underground route. The installation of species rich hedgerows along the boundaries will encourage hedgehogs
Objective 5: Sensitive Lighting Scheme		
Installation of a sensitive lighting layout to preserve the function of the adjacent Meltham Dike as good foraging habitat.	Foraging and commuting bats	General Guidance - Use lights with warm colour temperatures with peak wavelengths greater than 550nm (~3000°K) which cause less impacts on bats compared with white / blue light. Artificial lighting should be avoided to the north of the site as indicated in Appendix 1. Overspill onto the eastern and southern boundary should be reduced to encourage connectivity across the application site. Lighting should be positioned around doors and entrances, under a canopy to prevent lighting spill on to vegetative areas. Avoid areas of vegetation, such as trees and hedgerow and dark buffer zones should be incorporated in key areas to avoid disturbance of potential foraging habitat and commuting routes.

Management Objective	Target Species	Proposed Management and Enhancement
		Lighting could be on a short timer to go off when it's not needed or have motion sensors to only operate when required to ensure minimum disturbance. If flood lighting cannot be avoided it will be necessary for it to be • on timer, • motion sensor directed away from vegetation, potential roost access points, foraging habitat and commuting routes. The proposed location of the floodlights should be shown on a plan, and an ecologist consulted prior to installation. Lumens / lux levels and locations of lights should be shown on the lighting plan Lighting times can be restricted to prevent prolonged use and light disturbance throughout and post- development and should be restricted to avoid higher impact times such as: • main bat activity season from April/May and September/October, • Dusk when bats emerge from their roosts and start foraging (therefore during the summer months when bats emerge later, artificial light will not be required to a large extent.) During winter (November to March) bats are hibernating, so lighting times do not need to be restricted.
Objective 6: Monitor retained and created habitats. Review management Strategy		
Management Plan Review	N/A	The plan should be reviewed at 5 years, with the production of a new plan, incorporating revisions following the review of the results of the monitoring of created habitats as described below.
Newly Planted trees, hedgerow and scrub	N/A	Monitored annually until established, manage as prescribed until Year 5 when a review will be undertaken by an ecologist and arboriculturist to ensure objectives have been met and the management continues to enhance the habitat for wildlife.

6 Conservation management of marshy grassland

6.1 The two pastoral fields on site offer sub-optimal habitat for ground nesting birds including golden plover, lapwing and curlew. It is therefore recommended that the strip of grassland habitat along the northern edge of the site that is retained during the development and is subsequently managed with the aim of attracting ground nesting birds such as golden plover, lapwing and curlew.

6.2 The strip of grassland along the northern edge of the site, within the ownership, but outside of the development boundary is available to offset and enhance loss of breeding and foraging habitat for ground nesting birds across the main body of the site. This area should be managed as rough grassland, following the management objectives within Table 2, and the timings of works detailed within Table 3.

6.3 The grassland in the northern part of the site should be left un-mown, allowed to grow tussock patches, with patches of bare ground and shorter areas between the tussocks to provide suitable mosaic habitat for ground nesting birds. It is important that the vegetation is left undisturbed and not cut during the breeding season which is from April to July.

6.4 The intention is to re-create the natural breeding sites of ground nesting birds and sheltering habitat for overwintering species. The golden plover, a species identified as of local concern, usually nest on upland moorland in May to September moving to lowland farmland and fields in winter. As such the grassland to the north has the potential to be used by this and other species.

6.5 Due to the sensitivity of these species, it is proposed that the northern grassland area is separated from the built development, by species rich hedgerow with no public access into the area. This should safeguard the area for disturbance increasing the likelihood of nesting bird occurrence.

7 Management schedule and table of action

Management to establish habitats will be undertaken following standard practice as described within the accompanying soft landscaping scheme plans.

Management should follow the prescriptions described in Table 2, and detailed below (Table 3).

Table 3: Work Schedule

Management Prescriptions	Timing of works	Year 1	Year 2	Year 3	Year 4	Year 5
Install root protection zones around retained trees.	Before construction	✔				
Safety checks to be undertaken on retained trees					✔	
Installation of proposed bird boxes in suggested locations	During construction	✔				
Check and clean out bird nesting boxes	Post construction			✔		✔
Marshy grassland management. Cut the grassland, leave the cuttings for one week to allow the seeds to fall, remove arisings to prevent enrichment. Never cut between March and September.	September	✔		✔		✔
Planting of species rich hedgerows around the site	After construction	✔				
Formative prune specimen hedgerows where necessary to establish a strong, bushy structure, cutting back to bud or node, by no more than 30%. Hedgerows should be assessed, removing and reducing side shoots. This work should be on going until the hedgerow is considered to be established.	Nov – Feb	✔	✔	✔		
Hedgerows cut to A shaped profile on three-year rotational system. Flailing can be introduced to new hedgerows at approx. 10 years once fully established to promote a thick, fruit bearing hedge of between 2 to 4 meters on a 3 year rotation.	Nov – Feb			✔		
Installation of proposed hedgehog boxes in suggested locations	Before construction	✔				
Lay mature hedgerows on an 8 -15-year rotation	Nov – Feb					
Installation of 13cm x 13cm holes at the base of fencing to enable hedgehog commuting routes.	During construction	✔				
Sensitive lighting scheme to be installed see Appendix 1.	During construction	✔				
Monitor newly planted trees, hedgerow and scrub on a 3-year rotation from establishment.					✔	

Appendix 1 Enhancement Map

Ecological Design Strategy
Enhancements and Mitigation

Project Ref: BG19.172
Mill Moor Road, Meltham

Key

- 2GR Schwegler Oval Entrance Nest Box
- 1B Schwegler nests boxes (1 x 32mm and 1 x 26mm entrance hole)
- Open fronted nest box
- 1SP Schwegler sparrow terrace
- Manthorpe Swift Brick
- Hedgehog House
- Artificial light exclusion zone
- HA Hedgehog Access

Drawn by: BW
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