



**North Moor View, Brimington
Biodiversity Enhancement Strategy**

Vistry Group

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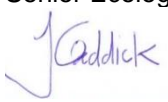
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1. Introduction

1.1 Background

- 1.1.1 Ecus Limited (Ltd) was commissioned in October 2020 by Vistry Group to produce a Biodiversity Enhancement Strategy (BES) for the proposed development at North Moor View in Brimington, Derbyshire, (central Ordnance Survey National Grid Reference (OSNGR): SK 40357 73148), hereafter referred to as 'the Site'.
- 1.1.2 The BES is required to discharge Chesterfield Borough Council Planning Condition no. 10 relating to Appeal Application APP/A1015/W/19/3223162 for the residential development of up to 150 dwellings at the Site.
- 1.1.3 Condition 10 states that:
- "Prior to the commencement of development, a biodiversity enhancement strategy incorporating the recommendations of the Ecus Ecological Appraisal July 2018, shall be submitted to and approved in writing by the Local Planning Authority to ensure no net loss for biodiversity and aim for a net gain. Such approved measures should be implemented in full and maintained thereafter".*
- 1.1.4 This BES includes a review of the Ecus Ltd 'North Moor View, Brimington Preliminary Ecological Appraisal' (PEA) report (Ref: 10947: Version 3, July 2018) for inclusion of the recommended qualitative enhancement measures.
- 1.1.5 This BES includes a review of the Artreum 'Proposed Site Layout' (Drawing Ref: 1010-003-02-01, October 2020) and the 'Landscape Proposals' (Drawing Refs: 8881-L-101 Rev A and 8881-L-102 Rev A) produced by FPCR, November 2020.

1.2 Overview

Predevelopment

- 1.2.1 The Site comprises predominantly arable land with a small area of dense scrub near the western boundary. A well-used bare ground pedestrian footpath (Public Right of Way, PRoW) crosses the Site in an east/west orientation and an infrequently used PRoW crosses the Site in a north east/south west orientation. Small sections of defunct privet *Ligustrum vulgare* and hawthorn *Crataegus monogyna* hedgerow are present along the northern Site boundary and part of the eastern boundary. The hedgerow forms adjacent property curtilages and are managed as such.

Proposals

- 1.2.2 The development proposals comprise the construction of 150 new houses with associated access roads and front/rear gardens. A Public Open Space (POS) approximately 0.82 hectares (ha) in size will be created in the west of the Site, with an attenuation basin comprising approximately 0.23 ha of the 0.82 ha. This western POS will link to POS which will extend in a c. 0.13 ha strip along the majority of the southern Site boundary and further POS (approx. 0.19ha) will curve around part of the eastern Site boundary.

- 1.2.3 The PRoW's will be retained, although slightly realigned, within the Site design and are incorporated along the edges of the western POS and adjacent a vehicular road which will lie parallel to the main (east/west) PRoW.
- 1.2.4 In addition to meeting the planning condition 10 criteria, the BES also aims to ensure the development of the Site maintains, protects and enhances the ecological interest present, in accordance with the National Planning Policy Framework (NPPF, 2019) which states that developments should '*identify and pursue opportunities for securing measurable net gains for biodiversity*'.

2 Ecological Receptors and Enhancement Recommendations

2.1 Habitats and Species

- 2.1.1 The PEA report (Ecus Ltd, July 2020) identified that the pre-development Site comprises predominantly arable land with a small area of dense scrub near the western boundary. A well-used bare ground pedestrian footpath (Public Right of Way, PRoW) crosses the Site in an east/west orientation and an infrequently used PRoW crosses the Site in a north east/south west orientation. Small sections of defunct privet *Ligustrum vulgare* and hawthorn *Crataegus monogyna* hedgerow are present along the northern Site boundary and part of the eastern boundary. The hedgerow forms adjacent property curtilages and are managed as such.
- 2.1.2 Post development, habitats present on Site will comprise buildings and hardstanding, amenity grassland, wildflower grassland, introduced shrub, scattered trees, retained hedgerow, new hedgerow planting and an attenuation basin.
- 2.1.3 The post development habitats will provide biodiversity enhancements via an increase in species-richness through wildflower grassland replacing arable (albeit in a small area), and new shrub planting along with enhanced habitat structure in the form of additional hedgerow planting and new tree planting.
- 2.1.4 Species considered likely to use habitats that will be present on Site post development, and for which the biodiversity enhancement measures incorporated on Site will predominantly benefit are,:
- Common amphibians;
 - Bats;
 - Birds;
 - Invertebrates; and
 - Small mammals.

2.2 Biodiversity Enhancements

- 2.2.1 Biodiversity enhancements will be achieved through the retention and enhancement of existing habitats along the Site boundaries, replacement planting comprising habitats of higher ecological value than that to be lost, and new planting favouring a variety of plant species.
- 2.2.1 The landscaping scheme will utilise a range of native species of UK provenance, where practicable, and flowering and fruiting species that will provide a benefit to invertebrates, bats, birds and small mammals.
- 2.2.2 The enhancements are divided into the following broad categories:
- Enhancement of retained hedgerow;

- New tree planting favouring native species, of local provenance where possible,
- New shrub planting favouring flower/pollen/nectar producing planting scheme;
- Incorporation of features to enhance the value of the Site for specific species groups, i.e. bats and birds;
- Creation of species-rich grassland with a low intensity management regime within the POS areas to benefit invertebrates, bats and birds, reptiles and hedgehogs.

2.2.3 Whilst an attenuation basin is also to be created within the western POS area, the basin is to be adopted by Yorkshire Water. As such, the aim for attenuation basin will be to only hold water in storm events greater than a 1:1 storm, only hold water for the duration of the storm and a short time after and for it remain dry for the rest of the year. A 3 m grassed perimeter track around the top will also be required to allow maintenance. As such, the attenuation basin does not include wildlife friendly principles, which may otherwise be of benefit to common amphibians, bats, birds, invertebrates, reptiles and small mammals.

2.2.4 Table 1 below sets out the habitat/species, their corresponding enhancement recommendations that were made within the PEA and how/where the enhancement recommendations will be incorporated on Site. The *Landscape Proposals* drawings are provided as Appendix 1 for reference.

Table 1. Ecological Enhancement Recommendations and Implementation

Habitat/Species	Recommended Enhancement (PEA wording)	Incorporation on Site (as per <i>Landscape Proposals</i> drawings)	To Benefit
Arable	<p>POS to include tall sward grassland and native planting to provide habitat structure and a foraging resource for local wildlife. Connectivity between green space and adjacent off-site habitat preferable.</p> <p>Creation of a pond to provide a valuable habitat for a wide range of aquatic and terrestrial species. Alternatively if a Sustainable Urban Drainage Scheme (SuDS) pond, then ecological design principles should be followed so as to allow wildlife to benefit.</p>	<p>The POS's in the west, south and east of the Site will predominantly be managed as amenity grassland using Naturescape NL4 'Hardwearing Lawn Mixture' or similar. A c. 560 m² triangular area of grassland adjacent the northern Site boundary will be sown with a native wildflower grassland mix, Naturescape N1 'General Purpose Meadow Mixture' or similar, which will be subject to a low intensity management regime, allowing a tall sward to develop.</p> <p>An attenuation basin is to be created, to be adopted by Yorkshire Water. As such, the aim will be for the basin to only hold water in storm events greater than a 1:1 storm, only hold water for the duration of the storm and a short time after, stand dry for the remainder of the year and for a 3m perimeter track around the top to be grassed and maintained as short sward. Therefore, as wildlife benefit principles will not be applied to the attenuation design or maintenance, the recommended enhancement is not considered to be incorporated on Site.</p>	Common amphibians, birds, invertebrates, reptiles

Habitat/Species	Recommended Enhancement (PEA wording)	Incorporation on Site (as per <i>Landscape Proposals</i> drawings)	To Benefit
Hedgerow	Retention of boundary hedgerow was anticipated and encouraged to maximise the presence of continuous, species-rich native new hedgerow planting along the length of the Site boundaries. Where single species planting is considered more appropriate native species such as beech <i>Fagus sylvatica</i> , yew <i>Taxus baccata</i> , hornbeam <i>Carpinus betulus</i> should be favoured.	Hedgerow along the northern and part of the eastern Site boundary will be retained and buffered using native species comprising field maple <i>Acer campestre</i> , hazel <i>Corylus avellana</i> , hawthorn <i>Crataegus monogyna</i> , holly <i>Ilex aquifolium</i> and blackthorn <i>Prunus spinosa</i> . New hedgerow planting is to be incorporated as part of the housing plot front gardens utilising wither either single species (hornbeam <i>Carpinus betulus</i>) or a mixture of the above native species with the addition of dog rose <i>Rosa canina</i> . The new hedgerow planting favours native species and will provide an additional foraging resource for fauna through pollen/nectar/berries and fruits.	Birds, bats, invertebrates
	Inclusion of native or known wildlife-attracting shrub and low growing species. Where possible, species chosen should maximize flowering, pollen/nectar production and/or berries/fruit production.	Small introduced shrub beds will be planted within the POS areas, typically to the edges of the amenity grassland. The planting schedule favours non-native ornamental species however the species will provide flowering and pollen/nectar.	Birds, bats, invertebrates, small mammals
	Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) listed invasive non-native species (INNS) should be avoided within the planting schedule.	No INNS are included within the detailed planting schedule.	Native flora
	Tree planting should include a variety of native species, typical of the local area, of UK provenance where practicable and selected to maximise food and nectar sources for birds, invertebrates and small mammal species.	Trees to be planted on Site will comprise a variety of native species; field maple, purple beech <i>Fagus sylvatica purpurea</i> , sweet gum <i>Liquidambar styracifula</i> , wild cherry <i>Prunus avium</i> , bird cherry <i>Prunus padus</i> , callery pear <i>Pyrus calleryana</i> , oak	Birds, bats, invertebrates

Habitat/Species	Recommended Enhancement (PEA wording)	Incorporation on Site (as per <i>Landscape Proposals</i> drawings)	To Benefit
		<p><i>Quercus robur</i> and rowan <i>Sorbus acuparia</i>, which will provide shelter opportunities and micro habitats for wildlife and food and nectar sources for birds, invertebrates and small mammals</p>	
	<p>Incorporation and appropriate management to culture mature specimen trees in the long term encouraged. These trees should be located within areas of open space, where root and canopy growth will not be restricted.</p>	<p>Oaks are a UK native species which are understood to provide the highest ecological value for a range of biodiversity, particularly when they reach veteran age. This species is included within the new planting on Site and will be located within the southern POS strip where root and canopy growth are unlikely to be restricted, although they will be in limited number. The trees can be cultured to become mature specimens in this setting as they are not adjacent properties and will not overhang gardens.</p>	<p>Birds, bats, invertebrates</p>
<p>Bats</p>	<p>Strategic shrub planting and tree grouping across the site has the potential to enhance east/west connectivity for commuting and foraging bats.</p>	<p>The tree, shrub and hedgerow planting, especially once matured, will all contribute to enhancing bat commuting connectivity and increasing the resource on Site for foraging bats to utilise.</p>	<p>Bats, invertebrates</p>

Habitat/Species	Recommended Enhancement (PEA wording)	Incorporation on Site (as per <i>Landscape Proposals</i> drawings)	To Benefit
	<p>Installation of a number of bat bricks/boxes, e.g. Schwegler 1FR bat tubes, within the fabric of buildings, placed in a number of locations facing different aspects (southerly aspects are optimal) and at a minimum of 4 m high (or preferably at eaves level). Light spill across areas of bat roosting provision should be avoided. Typically a 10% box to building ratio is suitable.</p>	<p>A total of no. 15 integral bat bricks or tubes are to be installed within the new houses during the construction stage to provide long-term roosting opportunities. Bricks/tubes will comprise Schwegler 1FR bat tubes, placed at eaves level in the suggested positions as shown on Figure 1, facing different aspects (preferably south and south-east) to provide a range of micro-climate conditions.</p>	Bats
Birds	<p>Existing hedgerows could be gap planted to thicken and enhance boundary features.</p>	<p>A continuous new native hedgerow is to be planted along the length of the northern Site boundary, in front of the existing curtilage. This will be of greater benefit than gap planting, by providing additional hedgerow and being subject to suitable management to encourage healthy growth and good habitat structure.</p>	Birds
	<p>Nest boxes, mounted externally on the outside of buildings at a minimum height of 3 m, or ideally at eaves level. General purpose woodcrete bird boxes with a 32 mm entrance hole, such as the Schwegler 1B or Avianex boxes, suitable for a range of common urban and garden dwelling species. Boxes should not be sited on southern aspects as this can cause chicks to overheat. Sparrow terraces and starling boxes would also be suitable.</p>	<p>A total of no. 15 integral bird boxes are to be installed during the construction stage. They will comprise Schwegler 1B or Avianex boxes, placed as shown on Figure 1. They will avoid full south facing aspects to prevent the risk of eggs/chicks overheating during the summer months.</p>	Birds

Habitat/Species	Recommended Enhancement (PEA wording)	Incorporation on Site (as per <i>Landscape Proposals</i> drawings)	To Benefit
	Well-designed areas of open space and landscaping have potential to provide potential foraging and nesting habitat in the future and provide a net benefit to some bird species.	The new tree, shrub and hedgerow planting will enhance opportunities for nesting birds during the breeding season (March - August inclusive) and for temporary shelter all year round.	Birds, invertebrates
Hedgehog	Boundary treatments should ideally comprise hedgerows. Where fencing is to be used, gaps should be provided to facilitate the safe movement of hedgehogs through the site. Gaps should be at least 10 cm by 15 cm.	Hedgehog Highway' gaps (130 mm x 130 mm) are to be created at the bases of closed board fencing where it is used as boundary treatments. See Figure 2.	Hedgehog, small mammals
Hedgerow	N/A	Sensitive lighting considerations in accordance with BCT Bats and Lighting Guidance to avoid/minimise lightspill on the Site boundaries. Lighting near these features will not exceed 1 Lux. This level of lighting is not considered to represent a significant deterrent to bat species.	Bats
Log Pile	N/A	A log pile will be created within the western POS, situated between the northern edge of the attenuation basin and southern aspect of a substation unit.	Common amphibians, reptiles

3 Maintenance and Monitoring

3.1 Management Responsibility

3.1.1 Vistry Group will maintain overall responsibility for managing the POS areas on Site and the biodiversity enhancement features, either directly or via instruction of a landscape management team to undertake required maintenance works on Site. Yorkshire Water will be responsible for maintenance of the attenuation basin.

3.2 Long-term Maintenance Objectives

3.2.1 In general the maintenance objectives relating to the soft landscape areas and incorporated enhancement features e.g. bat and bird boxes, log pile etc are:

- To allow for potential periodic thinning of plant beds should beds become excessively overcrowded;
- To remove dead or damaged plants and undertake further replacement planting where necessary;
- To reinstate any grassed areas subject to erosion or damage;
- To implement a low intensity mowing regime at an appropriate time of year for species-rich grassland;
- To monitor new trees on an annual basis and following any storm events or strong winds. Any health and safety works should be prioritised within public space or adjacent paths;
- To monitor use of roosting/nesting opportunities and re-site if considered appropriate.

3.3 Implementation of the Maintenance Works

3.3.1 Vistry Group will appoint a landscape contractor/grounds maintenance team to monitor the POS areas and ecological features and carry out all necessary maintenance tasks in accordance with the BES.

3.3.2 All soft landscape areas are to be maintained to British Standard (BS):7370-4:1993 Grounds Maintenance.

3.3.3 The landscape maintenance of the Site is to be carried out to a high standard at all times and in accordance with the schedule and specifications within this BES.

3.3.4 The maintenance team shall ensure that the Site is left tidy and safe following all maintenance works. All arisings should be removed from site in accordance with the maintenance schedule.

3.3.5 The maintenance team shall programme their visits to coincide with appropriate weather conditions for carrying out maintenance operations e.g. avoiding heavy rain during mowing of grass, particularly in relation to the wildflower grassland area.

- 3.3.6 A record of all maintenance works should be kept and these are to be submitted to Vistry Group for review every six months.
- 3.3.7 The maintenance team shall ensure that if any chemical application is required, that it is undertaken by trained personnel only with the appropriate City Guilds NPTC (or equivalent) certificates and in accordance with the manufacturer's recommendations. The '*Code of Practice for the Safe Use of Pesticides for Non-agricultural Purposes*' will be observed where applicable. The use of any chemicals shall be included within the maintenance visit records as described above.
- 3.3.8 The maintenance team should notify Vistry Group immediately of any significant pest or disease problem affecting plant stock and a suitable strategy for treatment should be discussed and agreed for implementation.

3.4 Restrictions and Limitations to Maintenance Operations

Habitats

- 3.4.1 *Grassland* – Once established, wildflower grassland will be left to go to seed before a cut is taken (i.e. a late summer cut). The arisings will be removed to prevent nutrient enrichment of the soil and thereby discourage common, coarse species from flourishing and outcompeting the favoured wildflower species. The arisings will either be taken off site, or transferred to a selected composting area.
- 3.4.2 Refer to paragraphs 3.4.4 and 3.4.8 below regarding additional limitations in relation to fauna considerations.
- 3.4.3 *Hedgerows & Trees* - Refer to paragraphs 3.4.5 and 3.4.7 below regarding additional limitations in relation to fauna considerations.

Species

- 3.4.4 *Amphibians* - Amphibians are active on terrestrial land typically between March to October, i.e. outside the hibernation period, so care is to be taken when cutting grass during these months. Medium to tall sward and tussocky grassland habitats have a higher risk of amphibians being present and therefore the grassed areas should be walked slowly prior to cutting to encourage individuals to move away of their volition (if present). Medium to tall sward grass should be cut down to 150 mm above ground level, working in a directional manner, from the middle of a space outwards to enable movement of any amphibians into other habitat outside the footprint of works. Following the initial cut which will have exposed the sward and made it less suitable for amphibians to shelter within, the vegetation can be cut down to ground level.
- 3.4.5 *Bats* - Where any mature trees require felling/significant pruning in the future, an ecologist should be contacted to discuss whether an assessment for roosting bats (including subsequent nocturnal survey and/or aerial tree climb inspection) may be required ahead of the works.
- 3.4.6 Any 'invasive' box checks, i.e. any direct inspection requiring the box to be handled/ moved/ opened, should be undertaken by a licensed bat ecologist.
- 3.4.7 *Birds* - Should any trees, hedgerow or shrub vegetation require extensive

thinning or removal in the future, works should ideally be undertaken September to February, outside the bird breeding season, where feasible. If works cannot be scheduled outside these months, a suitably experienced ecologist should be contacted to arrange for a nesting bird check to be undertaken no more than 48 hours prior to the proposed works.

- 3.4.8 *Invertebrates* - Wildflower grasslands and flowering plants provide a valuable nectar and food source for invertebrates. Where possible, cutting of grassland, along with pruning of shrubs and herbaceous species, will be undertaken once flowering has finished. Cutting of grassland (taller sward wildflower meadow in particular) will be avoided during heavy rain and the arisings will be removed, in order to prevent a heavy 'mat' forming under which invertebrates may become trapped.

3.5 Maintenance Schedule and Specification

- 3.5.1 The following schedule (Table 2) outlines the key management objectives for each habitat type and ecological enhancement feature within the Site along with the recommended maintenance operations, the appropriate times of year they should be undertaken and the recommended frequency each year in order to achieve the objectives.
- 3.5.2 The schedule details operations that are recommended for the establishment phase up to five years following implementation and also those operations required over a 10 year period.

Table 2. Ten Year Maintenance Schedule

Component	Management Objectives	Operation(s) / Prescription(s)	Time of Year	Frequency per Year	Responsibility
General maintenance requirements to all planted areas, unless otherwise stated in the detailed schedule below.	To maintain high standard planting scheme across the Site and ensure healthy establishment of plants.	Inspection	March to September	Annually.	Landscape Contractor during Year 1 (first 12 months after planting). Appointed Maintenance Team Year 2 onwards.
		Inspect tree stakes, ties and shelters and replace where necessary. Remove in Year 5.	February and after strong winds	Annually. In Year 5- Remove.	
		Watering - during establishment and to ensure continued thriving	As necessary during dry spells, or indicated in the detailed schedule below.	As required- daily in dry spells mainly April- September.	
		Refirm new tree / shrub planting	February and after strong winds	Annually and as required following inspection.	
		Removal of debris and litter	Throughout	Each maintenance visit.	
		Plant replacements and reinstatement to Year 5 when instructed	November to March	Annually next following planting season.	
		Fertiliser	March	Annually.	
		Top up mulch to 60mm or 75mm depth (bark or gravel - refer to specification)	November	Annually.	
New tree planting	To ensure that trees establish and remain in a healthy and safe condition.	Establishment maintenance (weed control, fertiliser, tree guy wires, refirming, formative pruning)	As necessary following inspection	As required.	Landscape Contractor during Year 1 (first 12 months after planting).
		Maintain 1 m diameter weed free area, adjust soil and maintain depth of mulch	As necessary following inspection	As required.	

	To ensure continued healthy growth of trees and safety of the Site.	Inspect to record pests and diseases, deadwood, impaired physiological and structural condition	Late spring/summer and following severe weather (heavy snow, strong wind)	Annually.	Appointed Maintenance Team Year 2 onwards.
		Tree management operations or removal as required (observing wildlife legislation i.e. nesting birds)	As necessary in winter or immediately following receipt of inspection report if urgent action is required	As required.	
New Hedgerow Planting	To ensure the healthy establishment of new hedges.	1 m buffer area either side of new hedgerows to be kept weed-free to reduce competition.	As necessary following inspection.	Three times per annum.	Landscape Contractors during Year 1 (first 12 months after planting). Appointed Maintenance Team Year 2 onwards.
	To encourage good habitat structure. To provide shelter for amphibians, nesting birds and invertebrates.	Trim or hedge-lay established hedge to maintain a full hedgerow with bushy sides (north boundary hedgerow in particular).	October to March, when hedges are dormant and birds are not nesting.	Annually in Year 1 and Year 2.	
New shrub planting - shrubs and herbaceous material (introduced shrub)	To provide attractive and healthy landscape year-round. To create healthy attractive plant mixes. To control weed growth.	Pruning to encourage best display of given species, taking into account of natural habit and form:			Landscape Contractors Year 1 (first 12 months after planting). Appointed Maintenance Team Year 2 onwards.
		a) Winter flowering	Prune Spring	Annually	
		b) Shrubs flowering between March and July	Prune immediately after flowering	Annually	
		c) Shrubs flowering between July and October	Prune back to old wood in winter	Annually	
		Thinning	As necessary following inspection	Annually if required	

		Weed Control	March to September	As required	
		Soil aeration	April	When required	
		Soil level readjustment/ edging	Spring	Annually	
		<p>All herbaceous perennials and ornamental grasses that die back in winter to soil level can be cut back in autumn and winter, using the following guidance:</p> <ul style="list-style-type: none"> • Using a knife, shears or secateurs, cut stems close to the 'crown' or dormant base of the plant; • Where there is any young growth, cut to just above it; • Take the opportunity to remove weeds, digging out those with thick or fleshy roots; • Cut back perennials that produce leaves and flower stems from below the soil level, to soil level; • Less severely cut back perennials showing new basal shoot growth (e.g. Sedum)' • Any attractive dead stems or flower heads can be left until early spring to provide structural interest throughout the winter; and, • Separate and dispose of diseased material (showing signs of leaf-spots, mildew and rusts, for example). 	Autumn / Winter	Annually	

		Evergreen perennials are not to be cut back, but should be tidied during spring and summer by removing dead foliage.	Spring and Summer.	Annually	
		Thinning herbaceous perennials	Spring	As required	
Wildflower Grassland Mix: (Naturescape N1 General Purpose Meadow Mixture or similar)	Maintain to achieve the greatest species diversity. Prevent future encroachment by scrub/ saplings. Control coarse grasses from outcompeting perennial wildflowers.	Year 1: Most of the sown species are perennial and will be slow to germinate and grow and will not usually flower in the first growing season. There will often be a flush of annual weeds from the soil in the first growing season. This weed growth is easily controlled by topping or mowing.	March, May and September	3	Landscape Contractors
		Year 2 onwards: Once established tussocky grassland requires minimal maintenance. Unwanted perennial weeds (docks, thistles) to control by spot treatment with a herbicide.	As necessary following inspection	Annually if required	Appointed Maintenance Team
		Year 2 onwards: Cut once every 2- 3 years between October and February, on a rotational basis so that no more than half the area is cut in any one year leaving part as an undisturbed refuge.	Once between October and February.	1	Appointed Maintenance Team
Bird boxes	To provide nesting opportunities	Inspect bird boxes and clean as required to remove waste, debris, potential parasites etc.	October/ November	Annually	Vistry Group to advise homeowner of box presence and recommended actions
		Make repairs	September to February	As required	
Bat boxes Any monitoring should be non-invasive	To provide roosting opportunities	Monitor bat boxes to ensure they are not inhabited by pests such as wasps.	As required. Remove wasps in late winter/ early spring if present	As required	Vistry Group to advise homeowner of box presence

conducted from a distance. Any invasive checks to be undertaken by a licensed bat worker.					and recommend homeowner to engage ecologist/pest control as relevant
		Make repairs or re-site.	Only when not inhabited. Careful monitoring to ensure they are empty beforehand.	As required	Home owner to engage licensed bat ecologist
Log Pile	To provide shelter opportunities primarily for amphibians, reptiles and invertebrates	No specific management required. Can be added to with brash during site maintenance.	N/A	As required	Appointed Maintenance Team

4 References



British Standards Institution (2012) BS5837: 2012. *Trees in Relation to Design, Demolition and Construction*.

Great Britain. Department for Communities and Local Government (2019) *National Planning Policy Framework*. London: Department for Communities and Local Government.

Ecus Ltd (2018) *North Moor View, Brimington Preliminary Ecological Appraisal*. Ecus Ltd, Sheffield.

Figure 1. Bat and Bird Box Location Plan

Legend

-  Proposed bat box locations (15 boxes)
-  Proposed 32 mm entrance hole bird box locations (15 boxes)

Bat boxes will be installed at approx. 4 m high (eaves level), favouring the southern, south eastern and south western aspects of the new houses. The boxes in new buildings will be located around habitats which provide commuting/foraging habitat. Areas of bright lighting should be avoided.

Bird boxes will include 15 general bird boxes with 32 mm entrance holes suitable for a range of garden bird species. The bird boxes will be placed at a minimum height of 3 m (near eaves level) facing different aspects to maximise chances of occupation. Full south aspects present a risk of overheating and are therefore be avoided.

Recommended designs are displayed on the plan.



Schwegler 1FR
bat tube



1B Schwegler
32 mm bird box

Vistry Group


Northmoor View, Brimington

Figure 1: Bat and Bird Box Location Plan

Brook Holt 3 Blackburn Road Sheffield S61 2DW
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Figure 2. Hedgehog Gaps Plan

Legend

-  Proposed 'Hedgehog Highway' Gaps

'Hedgehog Highway' gaps (130 mm x 130 mm) are to be created at the bases of closed board fencing where it is used as boundary treatments.

Suggested locations to allow access to and between areas of Public Open Space (POS) and residential gardens are shown on the plan.



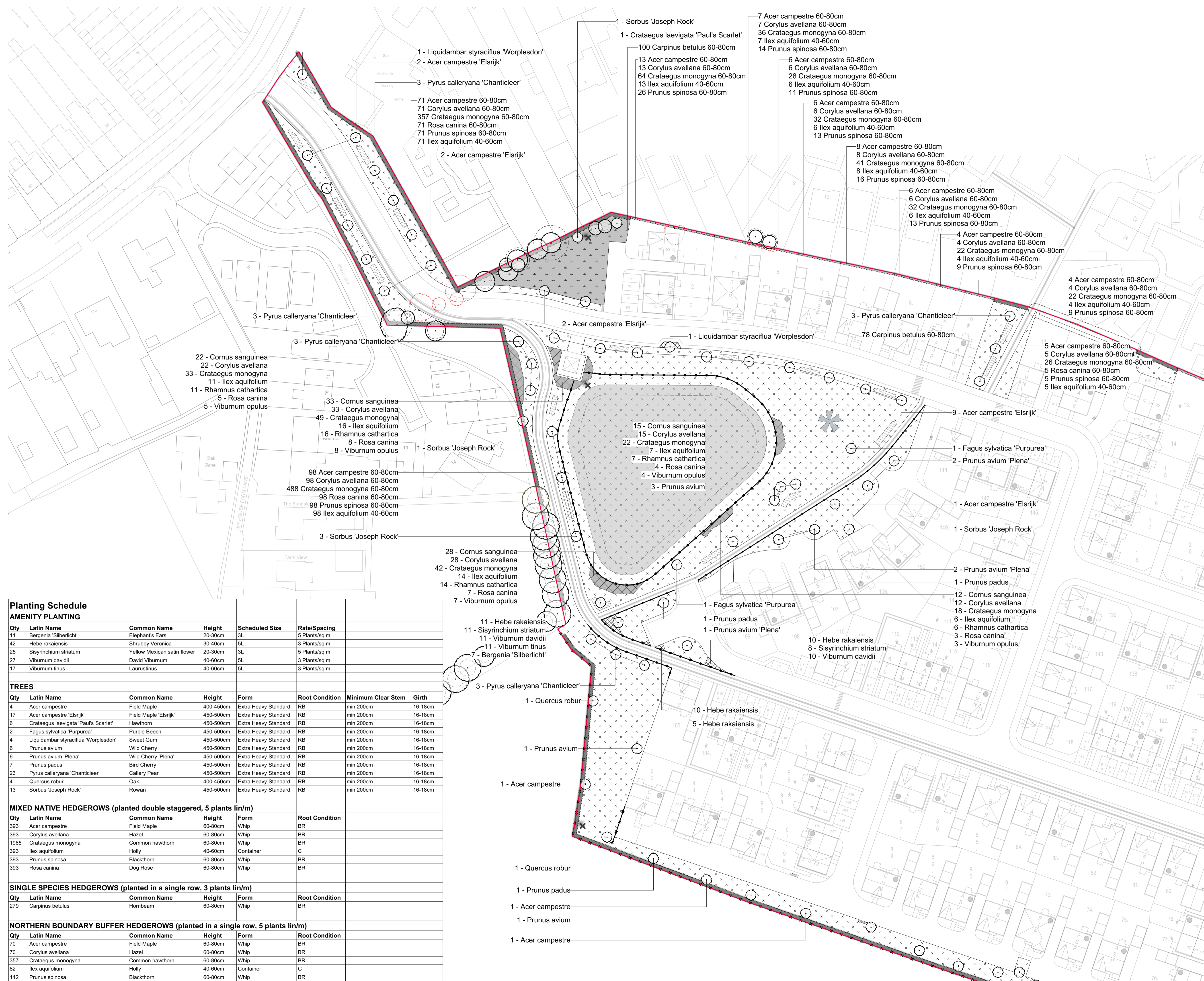
Vistry Group

Northmoor View, Brimington

Figure 2: 'Hedgehog Highway' Gaps Location Plan

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Appendix 1. FPCR Landscape Proposals Drawings



NOTES:
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 Ordnance Survey base mapping - supplied by client.
 0 25 50 75 100m

KEY

- Site Boundary
- Retained Vegetation (See Barnes Associates Ltd BS5837 Tree Survey)
- Trees (All trees to be double staked)
- Scrub Planting
- Native Hedgerows (See notes for plants list)
- Northern Boundary Buffer Hedgerows (To be planted in a single row, 5 plants lin/m)
- Amenity Planting
- Amenity Grassland (to be Naturscape NL4 'Hardwearing Lawn Mixture' or similar approved)
- Flowering Meadow Grassland (to be Naturscape N1 'General Purpose Meadow Mixture' or similar approved)
- Wetland Grass (to be Naturscape N7 'Wetland Meadow Mixture' or similar approved)
- Bulb Planting (See notes for planting density)
- Log Pile (to be created using wood from removed trees on site to provide biodiversity benefits)

Hardworks

- Knee Rail (to be 450mm high treated softwood knee rail in diamond section with galvanised strapping. For full detail see Boundary drawing 8881-L-110)
- Post and Rail Fence (to be treated post and three rail softwood fence constructed to a height of 1200mm. For full detail see Boundary drawing 8881-L-110)
- Estate Railings (to be steel estate rails with rounded top. For full detail see Boundary drawing 8881-L-110)
- Public Feature (Could include an element of public art or natural play features (mounds, climbing logs))

NOTES:

- All trees to be double staked using timber supports and ties.
- Scrub planting mix to be set out in single species groups of 3.5 or 7 plants and randomised to avoid patterns.
- Mixed Native Hedgerows to be planted double staggered, 5 plants lin/m. *Corylus avellana* hedging to be planted in a single row, 3 plants lin/m. All whip planting to be staked and protected with a shrub shelter (Tubex or similar approved)
- Northern Boundary Buffer Hedgerow to be planted in a single row, 5 plants lin/m. Planting to create a continuous boundary. Any gaps not labelled on the drawing to be infilled using the native mix.
- Amenity planting mixes to be set out in single species groups of 3.5 or 7 plants and randomised to avoid patterns.
- Bulb planting to be mixed Narcissus bulbs and planted at 10 bulbs per sq/m. Total area = 193 sqm No of Bulbs = approx 1,930.

A	06.11.2020	Updates based on comments.	CC / DH
-	06.11.2020	First Issue	CC / DH
rev	date	description	d/m / chkd

masterplanning
 environmental assessment
 landscape design
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 project
 Chesterfield Road,
 Brimington
 drawing title
POS LANDSCAPE PROPOSALS
 (Sheet 1 of 2)
 scale
 1:500 @ A1
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 CC / DH
 revision date
 06 November 2020
 drawing number
8881-L-101
A
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Planting Schedule

Qty	Latin Name	Common Name	Height	Scheduled Size	Rate/Spacing
11	<i>Bergenia 'Silberlicht'</i>	Elephant's Ears	20-30cm	3L	5 Plants/sq m
42	<i>Hebe rakaiensis</i>	Shrubby Veronica	30-40cm	5L	3 Plants/sq m
25	<i>Sisyrinchium striatum</i>	Yellow Mexican satin flower	20-30cm	3L	5 Plants/sq m
27	<i>Viburnum davidii</i>	David Viburnum	40-60cm	5L	3 Plants/sq m
17	<i>Viburnum tinus</i>	Laurustinus	40-60cm	5L	3 Plants/sq m

Qty	Latin Name	Common Name	Height	Form	Root Condition	Minimum Clear Stem	Girth
4	<i>Acer campestre</i>	Field Maple	400-450cm	Extra Heavy Standard	RB	min 200cm	16-18cm
17	<i>Acer campestre 'Elsrijk'</i>	Field Maple 'Elsrijk'	450-500cm	Extra Heavy Standard	RB	min 200cm	16-18cm
6	<i>Crataegus laevigata 'Paul's Scarlet'</i>	Hawthorn	450-500cm	Extra Heavy Standard	RB	min 200cm	16-18cm
2	<i>Fagus sylvatica 'Purpurea'</i>	Purple Beech	450-500cm	Extra Heavy Standard	RB	min 200cm	16-18cm
4	<i>Liquidambar styraciflua 'Worplesdon'</i>	Sweet Gum	450-500cm	Extra Heavy Standard	RB	min 200cm	16-18cm
6	<i>Prunus avium</i>	Wild Cherry	450-500cm	Extra Heavy Standard	RB	min 200cm	16-18cm
6	<i>Prunus avium 'Plena'</i>	Wild Cherry 'Plena'	450-500cm	Extra Heavy Standard	RB	min 200cm	16-18cm
7	<i>Prunus padus</i>	Bird Cherry	450-500cm	Extra Heavy Standard	RB	min 200cm	16-18cm
23	<i>Pyrus calleryana 'Chanticleer'</i>	Callery Pear	450-500cm	Extra Heavy Standard	RB	min 200cm	16-18cm
4	<i>Quercus robur</i>	Oak	400-450cm	Extra Heavy Standard	RB	min 200cm	16-18cm
13	<i>Sorbus 'Joseph Rock'</i>	Rowan	450-500cm	Extra Heavy Standard	RB	min 200cm	16-18cm

Qty	Latin Name	Common Name	Height	Form	Root Condition
393	<i>Acer campestre</i>	Field Maple	60-80cm	Whip	BR
393	<i>Corylus avellana</i>	Hazel	60-80cm	Whip	BR
1965	<i>Crataegus monogyna</i>	Common hawthorn	60-80cm	Whip	BR
393	<i>Ilex aquifolium</i>	Holly	40-60cm	Container	C
393	<i>Prunus spinosa</i>	Blackthorn	60-80cm	Whip	BR
393	<i>Rosa canina</i>	Dog Rose	60-80cm	Whip	BR

Qty	Latin Name	Common Name	Height	Form	Root Condition
279	<i>Carpinus betulus</i>	Hornbeam	60-80cm	Whip	BR

Qty	Latin Name	Common Name	Height	Form	Root Condition
70	<i>Acer campestre</i>	Field Maple	60-80cm	Whip	BR
70	<i>Corylus avellana</i>	Hazel	60-80cm	Whip	BR
357	<i>Crataegus monogyna</i>	Common hawthorn	60-80cm	Whip	BR
82	<i>Ilex aquifolium</i>	Holly	40-60cm	Container	C
142	<i>Prunus spinosa</i>	Blackthorn	60-80cm	Whip	BR



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project
Chesterfield Road, Brimington

drawing title
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scale
1:500 @ A1

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 CC / DH

revision date
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8881-L-102 A

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