

# Landscape and Ecological Management Plan (LEMP)

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Land off of Selman Drive, Falfield

April 2023

Version 1



**COTSWOLD**  
H O M E S

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## Appendix 1 Bird Box, Bat Box and Hedgehog Movement Plan

# Objectives

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## Section 1

- 1.1 Soft landscaping proposals have been submitted separately in support of this residential planning application. This Landscape Ecological Management Plan (LEMP) does not seek to repeat the details of the landscaping proposals such as the species and number of them, but instead seeks to set out how those proposals will be implemented and how they will thereafter be managed.
- 1.2 This LEMP also gives further details on additional ecological measures and considerations which will be implemented and managed on top of the details set out purely in the soft landscaping proposals – such as for example details pertaining to bird and bat boxes as well as lighting arrangements and hedgehog movement.
- 1.3 The LEMP covers both maintenance/management works required for the initial 5-year establish period, and also a subsequent 15-year management period, with the LEMP able to also be then rolled forward in perpetuity should this be deemed appropriate based on the monitoring of its success.
- 1.4 The objectives of the management set out in this LEMP are as follows:
  - Ensure compliance with the legal protection of breeding birds, roosting bats and badgers
  - Maintain and increase the value of the site for bird species through habitat creation in the form of trees, hedgerow, garden habitats and boxes on buildings.
  - Maintain and increase the value of commuting and foraging habitat for bats by creating new gardens, grassland buffers, new hedges and tree planting.
  - Increase the value for roosting bats by providing new roosting features where none currently exist.
  - Establishment of all new planting to its full growth potential and ongoing maintenance in good condition.
  - Creation of a safe and attractive residential and recreational environment
- 1.5 The document also sets out how these objectives will be achieved by setting out the following measures and ongoing management principles:

- Details of implementation, establishment and maintenance regimes for each habitat to be retained/created
- Details of how protected species will be protected during the longer term management operations
- Details of management responsibilities

# Landscape Implementation and Management

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## Section 2

### **Existing Landscape Features**

- 2.1 To avoid repetition, this LEMP does not seek to repeat the findings and requirements set out within the separate arboricultural report which, in relation to existing landscape features, details tree and hedgerow protection measures that must be implemented regarding such things as root protection areas and protection fencing. Any trees which are proposed to be removed as part of the development will need to be removed in line with the procedures set out within the accompanying ecological reports and within the separate Construction and Environmental Management Plan (CEMP). However, the management and maintenance measures set out within this document should be read as also applying to the existing landscape features which are to be retained as part of the proposals.

### **Amenity Tree Planting and Management**

#### Implementation

- 2.2 All trees are to be pit-planted in an area cleared of all vegetation within 1 square metre around each tree. All trees will be planted during the first planting season following completion of development (i.e., between November and late February) when the ground is neither frozen nor waterlogged. If the ground is dry, the plants will be watered to ground capacity on planting.
- 2.3 Trees are to be planted as indicated on the detailed soft landscaping plans. Locations of proposed trees have been determined on the soft landscaping plans to avoid conflict with services. GreenBlue Urban root barriers, or similar, will be required where trees are to be planted within 6 metres of drainage infrastructure which require such easements or where it is necessary to protect services, structures and surfaces.
- 2.4 Trees are to be planted on at least 4.00m centres in square tree pits. Tree pits will be at least 200mm wider in diameter and 200mm deeper than the root spread. 200g of slow-release fertiliser will be added to each tree pit.
- 2.5 Where tree pits extend under pavements, they will utilise appropriate structural soil and detailing.

2.6 All trees will be staked. All trees are to be mesh guarded to prevent damage by vermin.

### Maintenance

2.7 The planting will be checked at regular intervals and any damaged stakes, canes and ties replaced. Plants will be firmed up following planting and, if necessary, until established. Any plants which die, become diseased or damaged will be replaced.

2.8 Until the plants are established, they will be watered to ground capacity during dry periods.

2.9 Weeding around trees will be carried out by hand or by on-the-spot application of glyphosate, taking care not to spray the tree stems, until the plants are well established. Mulch will be applied annually, using 50mm of matured wood bark, or wet straw, for the first three years after planting to suppress weed growth and contain the moisture.

2.10 Limited formative pruning will be necessary to ensure that healthy and balanced crowns develop, avoiding 2 weeks either side of bud burst and leaf fall, at which time the stakes, guards and tree ties should be checked to ensure that the trees are not being damaged by them. The stakes and guards should be removed when the trees are established, after approximately 3 to 5 years.

2.11 Any losses should be replaced during the following planting season to achieve a stocking rate of 100% by the end of the 5-year period.

2.12 Post-construction and for a period of at least 20 years, any trees within or bordering publicly accessible areas must be checked on an annual basis for signs of deterioration or distress, and the appropriate actions taken where a potential safety hazard is identified. These measures may be rolled forward in perpetuity provided they are deemed appropriate at that time and the monitoring demonstrates the LEMP has been a success.

- Heavy branches should be removed in sections and undercut to avoid the tearing of the bark, and thereafter lowered by slings. No branch stumps should be left, and no cuts should be capable of holding water.
- Any dense ivy infestation should be removed if evident on site or during the maintenance period.
- All diseased wood, pruning's and rubbish should be removed from the site, and the site left clean and tidy.

- 2.13 All works shall be carefully carried out to avoid damage to the tree being treated, or neighbouring trees. No trees to be retained shall be used for anchorage or winching.
- 2.14 All tree works will be undertaken by a suitably qualified arborist in accordance with the BS 3998:2010 British Standard Tree Work – Recommendations or any subsequent BS standards that apply and supersede these. All work shall be undertaken at the appropriate time and with the consent of the Management Company.

### Management

**Table 2.0 – 20 Year Amenity Tree Management Plan**

Year	Month	Actions
Year One	November - March	Plant new trees to specification.
	April - July	Hand weed. Check stakes and guards on a regular basis. Check for damage. Irrigate new planting as necessary in dry weather.
	August - October	As above.
Year Two	November - March	Check all trees and guards and stakes. Replace failures. Formative pruning of fruit trees.
	April - July	As Year 1. (Irrigation will not be necessary).
	August to October	As April to July.
Year Three	November - March	Replace failures. As Year 2. Pruning of fruit trees and other deciduous trees apart from maple and birch.
	April - October	Formative pruning of maple and birch. Remove guards and stakes on vigorous plants
Year Four and Five	November - March	Replace failures. Remove guards and stakes. Prune deciduous trees except maple and birch.
	April to October	Formative pruning of maple and birch trees in summer. Remove any remaining guards and stakes.
Years Six to Twenty (and beyond)	Set month annually	Check for signs of deterioration or distress, and the appropriate actions taken where a potential safety hazard is identified (see paragraph 2.12)

### **Feature Open Space Tree Planting and Management**

#### Implementation

- 2.15 All trees are to be pit-planted in an area cleared of all vegetation within 1 square metre around each tree. All trees will be planted during the first planting season following completion of development (i.e., between November and March) when the ground is neither frozen nor waterlogged. If the ground is dry, the plants will be watered to ground capacity on planting.



- 2.16 Trees are to be planted as indicated on the detailed soft landscaping plans. Locations of proposed trees have been determined on the soft landscaping plans to avoid conflict with services. GreenBlue Urban root barriers, or similar, will be required where trees are to be planted within 6 metres of drainage infrastructure which require such easements or where it is necessary to protect services, structures and surfaces.
- 2.17 Trees are to be planted at, at least 4.00m centres in square tree pits. Tree pits will be at least 200mm wider in diameter and 200mm deeper than the root spread. 200g of slow-release fertiliser will be added to each tree pit.
- 2.18 All trees will be staked with the exception, of Extra Heavy Standard which will be secured by underground guying. All trees are to be mesh guarded to prevent damage by vermin.

### Maintenance

- 2.19 The planting will be checked at regular intervals and any damaged stakes, canes and ties replaced. Plants will be firmed up following planting and, if necessary, until established. Any plants which die, become diseased or damaged will be replaced.
- 2.20 Until the plants are established, they will be watered to ground capacity during dry periods.
- 2.21 Weeding around trees will be carried out by hand or by on-the-spot application of glyphosate, taking care not to spray the tree stems, until the plants are well established. Mulch will be applied annually, using 50mm of matured wood bark, or wet straw, for the first three years after planting to suppress weed growth and contain the moisture.
- 2.22 Limited formative pruning will be necessary to ensure that healthy and balanced crowns develop, avoiding 2 weeks either side of bud burst and leaf fall, at which time the stakes, guards and tree ties should be checked to ensure that the trees are not being damaged by them. The stakes and guards should be removed when the trees are established, after approximately 3 to 5 years.
- 2.23 Any losses should be replaced during the following planting season to achieve a stocking rate of 100% by the end of the 5-year period.
- 2.24 Feature open space trees should be left to grow naturally unless there are health and safety concerns and will be unlikely to require pruning.
- 2.25 Any works that are needed shall be carefully carried out to avoid damage to the tree being treated, or neighbouring trees. No trees to be retained shall be used for anchorage or winching.

- 2.26 Any tree works will be undertaken by a suitably qualified arborist in accordance with the BS 3998:2010 British Standard Tree Work – Recommendations or any subsequent BS standards that apply and supersede these. All work shall be undertaken at the appropriate time and with the consent of the Management Company.

### Management

**Table 2.1 – 20 Year Feature Open Space Tree Management Plan**

Year	Month	Actions
Year One	November - March	Plant new trees to specification.
	April - July	Hand weed. Check stakes and guards on a regular basis. Check for damage. Irrigate new planting as necessary in dry weather.
	August - October	As above.
Year Two	November - March	Check all trees and guards and stakes. Replace failures.
	April - July	As Year 1. (Irrigation will not be necessary).
	August to October	As April to July.
Year Three	November - March	Replace failures. As Year 2. Minor formative pruning to encourage successful growth
	April - October	Formative pruning of maple and birch. Remove guards and stakes on vigorous plants
Year Four and Five	November - March	Replace failures. Remove guards and stakes.
	April to October	Formative pruning of maple and birch trees in summer. Remove any remaining guards and stakes.
Years Six to Twenty (and beyond)	Set month annually	Check for signs of deterioration or distress, and the appropriate actions taken where a potential safety hazard is identified (see paragraph 2.12). Pruning should not take place as standard unless health and safety issues or health issues arise.

### **Native Hedgerow Planting and Management**

#### Implementation

- 2.27 Planting of bare-rooted stock is to be carried out between November and March; however, pot-grown plants can be planted throughout the year. Planting shall take place during frost free conditions when the site is not waterlogged. No machinery will over-run the grassed and treed areas adjacent to the planting or hedged areas
- 2.28 All invasive and pernicious weeds will be removed from the site before works commence. Clearance will be restricted to glyphosate weed killers and hand weeding

- 2.29 All planting beds will be free from weeds and waste materials. The ground will be cultivated to full depth with the additional of slow-release fertiliser or well-rotted manure. All plants are to be thoroughly soaked immediately prior to planting.
- 2.30 All mixed native hedging material will be planted as bare-rooted transplants and are to be notch-planted in a double staggered row at 45cm centres using 5 plants per linear metre.
- 2.31 Plants will be individually staked with bamboo and guarded with spiral guards to prevent damage by vermin.
- 2.32 A new hedgerow is proposed along Trinity Lane between St Johns Way and the sites vehicular access as a section of existing hedge will be lost to make way for a new pedestrian footpath along Trinity Lane. As much of this existing hedge which can be retained will be during construction. Any element of this hedgerow which is lost during construction due to the construction of the footpath will be replaced as follows, in line with the ecology report and as shown on the landscaping plans:
- Where the new hedge is to be created this will be planted in triple staggered rows 800 mm apart at 300 mm centres to achieve 5 planted per linear meter.
  - The following species mix will be used when creating the new hedge: Hawthorn 40%, Blackthorn 15%, Hazel 10%, Field Maple 10%, Holly, dog-rose, Spindle, Wild Privet and Wych Elm, all 5%.
  - All stock will be protected from rabbit and deer damage using approved proprietary 1200 mm shrub shelters, secured with stakes and ties.
  - Suitable management practices include laying the hedgerow to encourage bushy growth low down, trimming on a 2 - 3 year rotation or trimming alternate sides of the hedgerow every other year and avoiding trimming hedges too heavily to keep them in a good condition. Management will be carried out in January and/or February only, avoiding periods of hard frost.

### Maintenance

- 2.33 The planting will be checked at regular intervals and any damaged stakes, canes and ties replaced. Plants will be firmed up following planting and, if necessary, until established. Any plants which die, become diseased or damaged will be replaced.

- 2.34 Until the plants are established, they will be watered to ground capacity during dry periods. Weeding around planted areas will be carried out by hand or by the spot application of glyphosate, taking care not to spray the tree and shrub stems, until the plants are well established.
- 2.35 Pruning will be required to ensure the growth of strong, dense hedging and will be carried out once the plants are well established, normally in the second year, but dependant on growth rates.
- 2.36 Any losses should be replaced during the following planting season to achieve a stocking rate of at least 95% by the end of the 5-year period.
- 2.37 Mixed native hedging is to be maintained between 2.50-3.00m in height at maturity.
- 2.38 Guards and stakes will be removed once the plants are well established.
- 2.39 In order to encourage wildlife mixed native hedgerows must only receive a light pruning and should be cut in an “A” shape or a “topped A” shape to create tall bushy hedges with maximum wildlife potential.
- 2.40 Where hedgerow repair is necessary, planting will be undertaken as described above, using a native hedge species mix as per the proposed planting. Any gaps smaller than 1 metre are to be gapped up with hawthorn (*Crataegus monogyna*).
- 2.41 Hedgerow management will take place between late December and late February. This will avoid the bird-nesting season and whilst they have not been found on site, as best practice this will also avoid the dormice active period. It will also allow berries to be used for foraging wildlife and avoid hard frosts.

## Management

**Table 2.2 – 20 Year Native Hedgerow Management Plan**

Year	Month	Actions
Year One	November – March	Plant new hedges to specification.
	April – July	Herbicide weed control. Check fencing and guards on a regular basis. Check for vermin damage.
	August – October	As above and lightly trim top growth to encourage dense low growth.
Year Two	November – March	Check all plants and replace failures. Check guards, stakes and fences.
	April – July	As Year 1.
	August to October	As Year 1.
Year Three	November – March	As Year 2
	April – October	As Years 1 and 2
Year Four and Five	November – March	As Years 1 and 2. Remove guards and stakes depending on establishment of new planting.
	April to October	Remove guards and trim to shape. Gap up as necessary to achieve 95% stocking rate.
Year Six to Twenty (and beyond)	December to March	Checks for deterioration should take place on an annual basis within this period. Hedgerows should be cut in an “A” shape or a “topped A” shape to create tall bushy hedges with maximum wildlife potential.

## **Single Species Hedgerow Planting and Management**

### Implementation

- 2.42 Planting of bare-rooted stock is to be carried out between November and late February; however, pot-grown plants can be planted throughout the year. Planting shall take place during frost free conditions when the site is not waterlogged. No machinery will over-run the grassed and treed areas adjacent to the planting or hedged areas.
- 2.43 All invasive and pernicious weeds will be removed from the site before works commence. Clearance will be restricted to glyphosate weed killers and hand weeding.
- 2.44 All planting beds will be free from weeds and waste materials. The ground will be cultivated to full depth with the additional of slow-release fertiliser or well-rotted manure. All plants are to be thoroughly soaked immediately prior to planting.
- 2.45 All domestic hedging material will be planted as either bare-rooted transplants or from 3 litre pots and are to be notch-planted in a single row at the densities listed below.

- 2.46 Plants will be individually staked with bamboo and guarded with spiral guards to prevent damage by vermin.

### Maintenance

- 2.47 The planting will be checked at regular intervals and any damaged stakes, canes and ties replaced. Plants will be firmed up following planting and, if necessary, until established. Any plants which die, become diseased or damaged will be replaced.
- 2.48 Until the plants are established, they will be watered to ground capacity during dry periods. Weeding around planted areas will be carried out by hand or by the spot application of glyphosate, taking care not to spray the tree and shrub stems, until the plants are well established.
- 2.49 Pruning will be required to ensure the growth of strong, dense hedging and will be carried out once the plants are well established, normally in the second year, but dependant on growth rates.
- 2.50 Any losses should be replaced during the following planting season to achieve a stocking rate of at least 95% by the end of the 5-year period.
- 2.51 Guards and stakes will be removed once the plants are well established
- 2.52 Hedgerow management will take place between mid-December and late February. This will avoid the bird-nesting season and whilst they have not been found on site, as best practice this will also avoid the dormice active period. It will also allow berries to be used for foraging wildlife.

## Management

**Table 2.3 – 20 Year Single Species Hedgerow Management Plan**

Year	Month	Actions
Year One	November – March	Plant new hedges to specification.
	April – July	Herbicide weed control. Check fencing and guards on a regular basis. Check for vermin damage.
	August – October	As above and lightly trim top growth to encourage dense low growth.
Year Two	November – March	Check all plants and replace failures. Check guards, stakes and fences.
	April – July	As Year 1.
	August to October	As Year 1.
Year Three	November – March	As Year 2
	April – October	As Years 1 and 2
Year Four and Five	November – March	As Years 1 and 2. Remove guards and stakes depending on establishment of new planting.
	April to October	Remove guards and trim to shape. Gap up as necessary to achieve 95% stocking rate.
Year Six to Twenty (and beyond)	December to March	Checks for deterioration should take place on an annual basis within this period.

## **Shrub and Perennial Planting and Management**

### Implementation

- 2.53 Premium grade topsoil as defined by BS3882:2015 is to be provided to a minimum depth of 300mm for communal shrub and amenity grass areas and 200mm for private plots amenity areas.
- 2.54 Planting shall take place during frost free conditions when the site is not waterlogged. Planting is to be carried out either during the spring between March and May, or Autumn between October and November. Container-grown plants will be planted at any time of the year but are easier to care for if planted in autumn, as they need less watering than those planted in spring or summer.
- 2.55 All invasive and pernicious weeds will be removed from the site before works commence. Clearance will be restricted to glyphosate weed killers and hand weeding.
- 2.56 All planting beds will be free from weeds and waste materials. The ground will be cultivated to full depth with the additional of slow release fertiliser or well-rotted manure. All plants are to be thoroughly soaked immediately prior to planting.

- 2.57 They will be planted in a hole just deep and wide enough to set the rootball in, leaving the bases of the stems, or the shoots above ground. The soil will be hand firmed back around the stem.
- 2.58 Plants will be individually staked with bamboo and guarded with spiral guards to prevent damage by vermin.
- 2.59 Plants to be planted at densities as shown in the planting specifications of the soft landscaping proposals which accompany the application.

#### Maintenance

- 2.60 The planting will be checked at regular intervals and any damaged stakes, canes and ties replaced. Plants will be firmed up following planting and, if necessary, until established. Any plants which die, become diseased or damaged will be replaced.
- 2.61 Until the plants are established, they will be watered to ground capacity during dry periods.
- 2.62 Weeding around planted areas will be carried out by hand.
- 2.63 Mulching will take place in spring using well-rotted manure.
- 2.64 Pruning will be required to ensure the growth of strong shrub planting and will be carried out once the plants are well established, normally in the second year, but dependent on growth rates. Cutting should take place in February.
- 2.65 Guards and stakes will be removed once the plants are well established.
- 2.66 Any losses should be replaced during the following planting season to achieve a stocking rate of at least 95% by the end of the 5-year period.



## Management

**Table 2.4 – 20 Year Shrub and Perennial Management Plan**

Year	Month	Actions
Year One	November – March	Prepare site and plant new shrubs and mulch in late March.
	April – July	Hand weed. Irrigate new planting as necessary in dry weather.
	August – October	Firm plants and mulch with wood bark once a year before frost.
Year Two	November – March	Check all plants and replace failures. Check guards and stakes. Carry out formative pruning.
	April – July	Monthly inspection regime. Firm plants, weed and remove any rubbish. Trimming of dead or damaged branches can be undertaken.
	August to October	As April to July with the addition of bark mulch before frost.
Year Three	November – March	As Year 2.
	April – October	As Year 2.
Year Four and Five	November – March	As Year 2.
	April to October	As Year 2.
Year Six to Twenty (and beyond)	February	Pruning will be required to ensure the growth of strong shrub planting

## **Bulb Planting and Management**

### Implementation

- 2.67 Premium grade topsoil as defined by BS3882:2015 is to be provided to a minimum depth of 300mm for communal shrub and amenity grass areas and 200mm for private plots amenity areas.
- 2.68 Ground preparation is limited to the removal of any unwanted ground cover, the ground should be left for several days/weeks; this gives another opportunity to control any residual weeds which emerge during this time, such as docks, thistles, mare's tail or brambles. This should not be necessary within areas of recently established grass or wildflower planting, and removal of weeds should have already been undertaken prior to sowing.
- 2.69 Bulbs are best planted in the autumn or spring but can be planted at other times of the year if there is sufficient warmth and moisture in the soil. Where bulbs are to be planted into recently sown seed beds, the seed should be allowed to establish before the bulbs are planted.
- 2.70 Bulb mixes are to be combined at the percentages shown on the soft landscaping proposals supporting the application prior to sowing (this does not apply to swaths of a single species).

- 2.71 Bulb swaths can be established in one of two ways. Either on a grid at 10cm centres, or, to achieve a more natural appearance, broadcast by hand and then planted where they fall.
- 2.72 The bulbs should be planted at a depth of 2½ to 3 times the diameter of the bulb. The bulbs should not be planted too shallow as this can encourage frost heaving.
- 2.73 Once planted bulbs should be covered with soil and lightly firmed in in with a roller, or by treading, to give good soil contact.

### Maintenance

- 2.74 As far as practicable the newly planted bulbs will be protected from birds and vermin as well as preventing public access onto the soil. Grass will be kept watered in dry conditions and the area will be weeded by hand, removing any weeds before they flower.
- 2.75 Normal rainfall should provide enough moisture for bulbs; however, bulbs will be kept watered in dry conditions.
- 2.76 Weeding around the bulbs will be carried out by hand, until the plants are well established.
- 2.77 Where bulbs are planted within areas with a mowing regime (in particularly amenity grass which is regularly cut back), mowing will be left until the bulb foliage has begun to die back.

## **Amenity Grass Planting and Management**

### Implementation

- 2.78 Premium grade topsoil as defined by BS3882:2015 is to be provided to a minimum depth of 300mm for communal shrub and amenity grass areas and 200mm for private plots amenity areas.
- 2.79 To prepare the seed bed weeds will first be removed using repeated cultivation or a herbicide. The ground will be ploughed or dug to bury unwanted ground cover and bring less fertile material to the surface, then harrowed or raked to produce a medium tilth. Once prepared the ground will be rolled to produce a firm surface. It may be necessary to return to site even after seeding in order to remove any invasive species such as docks, thistles, mare's tail or brambles. These should either be manually removed or individually chemically treated. Cultivation work will be carried out when the soil moisture level is reasonably low, allowing the soil to crumble.
- 2.80 Seed should be sown from late summer to mid-autumn at a rate of 50g/m<sup>2</sup>. After sowing, it is recommended that the area is lightly raked and watered.

2.81 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, the seed will be divided into two or more parts and sown in overlapping sections. Firm in with a roll, or by treading, rather than incorporating or covering the seed, to give good soil/seed contact.

### Maintenance

2.82 As far as practicable the newly sown seed will be protected from birds and public access onto the soil will be prevented.

2.83 The grass will be kept watered in dry conditions.

2.84 The area will be weeded by hand, removing any weeds before they flower.

2.85 When the new lawn is 5cm (2in) high, it will be cut with a rotary mower to 2.5cm (1in). It will be ensured that the bulb foliage has begun to die back before spring and summer mowing takes place. The clippings will be carefully raked up and this will be done for the following four cuts.

2.86 Once established, a regular growing season mowing regime will be introduced.

### Management

**Table 2.5 – 20 Year Amenity Grass Management Plan**

Year	Month	Actions
Year One	November – March	Prepare soil
	April – July	Weed control. Second cultivation.
	August – October	Sow seed and rake. Protect seed from birds and prevent public access.
Year Two	November – March	Protect seed from birds and prevent public access.
	April – July	Irrigate in dry conditions. Weed by hand and lightly cut to 2.5cm high when 5cm in height. Remove clippings for the first four cuts
	August to October	Include in regular mowing regime. Water in very dry conditions. Sow fresh seed in any bare patches.
Year Three	November – March	N/A
	April – October	Include in weekly or fortnightly mowing regime.
	October – February	N/A
Year Four and Five	November – March	N/A
	April to October	As year 3.
	October – February	N/A
Year Six to Twenty (and beyond)	As Required	Grass to be mown regularly as needed to keep below 50mm throughout the year

## **Wildflower Meadow Planting and Management**

### Implementation

- 2.87 To prepare the seed bed weeds must first be removed using repeated cultivation or a herbicide. The ground should be ploughed or dug to bury unwanted ground cover and bring less fertile material to the surface, then harrowed or raked to produce a medium tilth. Once prepared the ground should be rolled to produce a firm surface. It may be necessary to return to site even after seeding in order to remove any invasive species such as docks, thistles, mare's tail or brambles. These should either be manually removed or individually chemically treated. Cultivation work will be carried out when the soil moisture level is reasonably low, allowing the soil to crumble.
- 2.88 Seed should be sown from late summer to mid-autumn at a rate of 5gm/m<sup>2</sup>.
- 2.89 After sowing, it is recommended that the area is lightly raked and watered.
- 2.90 The seed will be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out, the seed will be divided into two or more parts and sown in overlapping sections. Firm in with a roll, or by treading, rather than incorporating or covering the seed, to give good soil/seed contact.

### Management – Year One

- 2.91 After sowing, cutting will be avoided in the spring and early summer if the mixture is autumn sown.
- 2.92 Sown annuals will be allowed to flower in mid-summer when the vegetation will be cut and removed before it dies back, sets seed and collapses: this cut will reveal the young meadow mixture and give it the space it needs to develop.
- 2.93 Most of the sown meadow species are perennial and will be slow to germinate, grow and flower, particularly against the competition from established grasses.

### Management – Beyond Year One

- 2.94 Established grassland can be managed in several ways which will determine its character. The best results are usually obtained by traditional meadow management based around a main summer hay cut in combination with autumn, and possibly spring, mowing.
- 2.95 Meadow grassland should not be cut from spring through to late July/August to give sown species an opportunity to flower.

- 2.96 After flowering in July or August, a 'hay cut' should be taken and the meadow cut back to around 50mm. The hay should be left to dry and shed seed, then removed from site.
- 2.97 Re-growth should be mown or grazed through to late autumn/winter and again in spring (if needed).

### Management

**Table 2.6 – 20 Year Wildflower Meadow Management Plan**

Year	Month	Actions
Year One	November - March	Prepare soil
	April - July	Weed control. Second cultivation.
	August - October	Sow seed and rake. Protect seed from birds and prevent public access.
Year Two	November - March	Protect seed from birds and prevent public access.
	April - July	Irrigate in dry conditions. Weed by hand and remove clippings.
	August to October	Lightly cut to 2.5cm high when sown annuals have flowered. Remove clippings. Water in very dry conditions. Sow fresh seed in any bare patches.
Year Three	November - March	N/A
	April - October	Take a 'hay cut' after flowering in July or August and cut back to 50mm. Allow hay to dry and shed seed then remove.
	October - February	Mow any re-growth through to late autumn/winter and again in spring if necessary. Buffer zones must not be cut short but left at a suitable length to encourage wildlife.
Year Four and Five	April to October	As year 3.
	October - February	As year 3.
Year Six to Twenty (and beyond)	April to October	As year 3.
	October - February	As year 3.

### **Play Area**

- 2.98 Once installed, the play area will in the first instance be the responsibility of Cotswold Homes Ltd to maintain until such time as it is transferred to a management company in accordance with the details to be submitted and agreed in line with the S106 agreement.
- 2.99 Repairs and replacement equipment will be installed as and when necessary (for instance if the management company are made aware of such by a resident or the wider community).

Notwithstanding this, the play area will be inspected on an annual basis to ensure that the equipment is safe and operational. This also applies to the boundary fencing and gates.

- 2.100 Inspections will also review the surface treatments within the play area and any repairs will be made where they are required to ensure the safety of the users.
- 2.101 Inspections will take place at the end of February each year when potential damage from weather can be fully assessed prior to improved weather approaching and with it, the likely increased usage of the play area over the spring and summer period.
- 2.102 Should any equipment, fencing or surface require replacement, any replacement will be of the same standard or better than that being replaced.

### **Allotments**

- 2.103 Once in place, the allotments will be offered on a first come first served basis to the future occupants of the development. Should they not be taken up, applications from the wider community will then be considered. The responsibility for the maintenance of the infrastructure associated with the allotments (fencing, water supply etc) will be the responsibility of Cotswold Homes Ltd, until such time as the responsibility is transferred to a management company in accordance with details which will have first been agreed with the Local Authority in line with the obligations of the S106.

# Further Ecological Measures and Management Responsibilities

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## Section 3

### Ecological Measures and Enhancement

- 3.1 Enhancements for both protected and native fauna to the site include the introduction of habitat in the form of the landscaping proposals detailed on the soft landscaping plan and detailed in the previous section. Species-rich meadow, hedges, and deadwood piles will encourage invertebrates, which in turn will provide food for bats and birds.
- 3.2 On top of the landscaping scheme, there will be further ecological enhancements in the form of bat and bird boxes. Attached at **Appendix 1** is a plan showing the proposed locations of bat and bird boxes.
- 3.3 Bat Shelters will be installed at the apices of gable ends of the buildings to provide new roosting sites for bats. A variety of locations and aspects have been chosen to maximise the chance of occupation. As per the ecological reporting, bat boxes are to be located on southerly aspects.
- 3.4 Bird boxes will be installed at a height of at least 2m and will be facing north and east – this avoids the worst of the weather and prevents the box and its inhabitants becoming overheated in sunny weather.
- 3.5 All on-going management of habitats that could be utilised by nesting birds (hedges, marginal vegetation etc) will be carried out outside the bird nesting season of March to August inclusive. Bird boxes should be cleaned out each year between November and February to prevent a build-up of decaying nest debris. The specification of the bat boxes will be chosen to avoid the need for regular maintenance, which could disturb roosting bats, which requires a licence.
- 3.6 A 20cm by 20cm hole will be created in a number of boundary treatments across the site to allow for ease of movement of hedgehogs. These locations are shown at **Appendix 1**.

## Lighting

- 3.7 Any street lighting proposed will be directed away from dark corridors with Lux levels within the dark corridors not exceeding 0.5 lux. A lighting plan will be submitted for approval separately which will accord with this requirement.
- 3.8 Private lighting on individual plots will utilise highly directional warm white LED lighting in down spots at 2.5 m high using warm white (2700K) 8W LED lamps, 550 lumens with a 35 degree beam angle. These would be individually activated by PIR sensors on a 5 minute cut off to further reduce their impacts. These will assist in lighting only the areas where lighting is required and minimising light spill either directly or through reflected light, and lights would be positioned to avoid illumination of the boundary hedges. Direct lighting or light spill into the designated dark wildlife corridors along hedgerows will be avoided.

## Management Responsibilities

- 3.9 The implementation of this management plan will be the responsibility of Cotswold Homes who will instruct the strict adherence to this plan, with the available resources, as well as with assistance from area specialists where necessary to ensure that all measures are executed using best possible practice. All appointed sub-contractors will be approved as competent and knowledgeable in their position.
- 3.10 Once the LEMP and landscaping proposals are approved, FirstPort Property Services (a management entity) will be approached to provide a quote for the amount they would need each new resident to pay on a yearly basis for them to maintain the communal spaces in line with the approval (including this LEMP). An agreement would be formalised with the FirstPort legally to ensure they take on responsibility for maintenance and a management company would be set up to take legal ownership of the open spaces on site. FirstPort along with Cotswold Homes would become directors of the management company, until such time as new residents have been installed as directors and Cotswold Homes can resign as director from the management company. This standard process is detailed within the S106 legal agreement attached to the consent and the applicant is required to submit to the council the details of the management entity once they are secured. Until such time as this LEMP and the soft landscaping proposals are discharged, it will not be possible to form an agreement with FirstPort as they will need these items fixed in order to price the ongoing maintenance accordingly. As is standard practice in instances where Councils are



not adopting open spaces, new residents will likely be required to pay a yearly management fee to cover the costs of the management entities works in complying with this LEMP.

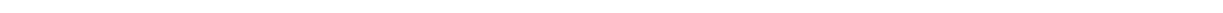
- 3.11 Once Cotswold Homes have transferred the communal landscape areas to a management company and no longer hold an interest within that management company, responsibility for the management set out within this LEMP will transfer to the management company (which will be run by future residents) including FirstPort.
- 3.12 After 5 years following the completion of the planting scheme, those responsible at that time for the management of the open spaces will assess the condition of the planting. As mentioned earlier in the document, any planting which has died within the first 5 years will be replaced like for like.
- 3.13 Responsibility for the management associated with on plot landscaping and the bird and bat boxes on plot, will be transferred to the new homeowners.
- 3.14 An information pack that will include a copy of this LEMP together with the approved soft landscaping proposals, will be provided to each of the new dwellings detailing the wildlife features that have been included in their new development and which species may be present, and the time of year that bird boxes can be cleaned out. This LEMP will also be provided to the management entity (expected to be FirstPort) that takes on management responsibility of the communal landscape areas on behalf of the management company prior to them signing in to an agreement for the future maintenance and management.
- 3.15 Cotswold Homes (or subsequent management entity) will be responsible for emptying of the bins located in the open spaces on site. They will also be responsible for inspecting, repairing and or replacing any boundary treatments within open spaces which require such works as well as the play area and allotments.

### **Monitoring and Remedials**

- 3.16 For clarity, performance will be measured against the following targets set out in Section 2:
- In relation to proposed trees, a stocking rate of 100% by the end of the 5-year period;
  - In relation to Hedgerow planting, a stocking rate of at least 95% by the end of the 5-year period; and
  - In relation to shrub and perennial planting, a stocking rate of at least 95% by the end of the 5-year period.

3.17 In the circumstances where the results from monitoring show that the conservation aims and objectives of the LEMP are not being met, a review of the LEMP will be undertaken to ascertain whether changes are needed to the annual work plans set out in the tables scheduled in Section 2 or whether it is as a result of poor weather conditions or other factor. If it is as a result of poor weather conditions in that reporting year, no changes will be required other than the replacement of any dead planting. If part of the work plans have caused the poor performance, the LEMP will be amended to improve this issue. If it is as a result of poor performance by the management entity, there will be legal routes under the contract with the legal entity to ensure they reconcile the issue or face termination of the agreement with a new management entity then installed.

# Appendix 1 – Bird Box, Bat Box and Hedgehog Movement Plan





# KEY

- Schwegler 2FE Bat Box
- Schwegler Bird Home - 1MR
- Hedgehog Hole - 20cm x 20cm