



Habitat Management and Monitoring Plan (HMMP)

Land at Partridge Green Horsham

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LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing and whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date.

This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated only dominant species maybe recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 INTRODUCTION

1.1 The Ecology Partnership was commissioned by Croudace to complete a Habitat Management and Monitoring Plan (HMMP) for the proposed development of Land at Partridge Green, Horsham, hereafter referred to as the 'site' (Figure 1 – red line). The Biodiversity Net Gain (BNG) Assessment 2025 should be read in conjunction with the HMMP.



Figure 1: Site boundary (red line).

1.2 The biodiversity management and monitoring plan is based on the proposed habitats detailed in the Biodiversity Net Gain assessment (Figure 2).

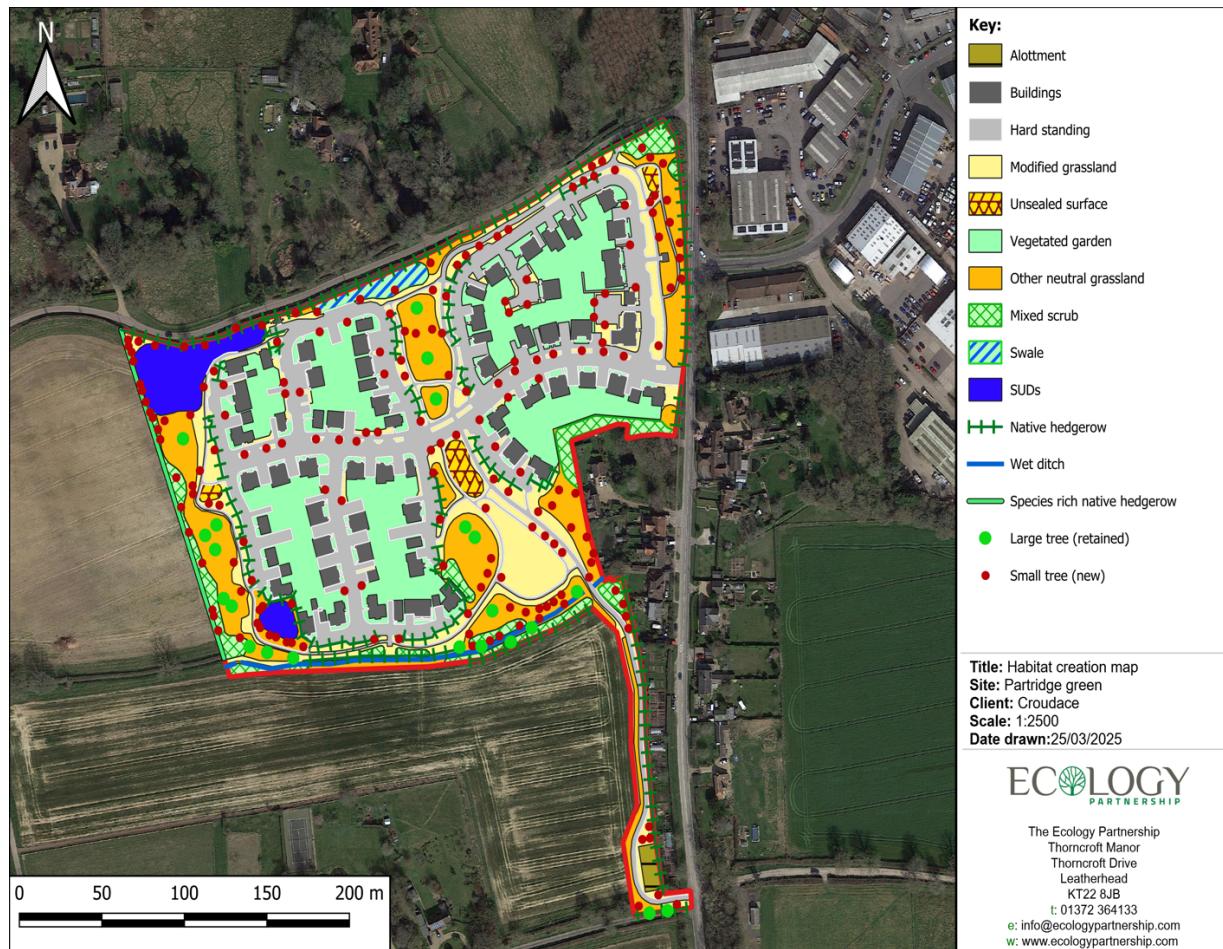


Figure 2: BNG Habitat Creation.

2.0 HABITAT MANAGEMENT AND MONITORING PLAN

Non-technical summary

2.1 The HMMP sets out the habitat creation, management and monitoring for the site. The HMMP will ensure that the biodiversity net gain (Figure 3) is achieved.

Roles and responsibilities

2.2 The owner of the site will be responsible for the habitat creation, management and monitoring.

Monitoring

2.3 A monitoring report will be submitted to the council during years 5, 10 and 30. The monitoring report will be completed by the owners of the site. Each report will detail the habitat type and the current condition. If habitats are not in the correct type or condition,

the report will detail how ongoing management will ensure the type or condition is achieved.

Habitats and condition targets

2.4 Table 1 presents a summary of what will be delivered based on the biodiversity metric. These habitat condition targets form the basis of what the management plan is setting out to achieve throughout a period of 30 years. Introduced shrub and bramble scrub have a default condition (Condition Assessment N/A), as such no detailed management strategy is provided although management will ensure they meet the UKHab definitions.

| FINAL RESULTS | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------|-------------------|----------------|--------------|-----------|--------|----------------|----------------|--------------|---------------|--------|-------|-------|------|----------------|--------|-------|-------|------|-------------------|--------|------|------|------|
| Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement) | | Habitat units | 4.23 | | | | | | | | | | | | | | | | | | | | | |
| | | Hedgerow units | 2.88 | | | | | | | | | | | | | | | | | | | | | |
| | | Watercourse units | 0.00 | | | | | | | | | | | | | | | | | | | | | |
| Total net % change (Including all on-site & off-site habitat retention, creation & enhancement) | | Habitat units | 21.07% | | | | | | | | | | | | | | | | | | | | | |
| | | Hedgerow units | 22.95% | | | | | | | | | | | | | | | | | | | | | |
| | | Watercourse units | 0.00% | | | | | | | | | | | | | | | | | | | | | |
| Trading rules satisfied? | | Yes ✓ | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Unit Type</th><th>Target</th><th>Baseline Units</th><th>Units Required</th><th>Unit Deficit</th></tr> </thead> <tbody> <tr> <td>Habitat units</td><td>10.00%</td><td>20.06</td><td>22.06</td><td>0.00</td></tr> <tr> <td>Hedgerow units</td><td>10.00%</td><td>12.56</td><td>13.81</td><td>0.00</td></tr> <tr> <td>Watercourse units</td><td>10.00%</td><td>0.00</td><td>0.00</td><td>0.00</td></tr> </tbody> </table> | | | | | Unit Type | Target | Baseline Units | Units Required | Unit Deficit | Habitat units | 10.00% | 20.06 | 22.06 | 0.00 | Hedgerow units | 10.00% | 12.56 | 13.81 | 0.00 | Watercourse units | 10.00% | 0.00 | 0.00 | 0.00 |
| Unit Type | Target | Baseline Units | Units Required | Unit Deficit | | | | | | | | | | | | | | | | | | | | |
| Habitat units | 10.00% | 20.06 | 22.06 | 0.00 | | | | | | | | | | | | | | | | | | | | |
| Hedgerow units | 10.00% | 12.56 | 13.81 | 0.00 | | | | | | | | | | | | | | | | | | | | |
| Watercourse units | 10.00% | 0.00 | 0.00 | 0.00 | | | | | | | | | | | | | | | | | | | | |
| <div style="background-color: #90EE90; padding: 5px; text-align: right;"> No additional area habitat units required to meet target ✓ No additional hedgerow units required to meet target ✓ No additional watercourse units required to meet target ✓ </div> | | | | | | | | | | | | | | | | | | | | | | | | |

Figure 3: Headline results.

2.5 A summary of the management to achieve these target conditions is detailed for each habitat in Tables 2-7, with a collated table of management prescriptions in Table 8.

Table 1 – Target Habitat Conditions

| Target Habitat Type | Retained or Created | Targeted Condition | Years to Targeted Condition | Condition Assessment Targets |
|---------------------------------|---------------------|--------------------|-----------------------------|---|
| Modified grassland | Created | Moderate | 2 | Passes for criteria A, C, F and G. |
| Allotments | Created | Moderate | 1 | N/A |
| Mixed scrub | Created | Moderate | 5 | Passes for criteria A, C and D. |
| Neutral Grassland | Created | Moderate | 5 | Passes A, B, C, D |
| Neutral Grassland (SUDS) | Created | Moderate | 5 | Passes A, B, C, D |
| Rural tree | Created | Moderate | 10 | Passes for criteria B, D, F |
| Hedgerow | Created | Moderate | 5 | No more than 4 failures in total; AND <u>Does not fail both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition). |

3.0 MODIFIED GRASSLAND

3.1 To ensure modified grassland is created and maintained appropriately, the UKHab definition and species mix have been detailed below.

Definition

3.2 Species-poor vegetation (<9 species per m²) dominated by a few fast-growing grasses on fertile, neutral soils. It is frequently characterised by an abundance of Rye-grasses *Lolium spp.*, and white clover *Trifolium repens*. Most broadleaved species present will be associated with high fertility.

Ground Preparation and Seeding

3.3 The ground will be prepared before the new turf is laid. Turf will be laid in the Autumn or Spring. Regular watering is required to ensure the grassland is established.

Initial Management

3.4 Once the grassland reaches 150mm in length, the grassland will be subject to regular cutting.

3.5 All operations will be carried out using machinery appropriate to the task. Mowing operations will only be carried out during appropriate weather conditions avoiding sustained periods of rain, heavy frost, snow, and waterlogging. Where operations are suspended due to unsuitable conditions additional maintenance visits will be agreed in order to maintain the sward within acceptable growth limits.

Ongoing Management

3.6 The aim for the management of modified grassland habitats is to achieve a condition assessment score of **moderate** within 30 years. To do this, at least four of the following must be met including the first essential criterion:

- There are 6-8 vascular plant species per m² present, including at least 2 forbs (these may include those listed in Footnote 1). Note - this criterion is essential for achieving Moderate or Good condition. Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m² (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.
- Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.
- Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.
- Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.

- Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)².
- Cover of bracken *Pteridium aquilinum* is less than 20%.
- There is an absence of invasive non-native plant species³ (as listed on Schedule 9 of WCA⁴).

3.7 After the first year, cutting visits will be undertaken regularly in spring and summer, and should be to a height of approximately 30-70mm.

3.8 No selective herbicides will be used within these grassland areas. Instead, pernicious weeds (for example, dock and thistle) will be removed by hand, or burnt. All arisings will be removed from site, immediately after cutting. Any litter will be removed prior to each cut, and leaves will be raked off grass prior to autumn cuts. See Table 2 for the full management schedule.

Table 2: Modified Grassland Management

| Task | Year 1 | Years 2-5 | Years 6-10 | Years 11-30 |
|--|--------|-----------|------------|-------------|
| Ground preparation and seed sowing. | ✓ | | | |
| Initial management regime to allow grassland establishment – weeding and watering. | ✓ | ✓ | | |
| Post establishment: Grassland regularly between 30mm and 70mm. All arisings should be removed and relocated to the site boundaries. Minimise chemical use. | | ✓ | ✓ | ✓ |

Remedial Actions

3.9 Should the grassland monitoring indicate that the condition score is not reaching requirement, weeds will be targeted and cleared from the habitat, and channels of bare ground created for additional supplementary seeding using the mixes above. The above management plan should then be followed from the beginning to allow re-establishment. If these actions are not sufficient, specialist advice will be sought

4.0 MIXED SCRUB

4.1 The UKHab definition for broad (h) heathland and shrub habitat is “*Vegetation with a >25% cover of dwarf shrub species that are <1.5 m high or woody species ≤5 m high*” and to ensure mixed scrub habitat is created, the UKHab definition and species mix have been detailed below.

Definition

4.2 Dense scrub comprising a mixture of native species without a single species dominant or stands with a dominant species not listed in h3a-hsk.

4.3 The aim for the management of retained and enhanced mixed scrub habitats is to maintain a condition assessment score of **Moderate** within 30 years. To do this, at least three of the following must be met:

- Ensure at least 80% of the scrub is native and there are at least three native woody species with no single species comprising more than 75% of the cover.
- Seedlings, saplings, young shrubs and mature (ancient or veteran) shrubs are all present.
- There is an absence of invasive non-native species (as listed on Schedule 9 of WCA) and species indicative of sub-optimal conditions make up less than 5% of ground cover.
- The scrub has a well-developed edge with scattered scrub and tall grassland and/or tall forbs present between the scrub and adjacent habitat.
- There are clearings, glades or rides present within the scrub, providing sheltered edges.

Ground Preparation

4.4 Based on the existing habitat, ground preparation will be subject to soil inversion. Fertile topsoil is buried, and infertile subsoil is brought to the surface, resulting in a significant reduction in nutrient levels at the soil surface for at least five years.

Planting

4.5 Planting will utilise whips. Whips are susceptible to browsing pressure and damage from voles, rabbits, grey squirrels and deer. A combination of deer culling, tree shelters, tree tubes and/or fencing will be undertaken to protect scrub from browsing pressure and ensure successful initiation. New whips will be watered for the first two weeks to ensure establishment.

Initial Management

4.6 Unwanted plants (such as bramble) should be selectively removed from the scrub.

Ongoing Management

4.7 The section of the scrub will be allowed to develop a graded edge against adjoining grassland habitat to form additional ecological niches for a wide variety of wildlife. As such, management will include a two-year cutting cycle, with light trimming on the scrub edge to prevent meaningful encroachment. Cutting will be undertaken to encourage a good structure and will avoid the nesting bird season (March – September, inclusive) or immediately follow a nesting bird check by a suitably qualified ecologist.

4.8 The scrub may need to be coppiced to improve the structure. The scrub will be managed to be approximately 4-5m in height and after five years the scrub planting will be subject to management, including selective thinning to create open space within the scrub to allow natural regeneration. See Table 3 for the full management schedule.

Table 3: Mixed Scrub Management

| Task | Year 1-2 | Years 3-5 | Years 6-10 | Years 11-30 |
|---|----------|-----------|------------|-------------|
| Sensitive facing up of the edge of the scrub by trimming back the edge nearest the grassland to prevent encroachment. This should be carried out sensitively every two years. | ✓ | ✓ | | |
| Coppicing every 5-10 years (depending on the rate of growth). Coppicing will improve the structure of the scrub. | | | ✓ | ✓ |
| Selective thinning should be undertaken to provide open space and allow natural regeneration. | | | | ✓ |

Remedial Actions

4.9 Should the scrub monitoring indicate that the condition score is declining, arboriculture specialist advice will be sought, and appropriate actions taken to re-establish the scrub conditions as per the bullet points above. Supplementary planting of native woody species will be carried out if the coppicing/thinning management regime is not sufficient to allow natural regeneration.

5.0 NEUTRAL GRASSLAND

5.1 To ensure neutral grassland is created and maintained appropriately, the UKHab definition and species mix have been detailed below.

Definition

5.2 The UKHab definition for neutral grassland (g3c) is a grassland that supports over 20% broadleaved herbs and sedges, over 8 species per m² and grassland species that is not generally sown for intensive agricultural production and that cover of rye grasses and white clover would be less than 30%.

5.3 The aim for the management of the new grassland habitats is to a condition assessment score of **Moderate** within 30 years. To do this, at least three of the following must be met:

- Ensure at over 8 species per m²
- Sward height variable with 20% of the sward less than 7cm and 20% or more greater than 7cm creating microclimates;
- Cover of bracken less than 20% and bramble scrub less than 5%
- Combined cover of species indicative of sub-optimal condition³ and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.

Ground Preparation

5.4 Based on the existing habitat, ground preparation will be subject to soil inversion. Fertile topsoil is buried, and infertile subsoil is brought to the surface, resulting in a significant reduction in nutrient levels at the soil surface for at least five years.

Planting

5.5 The ground will be prepared before the new turf is laid. Turf will be laid in the Autumn or Spring. Regular watering is required to ensure the grassland is established. If seeded, the seeding will be undertaken in the spring or autumn.

Initial Management

5.6 During the 1st year of establishment meadow grassland will be cut twice in each growing month to maintain a balance between the faster growing species and flowers. The grassland will be mown to a height of 40-60mm with arisings cleared from the site.

5.7 In following seasons prior to cutting all areas shall be cleared of litter and debris in accordance with the section detailed above. To maintain diversity, all meadow grass areas

will be cut annually in late July to end of August following flowering (the summer hay cut). An autumn cut will be carried out in November to leave the grass short over the winter period (cut to 40-75mm). If required a spring cut should be carried out prior to the end of May to remove the first flush of grass (cut to 40-75mm). All arisings should be left in situ for 48 to 72 hours prior to removal.

5.8 The diversity of the grassland should be subject to on-going monitoring to ensure maximum ecological benefit. The monitoring of the grassland will be undertaken by the management company and should include a review of a suitably qualified ecologist against the baseline and the aspired condition. Monitoring by an ecologist should occur in years 1,2,5,10,15,20,25 and 30..

5.9 No selective herbicides will be used within these grassland areas. Instead, pernicious weeds (for example, dock and thistle) will be removed by hand, or burnt. All arisings should be left in situ for 48 to 72 hours prior to removal. Any litter will be removed prior to each cut, and leaves will be raked off grass prior to autumn cuts.

Table 4: Wildflower Grass Management

| Task | Management Objective / Performance Standard | Years 1-5 | Years 5-10 | Years 11+ |
|---|---|-----------|------------|-----------|
| Year 1: scarify in autumn and sow suitable native wildflower mix. Cut to a height of 50 – 75 mm four times during the first year to encourage wildflower root development. All arising should be removed. Repeat as required for 3 to 5 years to establish wildflower content. Spot treat or hand-pull undesirable weed species. Minimise chemical use. | To achieve sward establishment to 95% cover To achieve floristically diverse sward content, providing colour and seasonal variety for visitors and habitat for insects and birds. Control invasive weed species (by cutting prior to seed set) | ✓ | ✓ | |
| Post establishment: The wildflower meadow should be cut once per year to between 40 and 70mm (late August/ September for summer flowering meadow or July for spring flowering). However, subject to the results of monitoring, an additional cut in late March may be carried out, especially in the first few years following establishment. This measure would help control the vigour of the sward, especially of the bulkier grasses, and would encourage greater species | To ensure floristically diverse sward content and control invasive weed species | ✓ | ✓ | ✓ |

| Task | Management Objective / Performance Standard | Years 1-5 | Years 5-10 | Years 11+ |
|---|---|-----------|------------|-----------|
| richness. All arisings should be left in situ for 48 to 72 hours prior to removal. Minimise chemical use. | | | | |
| Monitoring every 5 years by a suitably qualified person to review the grassland condition. This will then review management techniques. | To monitor floristically diverse sward | ✓ | ✓ | ✓ |

Remedial Actions

5.10 Should the grassland monitoring indicate that the condition score is not reaching requirement, weeds will be targeted and cleared from the habitat, and channels of bare ground created for additional supplementary seeding using the mixes above. The above management plan should then be followed from the beginning to allow re-establishment. If these actions are not sufficient, specialist advice will be sought

6.0 NEUTRAL GRASSLAND / SUDS /SWALE

6.1 To ensure neutral grassland is created and maintained appropriately, the UKHab definition and species mix have been detailed below.

Definition

6.2 The UKHab definition for neutral grassland (g3c) is a grassland that supports over 20% broadleaved herbs and sedges, over 8 species per m² and grassland species that is not generally sown for intensive agricultural production and that cover of rye grasses and white clover would be less than 30%.

6.3 The aim for the management of the new grassland habitats is to a condition assessment score of **Moderate** within 30 years. To do this, at least three of the following must be met:

- Ensure at over 8 species per m²
- Sward height variable with 20% of the sward less than 7cm and 20% or more greater than 7cm creating microclimates;
- Cover of bracken less than 20% and bramble scrub less than 5%
- Combined cover of species indicative of sub-optimal condition³ and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels

of access, or any other damaging management activities) accounts for less than 5% of total area.

Ground Preparation

6.4 Based on the existing habitat, ground preparation will be subject to soil inversion. Fertile topsoil is buried, and infertile subsoil is brought to the surface, resulting in a significant reduction in nutrient levels at the soil surface for at least five years.

Planting

6.5 A wet grassland mixture should be sown following the guidelines of the supplier, however this would be approximately 4g / M2. Seeds should be scattered and not drilled like a crop, and this scattering of the seed follows a more naturalised process.

Initial Management

6.6 During the 1st year of establishment meadow grassland will be cut twice in each growing month to maintain a balance between the faster growing species and flowers. The grassland will be mown to a height of 40-60mm with arisings cleared from the site.

6.7 In following seasons prior to cutting all areas shall be cleared of litter and debris in accordance with the section detailed above. To maintain diversity, all meadow grass areas will be cut annually in late July to end of August following flowering (the summer hay cut). An autumn cut will be carried out in November to leave the grass short over the winter period (cut to 40-75mm). If required a spring cut should be carried out prior to the end of May to remove the first flush of grass (cut to 40-75mm). All arisings should be left in situ for 48 to 72 hours prior to removal.

6.8 The diversity of the grassland should be subject to on-going monitoring to ensure maximum ecological benefit. The monitoring of the grassland will be undertaken by the management company and should include a review of a suitably qualified ecologist against the baseline and the aspired condition. Monitoring by an ecologist should occur every 5 years.

6.9 No selective herbicides will be used within these grassland areas. Instead, pernicious weeds (for example, dock and thistle) will be removed by hand, or burnt. All arisings will

be removed from site, immediately after cutting. Any litter will be removed prior to each cut, and leaves will be raked off grass prior to autumn cuts.

6.10 The attenuation swale will be managed in accordance with CIRIA SUDs Manual C753. At each maintenance visit the Contractor will inspect the SUDS facility and remove any branches and leaf debris and/or any other object that are likely to restrict water flow/capacity. All areas will be inspected and cleared of litter and other debris in accordance with the details set out above. The Contractor will inspect all outfall features, check grilles (if present), and remove any obstructions. Excess silt is to be removed from the base of facilities to maintain volume capacity and safeguard functionality of the balancing ponds themselves as necessary.

Table 5: Wildflower Grass Management / SUDS / SWALE

| Task | Management Objective / Performance Standard | Years 1-5 | Years 5-10 | Years 11+ |
|--|--|-----------|------------|-----------|
| <p>Year 1: scarify in autumn and sow suitable native wildflower mix.</p> <p>Cut to a height of 50 – 75 mm four times during the first year to encourage wildflower root development. All arising should be removed.</p> <p>Repeat as required for 3 to 5 years to establish wildflower content. Spot treat or hand-pull undesirable weed species. Minimise chemical use.</p> | <p>To achieve sward establishment to 95% cover</p> <p>To achieve floristically diverse sward content, providing colour and seasonal variety for visitors and habitat for insects and birds. Control invasive weed species (by cutting prior to seed set)</p> | ✓ | ✓ | |
| <p>Post establishment: The wildflower meadow should be cut once per year to between 40 and 70mm (late August/ September for summer flowering meadow or July for spring flowering). However, subject to the results of monitoring, an additional cut in late March may be carried out, especially in the first few years following establishment. This measure would help control the vigour of the sward, especially of the bulkier grasses, and would encourage greater species richness. All arisings should be left in situ for 48 to 72 hours prior to removal. Minimise chemical use.</p> | <p>To ensure floristically diverse sward content and control invasive weed species</p> | ✓ | ✓ | ✓ |
| <p>Cut back vegetation as required in autumn to ensure optimum functioning and free flow of water.</p> | <p>To maintain structures as safe and fit for sustainable drainage function</p> | ✓ | ✓ | ✓ |

| Task | Management Objective / Performance Standard | Years 1-5 | Years 5-10 | Years 11+ |
|---|--|--------------|---------------|--------------|
| Inspections should be undertaken on a minimum basis of once a month, particularly during the vegetation establishment period and after significant storm events to identify areas of erosion, locations of silt deposits, and health of the vegetation and soil. Undertake any repairs/maintenance as required. | To maintain structures as safe and fit for sustainable drainage function | ✓ | ✓ | ✓ |
| Monitoring every 5 years by a suitably qualified person to review the grassland condition. This will then review management techniques. | To monitor floristically diverse sward | ✓ | ✓ | ✓ |

Remedial Actions

6.11 Should the grassland monitoring indicate that the condition score is not reaching requirement, weeds will be targeted and cleared from the habitat, and channels of bare ground created for additional supplementary seeding using the mixes above. The above management plan should then be followed from the beginning to allow re-establishment. If these actions are not sufficient, specialist advice will be sought

7.0 ALLOTMENTS

7.1 Areas that are generally managed and maintained by the local population.

Table 6: Allotments

| Task | Management Objective / Performance Standard | Years 1-5 | Years 5-10 | Years 11+ |
|---|---|--------------|---------------|--------------|
| Regular litter removal and grass cutting/ grass edges | To maintain allotment structures as safe and fit for use | ✓ | ✓ | ✓ |
| Allotment management by allotment owners under general allotment rules. E | | ✓ | ✓ | ✓ |
| Remove invasive species if identified | To maintain feature and plant cover in attractive condition and achieve biodiversity and habitat objectives | ✓ | ✓ | ✓ |

8.0 INDIVIDUAL/RURAL TREES

8.1 The rural trees need to achieve at least a **moderate** condition within 30 years. Therefore, at least three of the following conditions must be met over 30 years to ensure this condition:

- Planting native tree species.
- The tree canopy is continuous (individual trees automatically pass this criterion).
- Allowing the trees to develop to maturity.
- Preventing adverse impact on tree health by human activities (such as vandalism, or herbicide). And there is no regular pruning regime, so the trees retain >75% of expected canopy for their age and height.
- Natural ecological niches for vertebrates and invertebrates are allowed to establish, such as deadwood, cavities, ivy or loose bark.
- More than 20% of the tree canopy area is oversailing vegetation beneath.

Ground Preparation

8.2 The existing habitat will be subject to soil inversion. Fertile topsoil is buried, and infertile subsoil is brought to the surface, resulting in a significant reduction in nutrient levels at the soil surface for at least five years.

Planting

8.3 Planting will utilise saplings to ensure condition assessment scores are met.

8.4 Saplings are susceptible to browsing pressure and damage from voles, rabbits, grey squirrels and deer. A combination of deer culling, tree shelters, tree tubes and/or fencing will be undertaken to protect trees from browsing pressure and ensure successful initiation.

8.5 New saplings will be watered for the first two weeks to ensure establishment.

Initial Management - Vegetation Control

8.6 This involves measures such as watering, weeding around the base, bark mulching, tree guard checks, and replacement planting for failed specimens.

- 8.7 Tree growth may be suppressed by other plants competing for moisture, nutrients and light. The vegetation surrounding a tree can also affect the likelihood of damage by small mammals, as dense grass provides ideal cover for voles which can 'ring-bark' and kill young trees.
- 8.8 High light levels favour competitive plants, such as tall, dense grasses and bracken, and their control will be necessary. Vegetation control encourages stronger growth of trees and shrubs, and their more rapid and reliable establishment. Vegetation control may be required for first two years.
- 8.9 Mowing or strimming around trees prevents tall, dense vegetation from collapsing onto, and crushing, small saplings especially, when wet. Forestry practice often encourages mowing of grass areas between 'weeded' patches to reduce seeding into the weed-free areas. Mowing, however, can result in dominance of grasses which compete with trees, and it can cause ground compaction and direct damage to young stems. Mowing or strimming should be used only where there is a high risk of tall vegetation collapsing onto young trees.

Mulching

- 8.10 Mulching offers an effective alternative to herbicide treatment. There are a variety of organic and synthetic sheet mats as well as biodegradable materials that can be spread on the ground, providing options for different site conditions and budgets. Biodegradable materials include straw, bark, wood chip, wool fleece and paper slurry. Mulches need to be in place for at least three years (initial applications may need topping up) and cover a circular area with a diameter of at least 1.2 metres around each tree.

Ongoing Management

- 8.11 Trees should be managed sensitively as far as possible and so allowed to approach their natural expected canopy. Although it is accepted that additional pruning may be required for safety. Additional protective measures structures may be required if monitoring reveals vandalism and herbicide are impacting any of the trees. Replacement trees will be planted 1:1 in the case that any of them fail. See Table 7 for the full management schedule.

Table 7: Individual Tree Management

| Task | Year 1-2 | Years 3-5 | Years 6-10 | Years 11-30 |
|--|----------|-----------|------------|-------------|
| Trees should be inspected to ensure that they are healthy, not diseased, damaged, or dead. Inspection to identify any dead limbs or other parts of a tree that may cause harm to the tree. | ✓ | | | |
| Formative pruning as required. Dead or unhealthy trees should be removed on inspection and replaced, if necessary, with the same species and size as required to achieve the desired visual effect. | ✓ | | | |
| Vegetation growth around trees should be monitored and removed if required. Litter and other debris should be removed. Mulch should be topped up to depths and levels set out in planting works implementation specification. <ul style="list-style-type: none"> Frequency of vegetation removal: monthly from spring to autumn and then bimonthly during the winter months; Frequency of debris removal: bimonthly Frequency of mulch replenishing: every 6 months | ✓ | | | |
| Any species which die, become diseased or seriously defected within the first 5 years should be replaced like for like in the first available planting season. Tree replacement should be undertaken between October and April. | ✓ | ✓ | | |
| Watering beyond year 1-2 should be reviewed and should be provided in times of water stress. | ✓ | ✓ | ✓ | ✓ |
| Sensitive pruning should be conducted between January and March based on findings of inspections. Formative pruning as required. Emergency pruning should be conducted immediately when a critical fault is noticed. | | ✓ | ✓ | ✓ |

Remedial Actions

8.12 Should the tree monitoring indicate that their condition is declining, arboriculture specialist advice will be sought, and appropriate actions taken to re-establish the tree conditions as per the bullet points above. Supplementary planting of trees will be carried out if the management regime is not sufficient to allow natural regeneration.

9.0 HEDGEROWS*Definition*

9.1 A hedgerow with over 80% canopy cover of UK native or archaeophyte woody species.

Ground Preparation

9.2 The existing habitat will be subject to soil inversion. Fertile topsoil is buried, and infertile subsoil is brought to the surface, resulting in a significant reduction in nutrient levels at the soil surface for at least five years.

Planting

9.3 Planting will utilise saplings to ensure condition assessment scores are met. These will be planted at a spacing of 20-30cm double planting, approximately 6 plants for every metre of hedge.

9.4 Saplings are susceptible to browsing pressure and damage from voles, rabbits, grey squirrels and deer. A combination of tree shelters, tree tubes and/or fencing will be undertaken to protect trees from browsing pressure and ensure successful initiation. New saplings will be watered for the first two weeks to ensure establishment.

Initial Management - Vegetation Control

9.5 This involves measures such as watering, weeding around the base, bark mulching, tree guard checks, and replacement planting for failed specimens.

9.6 High light levels favour competitive plants, such as tall, dense grasses and bracken, and their control will be necessary. Vegetation control encourages stronger growth of trees and shrubs, and their more rapid and reliable establishment. Vegetation control may be required for first two years.

9.7 Mowing or strimming around hedgerow prevents tall, dense vegetation from collapsing onto, and crushing, small saplings especially, when wet. Mowing or strimming should be used only where there is a high risk of tall vegetation collapsing onto young trees.

Mulching

9.8 Mulching offers an effective alternative to herbicide treatment. There are a variety of organic and synthetic sheet mats as well as biodegradable materials that can be spread on the ground, providing options for different site conditions and budgets. Biodegradable materials include straw, bark, wood chip, wool fleece and paper slurry. Mulches need to be in place for at least three years (initial applications may need topping up) and cover a circular area with a diameter of at least 1.2 metres around each sapling planted.

Ongoing Management

9.9 Sapling should be managed sensitively as far as possible and so allowed to approach their natural expected canopy. Although it is accepted that additional pruning may be required

for safety. Additional protective measures structures may be required if monitoring reveals vandalism and herbicide are impacting any of the trees. Replacement trees will be planted 1:1 in the case that any of them fail. See Table 8 for the full management schedule.

Table 8: New Hedgerow Management

| Task | Management Objective / Performance Standard | Years 1-5 | Years 5-10 | Years 11+ |
|---|---|-----------|------------|-----------|
| Establishment maintenance for new hedges: trimming, weeding, annual inspection, replacement of losses, irrigation as required, hedgerow formative pruning, thinning). Adjustment and replacement of stakes and guards as required. Replace as necessary. Plant guards to be straightened and ties checked during each inspection (at least 4 inspections during the year) and adjust to avoid chaffing and other damage. Guards and stakes to be removed at the appropriate time, typically during 4th or 5th year, dependant on the mammal population. | To ensure successful establishment | ✓ | | |
| Trim as required to maintain neat appearance (works subject to restrictions within bird nesting season). Gap up as required in winter. | | ✓ | ✓ | ✓ |

Table 9. Management and condition targets – Modified Grassland (Moderate)

| Modified grassland Condition Assessment Criteria | | Targeted | Creation/Enhancement Approach | Management Approach |
|---|---|----------|--|---|
| A | There are 6-8 vascular plant species per m ² present, including at least 2 forbs (these may include those listed in Footnote 1). Note - this criterion is essential for achieving Moderate or Good condition. Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m ² (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet. | Yes | Yes – turf will be utilised to create the grassland. | Starting the following March cut to 25mm or 50mm, depending on area, and remove arisings. |
| B | Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed. | No | n/a | n/a |
| C | Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble <i>Rubus fruticosus</i> agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type. | Yes | n/a | The management described for A will ensure scrub remains below these thresholds. |
| D | Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities. | No | n/a | n/a |
| E | Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens). | No | n/a | n/a |
| F | Cover of bracken <i>Pteridium aquilinum</i> is less than 20%. | Yes | n/a | The management described for A will ensure bracken remains below these thresholds. |
| G | There is an absence of invasive non-native plant species ³ (as listed on Schedule 9 of WCA4). | Yes | n/a | The above management will help suppress certain undesirable species. |

| Condition Assessment Result | |
|-----------------------------|--|
| Good | Passes 6 of 7 criteria, including essential criterion A |
| Moderate | Passes 4 or 5 of 6 criteria, including essential criterion A |
| Poor | Passes 3 or fewer criteria; OR passes 4-6 criteria |

Table 10. Management and condition targets – Mixed scrub (moderate)

| Mixed scrub Condition Assessment Criteria | | Targeted | Creation/Enhancement Approach | Management Approach |
|--|---|-----------------|--|--|
| A | <p>The parcel represents a good example of its habitat type – the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range).</p> <ul style="list-style-type: none"> - At least 80% of scrub is native, - There are at least three native woody species, <p>No single species comprising more than 75% of the cover (except hazel <i>Corylus avellana</i>, common juniper <i>Juniperus communis</i>, sea buckthorn <i>Hippophae rhamnoides</i> or box <i>Buxus sempervirens</i>, which can be up to 100% cover).</p> | Yes | All scrub planting will incorporate seven different native species, planted at 1.5m intervals. | Until establishment scrub will be watered as required to ensure success. |
| B | Seedlings, saplings, young shrubs and mature (or ancient or veteran) shrubs are all present. | No | n/a | Every 10 years 30% of the scrub area will be coppiced to ground level to allow opportunities for new seedlings to emerge and create a variety of age classes in the long term. |
| C | There is an absence of invasive non-native species (as listed on Schedule 9 of WCA) and species indicative of suboptimal condition make up less than 5% of ground cover. | Yes | Prior to planting the area will be stripped of existing vegetation and a mulch applied around the whips to suppress weed growth. | Undesirable species will be controlled as required to ensure they do not exceed 5% of ground cover. Herbicides should be avoided as a treatment however. |
| D | The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat. | Yes | n/a | The grassland is surrounded by other neutral grassland, which will be managed tall. |
| E | There are clearings, glades or rides present within the scrub, providing sheltered edges. | No | n/a | n/a |

| Condition Assessment Result | |
|------------------------------------|-----------------------------|
| Good | Passes 5 of 5 criteria |
| Moderate | Passes 3 or 4 of 5 criteria |
| Poor | Passes 2 or fewer criteria |

Table 11. Management and condition targets – Rural trees (poor)

| Urban trees Condition Assessment Criteria | | Targeted | Creation/Enhancement Approach | Management Approach |
|--|---|------------|--|---------------------|
| A | The tree is a native species (or more than 70% within the block are native species). | Yes | All trees will be native | n/a |
| B | The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion). | No | n/a | n/a |
| C | The tree is mature (or more than 50% within the block are mature). | No | n/a | n/a |
| D | There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height. | Yes | Management will not impact upon tree health. | n/a |
| E | Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark. | No | n/a | n/a |
| F | More than 20% of the tree canopy area is oversailing vegetation beneath. | Yes | All trees are planted within soft landscaped areas | n/a |

| Condition Assessment Result | |
|-----------------------------|----------------------------|
| Good | Passes 5 or 6 criteria |
| Moderate | Passes 3 or 4 criteria |
| Poor | Passes 2 or fewer criteria |

Table 12. Management and condition targets – Other neutral grassland (moderate A, B, C, D)

| Other neutral grassland Condition Assessment Criteria | | Targeted | Creation/ enhancement Approach | Management Approach |
|--|--|-----------------|---|--|
| A | <p>The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type.</p> <p>Note – this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.</p> | Yes | Graze/cut existing grass to ground level (and remove cuttings) in autumn. Scarify the ground and seed with EM2 seedmix at 4g/m ² . And gently roll the area. | Starting the following March cut to c.30mm and collect and remove cuttings. Repeat this process in August, September and October. On all subsequent years the sward will be cut to c.30mm once a month in March, May August, September, and October. Ensuring a core flowering period of April to end of July. |
| B | Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. | Yes | n/a | In addition to the above management, at least 20% of the area will continue to be cut on a monthly basis throughout May, June and July, in the form of pathways or verges. be cut. Outside of these months, a buffer of at least 20% of the total grassland area along the edge scrub/woodland habitats surrounding the grassland will be left unmown. |
| C | Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens. | Yes | n/a | After each spring cut, the ground will be scarified to ensure between 1 and 5% of the area comprises bare ground. |
| D | Cover of bracken <i>Pteridium aquilinum</i> less than 20% and cover of scrub (including bramble) less than 5%. | Yes | n/a | The management described for A&B will ensure bracken and scrub remain below these thresholds. |
| E | <p>Combined cover of species indicative of suboptimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging activities) accounts for less than 5% of total area.</p> <p>If any invasive non-native species (as listed on Schedule 9 of WCA) are present, this criterion is automatically failed.</p> | No | n/a | The above management will help suppress certain undesirable species. |
| F | There are 10 or more vascular plant species per m ² present, including forbs that are characteristic of the habitat type. | No | The proposed seed mix, includes at least 14 different species. | The above management will help maintain species-richness., although it may not be possible for all areas to maintain above a species richness of 10 species/m ² . |

| Condition Assessment Result | |
|-----------------------------|---|
| Good | Passes 5 of 6 criteria, including essential criterion A and F |
| Moderate | Passes 3 or 3 of 6 criteria, including essential criterion A |
| Poor | Passes 0, 1, 2, criteria of 6 |

Table 13. Management and condition targets – Native Hedgerows (moderate A, B, C, D)

| Native hedgerow Condition Assessment Criteria | Targeted | Creation/ enhancement Approach | Management Approach |
|--|----------|--|--|
| Height >1.5 m average along length | Yes | Double planting, use of native species | Establishment maintenance for new hedges: trimming, weeding, annual inspection, replacement of losses, irrigation as required, hedgerow formative pruning, thinning). Adjustment and replacement of stakes and guards as required. Replace as necessary. |
| Width >1.5 m average along length | Yes | Double planting, use of native species | Establishment maintenance for new hedges: trimming, weeding, annual inspection, replacement of losses, irrigation as required, hedgerow formative pruning, thinning). Adjustment and replacement of stakes and guards as required. Replace as necessary. |
| Gap – hedge base Gap between ground and base of canopy <0.5 m for >90% of length | Yes | Double planting, use of native species | Establishment maintenance for new hedges: trimming, weeding, annual inspection, replacement of losses, irrigation as required, hedgerow formative pruning, thinning). Adjustment and replacement of stakes and guards as required. Replace as necessary. |
| Gap – hedge canopy continuity Gaps make up <10% of total length and No canopy gaps >5 m | Yes | Double planting, use of native species | Establishment maintenance for new hedges: trimming, weeding, annual inspection, replacement of losses, irrigation as required, hedgerow formative pruning, thinning). Adjustment and replacement of stakes and guards as required. Replace as necessary. |
| Undisturbed perennial vegetation >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length (on one side of the hedge (at least)) | Yes | Seeded with neutral grassland | Management of species rich grassland |
| Undesirable species Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground. | No | N/A | N/A |
| Invasive species >90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA ³) and recently introduced species. | Yes | Seeded with neutral grassland | Management of species rich grassland |

| | | | |
|---|----|-----|-----|
| Current Damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities. | No | N/A | N/A |
|---|----|-----|-----|

| Condition Assessment Result | |
|-----------------------------|---|
| Good | No more than 2 failures in total; AND No more than 1 in any functional group. |
| Moderate | No more than 4 failures in total; AND <u>Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition).</u> |
| Poor | Fails a total of more than 4 attributes; OR <u>Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).</u> |

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