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Report prepared for: Burston Farmers Ltd

For the Site of: Land at Weedon Road, Aston Abbots, Aylesbury, Bucks, HP22 4NQ

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# Biological Impact Assessment (BIA)

## 0.0 Non-Technical Summary

### 0.1 Background

The client commissioned Cherryfield Ecology to undertake a Biodiversity Impact Assessment (BIA) for the site of Land at Weedon Road, Aston Abbotts, Aylesbury, Bucks, HP22 4NQ to determine the biodiversity net gains that can be achieved on site.

This report uses the Biodiversity Metric 4.0 (Natural England, 2021) to quantify the biodiversity baseline for the site and calculate the post-development biodiversity unit for the proposed scheme following the best practice guidelines as set down by CIRIA (2019).

### 0.2 Results and Findings

- Following a site visit undertaken on 03/08/2023, the habitats on site were identified and include:
  - Modified Grassland
  - Mixed Scrub
  - Native Species-Rich Hedgerow
  - Native Hedgerow with Trees
  - Native Hedgerow with Trees (Assoc. with Ditch)
  
- With enhancements, it is expected that the following habitats can be achieved:
  - Lowland Meadows
  - Mixed Scrub
  - Native Species-Rich Hedgerow with Trees
  - Native Species-Rich Hedgerow with Trees (Assoc. with Ditch)

- A summary of the change in Biodiversity Net Gain on site is given in Table 1.

Table 1: Change in Biodiversity Net Gain (BNG) on site

BIA Units	Total Net Unit Change	Total Net % change
Habitat Units	+168.96	378.33%
Hedgerow Units	+11.19	59.13%
River Units	n/a	n/a

## **1.0 Introduction**

### **1.1 Aim**

The aim of this report is to determine the Biodiversity Net Gain for the proposed scheme and, where necessary, make recommendations for increasing net gain in order to comply with the national guidelines.

### **1.2 Background Information**

The client, Burston Farmers Ltd, has commissioned Cherryfield Ecology to undertake a BIA for the site of Land at Weedon Road, Aston Abbots, Aylesbury, Bucks, HP22 4NQ to determine the biodiversity net gains that can be achieved on site.

### **1.3 Study Area**

The site is 20.59 Ha in size. The national grid co-ordinates for the center of the site are SP 82596 19142.

### **1.4 Suitably Qualified Ecologist**

This report has been completed by Heather Stuckey and checked by Sarah Downing. Sarah meets the criteria for a suitably qualified Ecologist as defined in BS8683:2020.

## **2.0 Methods**

Biodiversity Net Gain is assessed through the use of biodiversity calculators to assess the biodiversity value of habitats pre- and post-development based on habitat type, distinctiveness and condition.

A biodiversity index is derived for the baseline and the proposed development and net gain is achieved where an increase in value is delivered either on site (or through offsite compensation), where lower value habitat is replaced with one of higher value.

This assessment was carried out using the Defra Biodiversity metric 4.0 in accordance with Biodiversity Net Gain: Good Practice principles for development (CIRIA 2016).

### **2.2 Limitations**

It is important to note that a scheme-wide biodiversity net gain or no net loss cannot be achieved for the scheme as a whole if there are negative impacts on irreplaceable habitats.

Any compensation offered to address impacts on irreplaceable habitats should be agreed directly with Natural England (NE). The baseline habitat which is identified for such compensation and the biodiversity units resulting from this compensation should also be excluded from biodiversity unit calculations.

Following Defra guidance, impacts on irreplaceable habitats and their compensation have been excluded from this biodiversity unit calculation.

Biodiversity Impact Assessment only deals with habitat and as such this report does not cover any of the requirements of the proposed development arising from potential impacts on protected species and designated sites.

### 3.0 Baseline Condition

#### 3.1 Habitats on site

The site consists of an unmanaged field, previously used for arable crop/ temporary grass leys. Grass species present are dominated by perennial rye grass, with occasional Yorkshire fog, annual meadow grass, false oat grass and soft brome. There are several dry and bare patches, with succeeding forb species typical of waste ground including creeping thistle (dominant), scentless mayweed, field forget me not, bristly oxtongue and ribwort plantain. Species count per m<sup>2</sup> averaged at 3/4, with perennial rye present in all quadrat samples.

A stream runs along the western boundary, with areas of tall ruderal and scattered scrub along its banks. The northern and southern boundaries are lined with native hedgerows with trees and the eastern boundary is lined with newly planted native-species rich hedgerow.



Figure 1: View across the field



Figure 2: Close up example of the grassland



Figure 3: Tall ruderal vegetation along the stream





Figure 4: Example of boundary hedgerow



Figure 5: Newly planted hedgerow on western boundary

### 3.2 Evidence/ Likelihood of Protected Species

No evidence of protected species was found on site. Anecdotal evidence suggests the presence of a badger sett within the hedgerow boundary, however, this was not seen during the walkover survey. The trees and hedgerows provide high potential for breeding birds, with occasional bird boxes installed on boundary trees.

### 3.3 MAGIC

The following statutory sites and Natural England Protected Species (NEPS) have been located within the 2km search area (Figure 6).

Table 2: Magic search results

Receptor	Distance and Direction (m/Km)	Description
Statutory sites	n/a	n/a
Granted protected species licenses	n/a	n/a
Priority habitat	~1525m northeast	Wood-pasture and Parkland
	~775m southeast	Traditional orchard
	~1100m southeast	Deciduous woodland

MAGiC

Magic Map

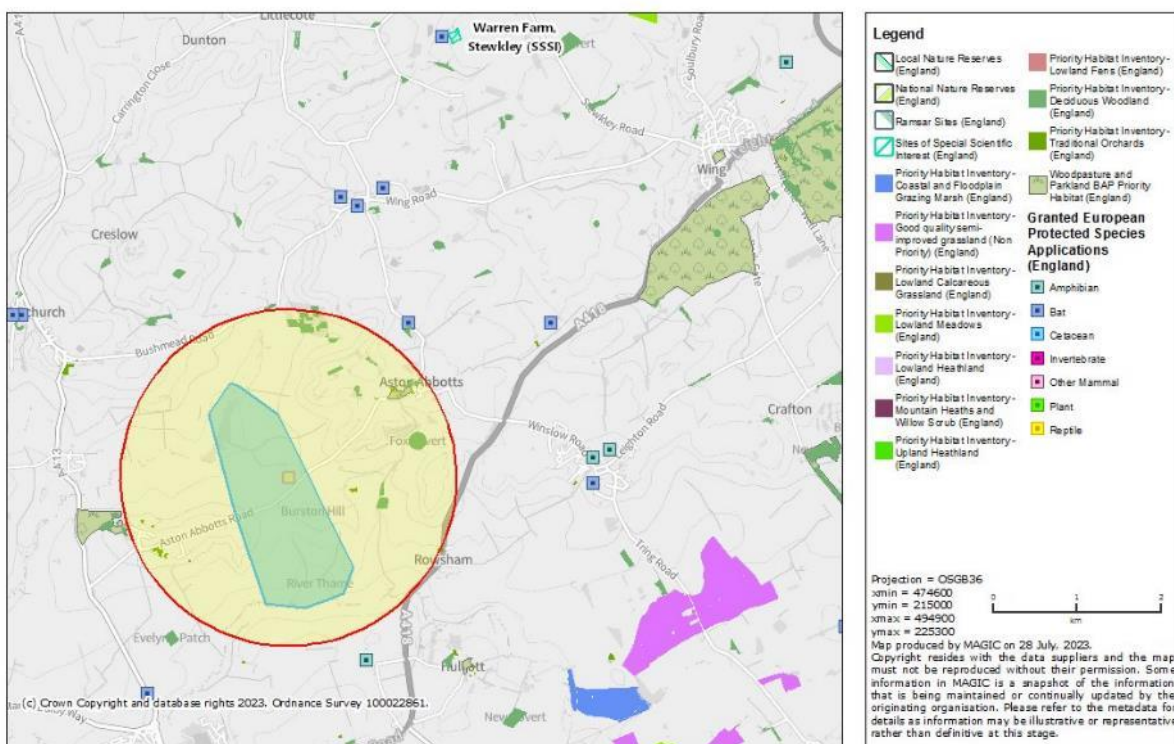


Figure 6: Magic Map Search

### 3.4 BNG Baseline Value

The following table details the condition assessments for all habitat and linear features on site as assessed during the walkover survey. Please see Appendix I for the condition assessment sheets.

Table 3: Biodiversity Net Gain Condition Assessments/Scores

Habitat (UKHabs)	Condition Score	Distinctiveness
Modified Grassland	Poor	Low
Mixed Scrub	Moderate	Medium
Native Species-Rich Hedgerow	Good	Medium
Native Hedgerow with Trees	Moderate	Medium
Native Hedgerow with Trees (Assoc. with Ditch)	Good	High

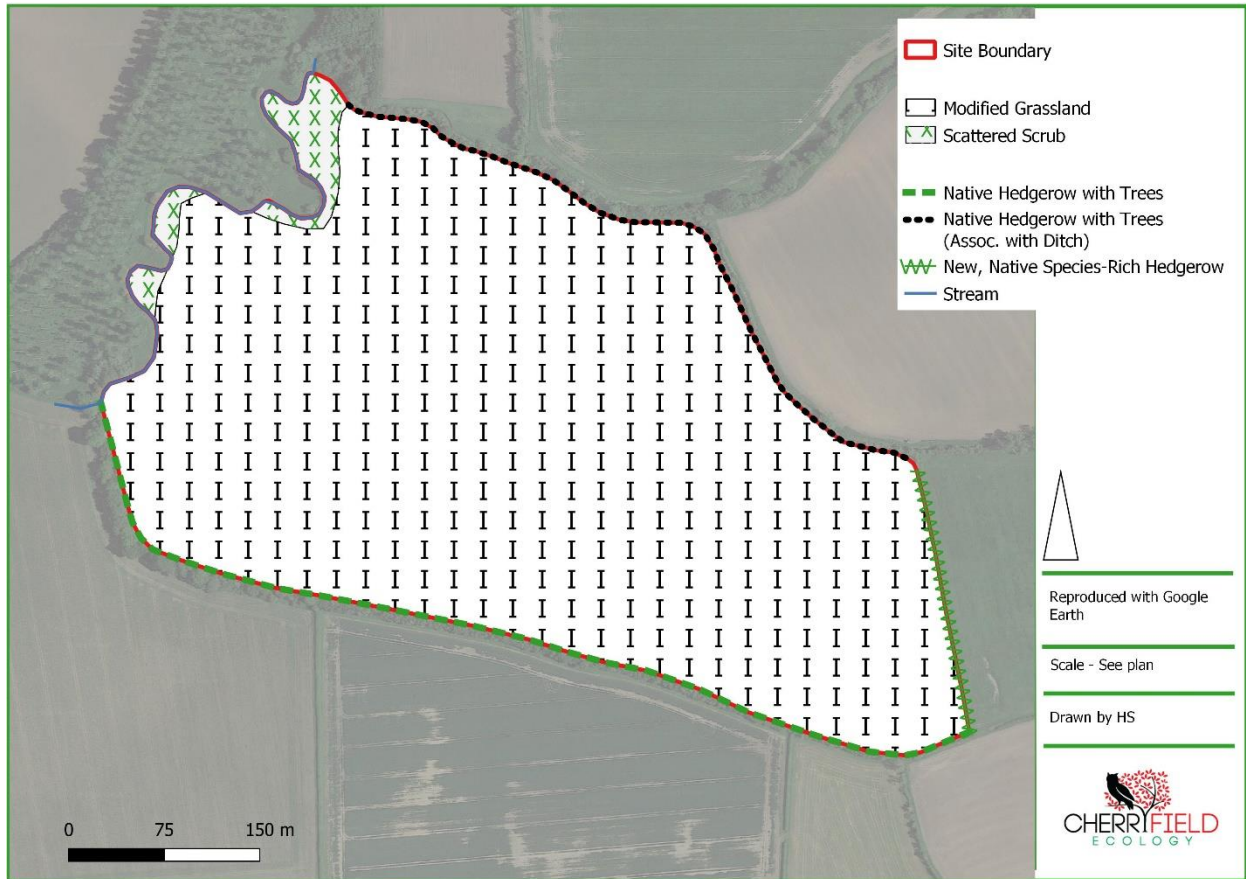


Figure 7: Baseline Habitats Site Plan

Table 4: Baseline Habitat Units.

UKHab Category	Area (Ha)	Habitats Units Delivered
Modified Grassland	20.01	40.02
Mixed Scrub	0.58	4.64
<b>Total Biodiversity Units</b>		<b>44.66</b>

Table 5: Baseline Linear Units

UKHab Category	Length (km)	Linear Units Delivered
A - Native Species-Rich Hedgerow	0.21	2.52
B - Native Hedgerow with Trees	0.79	6.32
C - Native Hedgerow with Trees (Assoc. with Ditch)	0.56	10.08
<b>Total Linear Units</b>		<b>18.92</b>

### 4.0 Post-Development Units

With enhancements, it is expected that the following habitats can be achieved:

- Lowland Meadows
- Mixed Scrub
- Native Species-Rich Hedgerow with Trees
- Native Species-Rich Hedgerow with Trees (Assoc. with Ditch)

Table 6: Criteria likely to be achieved post-development. Please see Appendix 1 for the condition assessment sheets

Habitat (UKHabs)	Condition Score	Distinctiveness
Lowland Meadows	Good	V. High
Mixed Scrub	Good	Medium
Native Species-Rich Hedgerow with Trees	Good	High
Native Species-Rich Hedgerow with Trees (Assoc. with Ditch)	Good	V. High

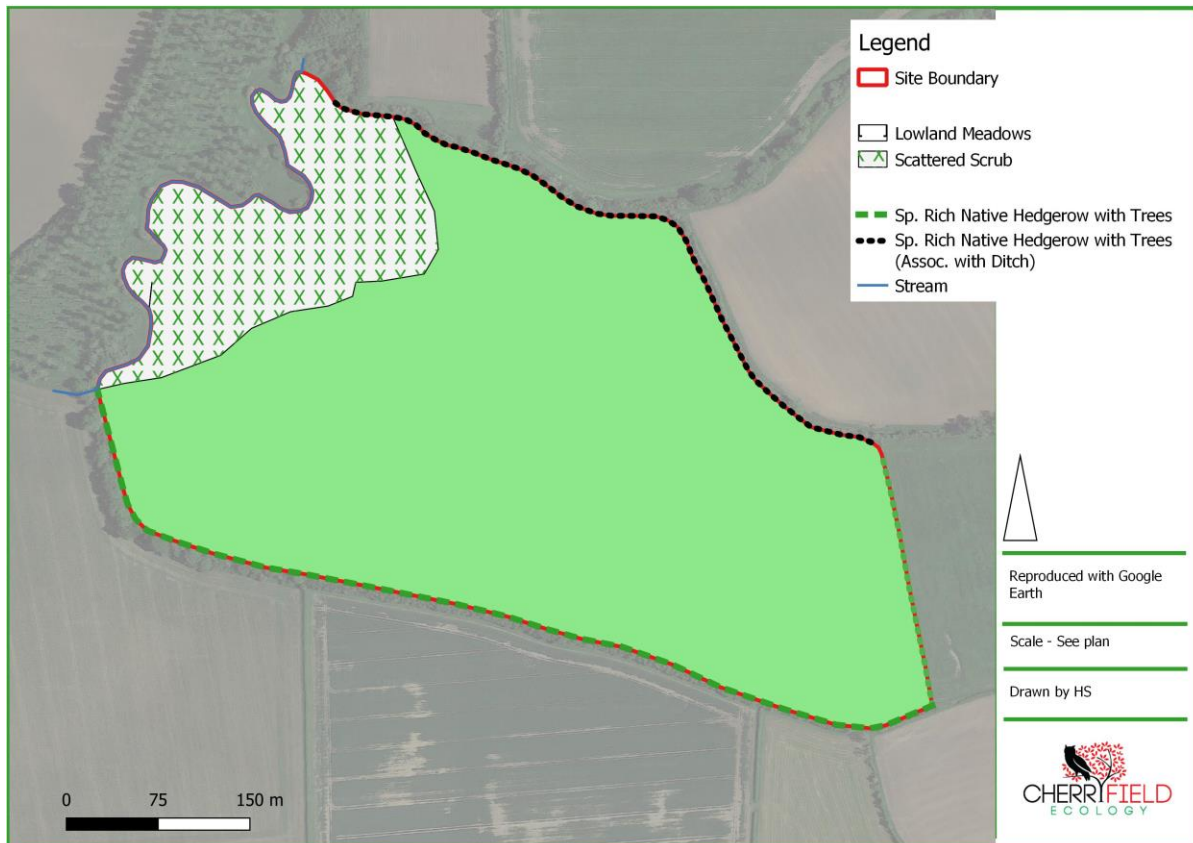


Figure 8: Proposed Habitats Site Plan

The Habitat Units and Linear Units for the site post-development have been calculated using georeferenced GIS software (Table 7 and Table 8).

Table 7: Summary of Habitat Units Post-Development

UKHab Category	Area (ha)	Habitats Units Delivered
Lowland Meadows	17.34	184.46
Mixed Scrub - Retained	0.58	6.72
Mixed Scrub - New	2.67	22.44
<b>Total Biodiversity Units</b>		<b>213.62</b>

Table 8: Summary of Linear Units Post-Development

UKHab Category	Length (Km)	Habitats Units Delivered
A - Native Species-Rich Hedgerow with Trees	0.21	4.28
B - Native Species-Rich Hedgerow with Trees	0.79	12.93
C- Native Species-Rich Hedgerow with Trees (Assoc. with Ditch)	0.56	12.89
<b>Total Biodiversity Units</b>		<b>30.11</b>

## 5.0 Results

The change in broad habitat types on site for the proposed development are outlined in Table 9.

Table 9: Summary of change in Biodiversity Units on-site

Broad Habitat Type	Existing Value	Proposed Value	On-site Unit Change
Grassland	40.02	184.46	+144.44
Heathland and Shrub	4.64	29.16	+24.52
Native Species-Rich Hedgerow with Trees (Assoc. with Ditch)	0.00	17.18	+17.18
Native Species-Rich Hedgerow with Trees	0.00	12.93	+12.93
Native Hedgerow with Trees (Assoc. with Ditch)	10.08	0.00	-10.08
Species-Rich Native Hedgerow	2.52	0.00	-2.52
Native Hedgerow with Trees	6.32	0.00	-6.32

## 5.1 Conclusion and Discussion

The proposed enhancements will result in the following:

Table 10: Change in Biodiversity Net Gain (BNG) on site

BIA Units	Total Net Unit Change	Total Net % change
Habitat Units	+168.96	378.33%
Hedgerow Units	+11.19	59.13%
River Units	n/a	n/a

Recommendations for the site are given in Section 5.2.

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## 5.2 Recommendations

Below are some recommendations as to how the proposed habitats can be achieved.

### Lowland Meadows

It is recommended that a seed mixture such as **EM3 Special General Purpose Meadow Mixture** is used ([Emorsgate](#))

#### *Ground Preparation*

Work must be undertaken to reduce the nutrient levels within the soil.

To prepare a seed bed first remove weeds using repeated cultivation. Then plough or dig to bury the surface vegetation, harrow or rake to produce a medium tilth, and roll, or tread, to produce a firm surface.

#### *Sowing*

Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. 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 divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed, but firm in with a roll, or by treading, to give good soil/seed contact.

#### *First Year Management*

Most of the sown meadow species are perennial and are slow to establish. Soon after sowing there will be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out. So resist cutting the annual weeds until mid to late summer, especially if the mixture contains Yellow Rattle, or has been sown with a nurse of cornfield annuals. Then cut, remove and compost. Early August is a good time. This will reveal the young meadow, which can then be kept



short by grazing or mowing through to the end of March of the following year. Dig out any residual perennial weeds such as docks.

### *Management Once Established*

In the second and subsequent years EM3 sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. 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 or grazing.

Meadow grassland is not cut or grazed from spring through to late July/August to give the sown species an opportunity to flower. After flowering in July or August take a 'hay cut': cut back with a scythe, petrol strimmer or tractor mower to c 50mm. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site.

Mow or graze the re-growth through to late autumn/winter to c 50mm and again in spring if needed.

### **Scrub**

It is proposed to increase the area of mixed scrub on site within the western end of the site. The scrub should be planted in such a way as to create glades and rides through the scrub, to provide sheltered edges.

The RSPB provides suitable guidance on the creation and maintenance of scrub habitat which can be found here: <https://www.rspb.org.uk/our-work/conservation/conservation-and-sustainability/farming/advice/managing-habitats/scrub/>

### **Hedgerows/ Trees**

It is proposed to increase the variation of species within the hedgerows to enhance them to 'species-rich' and to manage the hedgerows to reduce the amount of 'gappiness' at the base- particularly within hedgerow 'B'.

Any existing gaps in the hedgerows should be planted up with species other than hawthorn and blackthorn to increase species diversity, and space should be created where appropriate to allow for further new planting. Suitable hedgerow species include:

- Hazel (*Corylus avellana*)
- Holly (*Ilex europaeus*)
- Wild privet (*Ligustrum vulgare*)
- Field maple (*Acer campestre*)
- Guelder rose (*Viburnum opulus*)
- Wayfaring tree (*Viburnum lantana*)
- Dog rose (*Rosa canina*)
- Spindle (*Euonymus europaea*)

A hedgerow should include 5 or more woody species within a 30m length in order to be classified as **species rich**.

The Hedgerow management cycle shown below should be used to assess and manage retained and newly planted hedgerow in order to maintain the condition level identified in the condition assessment.

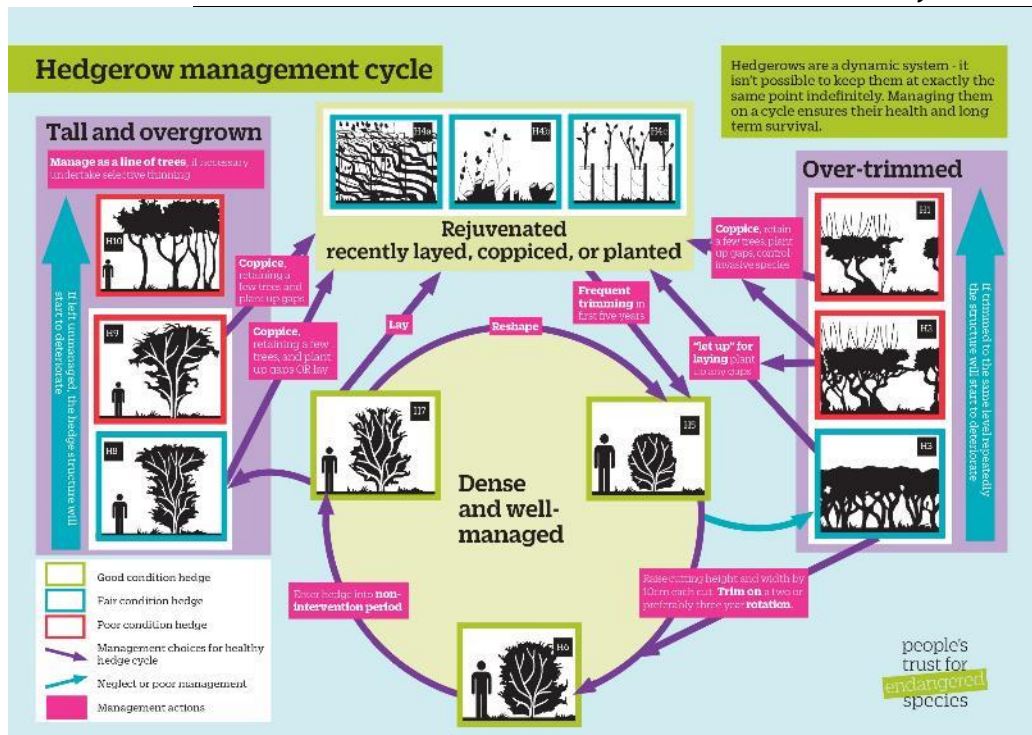


Figure 9: Hedgerow management cycle (<https://hedgerowsurvey.ptes.org/>)

Trimming hedges on a two- or three-year rotation, targeting different sections each year, will make sure there are always flowers for pollinators in spring and berries for birds in autumn. Hedges cut every three years can produce two and a half times as many blossoms as those cut annually. Rotational cutting can also save time and money that would be invested in annual cutting.

If pruning of the existing trees is required then pruning should be undertaken in late autumn to early winter.

Natural fracture cuts and coronet pruning should be considered wherever suitable as this provide features for wildlife.

## 6.0 References

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Natural England (2021), *The Biodiversity Metric 4.0 - Auditing and Accounting for Biodiversity - Technical Supplement*, Natural England Joint Publication JP039, published May 2022.

UKHabs (2020), *UK Habitat Classification*, UKHab, [Online] <https://ukhab.org/>  
(Accessed 10<sup>th</sup> December 2020)

Appendix

Baseline condition sheets

Habitat Description			
Modified Grassland			
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	<p>There are 6-8 vascular plant species per m<sup>2</sup> present, including at least 2 forbs (this may include those listed in Footnote 1). <b>Note - this criterion is essential for achieving Moderate or Good condition.</b></p> <p>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<sup>2</sup> (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,</p>	N	<p>Average of 3-4, dominated by perennial rye grass, with creeping thistle, scentless mayweed, forget-me-not and yarrow.</p>

	please use the relevant condition sheet.		
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.	Y	
C	Some scattered scrub (including bramble <i>Rubus fruticosus</i> agg.) may be present, but scrub accounts for less than 20% of total grassland area.  Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y	Scattered scrub on site has been classified as separate habitat.
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.	Y	No physical damage
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens) <sup>2</sup> .	N	There are frequent, small, patches of bare ground

F	Cover of bracken <i>Pteridium aquilinum</i> is less than 20%.	Y	No bracken present
G	There is an absence of invasive non-native plant species <sup>3</sup> (as listed on Schedule 9 of WCA <sup>4</sup> ).	Y	No invasive species present
<b>Essential criterion achieved (Yes or No)</b>			No
<b>Number of criteria passed</b>			5
<b>Condition Assessment Result (out of 7 criteria)</b>	<b>Condition Assessment Score</b>	<b>Score Achieved</b> x/✓	
Good (3)	Passes 6 or 7 criteria including passing essential criterion A		
Moderate (2)	Passes 4 or 5 criteria including passing essential criterion A		
Poor (1)	Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor	



Habitat Description			
Mixed, scattered scrub			
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	<p>The scrub is a good representation of the habitat type it has been identified as, based on its UKHab description (where in its natural range). The appearance and composition of the vegetation closely matches the characteristics of the specific scrub type.</p> <p>At least 80% of scrub is native, and there are at least three native woody species<sup>1</sup>, with 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>	Y	Species present include hawthorn, blackthorn, willow and elder
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran <sup>2</sup> ) shrubs are all present.	Y	

C	There is an absence of invasive non-native plant species <sup>3</sup> (as listed on Schedule 9 of WCA <sup>4</sup> ) and species indicative of sub-optimal condition <sup>5</sup> make up less than 5% of ground cover.	Y	
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	Y	The scrub is found along the stream, with forb species including creeping thistle, ragwort and nettles present at the scrub edges.
E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	N	
<b>Number of criteria passed</b>			<b>4</b>
<b>Condition Assessment Result (out of 5 criteria)</b>	<b>Condition Assessment Score</b>	<b>Score Achieved</b> x/√	
Passes 5 criteria	Good (3)		
Passes 3 or 4 criteria	Moderate (2)	Moderate	

Passes 2 or fewer criteria	Poor (1)		
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Habitat Description							
A - New native species-rich hedgerow along eastern boundary							
B - Native hedgerow with trees along southern boundary							
C - Native hedgerow with trees, associated with a ditch along the northern boundary							
Attributes and functional groupings (A, B, C, D and E)	Criteria - the minimum requirements for 'favourable condition'	Criteria description	Habitat parcel reference				
			A	B	C		
Core groups - applicable to all hedgerow types			Criterion passed (Yes or No)			Notes (such as justification)	
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees.  Newly laid or coppiced hedgerows are indicative of	N	Y	Y	A - Newly planted

			<p>good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).</p> <p>A newly planted hedgerow does not pass this criterion (unless it is &gt;1.5 m height).</p>				
A2.	Width	>1.5 m average along length	<p>The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees.</p> <p>Outgrowths (such as blackthorn <i>Prunus spinosa</i> suckers) are only included in the width estimate when they are &gt;0.5 m in height.</p> <p>Laid, coppiced, cut and newly planted</p>	Y	Y	Y	A - Not more than 1.5m, but newly planted so pass the criterion

			hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).				
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth.  Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	Y	N	Y	B - Hedgerow is unmanaged and hedgerow species such as hawthorn beginning to succeed into trees
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small).	Y	Y	Y	

		canopy gaps >5 m	Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).				
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: <ul style="list-style-type: none"> <li>Measured from outer edge of hedgerow</li> <li>; and</li> <li>Is present on one side of</li> </ul>	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow.  Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow.  This criterion recognises the value of the hedgerow base as a boundary habitat with the	Y	Y	Y	Field margins/pasture present on other side of boundary hedgerows

		the hedgerow (at least).	capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.				
C2.	Nutrient - enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles <i>Urtica</i> spp., cleavers <i>Galium aparine</i> and docks <i>Rumex</i> spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	Y	N	N	A -Indicator species present, but not more than 20%  B & C - more than 20% cover of dock, nettle, thistle and willowherb



D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA <sup>3</sup> ) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website <sup>4</sup> , as well as the BSBI website <sup>5</sup> where the 'Online Atlas of the British and Irish Flora' <sup>6</sup> contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website <sup>7</sup> .	Y	Y	Y	
D2.	Current damage	>90% of the hedgerow or undisturbed ground	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes.	Y	Y	Y	

		is free of damage caused by human activities.	This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g., excessive hedgerow cutting).				
<b>Additional group - applicable to hedgerows with trees only</b>							
E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient <sup>8</sup> ), and there is on average at least	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.	N/A	N	N	

		one mature, ancient or veteran tree present per 20 - 50m of hedgerow .					
E3.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	N/A	Y	Y	

		tree health by damage from livestock or wild animals, pests or diseases, or human activity.				
The hedgerow condition assessment generates a weighting (score) ranging from 1 - 3, which is used within the metric. The scores for each are set out in the tables below.						
<b>Condition categories for hedgerows without trees</b>						
<b>Category</b>	<b>Category Requirements</b>					<b>Metric Score</b>
Good	No more than 2 failures in total; <b>AND</b> No more than 1 failure in any functional group.					3
Moderate	No more than 4 failures in total; <b>AND</b> Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 and C2 = Moderate condition).					2
Poor	Fails a total of more than 4 attributes; <b>OR</b> Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 and B2 = Poor condition).					1

<b>Score achieved:</b>		<b>A - Good</b>
<b>Condition categories for hedgerows with trees</b>		
<b>Category</b>	<b>Category Requirements</b>	<b>Metric score</b>
Good	No more than 2 failures in total; <b>AND</b> No more than 1 failure in any functional group.	3
Moderate	No more than 5 failures in total; <b>AND</b> <u>Does not fail both attributes</u> in more than one functional group (e.g., fails attributes A1, A2, B1, C2 and E1 = Moderate condition).	2
Poor	Fails a total of more than 5 attributes; <b>OR</b> <u>Fails both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 and B2 = Poor condition).	1
<b>Score achieved:</b>		<b>B - Moderate</b> <b>C - Good</b>

Post-development condition sheets

Habitat Description			
Lowland Meadow - Enhanced from poor Modified Grassland			
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	<p>The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present.</p> <p><b>Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.</b></p>	Y	Soil base to be managed to reduce nutrient levels, and seed mix such as <b>EM3 Special General Purpose Meadow Mixture (Emorsgate)</b>
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 insects, birds and small mammals to live and breed.	Y	
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens <sup>1</sup> .	Y	
D	Cover of bracken <i>Pteridium aquilinum</i> is less than 20% and cover of scrub	Y	

	(including bramble <i>Rubus fruticosus</i> agg.) is less than 5%.		
E	<p>Combined cover of species indicative of sub-optimal condition<sup>2</sup> 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.</p> <p>If any invasive non-native plant species<sup>3</sup> (as listed on Schedule 9 of WCA<sup>4</sup>) are present, this criterion is automatically failed.</p>	Y	
<b>Additional Criterion - must be assessed for all non-acid grassland types</b>			
F	<p>There are 10 or more vascular plant species per m<sup>2</sup> present, including forbs that are characteristic of the habitat type (species referenced in Footnote 2 and 4 cannot contribute towards this count).</p> <p><b>Note - this criterion is essential for achieving Good condition for non-acid grassland types only.</b></p>	Y	
Essential criterion for Good condition achieved (for non-acid grassland) (Yes or No)		Y	
Number of criteria passed		6	
Condition Assessment Result	Condition Assessment Score	Score Achieved x/√	
Non-acid grassland Types (Result out of 6 criteria)			

<p>Passes 5 or 6 criteria, including essential criterion A and additional criterion F.</p>	<p>Good (3)</p>	<p>Good</p>	
<p>Passes 3 - 5 criteria, including essential criterion A.</p>	<p>Moderate (2)</p>		
<p>Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.</p>	<p>Poor (1)</p>		



Habitat Description			
Mixed, scattered scrub - ENHANCED			
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	<p>The scrub is a good representation of the habitat type it has been identified as, based on its UKHab description (where in its natural range). The appearance and composition of the vegetation closely matches the characteristics of the specific scrub type.</p> <p>At least 80% of scrub is native, and there are at least three native woody species<sup>1</sup>, with 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>	Y	Existing species mix maintained
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran <sup>2</sup> ) shrubs are all present.	Y	New planting added & mature shrubs maintained
C	There is an absence of invasive non-native plant species <sup>3</sup> (as listed on Schedule 9 of WCA <sup>4</sup> ) and species indicative of sub-	Y	Invasive species to be controlled

	optimal condition <sup>5</sup> make up less than 5% of ground cover.		should they appear
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	Y	Scrub edge will be managed alongside adjacent grassland
E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Y	Additional areas of scrub will be planted in such a way as to create glades and rides. The existing area of scrub will be thinned where necessary.
<b>Number of criteria passed</b>			<b>5</b>
<b>Condition Assessment Result (out of 5 criteria)</b>	<b>Condition Assessment Score</b>	<b>Score Achieved</b> x/✓	
Passes 5 criteria	Good (3)	Good	
Passes 3 or 4 criteria	Moderate (2)		
Passes 2 or fewer criteria	Poor (1)		

Habitat Description						
A - Native species-rich hedgerow <i>with trees</i> along eastern boundary						
B - Native <i>species-rich</i> hedgerow with trees along southern boundary						
C - Native <i>species-rich</i> hedgerow with trees, associated with a ditch along the northern boundary						
Attributes and functional groupings (A, B, C, D and E)	Criteria - the minimum requirements for 'favourable condition'	Criteria description	Habitat parcel reference			
			A	B	C	
Core groups - applicable to all hedgerow types			Criterion passed (Yes or No)		Notes (such as justification)	
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees.  Newly laid or coppiced hedgerows	Y	Y	Y

			<p>are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).</p> <p>A newly planted hedgerow does not pass this criterion (unless it is &gt;1.5 m height).</p>				
A2.	Width	>1.5 m average along length	<p>The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees.</p> <p>Outgrowths (such as blackthorn <i>Prunus spinosa</i> suckers) are only included in the width estimate when they are &gt;0.5 m in height.</p> <p>Laid, coppiced, cut</p>	Y	Y	Y	

			and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).				
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth.  Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	Y	Y	Y	Hedgerow 'B' to be managed to reduce 'gappiness' currently present
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how	Y	Y	Y	

		canopy gaps >5 m	small).  Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).				
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: <ul style="list-style-type: none"> <li>Measured from outer edge of hedgerow</li> <li>; and</li> <li>Is present on one</li> </ul>	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow.  Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow.  This criterion recognises the value of the hedgerow base as a boundary	Y	Y	Y	Field margins/pasture present on other side of boundary hedgerows

		side of the hedgerow (at least).	habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.				
C2.	Nutrient - enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles <i>Urtica</i> spp., cleavers <i>Galium aparine</i> and docks <i>Rumex</i> spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	Y	Y	Y	Adjacent grassland and ground flora to be managed to reduce presence of indicator species

D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA <sup>3</sup> ) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website <sup>4</sup> , as well as the BSBI website <sup>5</sup> where the 'Online Atlas of the British and Irish Flora' <sup>6</sup> contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website <sup>7</sup> .	Y	Y	Y	
D2.	Current damage	>90% of the hedgerow or undisturbed ground	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes.	Y	Y	Y	



		is free of damage caused by human activities.	This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g., excessive hedgerow cutting).				
<b>Additional group - applicable to hedgerows with trees only</b>							
E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient <sup>8</sup> ), and there is on average at least	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.	N	Y	Y	A - New trees to be added to hedgerow  B & C - New trees to be added along side existing trees-creating multiple age classes

		one mature, ancient or veteran tree present per 20 - 50m of hedgerow .					
E3.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	Y	Y	Y	

		tree health by damage from livestock or wild animals, pests or diseases, or human activity.				
<b>Condition categories for hedgerows with trees</b>						
<b>Category</b>	<b>Category Requirements</b>					<b>Metric score</b>
Good	No more than 2 failures in total; <b>AND</b> No more than 1 failure in any functional group.					3
Moderate	No more than 5 failures in total; <b>AND</b> <u>Does not fail both attributes</u> in more than one functional group (e.g., fails attributes A1, A2, B1, C2 and E1 = Moderate condition).					2
Poor	Fails a total of more than 5 attributes; <b>OR</b> <u>Fails both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 and B2 = Poor condition).					1
<b>Score achieved:</b>					A, B & C - Good	