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**Biodiversity Net Gain
Assessment,
Monitoring and
Management Plan**

Long Lane Pavilion, Bursledon

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Client:

Bursledon Parish Council

9th November 2023

Report	Biodiversity Net Gain Assessment, Monitoring and Management Plan
Site Name	Long Lane Pavilion, Bursledon
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Figure 2. Plan of the proposed new development (Ridge, Project: 5021481, Number: 0011, October 2023).



2.0 METHODOLOGY

The methodology for the assessment follows the Natural England Biodiversity Metric 4.0 habitat condition assessment protocols and uses the Biodiversity Metric 4.0 calculation tool to calculate biodiversity losses and gains (Natural England, 2022).

2.1 Habitat Assessment

Habitats on site pre-development were identified in accordance with the categories specified for a UK Habitats survey using Habitat Definitions Version 1.1 (UKHab Ltd., 2020). The UKHab definitions have since been updated to Habitat Definitions Version 2.0 (UKHab Ltd., 2023), and as such, this has been reflected on and appropriate changes have been made. This was chosen as an appropriate habitat categorisation system as it fits within the Biodiversity Metric 4.0 calculation. The habitat definitions used were based on those identified during the walkover to undertake the condition assessment.

A condition assessment, in line with the Biodiversity Metric 4.0 Technical Supplement, was carried out on site on the 7th March 2023. The area of identified habitats is calculated in hectares (ha), ignoring linear features or ditches (the area is measured to the centre line of such features). The length of linear features is measured separately in kilometres (km). The dominant habitat type was selected, according to those defined by UKHab Ltd (2023). Where there was disparity between the UK classification for habitat type and those present within the Biodiversity Metric 4.0 calculator tool, this was noted within the condition assessment tables.

2.2 Habitat Distinctiveness

Each habitat was assigned a score for distinctiveness, according to the Biodiversity Metric 4.0 calculator tool and Technical Supplement (Natural England, 2022). This ranged from Poor - High for most habitats, or Not Applicable (e.g. Developed Land – Sealed Surface). Using the tool, habitats were assigned a score based on their distinctiveness.

2.3 Habitat Condition

The condition of each habitat was assessed following criteria set out in the Biodiversity Metric 4.0 Technical Supplement (Natural England, 2022), which includes detailed assessment criteria for different habitats. Full results of the condition assessments can be found within **Section 3.0**. The condition of each habitat was assessed individually on site, but was found to be the same for each type across the site. Therefore, the results of the habitat condition for each habitat are grouped together for each habitat.

2.4 Limitations

There were not considered to be any significant limitations on the results of the habitat survey with all areas of the site accessible.

3.0 EXISTING HABITATS

Detailed information on the existing habitats can be found within the Preliminary Ecological Appraisal Report (Ecosupport, 2023). The following habitats were found within the site itself at the time of the walkover during 7th March 2023 (according to UKHab habitat types):

- Modified Grassland – g4
- Building – u1b5
- Developed Land – Sealed Surface
- Artificial unvegetated – unsealed surface (u1c)
- Line of trees mapped under Other Woodland – Mixed (w1h) (secondary habitat code 33)
- Mixed Scrub – h3h

Hedgerow (h2b), Line of Trees (secondary habitat code 33 under Other Woodland – Mixed (w1h)), and Mixed Scrub (h3h) were also present at the time of the walkover, but however have not been included as they are not being impacted upon by the proposals.

The following sections provide the condition assessment undertaken with reference to the Biodiversity Metric 4.0 Technical Supplement (Natural England, 2022).

3.1 Non-linear Habitats

All of the aforementioned habitats in Section 3.0 are non-linear habitats. The habitat types which were not subject to a condition assessment included developed land; sealed surface, buildings, and artificial unsealed; unvegetated surface as they have a predetermined condition of 'N/A – Other' or 'Condition Assessment N/A' under current guidance within Metric 4.0.

The following table outlines the condition assessment undertaken on the modified grassland, other woodland – mixed, and mixed scrub on the 7th March 2023.

Table 1. Condition assessment of the modified grassland on site.

Map location	Area of modified grassland on site.		
Area	0.04ha		
Distinctiveness	Low		
UK Hab Habitat Type	g4 – Modified Grassland		
Condition	Poor condition (score 1): Fails essential criterion A, B (regularly utilised and mown), & D (regular use)		
	Item	Condition Assessment Criteria	Pass/Fail
	A	There are 6-8 vascular plant species per m ² present, including at least 2 forbs (this 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	FAIL

		(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.	
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.	FAIL	
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.	PASS	
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.	FAIL	
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens) ² .	PASS	
F	Cover of bracken <i>Pteridium aquilinum</i> is less than 20%.	PASS	
G	There is an absence of invasive non-native plant species ³ (as listed on Schedule 9 of WCA ⁴).	PASS	

☐

Good condition (3): Passes 6 or 7 criteria including passing essential criterion A

☐

Moderate condition (2): Passes 4 or 5 criteria including passing essential criterion A

☒

Poor condition (1): "Passes 3 or fewer criteria;
OR
Passes 4 - 6 criteria (excluding criterion A)"

Table 2. Condition assessment of the other woodland - mixed on site.

Map location	Area of other woodland – mixed at the north of the site forming a line of trees
Area	0.027ha
Distinctiveness	High
UK Hab Habitat Type	w1h – Other Woodland - Mixed
Condition	Poor condition (score 2): Total indicator score of 26

Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator
A	Age distribution of trees	Three age-classes ¹ present.	Two age-classes ¹ present.	One age-class ¹ present.	1
B	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland ² .	Evidence of significant browsing pressure is present in 40% or less of whole woodland ² .	Evidence of significant browsing pressure is present in 40% or more of whole woodland ² .	3
C	Invasive plant species	No invasive species ³ present in woodland.	Rhododendron <i>Rhododendron ponticum</i> or cherry laurel <i>Prunus laurocerasus</i> not present, other invasive species ³ <10% cover.	Rhododendron or cherry laurel present, or other invasive species ³ >10% cover.	1
D	Number of native tree species	Five or more native tree or shrub species ⁴ found across woodland parcel.	Three to four native tree or shrub species ⁴ found across woodland parcel.	Two or less native tree or shrub species ⁴ across woodland parcel.	1
E	Cover of native tree and shrub species	>80% of canopy trees and >80% of understory shrubs are native ⁵ .	50 - 80% of canopy trees and 50 - 80% of understory shrubs are native ⁵ .	<50% of canopy trees and <50% of understory shrubs are native ⁵ .	3
F	Open space within woodland	10 - 20% of woodland has areas of temporary open space ⁶ . Unless woodland is <10ha, in which case 0 - 20% temporary	21 - 40% of woodland has areas of temporary open space ⁶ .	<10% or >40% of woodland has areas of temporary open space ⁶ . But if woodland <10ha has <10% temporary open space, please see	3

			open space is permitted ⁷ .		Good category ⁷ .		
	G	Woodland regeneration	All three classes present in woodland ⁸ ; trees 4 - 7 cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland ⁸ .	No classes or coppice regrowth present in woodland ⁸ .	1	
	H	Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback ⁹ .	11% to 25% mortality and/or crown dieback or low-risk pest or disease present ⁹ .	Greater than 25% tree mortality and or any high-risk pest or disease present ⁹ .	3	
	I	Vegetation and ground flora	Recognisable NVC plant community ¹⁰ at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community ¹⁰ at ground layer present.	No recognisable woodland NVC plant community ¹⁰ at ground layer present.	2	
	J	Woodland vertical structure	Three or more storeys across all survey plots or a complex woodland ¹¹ .	Two storeys across all survey plots ¹¹ .	One or less storey across all survey plots ¹¹ .	1	
	K	Veteran trees	Two or more veteran trees ¹² per hectare.	One veteran tree ¹² per hectare.	No veteran trees ¹² present in woodland.	1	
	L	Amount of deadwood	50% of all survey plots within the woodland parcel have	Between 25% and 50% of all survey plots within the woodland	Less than 25% of all survey plots within the woodland parcel have	2	

			deadwood, such as standing deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities ¹³ .	parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities ¹³ .	deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities ¹³ .	
	M	Woodland disturbance	No nutrient enrichment or damaged ground evident ¹⁴ .	Less than 1 hectare in total of nutrient enrichment across woodland area and or less than 20% of woodland area has damaged ground ¹⁴ .	More than 1 hectare of nutrient enrichment and or more than 20% of woodland area has damaged ground ¹⁴ .	3
☐ Good condition (3): Total score >32 (33 to 39) ☒ Moderate condition (2): Total score 26 to 32 ☐ Poor condition (1): Total score <26 (13 to 25)						

Table 3. Condition assessment of the mixed scrub on site.

Map location	Area of mixed scrub on site.		
Area	0.008ha		
Distinctiveness	Medium		
UK Hab Habitat Type	h3h – Mixed Scrub		
Condition	Poor condition (score 1): Fails criterion B (same age range), C (Cherry Laurel present), and D (no developed edge).		
	Item	Condition Assessment Criteria	Pass/Fail
	A	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. At least 80% of scrub is native, and there are at least three	PASS

		native woody species ¹ , 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).	
	B	Seedlings, saplings, young shrubs and mature (or ancient or veteran ²) shrubs are all present.	FAIL
	C	There is an absence of invasive non-native plant species ³ (as listed on Schedule 9 of WCA4) and species indicative of sub-optimal condition ⁵ make up less than 5% of ground cover.	FAIL
	D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	FAIL
	E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	PASS
☐ Good condition (3): Passes 5 criteria ☐ Moderate condition (2): Passes 3 or 4 criteria ☒ Poor condition (1): Passes 2 or fewer criteria			

3.2 Linear Habitats

The line of trees has been mapped as w1h Other Woodland – Mixed due to the number and density of trees. No linear habitats were identified on site during the time of the walkover and condition assessment on the 7th March 2023.

4.0 PROPOSED CREATED HABITATS & NET GAIN ASSESSMENT

4.1 On-site Proposals

Following consultation with Bursledon Parish Council, in order to minimise the loss of biodiversity on site, the following habitats are being provided / created (approximate spatial extent shown in the UK Habs map appended):

- Urban Trees – 4 trees, categorised as ‘small’ will be planted across the site which was measured at 0.0163ha using the ‘Urban Tree Helper’ within the 4.0 metric.
 - Recommended species planting includes Alder (*Alnus glutinosa*), Beech (*Fagus sylvatica*), Blackthorn, Hawthorn, Hazel, Oak, Wild Cherry (*Prunus avium*), Dog Rose (*Rosa canina*), Crab Apple (*Malus sylvestris*), Dog Wood (*Cornus sanguinea*), Elder (*Sambucus nigra*), Field Maple (*Acer campestre*), Guelder Rose (*Viburnum opulus*) and Small-leaved Lime (*Tilia cordata*).
- Retention of existing w1h Other Woodland – Mixed (Line of trees) and h3h Mixed Scrub.

4.1.1 Metric Calculation Conclusion

Following the incorporation of the above measures into the Defra 4.0 metric, **on site there is a net gain of +10.27% in habitats (or +0.03 habitat units) and the trading rules are satisfied (Fig 3)**. Therefore, no additional measures are required in regards to achieving a biodiversity net gain on site.

Figure 3. Screenshot of the ‘headline results’ output from the BNG assessment undertaken for the site using the Defra 4.0 metric.

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.03
	Hedgerow units	0.00
	Watercourse units	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	10.27%
	Hedgerow units	0.00%
	Watercourse units	0.00%
Trading rules satisfied?	Yes ✓	

5.0 HABITAT MANAGEMENT

5.1 Protection of Retained Habitats

All the existing mixed scrub and other woodland - mixed to be retained will be protected from damage during the works. All the site boundaries including the buffers outside the area of impact will be fenced using Heras fencing or similar to prevent access by machinery. Where larger trees are present, they will be protected using standard arboricultural tree protection measures which include protection of the canopy and prevents root compaction.

This will also provide protection for wildlife species that may be using the margins of the site including bats, invertebrates and other mammals. No vehicles will enter the protective ring fencing and no materials will be stored within their circumference. All protective fencing must be in place prior to any construction machinery arriving on site, before any works on site get underway, and will remain in place until all work is completed. This will minimise the level of disturbance within the boundary habitat / buffer areas during the works and ensure the habitats and any wildlife species that may be using them are protected.

5.2 Individual (Urban) Trees

Recommended species planting includes 4 new native trees -such as Alder (*Alnus glutinosa*), Beech (*Fagus sylvatica*), Blackthorn, Hawthorn, Hazel, Oak, Wild Cherry (*Prunus avium*), Dog Rose (*Rosa canina*), Crab Apple (*Malus sylvestris*), Dog Wood (*Cornus sanguinea*), Elder (*Sambucus nigra*), Field Maple (*Acer campestre*), Guelder Rose (*Viburnum opulus*) and Small-leaved Lime (*Tilia cordata*).

These trees will require additional management to ensure that they remain in good condition and develop correctly. Weeding will be undertaken around the base of the trees in all years. Wood chips or raked hay can be used to suppress weed growth, if desired, if deposited around the base of the scattered trees as mulch. Trees that are fruiting will not be cut to ensure the formation of fruiting bodies.

Tree planting: Planting will be carried out in the first year. The best time to plant is late autumn and it is recommended to avoid freezing temperatures or heat. Rootgrow or Bonemeal will be applied to the new plants to encourage healthy root growth.

Years 1-2: The newly planted trees will be inspected annually to assess their condition. These monitoring visits will assess the general health of the trees and determine if any remedial action is required. Any plants that are removed, die or become seriously damaged or defective shall be replaced like for like in the next planting season.

Years 3-5: The trees will be subject to light pruning as required in October to ensure that they are developing healthy growth forms. Dead or diseased trees will be replaced as outlined in Years 1 and 2.

5.3 Safeguarding

The developer and project manager will be responsible for briefing all site personnel of the ecological sensitivities of the site and implementing the mitigation measures outlined within **Section 5.1**. If any

protected species are encountered during the construction works, it will be the responsibility of the project manager to cease works and immediately contact an ecologist for advice.

5.4 Post-Construction Habitat Creation

Table 3 below depicts the indicative timings associated with the habitat creation to be undertaken after all construction works on site have been completed. This is considered to be year 1 of the management plan. For those activities that can be undertaken at any time of year, the earliest possible time is recommended. Each area will be created at different times due to the phased nature of the project.

5.5 Compliance Check & Management Responsibilities

Bursledon Parish Council will assume responsibility for the management and maintenance of the newly created habitats. When required, responsibility will include ensuring all management works are completed and qualified ecologists, arborists or landscape managers are contracted, etc. Upon the transfer of land, the new landlords shall bear responsibility for the management and maintenance of habitats within their curtilage. An annual management timeline of all habitats has been provided in **Table 4** and management works should continue in perpetuity.

It is understood that Bursledon Parish Council receive biannual tree reports undertaken CBA Trees. As such, this formal review will act as a compliance check, outlining recommendations on further management and monitoring as and when required.

Table 4. Schedule of habitat retention and creation works to be carried out in first year (as per **Sections 4.0 and 5.0**).

General Activity	Specific Activity	Dates / Timing	Description
Habitat retention Other Woodland – Mixed Mixed Scrub (Sections 4.1 & 5.1)	Installation of post and rail fence for protection	Anytime	Post and rail fences will be installed around the retained trees and scrub to prevent public access and to prevent them from damage during works.
Habitat creation Individual Urban Trees (Sections 4.1 & 5.2)	Planting	Late Autumn ideally, in suitable weather	- Native tree species will be planted across site. - Rootgrow or Bonemeal will be applied to the new plants to encourage healthy root growth.
	Year 1 Management	Anytime	- The newly planted trees will be inspected to assess their condition and determine if any remedial action is required. - Any plants that are removed, die or become seriously damaged or defective shall be replaced like for like in the next planting season.

5.6 Years 2 – 30 Management / Monitoring Table

Once the initial works covering the first year of management / monitoring have been completed as outlined in **Table 4**, the longer-term management objectives for the ecological features on site will need to be implemented (which will be as and when required following recommendations provided by CBA Trees). **Table 5** below provides a brief overview of the recommended actions required and the timings of when they should be complete (covering years 2– 30 post construction).

Table 5. Schedule of monitoring and management in Years 2 – 30 for all habitats (as per **Sections 4.0 and 5.0**).

General Activity	Specific Activity	Dates / Timing	Description
Individual (Urban) Trees (Sections 4.1 & 5.2)	Years 1 - 2 Management	Anytime (as and when required recommended by CBA Trees)	- The newly planted trees will be inspected annually to assess their condition. These monitoring visits will assess the general health of the trees and determine if any remedial action is required. - Any plants that are removed, die or become seriously damaged or defective shall be replaced like for like in the next planting season.
	Years 3 – 5 Management	October (as and when required recommended by CBA Trees)	- The trees will be subject to light pruning as required to ensure that they are developing healthy growth forms. - Dead or diseased trees will be replaced as outlined in Years 1 and 2.

6.0 REFERENCES

Natural England (2022). *The Biodiversity Metric 4.0 (JP039)*. Available from: <http://publications.naturalengland.org.uk/publication/6049804846366720>

Panks, S., et al (2022) Biodiversity metric 4.0: Auditing and accounting for biodiversity – User Guide. Natural England

UKHab Ltd. (2023). *UK Habitat Classification – Habitat Definitions Version 2.0* (July 2023).



Legend

 Site boundary

 Modified grassland (g4)

 Woodland (w)
Secondary code:
Line of trees (33)

 Mixed scrub (h3h)

 Buildings (u1b5)

 Artificial unvegetated unsealed surface (u1c)



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Map	UK Habs Map
Site	Long Lane Pavilion
Client	Burseldon Parish Council
Date	08/11/2023
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Legend

- Site boundary
- Modified grassland (g4)
- Woodland (w)
Secondary code:
Line of trees (33)
- Hedgerow (h2)
- Mixed scrub (h3h)
- Developed land; sealed surface (u1b)
- Buildings (u15b)
- Artificial unvegetated unsealed surface (u1c)
- Trees



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